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ORNL-NSIC-69
UC-80—Reactor Technology

SAFETY-RELATED OCCURRENCES IN NUCLEAR FACILITIES AS REPORTED IN 1967 AND 1968

E. N. Cramer
and
W. R. Casto

NUCLEAR SAFETY INFORMATION CENTER

NSIC

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

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SAFETY-RELATED OCCURRENCES IN NUCLEAR FACILITIES
AS REPORTED IN 1967 AND 1968

E. N. Cramer and W. R. Casto

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JULY 1970

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1. General Safety Criteria
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3. Transportation and Handling of Radioactive Materials
4. Aerospace Safety
5. Accident Analysis
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 and Movement in the Environment
15. Environmental Surveys, Monitoring, and Radiation Exposure of Man
16. Meteorological Considerations
17. Operational Safety and Experience
18. Safety Analysis and Design Reports
19. Radiation Dose to Man from Radioactivity Release to the Environment
20. Effects of Thermal Modifications on Ecological Systems
21. Effects of Radionuclides and Ionizing Radiation on Ecological Systems

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Nuclear Safety Information Center
Oak Ridge National Laboratory
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Oak Ridge, Tennessee 37830

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PUBLICATION DATE

21408

RABIN SA + ATRAZ BG + BADER MB + BUSBOOM HJ + HAZEN VF

EXAMINATION AND EVALUATION OF RUPTURE IN EVESR SUPERHEAT FUEL ROD WITH
0.012-INCH-THICK INCOLOY-800 CLADDING

GENERAL ELECTRIC CO., SUNNYVALE, CALIF. ADVANCED PRODUCTS OPERATION
GEAP-5416 +. 72 PAGES, FIGURES, TABLES, REFERENCES, JANUARY 1967

PREMATURE FAILURES WERE OBSERVED IN ONE 0.008-IN.-WALL ROD AND IN
ONE 0.012-IN.-WALL ROD OF THE MARK-III EXPERIMENTAL FUEL. CLADDING
IS INCOLOY-800. FAILURES WERE IN REGION OF MAXIMUM POWER IN PEAK-
POWER ROD. MOST REASONABLE EXPLANATION IS LOW-CYCLE FATIGUE,
ACCELERATED BY HIGHER-THAN-DESIGN CLADDING TEMPERATURES. NO SIGNS
OF RAPID CORROSION, SUCH AS HAVE BEEN ASSOCIATED WITH TYPE-304 SS,
WERE FOUND.

ABSTRACT
OF ORIGINAL
DOCUMENT

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

*FAILURE, FUEL ELEMENT + CLAD + FAILURE, FATIGUE + INCONEL + REACTOR, INTERNAL
SUPERHEAT + THERMAL MECHANICAL EFFECT + VESR (ISR)

DOCUMENT AVAILABILITY AND PRICE

CORPORATE
AUTHOR

REPORT NUMBER

KEY WORDS - LISTED ALPHABETICALLY IN THE
KEYWORD INDEX WITH THE ACCESSION
AND PAGE NUMBER

ABSTRACT

Four hundred and sixty-three occurrences that were reported in 1967 and 1968 in material entering the AEC Public Document Room, Washington, D. C., or the Nuclear Safety Information Center, Oak Ridge, Tennessee, are abstracted. Occurrences were selected with the subjective judgment that a given happening may indicate the need for better administrative control or hardware. For convenience, the information was organized into the following sections: Reactor Occurrences: BWR, PWR, Non-Water Power Reactors, Research and Test Reactors; Radiography Occurrences; Other Facilities Occurrences; Miscellaneous Occurrences.

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Introduction

In 1968 Nuclear Safety published an article entitled "Safety Related Occurrences in Reactor and Radioactivity-Handling Operations as Reported in 1966" as the first of a series.¹ It was a summary of information from both AEC-contractor and AEC-licensed operations stored in the computer file of the Nuclear Safety Information Center (NSIC). With the growth of the industry, much more information became available for the 1967-1968 period making the compilation an appropriate one for the ORNL-NSIC report series. A selected cross section of the occurrences continues to be included in each issue of Nuclear Safety. Also the Atomic Energy Commission periodically publishes compilations of reactor operating experiences as ORNL-NSIC reports entitled "Abnormal Reactor Operating Experiences."^{2,3} Although both of these other methods for making safety experience information available use essentially the same basic sources for material, neither contains the large number of occurrences that are made available in this report. In other words, there is more space available than in Nuclear Safety and a broader spectrum of occurrences is covered than in "Abnormal Reactor Operating Experiences." It is planned to issue this series of reports on an annual basis starting with 1969 experiences.

How the Information was Compiled

Specialists at NSIC read all types of operating and incident reports, digest the contents, and prepare abstracts with keywords for computer storage and retrieval. For the present summary, the computer was programmed to print all abstracts for calendar years 1967 and 1968

which contained "incident" or "failure" or "exposure" as keywords. Abstracts included in this report were then selected from the large number printed by the computer.

The rules for incident reporting by AEC contractors are covered in the operating contract and the AEC Manual.⁴ Facility licensees are required by Part 20, Title 10, of the Code of Federal Regulations⁵ to report to the AEC Division of Compliance "any incident that may have caused, or threatens to cause, exposures greater than a one-year allowable dose, radioactive material releases (averaged over one day) with concentrations above 500 MPC, loss of one day or more of facility operation, or property damage in excess of \$1000." These criteria therefore define incidents that must be reported. Occurrences that need not be reported, then, are those which result in lesser effects. Both types of reports are included in this compilation because they all illustrate errors and/or flaws, with differences being those of degree of consequence rather than of importance. In addition, each operating license or authorization may require periodic operating reports, and reporting on technical specifications violations, tests to show compliance with technical violations, significant plant or procedure changes, and occurrences or conditions that prevented or could have prevented a nuclear system from performing its safety function.

The abstracts compiled in this report are taken from operations reports and notification letters from facility operators filed in the AEC Public Document Room. Operations reports of many of the AEC-owned reactors located at National Laboratories, however, are published

for Internal Use Only and are thus excluded from references in open-literature publications or in NSIC computer searches. This compilation must therefore be considered as a partial summary that covers only the material entering the AEC Public Document Room and/or NSIC.

Selection of Occurrences for Inclusion in this Compilation

Occurrences have been selected for this report without regard to fixed damage criteria, but rather with subjective judgment that a given occurrence may indicate a potential unforeseen pathway for radioactivity releases or a potential for similar occurrences elsewhere, or to indicate the need for better administrative control or mechanical devices. We can all profit from the mistakes of others so long as the people reporting the occurrences indicate fully the situation, the causes, and proper corrective action. In addition, the report must be made in such a manner that information may be passed on to others at facilities where similar situations may exist.

The occurrences in all sections are listed alphabetically by organization name. Within each organization the listing is chronological. The information was taken from the letters or reports listed following each description. All letters are available at the AEC Public Document Room, and they are identified here by name or series, corporate affiliation, docket or license number, and date. The few AEC letters are further identified by name and affiliation of receiver. Neither interpretations nor conclusions by the compiler are included in the text. In most cases the significant wording of the original author is retained, with only enough paraphrasing to make a readable condensation.

An index to the abstracts has been prepared by alphabetizing all NSIC keywords that were assigned to any of the abstracts.

References

1. E. N. Cramer, "Safety-Related Occurrences in Reactor and Radio-activity Handling Operations as Reported in 1966," Nuclear Safety, 9(3): 249-266 (May-June 1968).
2. "Abnormal Reactor Operating Experiences," USAEC Report ORNL-NSIC-17, USAEC Division of Operational Safety, August 1966.
3. "Abnormal Reactor Operating Experiences 1966-1968," USAEC Report ORNL-NSIC-64, USAEC Division of Operational Safety, October 1969.
4. AEC Manual, Chapter 0502, Reporting and Investigating Accidents and Radiation Exposures; Chapter 0703, Notification, Investigation, and Reporting of Incidents Requiring Immediate Notice to Headquarters.
5. Code of Federal Regulations, Title 10, Part 20, Paragraph 403.

I. REACTOR OCCURRENCES

A. BWR

16522
SELECTED BIG ROCK POINT OPERATING EXPERIENCE
CONSUMERS POWER COMPANY, CHARLEVOIX, MICHIGAN
17 PAGES, JANUARY 1967, DOCKET NO. 50-155, FROM BIG ROCK POINT MONTHLY OPERATING REPORT NO. 52

REACTOR SCRAMMED ON JANUARY 20 DUE TO PRESSURE TRANSIENT CAUSED BY ERRATIC IPR. STARTUP WAS DELAYED WHEN ROD E-4 COULD NOT BE WITHDRAWN. A 1/2-IN. HEX NUT WAS FOUND IN THE VESSEL. PRELIMINARY MEASUREMENTS SHOWED VERY LITTLE INCREASE IN CRUD DEPOSIT ON D-2 AND D-19.

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

BIG ROCK POINT (BWR) + REACTOR, BWR + REACTOR TRANSIENT + FAILURE, SCRAM MECHANISM + *REPORT, OPERATIONS SUMMARY

17513
BIG ROCK POINT ASSERTS MANUAL/AUTO OPERATION OF TURBINE BYPASS VALVE IS NOT IN TECH. SPECS.
CONSUMERS POWER COMPANY, JACKSON, MICHIGAN
2 PAGES, JUNE 23, 1967, DOCKET NO. 50-155, BIG ROCK POINT NUCLEAR REACTOR

AFTER NOVEMBER 1966, THE MAIN STEAM BYPASS VALVE WAS OPERATED MANUALLY ABOVE 50 MW(E), AS EXPERIENCE INDICATES THAT THE BYPASS VALVE WILL PROBABLY NOT PREVENT A SCRAM AT LOAD REJECTIONS ABOVE 50 MW, PENDING FURTHER TESTS AND ADJUSTMENTS. A THOROUGH TEST PROGRAM IS UNDESIRABLE DUE TO THE EFFECT OF THERMAL TRANSIENTS ON THE FUEL FAILURES THAT HAVE BEEN EXPERIENCED ON THE STAINLESS STEEL AND R AND D FUELS. A BACKUP STATION POWER SUPPLY (A 46-KV LINE) AND AN ISOLATION VALVE (JUST BEFORE THE BYPASS VALVE) ARE TO BE INSTALLED DURING THE NEXT REFUELING, BECAUSE OF THE AUGUST 8, 1966, OCCURRENCE.

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

BIG ROCK POINT (BWR) + REACTOR, BWR + *EMERGENCY POWER, ELECTRIC + FAILURE, FUEL ELEMENT + *CONTROLLER + CONTAINMENT ISOLATION + COMPLIANCE + ELECTRIC POWER, NORMAL + TECHNICAL SPECIFICATIONS + *VALVE

17135
DE WITT RB + BIGGS RR
MAINTENANCE EXPERIENCE. REACTOR RECIRCULATING PUMPS
CONSUMERS POWER COMPANY, CHARLEVOIX, MICHIGAN
CONF-670-713 +. 10 PAGES, 4 FIGURES, ABSTRACT IN ANS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 9, (JULY 1967), PAPER PRESENTED AT THE CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

ORIGINAL SHAFT ROTATING-SEALS WERE STELLITE, REPLACED AFTER 6000 HR WITH SAPPHIRE OR TUNGSTEN CARBIDE AFTER AN ELECTROLYTIC CELL WAS FOUND WHEN PUMPS WERE IDLE. AFTER 16,000 HR, THE TUNGSTEN CARBIDE SEALS FAILED ON STARTUP AFTER REFUELING. PLANT MAINTENANCE MEN HAD THEIR 3-R/QTR LIMIT, SO OTHERS WERE CALLED IN. CARBIDE SEAL HAD BROKEN, SCORING THE SHAFT, SO WHOLE IMPELLER WAS REMOVED. DECONTAMINATION REDUCED FROM 20 R/HR TO 9 R/HR, AND IMPELLER PLACED IN SHIELDED WATER TANK. THREE GROUPS OF MEN WERE USED, EACH TAKING ABOUT 2.5 R. DURING CONSTRUCTION, PLANT LAYOUT SHOULD BE EXAMINED TO REDUCE NEEDLESS EXPOSURE. DURING MAINTENANCE, MODIFICATION AND RECORDS SHOULD REDUCE FUTURE RADIATION. MANPOWER WITH SKILLS AND LOW EXPOSURE MUST BE AVAILABLE FROM OUTSIDE PLANT.

BIG ROCK POINT (BWR) + REACTOR, BWR + *MAINTENANCE AND REPAIR + OPERATING EXPERIENCE SUMMARY + *PUMP + *RADIATION SAFETY AND CONTROL

19274
14 REM BETA DOSE TO OPERATOR CHECKING OFF-GAS SYSTEM RUPTURE DIAPHRAGM
CONSUMERS POWER CO., CHARLEVOIX, MICHIGAN
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 22 THRU 24, (NOV. 6, 1967), DOCKET NO. 50-155

(LETTER, SEPT. 25) ON SEPT. 12, 3 PERSONS CHECKED (AND BAGGED) THE LEAKY DIAPHRAGM. DOSE RATES WERE 15 R/HR CONTACT AND 5 AT 18 IN., WITH NO INCREASE DUE TO BETA. WORK WAS TIME-LIMITED TO 1.5 MIN. DOSIMETER READING WAS DOUBLED AS CUSTOMARY, BUT FILM BADGES SHOWED ONE MAN RECEIVED 14 REMS BETA, WITH A BETA-TO-GAMMA RATIO OF 7.0. OTHERS WERE ABOUT A RATIO OF 2, INCLUDING 3 TEST FILMS. SINCE WORKER WAS WEARING A 4.9-MM PLEXIGLAS-LENSE FULL-FACE MASK, HIS EYE-LENSE DOSE WAS NOT EXCEEDED. A PUFF OR A FAULTY FILM MAY BE BLAMED, BUT HE WILL BE CREDITED WITH DOSE.

BIG ROCK POINT (BWR) + REACTOR, BWR + DOSIMETRY, GENERAL + PERSONNEL PROTECTIVE DEVICE + *BETA EMITTER + *PERSONNEL EXPOSURE, RADIATION + *OFF GAS + INSTRUMENT, ABNORMAL INDICATION

22520

BIG ROCK POINT NON-COMPLIANCE CITATION

CONSUMERS POWER COMPANY, JACKSON, MICHIGAN

3 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(4), PAGES 20-22 (JANUARY 22, 1968), DOCKET 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

(LETTER, NOVEMBER 28.) CITATION FOR INADEQUATE SURVEY TO EVALUATE RADIATION HAZARDS IN THE SEPT. 12, 1967, TEMPORARY REPAIR OF A RUPTURED DIAPHRAGM IN THE AIR-EJECTOR SYSTEM. PROCEDURES DO NOT CONTAIN ADEQUATE INSTRUCTION ON EVALUATION OF RADIATION HAZARDS IN HIGH RADIATION AREAS. (REPLY, DEC. 22.) CASE WAS EXCEPTIONAL, DUE TO FIRST-TIME APPEARANCE OF A HIGH BETA/GAMMA RATIO (7 RATHER THAN 2 OR 3) IN PROCESS STEAM AND TO SPORADIC PUFFING OF THE OFF-GAS LEAK. *** INCIDENT WAS REVIEWED WITH STAFF, SECTION ADDED TO MANUAL, AND NEW RADIATION-SCREENING LEVELS ADDED. A BETA-DETECTING INSTRUMENT WILL BE USED ON ALL WORK IN MORE THAN 1 REM/HR. NEW SURVEY INSTRUMENTS AND CALIBRATION SOURCE WERE ORDERED.

BIG ROCK POINT (BWR) + REACTOR, BWR + FAILURE, OPERATOR ERROR + *MAINTENANCE AND REPAIR + *MONITOR, PERSONNEL + PROCEDURES AND MANUALS + BETA EMITTER + COMPLIANCE + SURVEY, RADIATION, GENERAL + *PERSONNEL EXPOSURE, RADIATION + *OFF GAS + FAILURE, ADMINISTRATIVE CONTROL

22828

BIG ROCK POINT CONTROL ROD JAMMED

CONSUMERS POWER COMPANY, JACKSON, MICHIGAN

2 PAGES, JANUARY 8, 1968, DOCKET 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

ON DECEMBER 25, 1967, ROUTINE EXERCISING OF PERIPHERAL DRIVE F5 SHOWED THAT THE ROD WOULD NOT WITHDRAW AFTER BEING INSERTED ONE NOTCH FROM ITS FULLY WITHDRAWN POSITION. IT WOULD INSERT, BUT APPARENTLY A FOREIGN OBJECT IN THE HOUSING CATCHES ON THE DRIVE-INDEX-TUBE NOTCHES. SINCE POWER HAS BEEN REDUCED TO 60 MWE TO CONSERVE REACTIVITY JUST BEFORE REFUELING, ROD HAS BEEN VALVED OUT OF SERVICE. SHUTDOWN-MARGIN CALCULATIONS SHOW REACTOR SUBCRITICAL AT LEAST 1% WITH ALL RODS IN BUT F-5 AND ADJACENT ONE WITHDRAWN.

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

BIG ROCK POINT (BWR) + REACTOR, BWR + SHUTDOWN MARGIN + *FAILURE, SCRAM MECHANISM

24201

GAYETER RL

BIG ROCK POINT INCORE INSPECTION

CONSUMERS POWER COMPANY, JACKSON, MICHIGAN

2 PAGES, MARCH 5, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGES 21-22 (MARCH 18, 1968) DOCKET 50-155

(LETTER, MARCH 5) ROD F-5 WAS JAMMED BY A STAINLESS-STEEL BOLT (FROM THE UPPER GRID PLATE) IN THE ROD-DRIVE-NOZZLE EXTENSION. DRIVE D-3 WAS JAMMED BY A PIECE OF STEEL, POSSIBLY FROM A FIELD MODIFICATION TO THE UPPER GRID. ONE OF THE SIX WEDGES AT THE LOWER THERMAL SHIELD WAS FOUND IN THE VESSEL BOTTOM. UNIDENTIFIED MONEL GASKET MATERIAL WAS FOUND WEDGED BETWEEN REACTOR VESSEL AND CORE-SUPPORT PLATE. A SMALL PIECE OF FLEXITALLIC GASKET FROM RECIRC. PUMP REPAIR OF MAY 1967 WAS REMOVED FROM THE REACTOR. VESSEL INTERNALS AND PRIMARY SYSTEM ARE IN GOOD CONDITION.

BIG ROCK POINT (BWR) + REACTOR, BWR + *PRESSURE VESSEL + INCIDENT, EQUIPMENT + FAILURE, SCRAM MECHANISM + *EXAMINATION

25305

RECOVERY OF BOLT HEAD FROM JAMMED BIG ROCK POINT CONTROL ROD DRIVE

CONSUMERS POWER COMPANY

2 PAGES, APRIL 23, 1968, LETTER TO P. A. MORRIS FROM R. L. HAUETER, DOCKET 50-155, TYPE--BWR, MFG--G.E., AE--BECHTEL

(LETTER TO DRL, APRIL 23) ON STARTUP APRIL 6 (FOLLOWING A TWO-DAY SHUTDOWN TO REINSTALL THE NO. 2 RECIRCULATION PUMP) ROD DRIVE B-4 WOULD NOT WITHDRAW FROM THE FULL-IN POSITION. AFTER SEVERAL ATTEMPTS, THE ROD BROKE LOOSE BUT APPEARED NORMAL. THE DRIVE WAS REMOVED, AND A HALF-INCH SS BOLT HEAD FOUND IN IT. THE BOLT HEAD READ ONLY 14 MR, AND ONLY 0.4 MR (MOSTLY ZN-65) AFTER DECONTAMINATION. THERE WAS NO EVIDENCE THAT IT CAME FROM REACTOR INTERVALS, AND PROBABLY CAME FROM EARLY TEST WORK WHERE TORQUE WRENCHES BROKE OFF INITIALLY INSTALLED UPPER-GRID BOLTS PRIOR TO INSTALLATION OF NEW ONES.

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

BIG ROCK POINT (BWR) + REACTOR, BWR + *FAILURE, SCRAM MECHANISM + *CORE COMPONENTS + FAILURE, INSTALLATION ERROR + OPERATING EXPERIENCE + OBSTRUCTION

21299

BONUS NUCLEAR POWER PLANT MONTHLY REPORT NO. 8

PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO

18 PAGES, 7 TABLES, AUGUST 1967, DOCKET NO. 115-4, TYPE--BWR, MFG--G.E., AE--JACKSON + MORELAND

RESULTS OF TESTS INDICATE THAT THE REDUCTION IN CIRCULATING FLOW IS REAL AND NOT A FALSE RECORDER INDICATION. A CORE-PLATE INSPECTION WILL BE MADE. DURING CONTROL-ROD-DROP TESTS, A SUPERHEATER RCD FAILED TO DROP DUE TO INTERFERENCE OF THE DRIVE-PACKAGE COVER, WHICH HAD BEEN IMPROPERLY PLACED.

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

BONUS (ISR) + CONTROL ROD + REPORT, OPERATIONS + REACTOR, INTERNAL SUPERHEAT + FAILURE, SCRAM MECHANISM + FAILURE, INSTALLATION ERROR + *FLOW ORIFICE

17839
 IRIARTE M
 BONUS PROPOSED CHANGE 2. REVISED PROCEDURE FOR DISCONNECTING CONTROL RODS
 COMMONWEALTH OF PUERTO RICO, PUERTO RICO WATER RESOURCES AUTHORITY
 3 PAGES, AUGUST 19, 1967, DOCKET NO. 115-4

BONUS REQUESTED CHANGE IN PROCEDURE DUE TO MODIFICATION OF CONTROL-ROD-RACK BUFFER UNIT. PURPOSE
 WAS TO ELIMINATE STRESSES DUE TO THERMAL EXPANSION, WHICH HAD CAUSED STRESS CORROSION AND
 CRACKING OF THE CONTROL-ROD-RACK ACME-THREADS.

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

BONUS (ISR) + *CONTROL ROD DRIVE + FAILURE, GENERAL + *PROCEDURES AND MANUALS + REACTOR, INTERNAL SUPERHEAT +
 THERMAL MECHANICAL EFFECT + CORROSION + *MODIFICATION, SYSTEM OR EQUIPMENT + TECHNICAL SPECIFICATIONS +
 SUPPORT STRUCTURE

24052
 SELECTED BONUS OPERATING EXPERIENCES
 PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO
 13 PAGES, 4 TABLES, SEPT. 1967, BONUS NUCLEAR POWER PLANT DRL MONTHLY REPORT, NO. 9, DOCKET NO. 115-4, TYPE--
 BWR, MFG--C.E., AE--JACKSON + MORELAND

DURING INSPECTION OF THE CONTROL RODS, A 6-SQUARE-INCH PIECE OF A CONTROL ROD WAS FOUND ON THE
 CORE-STRUCTURE COVER PLATE. MEASUREMENTS OF SHUTDOWN MARGIN AND CONTROL-ROD WORTH DISCUSSED.
 TESTS CONDUCTED ON RECIRCULATION FLOW MEASUREMENT SYSTEM TO VERIFY THAT REDUCTIONS IN FLOW WERE
 REAL. AN AUXILIARY HOIST PUSH-BUTTON CONTROL UNIT FAILED BY STICKING IN THE UP POSITION. THE
 POWER TO THE UNIT WAS DISCONNECTED, AND A BROKEN ACTUATOR WAS REPLACED.

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

BONUS (ISR) + CONTROL ROD + CONTROL ROD WORTH + *FAILURE, EQUIPMENT + REPORT, OPERATIONS + *SHUTDOWN MARGIN +
 MEASUREMENT, SUBCRITICALITY + REACTOR, INTERNAL SUPERHEAT + *FAILURE, SCRAM MECHANISM + *FUEL HANDLING
 MACHINE + INSTRUMENT, ABNORMAL INDICATION + FLOW, RECIRCULATION

24053
 SELECTED BONUS OPERATING EXPERIENCE
 PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO
 12 PAGES, 3 TABLES, BONUS NUCLEAR POWER PLANT DRL MONTHLY REPORT NO. 10, OCTOBER 1967, DOCKET NO. 115-4, TYPE--
 BWR, MFG--C.E., AE--JACKSON + MORELAND

INSPECTION OF CORE PERFORMED TO DETERMINE CAUSE OF REDUCTION IN RECIRCULATION FLOW. HIGH-COPPER-
 CONTENT CRUD OBSERVED ON CORE-STRUCTURE-BOX ORIFICES AND FUEL-ASSEMBLY END PIECES. CONTROL-ROD
 INSPECTIONS DISCUSSED. BELLEVILLE SPRINGS (EMERGENCY SHOCK ABSORBERS) ON ROD NO. 9 FOUND
 FLATTENED DUE TO POOR HYDRAULIC SNUBBING ACTION CAUSED BY LOW OIL VISCOSITY.

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

BONUS (ISR) + CONTROL ROD + REPORT, OPERATIONS + REACTOR, INTERNAL SUPERHEAT + COPPER + *CRUD + FUEL ELEMENT +
 SHOCK ABSORBER + FAILURE, SCRAM MECHANISM + EXAMINATION + *SURFACE FILM DEPOSIT + CORE COMPONENTS

25523
 BONUS EXPERIENCE WITH FUEL ELEMENT SCALE
 PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO
 10 PAGES, 2 TABLES, BONUS NUCLEAR POWER PLANT, DRL MONTHLY REPORT NO. 11, NOVEMBER 1967

REACTOR DID NOT OPERATE DURING NOV. DATA INDICATES PRIMARY-WATER-IMPURITY CONCENTRATION IS
 HIGHEST AFTER A LONG SHUTDOWN (DUE TO CORROSION PRODUCTS FROM THE COPPER-ALLOY TUBES OF FEEDWATER
 HEATERS). FUEL-ELEMENT INSPECTION BY G.E. INDICATE (APED-5392) FLOW REDUCTION HAS BEEN CAUSED BY
 CRUD DEPOSITS (COPPER OXIDE, 75 TO 86%, FROM FEEDWATER HEATERS) IN COOLANT-ENTRY FLOW HOLES,
 CAUSING A 35-55% REDUCTION OF FLOW AREA ON INDIVIDUAL ELEMENTS. HEATERS TO BE FILLED WITH 220-
 PPM HYDRAZINE SOLUTION DURING SHUTDOWN TO REDUCE CORROSION. CONTAINMENT LEAK-TEST DATA SHOWS
 LEAK RATE OF 0.0141/DAY.

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

BONUS (ISR) + CONTAINMENT, LOW PRESSURE + REPORT, OPERATIONS + OXIDE + REACTOR, INTERNAL SUPERHEAT + TEST,
 LEAK RATE + COPPER + *HEAT EXCHANGER + *CORROSION + COOLANT CHEMISTRY + *FUEL ELEMENT + *SURFACE FILM DEPOSIT
 + *FLOW BLOCKAGE + OPERATING EXPERIENCE

25524
 SELECTED OPERATING EXPERIENCES AT BONUS
 PUERTO RICO WATER RESOURCES AUTHORITY, SAN JUAN, PUERTO RICO
 7 PAGES, 2 TABLES, BONUS NUCLEAR POWER PLANT DRL MONTHLY REPORT NO. 12, DECEMBER 1967

LOAD CENTER NO. 4 WAS REMOVED FROM SERVICE WHEN ROUGH SEAS FLOODED AREA WHERE LOCATED. MAGNETIC
 CLUTCH OF CONTROL-ROD-DRIVE 6 WAS DEFECTIVE. ABNORMAL OSCILLATIONS ON PERIOD CHANNEL CAUSED BY
 DEFECTIVE LOW-LEVEL AMPLIFIER. LIQUID-POISON SYSTEM TESTED. MINOR DEFICIENCIES FOUND WITH
 POSITION-INDICATION SWITCHES. TWELVE CONTROL RODS WERE MODIFIED TO ADD A SPRING TO EXERT TORQUE
 IN SCRAM DIRECTION, A DECELERATING DEVICE TO LIMIT ITS VELOCITY, AND A SNUBBER-COCKING SPRING.

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

BONUS (ISR) + CONTROL ROD DRIVE + OCEAN AND SEA + REPORT, OPERATIONS + POISON, SOLUBLE + REACTOR, INTERNAL
 SUPERHEAT + ELECTRIC POWER, GENERAL + FAILURE, INSTRUMENT + INSTRUMENT, AMPLIFIER + MODIFICATION, SYSTEM OR
 EQUIPMENT + TEST, SYSTEM OPERABILITY + FAILURE, SCRAM MECHANISM + INSTRUMENT, PERIOD + FLOOD

21904

LETTER TO DRL - BONUS RECIRCULATION FLOW REDUCTION AND CONTROL ROD EMBRITTLEMENT
 PUERTO RICO WATER RESOURCES AUTHORITY
 7 PAGES, DOCKET 115-4, TYPE--BWR, MFG--C.E., AE--JACKSON + MORELAND, DECEMBER 8, 1967

REVIEWS THE HISTORY OF FLOW-REDUCTION PROBLEM. JANUARY 1966 INVESTIGATION RECOMMENDED FURTHER INSPECTION BUT WAS EXPLAINED AS INSTRUMENT PERFORMANCE UNTIL SUDDEN FLOW REDUCTION IN JULY 1967. INVESTIGATION REVEALED CRUD DEPOSITION ON THE LOWER PORTION OF BOILER FUEL ASSEMBLIES AND THE ORIFICE EXIT CHANNEL. THE CRUD BREAKS UP INTO A FINE POWDER AND CONSISTS MAINLY OF COPPER OXIDE ORIGINATING FROM THE FEEDWATER HEATERS. *** ALSO, AN INSPECTION OF THE REACTOR B-SS CONTROL-ROD BLADES SHOWED THAT EMBRITTLEMENT OF ONE ROD OCCURRED SUCH THAT A PIECE FELL OFF DURING INSPECTION. REPLACEMENT RODS WITH HAFNIUM POISON SECTIONS WERE ORDERED. NO. B-SS RODS WILL BE EXPOSED TO FLUX LEVELS GREATER THAN 3×10^{20} THI NVT.

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

BONUS (ISR) + BWRON + *CONTROL ROD + CONTROL ROD BURNUP + RADIATION DAMAGE + REACTOR, INTERNAL SUPERHEAT + STEEL, STAINLESS + *EMBRITTLEMENT + CRUD + FAILURE, SCRAM MECHANISM + *SURFACE FILM DEPOSIT + *FLOW ORIFICE + FLOW, RECIRCULATION

19787

DRESDEN 1, 1967 INSPECTIONS - CONTROL ROD DRIVES, FUEL, AND PRIMARY SYSTEM
 COMMONWEALTH EDISON COMPANY
 80 PAGES, FIGURES, TABLES, JUNE 2, 1967, DOCKET 50-10

ANOMALIES WERE FOUND IN 2 FUEL CHANNELS, FUEL ORIFICES WERE FOULED, 25 LEAKY FUEL ELEMENTS REMOVED, 28 REACTOR-HEAD INNER-CLAD DYE-CHECK ANOMALIES, AND AFTER ULTRASONIC TESTS 12 SIX-INCH, 1 FOUR-INCH, AND 3 THREE-INCH PIPE WELDS WERE REPAIRED. ***CRUD HAD JAMMED DRIVE C-9, AND A MISSING ROLLER PIN JAMMED DRIVE J-2. HISTORY OF DRIVE TROUBLES REVIEWED. ***MANY FUEL-CHANNEL CAPSCREWS WERE MISSING, AND SEVERAL TAB WELDS FAILED AFTER CHANNELS DROPPED.

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

REACTOR, BWR + *CONTROL ROD DRIVE + DRESDEN 1 (BWR) + *FAILURE, FUEL ELEMENT + FAILURE, PIPE + *WELDS + *FUEL ELEMENT + REPORT, OPERATIONS ANALYSIS + *PIPING + TEST, NONDESTRUCTIVE + FAILURE, SCRAM MECHANISM + *EXAMINATION + MAIN COOLING SYSTEM

19788

SUMMARY OF DRESDEN 1 CYCLE 4 FLOW DECREASE AND ASSEMBLY CLEANUP
 COMMONWEALTH EDISON COMPANY
 3 PAGES, JULY 1967, DOCKET 50-10

A GRADUAL INCREASE IN CORE PRESSURE DROP DURING CYCLES 3 (0.76 PSI/MONTH) AND 4 (0.43 PSI/MONTH) LED TO CLEANUP DURING REFUELING. CRUD WAS 79% CU, 14% MAGNETIC IRON OXIDE, AND 8% NI, FROM MONEL FEEDWATER HEATERS. CRUD THICKNESS APPROACHED 0.2 IN. IN ORIFICE AND NOSE CONE. WHEN GALLING PREVENTED REINSERTING ORIFICES, ELEMENT WAS INVERTED AND NOZZLES CLEANED. A FLOW-TEST FIXTURE WAS BUILT. CYCLE-V CORE IS EXPECTED TO HAVE AN AV. 3-5 PSI PRESSURE DROP (VS CYCLE-IV, 12 PSI). ***MCHF-RATIO CALCULATIONS STRONGLY SUPPORT VIEW THAT AT NO TIME DID THE RATIO APPROACH 1.0, ALTHO THE WORST CRUD OVERPOWER CALCULATION RUN LATER WITH MEASURED ELEMENT ΔP WAS MCHF RATIO OF 0.86.

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

ALLOY + REACTOR, BWR + DRESDEN 1 (BWR) + COPPER + HEAT EXCHANGER + *FUEL ELEMENT + REPORT, OPERATIONS ANALYSIS + *DNB + PRESSURE DROP + *SURFACE FILM DEPOSIT + FLOW ORIFICE + TUBING

19268

DRESDEN 1 SHUTDOWN TO INVESTIGATE FLAWS IN PRIMARY PIPING
 COMMONWEALTH EDISON CO., CHICAGO, ILLINOIS
 1 PAGE, ATOMIC ENERGY CLEARINGHOUSE 13(45), PAGE 12, (NOVEMBER 6, 1967), DOCKET NO. 50-10, LETTER FROM P. A. MORRIS, DRL, TO COMMONWEALTH EDISON

(LTR. OCT. 25) NOTES PA MORRIS (DRL) UNDERSTANDING OF SHUTDOWN FOR THOROUGH EXAMINATION OF PIPING, INCLUDING ULTRASONIC TEST OF ALL 6- AND 8-INCH PRIMARY PIPING THAT CANNOT BE ISOLATED BY VALVES. THESE FLAWS WERE RECENTLY DISCOVERED IN SECTIONS OF THE PRIMARY PIPING REMOVED EARLY IN 67.

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

REACTOR, BWR + DRESDEN 1 (BWR) + *FAILURE, PIPE + *FLAW + *PIPING + TEST, NONDESTRUCTIVE + *MAIN COOLING SYSTEM

19677

BEHNKE WB
 DRL CONCLUDE DRESDEN 1 MAY BE OPERATED FOLLOWING PRIMARY SYSTEM TESTS
 DIVISION OF REACTOR LICENSING
 2 PAGES, ATOMIC ENERGY CLEARINGHOUSE 13(46) PAGES 15-16 (NOVEMBER 13, 1967)

(LETTER, NOVEMBER 3) AFTER NOV. 1 MEETING WITH CE, GE, B AND W, AND BMI PERSONNEL, DRL LISTS 5 PREREQUISITS FOR RESUMING OPERATION. (1) HYDRO TEST ENTIRE PRIMARY COOLANT SYSTEM AT 1205 PSI. (2) TWO KNOWN FLAWS IN D RECIRC.-LOOP PIPING SHALL BE REMOVED (UNDER ASME CODE METHODS), OR LOOP ISOLATED. (3) CONTINUE PRESENT INTENSIFIED PROGRAM OF PRIMARY-SYSTEM SURVEILLANCE AND LEAK DETECTION. (4) CONTINUE PRESENT PROGRAM FOR PERIODIC NONDESTRUCTIVE TESTING OF PRIMARY PIPING SYSTEM. (5) SUBMIT A COMPLETE WRITTEN REPORT WITHIN 30 DAYS OF METALLURGICAL AND ULTRASONIC INSPECTIONS.

REACTOR, BWR + DRESDEN 1 (BWR) + FAILURE, PIPE + TEST, LEAK RATE + TEST, PROOF + *FLAW + TEST, NONDESTRUCTIVE + *MAIN COOLING SYSTEM + *SURVEILLANCE PROGRAM

25998
DRESDEN 1 CONTROL ROD DRIVE PROBLEMS
COMMONWEALTH EDISON COMPANY
10 PAGES, PAGES 8 THRU 17 OF DRESDEN 1 ANNUAL REPORT OF STATION OPERATION FOR 1967, JANUARY 23, 1968, DOCKET 50-10, TYPE--BWR, MFG--G.E., AE--BECHTEL

ELEVEN CONTROL-ROD DRIVES WERE REPLACED IN JANUARY BECAUSE OF PREVIOUS ABNORMALITIES (LONG INSERTION TIMES, JAMMING DUE TO FOREIGN MATERIAL IN DRIVES, WORN SEALS). LATER, 11 DIFFERENT RODS DISPLAYED ABNORMALITIES, DRIFTING OUT (4) OR DRIVING IN (1) WITHOUT SIGNAL, NOT DRIVING IN (2) OR NOT DRIVING OUT (1) WITH SIGNAL, AND POSITION INDICATOR SHOWING FULLY OUT WHILE INSTRUMENTATION SHOWING FULLY IN.

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

REACTOR, BWR + *CONTROL ROD DRIVE + DRESDEN 1 (BWR) + *FAILURE, SCRAM MECHANISM + REPORT, OPERATIONS SUMMARY + OPERATING EXPERIENCE

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

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

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

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

14637
WOLTER EE
IODINE RELEASE DURING ELK RIVER SYSTEM HEATUP
RURAL COOPERATIVE POWER ASSOCIATION
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(6) PAGES 20-21 (FEBRUARY 6, 1967) DOCKET NO. 115-1

(LETTER, JANUARY 18) ON SYSTEM HEATUP JANUARY 8, 1967, THE PRIMARY SYSTEM WAS VENTED BY HOSE FROM THE EMERGENCY CONDENSER TO THE OVERHEAD STORAGE TANK BELOW THE WATER LEVEL. THE VENTING OPERATION WAS TERMINATED AT 9-30 AM AFTER 3 HOURS, WHEN THE HOSE WAS DISCOVERED TO BE FREE IN THE TANK, RELEASING PRIMARY COOLANT TO THE CONTAINMENT VESSEL. I-131 RELEASE WAS 36 MICROCURIES AT ABOUT THE YEARLY AVERAGE RELEASE RATE.

REACTOR, BWR + ELK RIVER (BWR) + FISSION PRODUCT, IODINE + *FAILURE, OPERATOR ERROR + PROCEDURES AND MANUALS + SOURCE, CONTINUOUS + *INCIDENT, HUMAN ERROR

15050
RURAL COOPERATIVE POWER ASSOCIATIONS ELK RIVER REACTOR. FIFTY-FIRST MONTHLY OPERATING REPORT. AIRBORNE ACTIVITY AT ELK RIVER JAN. 8, 1967
RURAL COOPERATIVE POWER ASSOCIATION
COO-651-40 +. 28 PAGES, 4 FIGURES, JANUARY 1967, DOCKET NO. 115-1

THE PRIMARY SYSTEM WAS VENTED TO THE OVERHEAD STORAGE TANK BY A HOSE DURING WARMUP FOR HYDRO TEST. THE HOSE CAME OUT, SPILLING CONTAMINATED WATER. IODINE, COBALT, AND CESIUM WERE IDENTIFIED IN THE AIR AT LESS THAN THE MPC. ONE PERSON RECEIVED 1/100 THE I-131 BODY BURDEN.

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

AIRBORNE RELEASE + REACTOR, BWR + ELK RIVER (BWR) + *FAILURE, OPERATOR ERROR + PROCEDURES AND MANUALS + *INCIDENT, HUMAN ERROR + FAILURE, ADMINISTRATIVE CONTROL

29986
THIE JA
ELK RIVER REACTOR SAFETY ANALYSIS MONTHLY REPORT, NOVEMBER 1967
RURAL COOPERATIVE POWER ASSOCIATION, ELK RIVER, MINN.
JAT-67-11 +. 9 PAGES, NOVEMBER 1967, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

ION CHAMBER N-5 (INSTALLED SUMMER 1967) READING DRIFTS, AS MUCH AS 201 OVER 3 WEEKS. TURBINE AIR EJECTOR RADIATION READINGS PEAKING ON LOAD CHANGES INDICATE AN EVAPORATION LEAK AND PROBABLY A FUEL LEAK. 28 OLD FUEL ELEMENTS ARE AT 8320 MWD/T, ABOVE THE ESTIMATED THRESHOLD FOR LEAKERS.

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

REACTOR, BWR + ELK RIVER (BWR) + SAFETY REVIEW + REPORT, OPERATIONS ANALYSIS + FAILURE, CLADDING + OFF GAS + *INSTRUMENT, ABNORMAL INDICATION + INSTRUMENT, POWER RANGE + FAILURE, TUBING + STEAM GENERATOR + TURBINE

22523

WOLTER EE

ELK RIVER CITED FOR NON-COMPLIANCE

RURAL COOPERATIVE POWER ASSOCIATION, ELK RIVER, MINN.

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(4), PAGE 26 (JANUARY 22, 1968), DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

(LETTER, DEC. 4.) THREE ITEMS CITED AFTER AN OCT. 2-3 INSPECTION OF JULY 26 ACTIVITY - (1) EMERGENCY CORE-COOLING AND PRIMARY MAKEUP SYSTEM WERE IN CAPABLE OF INJECTING WATER INTO THE PRIMARY COOLING SYSTEM DURING 75% POWER OPERATION. (2) FORESEEABLE PLANT EMERGENCY NOT COVERED BY DETAILED WRITTEN PROCEDURES, ESPECIALLY SINCE THIS TYPE OF SITUATION HAD HAPPENED BEFORE. (3) TYGON TUBING WAS SUBSTITUTED FOR CARBON STEEL IN PRESSURE-RELIEF PIPING. *** ALSO NOTES POWER RAISED TO 100% TO RAISE THE APPARENT CORE WATER LEVEL AFTER A LOW-WATER-LEVEL ALARM.

*MAINTENANCE AND REPAIR + COMPLIANCE + *EMERGENCY PROCEDURE + TECHNICAL SPECIFICATIONS + PRESSURE RELIEF + FAILURE, ADMINISTRATIVE CONTROL + *COOLANT PURIFICATION SYSTEM + CORE REFLOODING SYSTEM + LEAK

24188

ELK RIVER SHUTDOWN BECAUSE OF COOLANT LEAK

RURAL COOPERATIVE POWER ASSOCIATION

1 PAGE, TWX TO AEC, MARCH 14, 1968, DOCKET 115-1, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

AT 1700 HOURS ON MARCH 13, DEPRESSURIZATION OF THE REACTOR WAS BEGUN, IN COMPLIANCE WITH TECHNICAL-SPECIFICATION SECTION 4.9 (REACTOR-VESSEL LEAKAGE-MONITORING SPECIFICATION). A DETAILED REPORT ALONG WITH A PROGRAM FOR REPRESSURIZING AND FURTHER TESTING WILL BE SUBMITTED.

REACTOR, BWR + ELK RIVER (BWR) + *PRESSURE VESSEL + FAILURE, PRESSURE VESSEL + OPERATING EXPERIENCE SUMMARY + INCIDENT, EQUIPMENT + MAIN COOLING SYSTEM + *LEAK

28034

ELK RIVER OPERATING EXPERIENCE

RURAL COOPERATIVE POWER ASSOCIATION

COO-651-63 +. 41 PAGES, FIGURES, TABLES, JULY 1968, DOCKET 115-1, TYPE--BWR, MFG-A.C., AE--SGT + LUNDY

REACTOR NOT OPERATED BECAUSE PRIMARY SYSTEM LEAK RATE TESTS CONTINUED USING SR-85 AND RB-86 TRACERS. WHEN RB-86 WAS INJECTED INTO PRIMARY SYSTEM WITH 1100 PSIG STEAM, THE REACTOR CAVITY WATER COLLECTION RATE INCREASED FROM 1500 TO 2100 ML/HR, BUT RB-86 NOT FOUND. STEAM WAS INJECTED INTO REACTOR CAVITY TO FLUSH OUT ANY TRACER DEPOSITED, CONDENSATE SHOWED BOTH RB AND SR TRACERS. ***PROCEDURES GIVEN FOR PERSONNEL AND FOR EMERGENCY AIR LOCK LEAK RATE TESTS. CONTAINMENT VESSEL WILL BE LEAK RATE TESTED NEXT. SHIELD BLOCKS ARE BEING REMOVED FOR VISUAL INSPECTION OF THE VESSEL BOTTOM.

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

REACTOR, BWR + ELK RIVER (BWR) + REPORT, OPERATIONS + PRESSURE VESSEL + FAILURE, PRESSURE VESSEL + *TEST, LEAK RATE + TRACER, RADIOACTIVE + CONTAINMENT AIR LOCK

21408

RABIN SA + ATRAZ BG + BADER MB + BUSBOOM HJ + HAZEL VE

EXAMINATION AND EVALUATION OF RUPTURE IN EVESR SUPERHEAT FUEL ROD WITH 0.012-INCH-THICK INCOLOY-800 CLADDING GENERAL ELECTRIC CO., SUNNYVALE, CALIF. ADVANCED PRODUCTS OPERATION

GEAP-5416 +. 72 PAGES, FIGURES, TABLES, REFERENCES, JANUARY 1967

PREMATURE FAILURES WERE OBSERVED IN ONE 0.008-IN.-WALL ROD AND IN ONE 0.012-IN.-WALL ROD OF THE MARK-III EXPERIMENTAL FUEL. CLADDING IS INCOLOY-800. FAILURES WERE IN REGION OF MAXIMUM POWER IN PEAK-POWER ROD. MOST REASONABLE EXPLANATION IS LOW-CYCLE FATIGUE, ACCELERATED BY HIGHER-THAN-DESIGN CLADDING TEMPERATURES. NO SIGNS OF RAPID CORROSION, SUCH AS HAVE BEEN ASSOCIATED WITH TYPE-304 SS, WERE FOUND.

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

CLADDING + *FAILURE, FUEL ELEMENT + REACTOR, INTERNAL SUPERHEAT + THERMAL MECHANICAL EFFECT + VESR (ISR) + FAILURE, FATIGUE + INCONEL

14898

EVESR FUEL FAILURE DUE TO STEAM FLOW REDUCTION

GENERAL ELECTRIC COMPANY, SAN JOSE

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(9) PAGES 6-7 (FEBRUARY 27, 1967) DOCKET NO. 50-183

(LETTER, FEBRUARY 6) DURING STRAIN-CYCLE TESTING OF A MARK-III FUEL ELEMENT, COOLANT FLOW WAS ACCIDENTALLY REDUCED MOMENTARILY WHILE INVESTIGATING A MALFUNCTIONING FLOW CONTROL VALVE. A FUEL-CLADDING FAILURE RESULTED. OPERATION WAS RESUMED AFTER INVESTIGATION, AND THE SUPERHEAT TEST PROGRAM TERMINATED ON FEBRUARY 1, 1967.

REACTOR, BWR + *FAILURE, FUEL ELEMENT + *FAILURE, OPERATOR ERROR + REACTOR, INTERNAL SUPERHEAT + VESR (ISR) + *INCIDENT, HUMAN ERROR + *FLOW BLOCKAGE

21476
 FLUX OSCILLATION INCIDENT AT GARIGLIANO DURING ROD IMBALANCE
 GENERAL ELECTRIC COMPANY
 2 PAGES, PAGES 11 AND 14 OF MEMORANDUM SCER-60, DOCKET 50-277 AND 278, TYPE--BWR, MFG--G.E., AE--BECHTEL, JULY 1967

BEFORE A SCHEDULED ROD-OSCILLATION EXPERIMENT, A FLUX OSCILLATION OF ABOUT 8-10% AT 1/3 HERTZ OCCURRED IN A TEST-LOOP CHANNEL NEAR A CONTROL ROD STUCK AT A POSITION ABOUT 30 IN. MORE WITHDRAWN THAN SYMMETRICALLY PLACED RODS. CHANNEL OUTLET WAS RESTRICTED BY A FLOW METER. OSCILLATION INDICATED ON IN-CORE INSTRUMENTATION LASTED FROM 3 TO 5 MIN AND WAS TERMINATED BY INSERTING AN ADJACENT ROD 15 IN. OTHER CHANNELS ALSO SHOWED FLUX OSCILLATIONS, WITH THE AMPLITUDE DECREASING WITH DISTANCE FROM THE DRIVING CHANNEL.

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

REACTOR, BWR + CONTROL ROD PROGRAM + INSTRUMENT, IN CORE + REACTOR STABILITY + INCIDENT, GENERAL + FAILURE, SCRAM MECHANISM + *FLOW STABILITY + SENS + INSTRUMENT, ABNORMAL INDICATION

28645
 OTTERSEN U
 EXPERIENCE AT H&WR WITH ACTIVITY RELEASE IN CONNECTION WITH FUEL FAILURES
 INSTITUTT FOR ATOMENERGI, HALDEN (NORWAY). OECD HALDEN REAKTOR PROSJEKT
 HPR-87 +. 94 PAGES, 36 FIGURES, 16 TABLES, OCT. 1967

DESCRIBES 13 CLAD FAILURES (SEPT. 63 TO NOV. 66) OF UO₂ PELLET FUEL, PRIMARILY TO SHOW RELEASE HISTORY IN REACTOR BUILDING DURING OPERATION AND TRANSPORT TO STORAGE BY VARIOUS MEANS. REACTOR IS COOLED SLOWLY TO 100 C TO AVOID PULLING IN THE INERT GAS, SO FISSION GAS CAN ESCAPE WITH STEAM. XE-133 IS 1000 TIMES THE I-131 CONTENT IN THE PRIMARY GAS SPACE FOLLOWING A FUEL RUPTURE. REACTOR DOWN TIME DUE TO HEALTH PHYSICS REASONS WAS 519 HR. WORKING LIMIT BASED ON AIRBORNE ACTIVITY DERIVED.

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

AIRBORNE RELEASE + REACTOR, BWR + FISSION GAS RELEASE + FISSION PRODUCT, IODINE + FAILURE, FUEL ELEMENT + XENON + *OPERATING EXPERIENCE SUMMARY + NORWAY + REPORT, OPERATIONS ANALYSIS + *RADIATION SAFETY AND CONTROL + *FAILURE, CLADDING + H&WR (BWR) + PARTITION COEFFICIENT

27837
 HUMBOLDT BAY OPERATIONS REPORT, JAN. 1 THRU JUNE 30, 1968
 PACIFIC GAS AND ELECTRIC COMPANY
 12 PAGES, TABLES, LETTER TO DRL, AUGUST 19, 1968, DOCKET 50-133, TYPE--BWR, MFG--G.E., AE--BECHTEL

AIR-EJECTOR ACTIVITY HAS DECREASED FROM 0.044 TO 0.0384 C/SEC AT 210 MWTH, AS TRAMP URANIUM HAS DECREASED. CONTAINMENT CONTINUOUS LEAK RATE IS 0.067 W/D PER DAY AT 20 IN. WATER GAGE. RADIOLYTIC GAS PRODUCED IS 0.03 SCFM/MWTH. OUTAGES DUE TO SCRAMS WERE FROM (1) TREE FELL ACROSS 110 KV LINE, (2) MIST FALLING ON SALT DEPOSITED ON OCB BUSHINGS CAUSED A FLASHOVER AND COMPLETE LOAD REJECTION, (3) FREQUENCY UPSET CAUSED MG SET MALFUNCTION AFTER A LIGHTNING STRIKE, (4) DURING A QUICK LOAD PICKUP TEST WITH SOME STEAM BYPASS, THE PRESSURE DROPPED ENOUGH FOR WATER IN THE LEVEL COLUMN TO FLASH. THE HIGH LEVEL INDICATION CAUSED LOW FEEDWATER FLOW AND THEN A LOW WATER LEVEL SCRAM.

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

REACTOR, BWR + HUMBOLDT BAY (BWR) + PRESSURE VESSEL + SCRAM, REAL + INCIDENT, EQUIPMENT + INSTRUMENT, LIQUID-LEVEL DETECTION + *RADIOLYTIC GAS + *OFF GAS + *INSTRUMENT, ABNORMAL INDICATION + REPORT, OPERATIONS SUMMARY + ACCIDENT, LOAD REJECTION + GENERATOR, BATTERY

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

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

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

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

17868
BROWN GN + CHRISTIANSON RC
KRB STARTUP
GENERAL ELECTRIC, SAN JOSE
CONF-670-713 +. 3 PAGES, PAGE 10, 11, AND 12, ABSTRACT IN ANS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 21, (JULY 1967), PAPER PRESENTED AT THE CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

(1) LEAKING FEEDWATER VALVES SLOWLY PRESSURIZED AN ISOLATED STEAM GENERATOR OF THE DUAL-CYCLE REACTOR. CONTROL-ROOM ALARMS AND INDICATIONS WERE NOT NOTED. AFTER A SERIES OF SAFETY-VALVE RELIEF/RESET CYCLES, A 2-IN. WELD CONNECTION (ON THE SECONDARY SAFETY-VALVE) OF QUESTIONABLE QUALITY FAILED, DISCHARGING 13 TONS OF WATER INTO CONTAINMENT. PROPORTIONAL-TYPE RELIEF VALVES WERE INSTALLED AND VALVE-MOUNTING SUPPORTS REDESIGNED. (2) HYDRAULICALLY OPERATED MAIN-STEAM ISOLATION VALVES NEEDED PLUG AND BRAKING HYDRAULIC CIRCUIT REDESIGN TO OBTAIN A RELIABLE 15-SEC CLOSING TIME AND TO ELIMINATE LEAKAGE THROUGH THE VALVE. (3) ON LOSS OF NORMAL POWER, THE BATTERY-INVERTER OVERLOADED, CUTTING POWER TO THE SEQUENCING PROGRAMMER. (4) ON TRIPPING THE MAIN BREAKER AT FULL POWER, STATION VOLTAGE INCREASED BY 12% AND FREQUENCY BY 4%, CAUSING A REACTOR SCRAM ON HIGH FLUX DUE TO INCREASED CIRCULATION FLOW. THEN, FROM A VARIETY OF CAUSES INVOLVING THE SEQUENCING CIRCUITRY FOR STARTING THE BACKUP 6-KV MOTORS, ONE BUSES PUMPS WERE START/STOP CYCLED 36 TIMES, CAUSING ONE MAIN-FEEDWATER-PUMP BREAKER TO FAIL, SEVERELY DAMAGING ONE OTHER MOTOR AND 3 FW-BOOSTER PUMPS. AN AUTOMATIC RECIRC.-PUMP TRIP ON GENERATOR-BREAKER TRIP NOW ALLOWS LOAD TRIPS WITHOUT SCRAM.

REACTOR, BWR + *FAILURE, COMPONENT + FAILURE, OPERATOR ERROR + ACCIDENT, LOSS OF FLOW + *CONTAINMENT ISOLATION + SCRAM, REAL + WELDING + RESPONSE TIME + *ELECTRIC POWER, VITAL + GERMANY + PUMP + *REACTOR STARTUP EXPERIENCE + VALVE + STEAM GENERATOR + *ACCIDENT, LOAD REJECTION + LEAK

25733
LA CROSSE INITIAL POWER ESCALATION
ALLIS-CHALMERS
ACNP-68504 +. 29 PAGES, FIGURES, TABLES FROM NINTH MONTHLY OPERATIONAL REPORT ON THE LA CROSSE BOILING WATER REACTOR, MARCH 1968, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

HEAT BALANCE AT 320, 760, AND 1250 PSIG FOR SEVERAL ROD POSITIONS INDICATES POWER-RANGE-INSTRUMENT CALIBRATION (MW/MILLIAMPS) DECREASES AS PRESSURE INCREASES OR AS ROD BANK WITHDRAWS. THE CHANGE IS A FACTOR OF 5 - FROM 18 IN. AND 320 PSIG TO 27 IN. AND 1250 PSIG. FINALLY THE REACTOR WAS BROUGHT TO 25% (39 MWTH), BUT HEAT BALANCES SHOWED 43.8 (TURBINE WATER FLOW) AND 34 MWTH (STEAM OR FEEDWATER FLOW). A $-80.004/PSI$ PRESSURE COEFFICIENT WAS INFERRED. CONTROL-ROD DRIVES OPERATED SATISFACTORILY. ***ON THREE OCCASIONS, ALL ROD INSERTS STOPPED RAPID POWER INCREASES FROM FEEDWATER CHANGES (THE SPEED CONTROL WAS STICKY), WITH A TIME DELAY BETWEEN THE OPERATORS SIGNAL AND PUMP RESPONSE. ***ON THE FIRST ATTEMPT TO ROLL THE TURBINE WITH REACTOR STEAM, CONDUCTIVITY RAPIDLY INCREASED. REMNANTS OF THE CLEANING SOLUTION FOR THE FEEDWATER SYSTEM HAD COLLECTED IN THE REHEATER SHELL. THE RESULTANT DISSOLVED IRON FOULED THE FULL-FLOW BEDS RAPIDLY.

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

FLUX DISTRIBUTION + FAILURE, OPERATOR ERROR + CONTROLLER + REPORT, OPERATIONS + REACTOR, PWR + REACTOR POWER + REACTOR STARTUP EXPERIENCE + REFLECTOR + LACROSSE (BWR) + INSTRUMENT, ABNORMAL INDICATION + COOLANT QUALITY + REACTIVITY EFFECT, PRESSURE

27347
SELECTED LACROSSE OPERATING EXPERIENCE
ALLIS-CHALMERS MFG. CO., BETHESDA, MARYLAND
ACNP-68507 +. 61 PAGES, FIGURES, TABLES, ELEVENTH MONTHLY OPERATIONAL REPORT ON THE LACROSSE BOILING WATER REACTOR COVERING THE MONTH OF MAY 1968, DOCKET NO. 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

SHIELDING SURVEY, IN-CORE FLUX MEASUREMENTS, AND NOISE ANALYSIS COMPLETED AT 25% POWER. ON MAY 30, TWO STEAM INLET AND ONE OUTLET VALVES OF SHUTDOWN CONDENSER FAILED TO OPEN DURING THEIR TEST. ***REACTOR WATER LEVEL INDICATORS IN THE CONTROL ROOM SHOWS VOIDED LEVEL (AT 38 MWTH) IS 28 IN. HIGHER THAN UNVOIDED LEVEL (6 IN. DUE TO VOIDS AND 22 DUE TO STANDPIPE TEMP. BEING COOLER THAN REACTOR WATER). RESPONSE TO TURBINE TRIP, STEAM VALVE CLOSURE, RECIRCULATION FLOW CHANGES, INCLUDING RECIRC. PUMP TRIP, WERE GOOD.

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

REACTOR, BWR + *FAILURE, EQUIPMENT + INSTRUMENT, IN CORE + REPORT, OPERATIONS + NOISE ANALYSIS + *TEST, PLANT RESPONSE + INSTRUMENT, LIQUID LEVEL DETECTION + REACTOR STARTUP EXPERIENCE + VALVE + SHIELDING + LACROSSE (BWR) + INSTRUMENT, ABNORMAL INDICATION + SHUTDOWN COOLING SYSTEM

30281
LACBWR REACTOR VESSEL WATER LEVEL INDICATION ANOMALY
ALLIS-CHALMERS
2 PAGES, LETTER TO P.A. MORRIS, DRL, JUNE 20, 1968, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

REQUESTS SYSTEM BE LEFT AS IS FOR TESTING. TWENTY-TWO INCHES (OF THE 28 OF SWELLING INITIALLY FOUND DIFFERENCE BETWEEN VOIDED WATER LEVEL IN VESSEL AND UNVOIDED WATER IN STANDPIPE) ARE DUE TO LOWER THAN ANTICIPATED STANDPIPE TEMPERATURES. REACTOR HAS BEEN OPERATING 3 INCHES ABOVE THE HIGH WATER LEVEL SCRAM POINT (BASED ON UNVOIDED LEVEL). THE VOIDED LEVEL IS WITHIN TECHNICAL SPECIFICATIONS.

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

REACTOR, BWR + PRESSURE VESSEL + *TEMPERATURE GRADIENT + INCIDENT, EQUIPMENT + *INSTRUMENT, LIQUID LEVEL DETECTION + FAILURE, DESIGN ERROR + LACROSSE (BWR) + *INSTRUMENT, ABNORMAL INDICATION

26442

REPORT ON FAILURE OF THE SHUTDOWN VALVES TO OPEN
ALLIS-CHALMERS MANUFACTURING CO.

1 PAGE, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGE 11 (JUNE 24, 1968), DOCKET NO. 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

(LETTER, JUNE 8) REACTOR WAS AT 25% POWER WHEN THE SHUTDOWN CONDENSER STEAM INLET VALVES AND ONE CONDENSATE RETURN VALVE FAILED TO OPEN WHEN THE MAIN STEAM ISOLATION VALVE WAS CLOSED FOR TEST 215. FEEDWATER SYSTEM PREVENTED THE PRESSURE TRANSIENT. ***VALVE PACKING WAS TIGHT BUT DID NOT PREVENT OPENING. THE CONDENSATE VALVE HAD A TEASPOONFUL OF WELD BEADS, INCLUDING ONE PARTICLE JAMMED BETWEEN PLUG AND SEAT. IN THE STEAM INLET VALVES, A DIFFERENTIAL PRESSURE IS DEVELOPED (DUE TO UNEQUAL PATH LENGTHS FOR STEAM TO FOLLOW IN PASSING THROUGH VALVE BODY AND THROUGH TWO OPENINGS 180 DEG APART) WHICH CAUSES THE PLUG TO RUB AGAINST THE SEAT WHEN OPENING. SEAT CAGE OPENINGS WILL BE INSTALLED WITH HOLES 90 DEG FROM VALVE INLET, AND HIGHER.

REACTOR, BWR + *CONTAINMENT ISOLATION + WELDING + REACTOR STARTUP TESTING + *TEST, PLANT RESPONSE + *VALVE + LACROSSE (BWR) + FAILURE, INSTALLATION ERROR + FAILURE, SIMULTANEOUS + MAIN COOLING SYSTEM + *SHUTDOWN COOLING SYSTEM + OBSTRUCTION

28963

REPORT ON LACBWR FEEDWATER PIPING PROBLEMS
ALLIS-CHALMERS, BETHESDA, MARYLAND

ACNP-68513 +. 50 PAGES, FIGURES, TABLES, OCT. 1968, DOCKET NO. 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

A CONSTANT FORCE HANGER (RF-118) ROD WAS BENT DURING EARLY OPERATION, FOUND IN A MAINTENANCE INSPECTION JULY 68 WHEN THE REACTOR CAVITY WAS OPENED. FEEDWATER PIPE WAS LIFTED 1 IN. BY THERMAL EXPANSION OF THE PIPE ACTING THROUGH A GUSSET PLATE AT A PIPE ELBOW, WHICH ACTED AS A VERTICAL JACK. ANALYSIS SHOWS HANGER 113 UNNECESSARY. HANGER ROD INCREASED FROM 0.625 TO 1 IN. IN DIA. EDGE OF GUSSET TRIMMED. THERMOCOUPLES ADDED TO MONITOR FW PIPE TEMPERATURE, AND DIAL MOVEMENT INDICATORS ADDED. A 300 F NONNUCLEAR HEATING TEST OF PIPING WILL BE MADE BEFORE FURTHER ESCALATION.

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

REACTOR, BWR + *FAILURE, EQUIPMENT + *THERMAL MECHANICAL EFFECT + *STRESS ANALYSIS + REPORT, OPERATIONS ANALYSIS + *PIPING + FAILURE, DESIGN ERROR + LACROSSE (BWR) + *SUPPORT STRUCTURE + MAIN COOLING SYSTEM

29901

REPORT ON TESTING AND MODIFICATIONS TO LACBWR SHUTDOWN CONDENSER VALVES
ALLIS-CHALMERS

ACNP-68510 +. 16 PAGES, 8 FIGURES, 1 TABLE, OCTOBER 4, 1968, DOCKET 115-5, TYPE--BWR, MFG--A.C., AE--SGT + LUNDY

DESCRIBES DETAIL OF MODIFICATION AND TEST OF 2 SHUTDOWN CONDENSER STEAM INLET VALVES WHICH FAILED TO OPEN MAY 27, 68, BECAUSE OF MARGINAL SPRING STRENGTH PLUS UNANTICIPATED RESISTANCE. BRASS ROLLERS WERE ADDED TO THE LEVER ARM CONTACT, AND LARGER SPRING/AIR-CYLINDER USED. TEST PROCEDURES WERE MODIFIED TO USE GAS PRESSURIZATION TO SIMULATE FULL REACTOR PRESSURE AGAINST THE VALVE PLUG.

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

REACTOR, BWR + FAILURE, EQUIPMENT + TEST, PROOF + *MODIFICATION, SYSTEM OR EQUIPMENT + TEST, SYSTEM OPERABILITY + *VALVE + LACROSSE (BWR) + RESPONSE TO AEC QUESTION + SHUTDOWN COOLING SYSTEM

30642

REACTOR VESSEL REPAIR - FINAL REPORT
JERSEY CENTRAL POWER AND LIGHT COMPANY

25 PAGES, FIGURES, TABLES, AMENDMENT 35 TO OYSTER CREEK 1 LICENSE APPLICATION, MARCH 21, 1968, DOCKET 50-219, TYPE--BWR, MFG--G.F., AE--BURNS + ROE

DURING FIELD HYDROSTATIC TEST OF PRESSURE VESSEL A SMALL LEAK EMANATED FROM A AREA NEAR A CONTROL ROD DRIVE HOUSING. THE PRIMARY SYSTEM INCLUDING VESSEL WAS CHEMICALLY CLEANED AND PERSONNEL SENT INTO VESSEL TO INVESTIGATE THE SOURCE OF LEAK. DYE PENETRANT EXAMINATION REVEALED LEAK WAS RESULT OF WELDING FLAWS AND INCOMPLETE FUSION IN WELD MADE TO JOIN CONTROL ROD DRIVE HOUSING TO STUB TUBE. THIS REPORT CONTAINS RESULTS OF INVESTIGATIONS PERFORMED, SUMMARY OF BASIC DATA OBTAINED, CONCLUSIONS REACHED AND DESCRIPTION OF REPAIR PROGRAM ADOPTED TO RETURN VESSEL TO DESIGN CONDITION.

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

REACTOR, BWR + *CONTROL ROD DRIVE + FAILURE, GENERAL + *MAINTENANCE AND REPAIR + OYSTER CREEK 1 (BWR) + CONTAINMENT PENETRATION, GENERAL + *PRESSURE VESSEL + WELDS + CONTAINMENT INTEGRITY + *WELDING + FLAW + FAILURE, FABRICATION ERROR + REVIEW + *SUPPORT STRUCTURE + FAILURE, INSTALLATION ERROR + MAIN COOLING SYSTEM + FAULT

29744

SUPPLEMENTAL REPORT, REACTOR VESSEL REPAIR PROGRAM
JERSEY CENTRAL POWER AND LIGHT COMPANY

15 PAGES, 4 FIGURES, 1 TABLE, OYSTER CREEK AMENDMENT 43, OCTOBER 21, 1968, DOCKET 50-219, TYPE--BWR, MFG--
G.E., AE--BURNS + ROE

ALL NOZZLE SAFE ENDS WERE RE-EXAMINED JAN.-JULY 1968, FOLLOWING SHOP INSPECTION WHICH REVEALED INTERGRANULAR CRACKING. THIS WAS NOT DETECTED EARLIER BECAUSE (1) SINGLE POINT DEFECTS WERE NOT THOUGHT INDICATIVE OF CRACKING. HEAVY BLEEDOUT INDICATES INTERGRANULAR CRACKS FROM A POINT AS SMALL AS 1/32 IN. DIA., A SURFACE DEFECT WITHIN CODE. (2) MORE ATTENTION WAS PAID TO WELDS. ***REPAIR WORK DESCRIBED IN AMEND. 40 HAS BEEN INCREASED BY WELD OVERLAY OF SUCH AREAS. HYDROTEST AT 1875 PSI WAS FOLLOWED BY DYE PENETRANT CHECK OF SOME TUBES, ALL OK.

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

REACTOR, BWR + CODES AND STANDARDS + OYSTER CREEK 1 (BWR) + *FAILURE, PIPE + STEEL, STAINLESS + *TEST, NONDESTRUCTIVE + EXAMINATION + FAILURE, ADMINISTRATIVE CONTROL

15009

POWER INCREASE DURING LOAD REJECTION TESTS AT PATHFINDER, FEBRUARY 20, 1967
NORTHERN STATES POWER, MINNEAPOLIS

1 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(10), PAGES 25 (MARCH 6, 1967) DOCKET NO. 50-130

(LETTER, FEBRUARY 20) LOAD-REJECTION TESTS AT 20, 50, AND 70 PERCENT POWER WERE WITHOUT INCIDENT, BUT AT 90 PERCENT A HIGH-FLUX SCRAM OCCURRED. AT 85 PERCENT, THE POWER INCREASED TO ABOUT 110 PERCENT IN ABOUT 0.6 SEC AND LEVELED OFF. THE INCREASE WAS CAUSED BY TURBINE OVERSPEED, WITH THE INCREASED FREQUENCY INCREASING THE RECIRCULATION FLOW TO ADD \$0.25 BUT FASTER THAN THE \$0.12/SEC TECHNICAL-SPECIFICATION LIMIT. A LOAD-DUMP ANTICIPATOR CLOSES THROTTLE VALVES TO HOLD TURBINE AT STATION LOAD.

PATHFINDER (ISR) + *ACCIDENT, REACTIVITY + REACTOR, INTERNAL SUPERHEAT + *INCIDENT, GENERAL + *REACTOR STARTUP EXPERIENCE + TEST, SYSTEM OPERABILITY + *FLOW, RECIRCULATION + ACCIDENT, LOAD REJECTION

15076

PATHFINDER CONTAINMENT INTEGRITY BROKEN, FEBRUARY 8, 1967
NORTHERN STATES POWER COMPANY

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(11), PAGE 28, (MARCH 13, 1967) DOCKET NO. 50-130

ON FEB. 27, PATHFINDER REPORTED THAT BOTH PERSONNEL AIRLOCK DOORS WERE OPENED FOR 2 MINUTES TO REMOVE EQUIPMENT. WHILE REACTOR WAS SHUT DOWN, THE SYSTEM WAS ABOVE THE 250 PSIG AS SPECIFIED IN TS AS REQUIRING CONTAINMENT INTEGRITY.

REACTOR, BWR + PATHFINDER (ISR) + REACTOR, INTERNAL SUPERHEAT + *CONTAINMENT AIR LOCK + CONTAINMENT INTEGRITY + *TECHNICAL SPECIFICATIONS + FAILURE, ADMINISTRATIVE CONTROL

19249

PATHFINDER REPORTS CONTROL ROD CRACKING
NORTHERN STATES POWER CO., MINNEAPOLIS, MINNESOTA

1 PAGES, OCTOBER 23, 1967, DOCKET NO. 50-130

(LETTER TO DRL) INSPECTION OF TWO BORON/STAINLESS-STEEL CONTROL RODS SHOWED VISIBLE CRACKS NEAR FABRICATION WELDS ON THE NEUTRON-ABSORBER SECTION, INDICATING THAT THEY ARE NOT SUITABLE FOR POWER OPERATION. UNDER CONSIDERATION FOR USE ARE B4C PELLET-IN-TUBE RODS (DESIGNED FOR CORE II AND PRESENT AT SITE).

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

*BORON + *CONTROL ROD BURNUP + *FAILURE, EQUIPMENT + PATHFINDER (ISR) + REACTOR, INTERNAL SUPERHEAT + *WELDS + MODIFICATION, SYSTEM OR EQUIPMENT + EXAMINATION

19240

PATHFINDER REPORTS FAILURE OF MAIN STEAM ISOLATION VALVE TO CLOSE
NORTHERN STATES POWER COMPANY

2 PAGES, DOCKET NO. 50-130, OCTOBER 24, 1967

DURING ISOLATION SCRAM TEST (SEPT. 8, 1967), VALVE FAILED TO CLOSE AUTOMATICALLY OR MANUALLY DUE TO RUSTED BRAKE-PRESSURE PLATE IN THE ELECTRIC MOTOR. WATER HAD SPRAYED ON MOTOR THE PREVIOUS WEEK FROM A FAULTY INSTRUMENT PENETRATION. MOTOR WAS CHECKED, BUT WATER PROOF BRAKE HOUSING WAS NOT REMOVED. WATER ENTERED HOUSING AROUND THE EDGES OF A SMALL UNSEALED INSPECTION PLATE. VALVE WAS LAST TESTED SEPTEMBER 3, 1967. *** INCIDENT WAS NOT REPORTED FOR A MONTH AND A HALF BECAUSE PATHFINDER CONSIDERED IT NOT A POSSIBLE UNSAFE CONDITION AND INTENDED TO REPORT IN 6-MONTH SUMMARY AS MALFUNCTION.

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

*FAILURE, EQUIPMENT + PATHFINDER (ISR) + *CONTAINMENT ISOLATION + REACTOR, INTERNAL SUPERHEAT + INCIDENT, EQUIPMENT + TEST, SYSTEM OPERABILITY + VALVE + FAILURE, DESIGN ERROR + FAILURE, MAINTENANCE ERROR + SEAL + MAIN COOLING SYSTEM

19666
 PATHFINDER REPORTS MAIN CONDENSER TUBE-LEAK
 NORTHERN STATES POWER COMPANY
 3 PAGES, OCTOBER 27, 1967, DOCKET 50-130

(LETTER OCT. 27, 1967 TO AEC) - (SEPT. 16, 1967) CIRCUMFERENTIAL BREAK NEAR TUBE SHEET CAUSED SHUTDOWN. DURING DRAINING OF CONDENSER-WATER BOXES, RADIOACTIVITY REACHED THE COOLING TOWER AFTER THE SAMPLE WAS TAKEN ON WHICH A ROUTINE DISCHARGE WAS BASED. COOLING-TOWER BLOWDOWN WAS THEN USED TO DILUTE A SCHEDULED WASTE RELEASE, RESULTING IN A HIGHER-THAN-NORMAL RELEASE. SAMPLES PLACED AN UPPER LIMIT ON THE EFFLUENT. CONCENTRATION AT 2.64 X 10⁻⁵TH MICROCURIE/CC, MOSTLY ZN-65 (2.46 X 10⁻⁵TH) AND NA-24 (1.8 X 10⁻⁶TH).

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

PATHFINDER (ISR) + REACTOR, INTERNAL SUPERHEAT + *HEAT EXCHANGER + ZINC + *WASTE DISPOSAL, LIQUID + *INCIDENT, EQUIPMENT + *INCIDENT, HUMAN ERROR + *RADIOACTIVITY RELEASE + FAILURE, TUBING + TURBINE

19269
 PATHFINDER CONDENSER-TUBE FAILURE, SEPTEMBER 16, 1967
 NORTHERN STATES POWER CO.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 16, (NOVEMBER 6, 1967), DOCKET NO. 50-130

(LTR., OCT. 27, FROM G. H. NEILS) A TUBE FAILED ON STARTUP AT 40% POWER, AND REACTOR WAS SHUT DOWN WITHOUT REFLOODING SUPERHEATER TO AVOID CONTACTING FUEL WITH HIGHER-CONDUCTIVITY CONDENSER-WATER. FAILURE WAS A CIRCUMFERENTIAL BREAK NEAR TUBE SHEET. LEAK WAS ONE OF MOST SEVERE IN OUR EXPERIENCE, BUT LEAKAGE TO COOLING TOWER AND DISCHARGE WAS WITHIN ACCEPTABLE LIMITS. BEFORE STARTUP, PROCEDURES WILL BE IMPROVED TO MINIMIZE LEAK TO COOLING TOWER SYSTEM, AND ACCIDENTAL RELEASE.

REACTOR, BWR + PATHFINDER (ISR) + REACTOR, INTERNAL SUPERHEAT + WASTE DISPOSAL, RIVER + *FAILURE, TUBING + *TURBINE + COOLING TOWER

19270
 STEEL PLATE FOUND IN PATHFINDER MAIN PUMP DISCHARGE
 NORTHERN STATES POWER CO., MINNEAPOLIS, MINN.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 17, (NOVEMBER 6, 1967), DOCKET NO. 50-130

(LTR., 20 OCT.) DURING DISASSEMBLY OF NO. 12 RECIRC. PUMP, A FOREIGN OBJECT WAS FOUND IN THE PUMP-DISCHARGE STRAIGHTENING VANE. IT IS 10-GAGE STAINLESS STEEL, 12 IN. LONG, WIDTH 5 IN. TAPERING TO 4 IN. IT APPEARS TO BE OF REACTOR ORIGIN, BUT EXACT ORIGIN UNKNOWN.

REACTOR, BWR + PATHFINDER (ISR) + REACTOR, INTERNAL SUPERHEAT + INCIDENT, GENERAL + PUMP + *FLOW BLOCKAGE + MAIN COOLING SYSTEM

30196
 UNUSUAL OCCURRENCE REPORT 21, ARC AIR CUTTING ON CONTAMINATED STAINLESS STEEL PLATE
 NORTHERN STATES POWER COMPANY
 NSP-6602(APP. 11) +. 10 PAGES, NOVEMBER 19, 1968, DOCKET 50-130, TYPE--BWR, MFG--A.C., AE--PICNEER SERV.

ON JULY 3, ARC CUTTING OF A HOLE IN THE DEMISTER STORAGE STAND RELEASED ENOUGH SURFACE CONTAMINATION IN 15 MIN FOR THE WELDER TO INHALE 5% THE CO-60 AND 1% THE ZN-65 BODY BURDEN. WHILE A RADIATION WORK PERMIT WAS POSTED AT THE AIRLOCK DOOR, RADIATION LEVELS OF 100 MR/HR FROM THE STAND WERE NOTED BEFORE COMMENCING WORK. LATER, SMEARS SHOWED ABOUT 500,000 DPM/SMEAR. THE WELDERS NOSE SMEARED 3,600 DPM/SMEAR. ***WORK ORDERS, REVIEWED BY ASST. PLANT SUPT., ARE NOW REQUIRED FOR ALL MAINTENANCE WORK OUTSIDE THE SHOP. ***WHOLE BODY COUNTS USED TO BACK CALCULATE AIRBORNE CONCENTRATION AS 32 MPC. LETTER TO PLANT PERSONNEL REVIEWS WELL THE AIRBORNE RADIOACTIVITY PROBLEMS FACED IN MAINTENANCE.

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

AIRBORNE RELEASE + REACTOR, BWR + COBALT + INHALATION + PATHFINDER (ISR) + REACTOR, INTERNAL SUPERHEAT + *WELDING + ZINC + COUNTER, WHOLE BODY + *CONTAMINATION + RADIATION SAFETY AND CONTROL + INCIDENT, HUMAN ERROR + DECOMMISSIONING + FAILURE, ADMINISTRATIVE CONTROL

17939
 FUEL HANDLING HOIST RUNAWAY
 U. S. ATOMIC ENERGY COMMISSION, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.
 ROE-67-9 +. 2 PAGES OF OPERATING EXPERIENCES, REACTOR SAFETY, AUGUST 18, 1967

A GRAPPLE HOIST RAN AWAY WHILE RECHANNELING NEW FUEL ELEMENTS, AS 2 ELECTRICAL GROUNDS SHORTED OUT THE RAISE CONTACT AND THE LIMIT SWITCH (TO PREVENT WITHDRAWING HOOK ABOVE THE 10-FT DEPTH). BY THE TIME POWER WAS DISCONNECTED, THE HOIST REACHED MAXIMUM UP-TRAVEL AND STALLED. FORTUNATELY, HOIST WAS NOT LOADED. MECHANICAL STOPS WERE ADDED TO PREVENT HOOK WITHDRAWAL ABOVE THE 5-FT DEPTH, AND ANOTHER LIMIT SWITCH ADDED TO STOP HOOK AT 6 FT.

AVAILABILITY - AEC DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

REACTOR, BWR + *INCIDENT, EQUIPMENT + *FUEL HANDLING MACHINE + FAILURE, SIMULTANEOUS

26001

SMALL DIAMETER PRIMARY PIPING WELD HEAT AFFECTED ZONE CRACKS FOUND IN A BWR PLANT
 USAEC, DIVISION OF OPERATIONAL SAFETY
 ROE 68-3 +. 3 PAGES, AEC BULLETIN, OPERATING EXPERIENCES, REACTOR SAFETY, MAY 20, 1968

LATE IN 1965, AFTER 5 YEARS OF OPERATION, A CRACK WAS FOUND IN THE HEAT-AFFECTED ZONE AROUND A WELD IN A 6-IN. 304-SS BYPASS LINE AROUND AN MOV FOLLOWING A SATISFACTORY HYDROTEST. THIS SECONDARY STEAM-GENERATOR LOOP WAS ISOLATED, AND 190-MWE OPERATION CONTINUED ON 3 OTHER LOOPS. LATER, OTHER CRACKS WERE FOUND IN VARIOUS OTHER SEAMLESS PIPE. ***STRESS-CORROSION ATTACK OCCURRED IN THE GRAIN BOUNDARIES OF REGIONS SENSITIZED BY WELDING TEMPERATURES HIGH ENOUGH TO PRECIPITATE CHROMIUM CARBIDE DURING THE LONG COOLING PERIOD.

AVAILABILITY - USAEC, DIVISION OF PUBLIC INFORMATION

REACTOR, BWR + *FAILURE, PIPE + *WELDING + PIPING + *STRESS CORROSION + FAILURE, INSTALLATION ERROR + *MAIN COOLING SYSTEM + FAULT

B. PWR

17363

FIRE AT CHOCZ PWR
 1 PAGE, NUCLEAR ENGINEERING 12(129) PAGE 77 (FEBRUARY 1967)

A MINOR FIRE AROUND THE TOP FLANGE OF THE VESSEL NECESSITATED A SHUTDOWN FOR CLEANING AND REPLACING DAMAGED CONTROL-ROD CABLES. THE FIRE STARTED IN THE WOOD/PLASTIC FAST-NEUTRON SHIELD OUTSIDE THE VESSEL. THE IGNITION TEMPERATURE, WHEN THE REACTOR WAS TAKEN TO 280 C, WAS A RESULT OF IMPERFECTIONS IN THE THERMAL-INSULATION LAYERS. NO SERIOUS EFFECT ON THE OPERATIONAL PROGRAM IS EXPECTED.

*FIRE + REACTOR, PWR + BELGIUM + INCIDENT, GENERAL + FAILURE, FABRICATION ERROR + *SHIELDING + *THERMAL INSULATION + *NEUTRON + IGNITION

21079

SFNA QUARTERLY REPORT NO. 18, OCTOBER 1--DECEMBER 31, 1966
 SOCIETE D ENERGIE NUCLEAIRE FRANCO-BELGE DES ARDENNES
 TID-23816 + EUR/C-1438/67E +. 17 PAGES, FEBRUARY 27, 1967

CRITICALITY WAS ACHIEVED ON OCTOBER 18, 1966 ON THE ARDENNES-CHUZZ REACTOR. NUCLEAR TESTING OF THE REACTOR WAS HALTED FOR TWO MONTHS BECAUSE OF MECHANICAL FAULTS IN THE PRIMARY PUMPS. SEVERAL BCLTS USED FOR FIXING THE LABYRINTHS AND BAFFLE PLATES BROKE BECAUSE OF INCORRECT TIGHTENING DURING INITIAL ASSEMBLY.

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

FAILURE, EQUIPMENT + FRANCE + REPORT, OPERATIONS + REACTOR, PWR + PUMP + *FAILURE, INSTALLATION ERROR + MAIN COOLING SYSTEM

16447

FUEL FAILURES AT CVTR
 CAROLINAS VIRGINIA NUCLEAR POWER ASSOCIATES, INC., PARR, S. C.
 CVNA-275 +. 29 PAGES, FIGURES, 1967, FROM MONTHLY OPERATING REPORT, JANUARY 1967

DEGASIFIER OPERATION AND VENTING OF THE SURGE TANK DID NOT REDUCE PC ACTIVITY FROM PREVIOUS FAILURES. PC ACTIVITY WAS ABOVE THAT THOUGHT FOR A SINGLE FAILURE, SO A FFEDAL CHECK FOUND TWO U-TUBES WITH FAILED ELEMENTS. BOTH HAD BEEN MOVED FROM PERIPHERY TO CORE CENTER. LATER, GRADUAL INCREASE IN PC ACTIVITY (UNLIKE PREVIOUS FAILURES) SIGNALLED FAILURE IN A NEW FUEL ELEMENT, OPERATING AT 14 KW/FT. NOW, THREE OF THE FOUR SPECIAL ASSEMBLIES HAVE FAILED. FLOW-RATE DECREASES SEEM TO BE HEAT-FLUX DEPENDENT, SUGGESTING THAT CRUD DEPOSITION ON HIGH-POWER-DENSITY FUEL IN 3-4 MONTHS MAY BE EQUAL TO SEVERAL YEARS ACCUMULATION ON A STANDARD FUEL ASSEMBLY.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

CVTR (PWR) + *FAILURE, FUEL ELEMENT + REACTOR, HWR + *REPORT, OPERATIONS + REACTOR, PRESSURE TUBE + REACTOR, PWR + FAILURE, CLADDING + *SURFACE FILM DEPOSIT + FLOW ORIFICE + *PERFORMANCE LIMIT

18738
 SANDBERG RO
 CVTR SECOND CYCLE FUEL FAILURES AT 65 MWF
 WESTINGHOUSE ELECTRIC COMPANY, PITTSBURGH, PA.
 CVNA-286 +. 1 PAGE, PAGE 2 OF ANALYSIS OF CVTR THERMAL-HYDRAULIC PERFORMANCE AT 65-MW OPERATION, JUNE 1967

TWO STANDARD AND 3 OUT OF 4 SPECIAL HIGH-POWER-DENSITY ELEMENTS FAILED AT 13.6 AND 21.2 KW/FT PEAK POWER DENSITIES RESPECTIVELY; THREE AND POSSIBLY FOUR OF THESE FAILURES OCCURRED DURING A SPECIAL PUSHED POWER TEST WITH CONTROL RODS BANKED. OTHER STANDARD ELEMENTS SURVIVED 14.2 KW/FT. FAILURE MECHANISM HAS NOT BEEN DETERMINED. DNB IS HIGHLY UNLIKELY DUE TO THERMAL-HYDRAULIC CONDITIONS. FLOW BEHAVIOR INDICATES CONSIDERABLE CRUD BUILDUP ON FUEL RODS.

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

CVTR (PWR) + FISSION PRODUCT RELEASE, GENERAL + *FAILURE, FUEL ELEMENT + REACTOR, PRESSURE TUBE + REACTOR, PWR + POWER DISTRIBUTION + OPERATING EXPERIENCE SUMMARY + DNB + *SURFACE FILM DEPOSIT

28800
 CHEMICAL SURVEILLANCE OF THE CAROLINAS-VIRGINIA TUBE REACTOR
 WESTINGHOUSE ELECTRIC CORPORATION
 CVNA-285 +. 149 PAGES, FIGURES, TABLES, REFERENCES, AUGUST 1967

GENERAL STUDY DEALING WITH DEGRADATION OF D2O (USE D2 INSTEAD OF H2 GAS TO SUPPRESS RADIOLYSIS), FLUORIDE PICKUP IN MODERATOR FROM INSULATION, ADDITION OF ALKALI TO REDUCE CRUD AND SURFACE FILM BUILDUP, AND FAILURE OF PIPE IN THE SWEEP GAS SYSTEM (CAUSED BY CHLORIDES FROM RECOMBINER PALLADIUM PELLETS).

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

REACTOR, HWR + FAILURE, PIPE + REACTOR, PRESSURE TUBE + REACTOR, PWR + FLUORINE + *OPERATING EXPERIENCE SUMMARY + CRUD + *COOLANT CHEMISTRY + REPORT, OPERATIONS ANALYSIS + RECOMBINER + RADIOLYTIC GAS + STRESS CORROSION + CHLORIDE

27141
 FOSTER, JS
 EARLY OPERATIONS AT DOUGLAS POINT
 ATOMIC ENERGY OF CANADA LTD.
 3 PAGES, 5 FIGURES, NUCLEAR ENGINEERING, 13(145), PAGES 513-515 (JUNE, 1968)

DISCUSSES FAILURES RESULTING IN 9 MONTHS OF LOST TIME IN 1967. TWO MONTHS ATTRIBUTED TO HOLE IN CALANDRIA TUBE, CAUSED BY ROTATION AND VIBRATION OF BOOSTER CONTROL ROD BECAUSE A BOOSTER JOINT LOCKING TAB BROKE. LOCKING MECHANISM LATER MODIFIED. ***SEVEN MONTHS DOWNTIME REQUIRED FOR REPAIR AND MODIFICATION OF PRIMARY COOLANT PUMPS. PUMP DAMAGE CAUSED BY VARIETY OF REASONS, INCLUDING IMPROPER DESIGN OF LUBRICATING SYSTEM, LARGE CLEARANCE IN MOTOR BEARINGS, CLOSE CLEARANCES BETWEEN FLYWHEEL AND HOUSING, ETC. TO MINIMIZE HEAVY-WATER LOSS, BOILER ROOM WAS SEALED TO ELIMINATE VENTILATION SYSTEM EXHAUSTING LEAKAGE OUT THE STACK.

CANADA + CONTROL ROD + FAILURE, EQUIPMENT + HEAVY WATER + REACTOR, HWR + VENTILATION SYSTEM + MODIFICATION, SYSTEM OR EQUIPMENT + *PUMP + FAILURE, DESIGN ERROR + *FAILURE, SCRAM MECHANISM + CANDU (HWR) + SEAL + DAMAGE + LUBRICATION + *TUBING

30202
 SELECTED HADDAM NECK OPERATING EXPERIENCE
 CONNECTICUT YANKEE ATOMIC POWER COMPANY
 NYO-3250-14 +. 8 PAGES, OCTOBER 25, 1967, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

LOW POWER PHYSICS TEST REPORT WAS ISSUED. ***REACTOR SYSTEM WAS COOLED 90 F IN 5 MINUTES, WHEN ALL 10 STEAM DUMP VALVES OPENED DURING STARTUP WHEN LOW VACUUM TRIP UNBLOCKED EVEN THOUGH TAV WAS 525F. A LOCKED IN TEST SIGNAL OF 570 F WAS LATER FOUND. PRESSURIZER RELIEF AND SPRAY VALVE LEAKAGE CONTINUED.

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

ACCIDENT, COLD COOLANT + REPORT, OPERATIONS + REACTOR, PWR + ACCIDENT, STEAM LINE RUPTURE + HADDAM NECK (PWR) + REACTOR STARTUP TESTING + *REACTOR STARTUP EXPERIENCE + SCRAM, SPURIOUS + VALVE + FAILURE, MAINTENANCE ERROR + LEAK

24819
 KNAPP SR
 HADDAM NECK CITATION FOR COOLANT LEAKAGE
 CONNECTICUT YANKEE ATOMIC POWER COMPANY
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGES 35-36 (APRIL 8, 1968)

(LETTER, FEB. 21) CITATION IS FOR OPERATING 19 HR ON FEB. 7/8 WITH RESIDUAL-HEAT-REMOVAL PUMP SEAL LEAKAGE EXCEEDING 1 LITER/HR, AND FOR THIS NOT BEING REVIEWED BY SAFETY COMMITTEE. (REPLY, MAR. 12) AFTER A FEB. 6 TEST, THE LEAK WAS 3 LITERS/HR NEXT DAY, RATHER THAN DROPS. PLANT MANAGER DECIDED DIRT IN SEAL FACE COULD BE REMOVED BY CONTINUOUS OPERATION OF PUMP, AND LEAKAGE WAS DOWN TO 1.5 AFTER 2 HOURS, AND LESS THAN 1 AFTER 10 HR. ON FEB. 7, CHAIRMAN OF SAFETY REVIEW COMMITTEE AND ON FEB. 8 THE OPERATIONS REVIEW COMMITTEE REVIEWED EVENT AND RECOMMENDED INSPECTION DURING MARCH SHUTDOWN. NUCLEAR SAFETY COMMITTEE NOT REVIEWING WAS AN OVERSIGHT.

FAILURE, EQUIPMENT + REACTOR, PWR + *SAFETY REVIEW + HADDAM NECK (PWR) + COMPLIANCE + *TECHNICAL SPECIFICATIONS + PUMP + SHUTDOWN COOLING SYSTEM + *LEAK

24813

COE RJ

CONN. YANKEE SUGGESTS SYSTEM 24 HR TECHNICAL SPECIFICATION WAIVERS.

CONNECTICUT YANKEE

2 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(15), PAGES 27-28. (APRIL 8, 1968), DOCKET 50-213

(LETTER, MAR. 20) A FEB. 21, 1968, COMPLIANCE CITATION (RELATING TO LEAKAGE FEB. 7 AND 8) WAS ANSWERED MAR. 12. IN OUR OPINION THE TECH. SPEC. SET LEAKAGE AT TOO LOW A VALUE FROM THE SAFETY STANDPOINT, AND WE HAVE PROPOSED A HIGHER VALUE. *** THIS NEW FORM OF TECH. SPECS. ESTABLISHES MANY MORE LIMITS AND CONDITIONS ON MORE VARIABLES THAN BEFORE. SECTION 3 (LIMITING CONDITIONS FOR OPERATION) CONTAINS MANY CALCULATED VALUES BELOW SAFETY LIMITS, AND STRICT COMPLIANCE WITH THESE COULD LEAD TO UNNECESSARY SHUTDOWN. *** THERE SHOULD BE A MECHANISM FOR AEC TO GRANT A 24-HR WAIVER OF TECH. SPEC. SO SITUATION COULD BE CORRECTED, REPLACEMENT POWER PURCHASED, OR SITUATION ANALYZED.

REACTOR, PWR + HADDAM NECK (PWR) + *OPERATING EXPERIENCE SUMMARY + *TECHNICAL SPECIFICATIONS

30598

SELECTED HADDAM NECK OPERATING EXPERIENCE

CONNECTICUT YANKEE ATOMIC POWER COMPANY

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

TURBINE FLANGE REPAIRS COMPLETED 13TH, AND IN-CORE MEASUREMENTS (AT 31 POWER) OF REDISTRIBUTION OF FLUX IN DROPPED AND EJECTED ROD SITUATIONS COMPLETED THE 19TH. (27TH) ON RESTORING A 115 KV OUTSIDE LINE, A SWITCHING PROCEDURE WAS USED WHICH DEGUARDED A TRANSFER TRIP RELAY, CAUSING SITE FEEDER BREAKERS TO OPEN, INTERRUPTING STATION SERVICE POWER AT 490 MWE. STATION WAS ON EMERGENCY POWER FOR 25 MIN BEFORE NORMAL POWER RESTORED. ***FUNCTIONAL CHECKS OF CONTAINMENT FAN DAMPER HAVE BEEN TROUBLE FREE. ELECTRIC OPERATORS ARE BEING CHANGED TO AIR OPERATORS.

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

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

30243

CITATION FOR UNSATISFACTORY DIESEL PERFORMANCE

U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER TO S.R. KNAPP, CONN. YANKEE AT. POWER CO., DEC. 20, 1968 DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

INSPECTION NOV. 14 AND DEC. 3, 1960, REVEALED THAT FAILURE OF AN ENGINEERED SAFEGUARD WAS NOT REPORTED TO THE AEC, AS REQUIRED BY THE LICENSE. DIESELS FAILED FOLLOWING AUTOMATIC STARTING AND LOADING DURING THE APRIL 27, 68, LOSS OF SITE POWER. IN ADDITION THE DIESELS OPERATED UNSATISFACTORY ON 3 OCCASIONS. TESTS PERFORMED SINCE DO NOT SIMULATE THE APRIL 68 CONDITIONS, AND THE REACTOR WAS RESTARTED APRIL 27 FOLLOWING THE DIESEL FAILURES WITHOUT THE DIESELS BEING TESTED AND WITHOUT ADEQUATE REVIEW OF THE SIGNIFICANCE OF THE DIESEL FAILURE. PLEASE PROVIDE US WITH A REPORT OF THE FAILURE OF THE DIESEL POWER SYSTEM ON APRIL 27.

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

*EMERGENCY POWER, ELECTRIC + FAILURE, EQUIPMENT + ACCIDENT, LOSS OF POWER + REACTOR, PWR + HADDAM NECK (PWR) + GENERATOR, ENGINE + *INCIDENT, EQUIPMENT + TEST, SYSTEM OPERABILITY + FAILURE, ADMINISTRATIVE CONTROL + SURVEILLANCE PROGRAM

30208

SELECTED HADDAM NECK OPERATING EXPERIENCE

CONNECTICUT YANKEE ATOMIC POWER COMPANY

NYO-3250-29 +. 20 PAGES, FIGURES, TABLES, OPERATION REPORT NO. 68-11, DECEMBER 20, 1968, DOCKET 50-213, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

NOS. 1 AND 4 STEAM GENERATORS CANNOT BE OPERATED AT DESIGN LEVEL WITHOUT CARRYOVER. ***THE REACTOR SCRAMMED 18 NOV. FOR NO KNOWN CAUSE, THE TURBINE INDICATING A REACTOR TRIP AND THE REACTOR INDICATING A TURBINE TRIP. ON RESTART, TURBINE LOADING BECAME ERRATIC (EXCEEDING 100 MWE IN SECONDS) DUE TO METAL FILINGS BINDING THE FEEDBACK SLEEVE OF THE PILOT VALVE. NO REASON HAS BEEN FOUND FOR THE SCRAM. ***INJECTION OF 18 GPH STEAM INTO CONTAINMENT REDUCED TRITIUM CONCENTRATION BY A FACTOR OF 6.1 AND 25 GPH REDUCED BY 8. TRITIUM LEVEL ROSE IMMEDIATELY ON STOPPING STEAM, EITHER DUE TO POOR MIXING OR INSUFFICIENT TIME (45 HR) FOR NEW EQUILIBRIUM LEVEL TO BE REACHED.

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

*AIRBORNE RELEASE + ACCIDENT, COLD COOLANT + FAILURE, COMPONENT + CONTAINMENT, HIGH PRESSURE + REPORT, OPERATIONS + REACTOR, PWR + STEAM + *TRITIUM + HADDAM NECK (PWR) + INSTRUMENT, LIQUID LEVEL DETECTION + *SCRAM, SPURIOUS + VALVE + FLOW BLOCKAGE + INSTRUMENT, ABNORMAL INDICATION + STEAM GENERATOR + TURBINE + PARTITION COEFFICIENT

19686
BEATTIE WC
MATERIAL FOUND IN INDIAN POINT 1 CORE
CONSOLIDATED EDISON CO. OF NEW YORK
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(47), PAGES 32-33 (NOVEMBER 20, 1967)

(LETTER, NOV. 2) IN THE OCTOBER 1967 REFUELING, THREE ITEMS WERE FOUND ON THE FIXED THERMAL SHIELDS BELOW THE UPPER GRID-PLATE ASSEMBLY (AN NDT SPECIMEN HOLDER AND ASSOCIATED ORIFICE PLUG, AND A 4.5-FT. TOP PORTION OF A NEUTRON SOURCE). CERTAIN PIECES WERE NOT FOUND, BUT WOULD NOT BLOCK MORE THAN 16 FLOW CHANNELS BY 50%, WHICH WOULD ONLY REDUCE THE DNB RATIO 10%. CONTROL RODS WOULD LIKELY NOT BE JAMMED.

INDIAN POINT 1 (PWR) + REACTOR, PWR + INCIDENT, EQUIPMENT + FAILURE, SCRAM MECHANISM + *FLOW BLOCKAGE + CORE COMPONENTS

19889
DROPPED FUEL ELEMENT DURING INDIAN POINT 1 REFUELING
CONSOLIDATED EDISON CO. OF NEW YORK
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(47) PAGES 33-34 (NOVEMBER 20, 1967)

(LETTER, NOV. 2) DURING REFUELING ON OCTOBER 17, 1967, A FUEL ELEMENT, NOT HIGH ENOUGH DURING TRANSFER, STRUCK AN I-BEAM, AND SEPARATED BETWEEN THE PERFORATED FUEL ENCLOSURE AND THE UPPER NOZZLE ASSEMBLY. TEN PERIPHERAL PINS PROTRUDED, BUT SAMPLES INDICATED NO RELEASE OF FISSION PRODUCTS. RIGGERS WERE BROUGHT IN AND MOCKUP BUILT TO TRY PROCEDURES AND SPECIAL SNARES. ALL ACTIVITY WAS SUSPENDED AND AN UNDERWATER TV INSTALLED. ON OCTOBER 24, THE RIGGERS LIFTED THE ASSEMBLY AND PLACED IT IN THE TRANSFER BASKET IN 3 HR, WITHOUT INCIDENT.

*FUEL HANDLING + FAILURE, OPERATOR ERROR + INDIAN POINT 1 (PWR) + REACTOR, PWR + ACCIDENT, REFUELING + *INCIDENT, HUMAN ERROR + INCIDENT, RECOVERY FROM + REMOTE MANIPULATING AND VIEWING

21413
INDIAN POINT 1 REPORTS STUCK CONTROL ROD
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
4 PAGES, DOCKET 50-3, TYPE--PWR, MFG--B+W, AE--CON ED, NOVEMBER 29, 1967

DURING TESTING OF THE CONTROL RODS AFTER REFUELING, NO. 8 ROD STUCK 16 IN. FROM FULL INSERTION UPON GRAVITY SCRAM. THE CONTROL ROD AND ASSOCIATED MECHANISMS WERE REMOVED, THE SNUBBER PISTON REQUIRING FORCE. A 1-1/2-X-1/4-X-1/4-IN. PIECE OF STAINLESS STEEL WAS FLUSHED FROM THE CONTROL-ROD POSITION. METALLOGRAPHIC AND ACTIVITY TESTS INDICATED THAT IT HAD BEEN LEFT IN THE REACTOR AT THE TIME OF CONSTRUCTION, 5 YEARS AGO.

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

REACTOR, BWR + CONTROL ROD + INDIAN POINT 1 (PWR) + TESTING + *INCIDENT, EQUIPMENT + *FAILURE, SCRAM MECHANISM

23144
INDIAN POINT 1 ANALYSIS OF EFFECTS OF LOST MATERIAL IN VESSEL
CONSOLIDATED EDISON COMPANY OF NEW YORK
5 PAGES, FEBRUARY 6, 1968, DOCKET 50-3, TYPE--PWR, MFG--B+W, AE--CON ED

(FEB. 6, TWX) LETTER OF NOV. 2, 1967, REPORTED FINDING EXTRANEEOUS MATERIAL ON TOP OF CORE. WEIGHT OF MISSING COMPONENTS IS 4 OZ. OR LESS. SOURCE TUBE VIBRATING AT 20 CPS COULD WEAR THROUGH 0.109-IN.-THICK STAINLESS-STEEL CLADDING IN 40 YEARS BUT HIGHLY IMPROBABLE. FRETTING WOULD NOT INCREASE IRON CONTENT OF WATER ENOUGH TO MONITOR. SCRAM TIMES AND NEUTRON TRACES AFTER SCRAM SHOW NO INDICATION OF STICKING RODS. *** IF ALL 6 SOURCE CAPSULES WERE TO RELEASE THE PO OR BE, NORMAL DILUTION TAKES IT BELOW MPC. ANALYSIS OF PRIMARY COOLANT SHOWED 1 PICOCURIE/LITER, ABOUT AS IN ORDINARY TAP WATER. ROUTINE NEUTRON SURVEYS OF PIPING WILL LOCATE ANY INTACT CAPSULE.

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

CONTAINMENT, SOURCE + CLADDING + INDIAN POINT 1 (PWR) + PRESSURE VESSEL + REACTOR, PWR + SOURCE, NEUTRON + HAZARDS ANALYSIS + FAILURE, SCRAM MECHANISM

19785
LACBWR SECOND MONTHLY OPERATIONAL REPORT ON THE LACROSSE BOILING WATER REACTOR FOR THE MONTH OF AUGUST 1967
ALLIS-CHALMERS, BETHESDA
45 PAGES, 21 FIGURES, 7 TABLES, AUGUST 1967, DOCKET NO. 115-5

REACTOR WAS OPERATED 62 HR AT LESS THAN 1.7 KW. (PAGE 2-1) THERE IS A 1.67-IN. DIFFERENCE BETWEEN ACTUAL AND INDICATED CONTROL-ROD POSITION. (PAGE 2-5) SHUTDOWN MARGIN AND EXCESS REACTIVITY TESTS. VOLUME INFERRED FROM BORIC ACID ADDITIONS INDICATED SYSTEM VOLUME WAS INCREASING. AN UNDRAINABLE VOLUME (LOCATION UNIDENTIFIED) OF ABOUT 1500 GAL OUT OF 8500 GAL EXISTS. PEAK ROD-BANK WORTH IS \$3.50/IN. AT 12 IN., DECREASING TO \$0.10/IN. AT 50 IN. K-EFF COLD UNRODDED IS 1.20. (PAGE 2-35) AFTER INSERTING A 1900-CURIE SB-BE SOURCE, AN ATTEMPT WAS MADE TO GO CRITICAL, DISCONTINUED AFTER 29-ROD BANK WAS WITHIN 0.5 IN. OF PREDICTED CRITICALITY AND NO SIGNIFICANT CHANGE IN SUBCRITICAL COUNT RATE OBSERVED. STARTUP DETECTORS IN LOWER TUBES WERE SHIELDED FROM ACTIVE CORE BY 26 IN. OF RODDED CORE. BOTH SOURCE AND DETECTORS WERE MOVED CLOSER TO THE EFFECTIVE REGION. (PAGE A-2) AFTER TWO FUEL-ELEMENT GRIDS WERE DAMAGED IN HANDLING, A CABLE TENSIO METER WAS BOUGHT.

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

REACTOR, BWR + CONTROL ROD WORTH + FUEL HANDLING + REPORT, OPERATIONS + SHUTDOWN MARGIN + POISON, SOLUBLE + *SOURCE, NEUTRON + *REACTOR STARTUP TESTING + LACROSSE (BWR) + FAILURE, ADMINISTRATIVE CONTROL + INSTRUMENT, ABNORMAL INDICATION

14751

PATHFINDER - INADVERTANT LIFTING OF ROD DRIVE FROM VESSEL DURING SHUTDOWN WORK
NORTHERN STATES POWER COMPANY

NSP-6603 +. 2 PAGES, NORTHERN STATES POWER COMPANY PATHFINDER ATOMIC POWER PLANT SIX MONTH REPORT. INITIAL STEAM FLOW TESTING THROUGH 40 PERCENT POWER TESTING - MAY 9, 1966 - NOVEMBER 19, 1966, PAGES 73-74, JANUARY 9, 1967, DOCKET NO. 50-130

ON SEPTEMBER 12, ALL CONTROL RODS WERE UNLATCHED TO REMOVE NO. 3 DRIVE. NO. 10 DRIVE WAS DISCONNECTED IN EXPECTATION IT TOO WOULD BE REMOVED, BUT THIS DISCONNECTION WAS NEITHER LOGGED NOR TOLD SUPERVISION. DAYS LATER, WHEN THE REACTOR WAS PRESSURIZED TO 50-100 PSIG FOR PURIFICATION, THE WATER FORCE LIFTED THE DRIVE (BUT NOT THE ROD) 3 FEET. NO DAMAGE.

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

REACTOR, BWR + *FAILURE, OPERATOR ERROR + PATHFINDER (ISR) + REACTOR, INTERNAL SUPERHEAT + *INCIDENT, HUMAN ERROR + REPORT, OPERATIONS SUMMARY + ACCIDENT, CONTROL ROD EJECTION

29675

BJELDANES MN
FAILURE OF PVC LINE RELEASES LIQUID WASTE
NORTHERN STATES POWER CO.

1 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(48), PAGE 19, (NOVEMBER 25, 1968), DOCKET 50-130, TYPE--BWR, MFG--A.C., AE--PIONEER SERV.

(LETTER OCT. 8) DURING RELOCATION OF PATHFINDER LIQUID WASTE DISCHARGE LINE, A COUPLING IN THE POLYVINYL CHLORIDE LINE WAS FOUND SEPARATED. THREE 55 GAL BARRELS OF SOIL CONTAINING 0.92 MILLICURIE OF ZN-65 WILL BE PROCESSED AS DRY WASTE.

REACTOR, BWR + PATHFINDER (ISR) + FAILURE, PIPE + REACTOR, INTERNAL SUPERHEAT + WASTE DISPOSAL, TERRESTRIAL + *RADIOACTIVITY RELEASE + PLASTICS

29700

HAWTHORNE JR + SERPAN CZ + GRAY RA + WATSON HW + GATES OR
METALLURGICAL FAILURE ANALYSIS OF PM-3A REACTOR CONTROL ROD LIFTING KNOB
NAVAL RESEARCH LAB

AD-656579 + NRL-MEMO-1788 + N68-33276 +. 28 PAGES, JUNE 1967, ABSTRACT IN RELIABILITY ABSTRACTS AND TECHNICAL REVIEWS, 8(11), PAGE 193 (NOV. 1968)

A METALLURGICAL ANALYSIS WAS PERFORMED UPON A FAILED CONTROL ROD CAP FROM THE NAVY PM-3A NUCLEAR POWER PLANT. MATERIAL SUPPLIED TO THE METALLURGY DIVISION FOR THIS INVESTIGATION WAS THE LIFTING KNOB, WHICH HAD SEPARATED IN SERVICE FROM THE MAIN BODY OF THE CAP. THE SPECIFIC OBJECTIVE OF THE ANALYSIS WAS TO DETERMINE IF THE MATERIAL OF APPLICATION MET DESIGN SPECIFICATIONS AND TO DETERMINE THE PROBABLE CAUSE OF COMPONENT FAILURE. COMPOSITIONAL ANALYSIS ESTABLISHED THAT THE LIFTING KNOB, AND THUS THE FAILED CONTROL-ROD CAP, WAS MADE FROM A 300-SERIES STAINLESS STEEL, NOT FROM 17-4 PH PRECIPITATION HARDENING STAINLESS STEEL AS SPECIFIED.

*FAILURE, COMPONENT + *CONTROL ROD DRIVE + METAL + REACTOR, PWR + FAILURE, FABRICATION ERROR + PM 3A (PWR) + REACTOR, MILITARY

25995

HAWTHORNE JR.
METALLURGICAL FAILURE ANALYSIS OF PM-3A REACTOR CONTROL ROD LIFTING KNOB
NAVAL RESEARCH LABORATORY
NRL-MR-1788 +. 24 PAGES, 7 FIGURES, 1 TABLE, JUNE 14, 1967

PRESENTS DETAILED OBSERVATIONS OF MATERIAL USED IN LIFTING KNOB. THE KNOB WAS MADE FROM 300-SERIES STAINLESS STEEL, NOT FROM 17-4 PH AS HAD BEEN SPECIFIED. RESULTS GIVEN FOR COMPOSITION ANALYSIS, MICROSTRUCTURAL EXAMINATION, AND HARDNESS SURVEY.

AVAILABILITY - DEFENSE DOCUMENTATION CENTER, CAMERON STATION, ALEXANDRIA, VA. 20545

CONTROL ROD + REACTOR, PWR + STEEL, STAINLESS + MATERIAL + *FAILURE, FABRICATION ERROR + FAILURE, SCRAM MECHANISM + PM 3A (PWR) + EXAMINATION + COMPONENTS, MISCELLANEOUS + QUALITY ASSURANCE + REACTOR, MILITARY

25447

RAPID TURBINE CONTROL VALVE CYCLING AT A PWR
DIVISION OF OPERATIONAL SAFETY, AEC
REACTOR SAFETY BULLETIN ROE 68-2 +. 5 PAGES, 1 FIGURE, APRIL 9, 1968

THE FOUR VALVES SIMULTANEOUSLY CYCLED FROM FULLY OPEN TO FULLY CLOSED AND RETURNED TO FULLY OPEN WITHIN 12 SEC, INDUCING A SEVERE LOAD TRANSIENT. INITIAL CLOSING WAS CAUSED BY A RELEASE OF PRESSURE WHICH HOLDS THE VALVES OPEN AND AN IMPROPER PRESSURE SETTING OF 22 PSI INSTEAD OF 45. A FAILED TRIP SOLENOID ALLOWED THE VALVES TO REOPEN. THE OPERATOR RESPONDED IMMEDIATELY TO VALVE CLOSURE AND INSERTED CONTROL RODS, MINIMIZING THE TRANSIENTS.

AVAILABILITY - USAEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*CONTROLLER + REACTOR, PWR + REACTOR TRANSIENT + REACTOR, POWER + FAILURE, INSTRUMENT + *INCIDENT, EQUIPMENT + *VALVE + *FAILURE, SEQUENTIAL + *TURBINE + OPERATING EXPERIENCE

26004
INADVERTENT DISARMING OF SAFETY CIRCUIT INSTRUMENTATION
USAEC, DIVISION OF OPERATIONAL SAFETY
ROE-68-6 +. 2 PAGES, USAEC BULLETIN, OPERATING EXPERIENCES, REACTOR SAFETY, MAY 23, 1968

DURING THE STARTUP TESTING PHASE AT A PWR, AN INSTRUMENTATION TEST SIGNAL (INDICATING PRIMARY COOLANT TEMPERATURE OF 570 F) CAUSED THE STEAM-DUMP VALVES TO OPEN WHEN THE CONDENSER LOW-VACUUM TRIP WAS UNBLOCKED WHILE ESTABLISHING A VACUUM IN THE MAIN CONDENSER. THE EXCESSIVE COOLING (90 F IN 5 MIN) COULD HAVE BEEN A 1% REACTIVITY INCREASE LATE IN CORE LIFETIME. THE EXCESSIVE STEAM FLOW PRODUCED A STEAM/FEEDWATER MISMATCH SCRAM. ***PROTECTIVE CIRCUITRY SHOULD BE DESIGNED SO TEST DEVICES ARE READILY VISIBLE, AND CHECK SHEETS SHOULD INCLUDE A CHECK THAT ALL VALVE POSITIONS AND BYPASS MECHANISMS ARE RETURNED TO NORMAL.

AVAILABILITY - USAEC, DIVISION OF PUBLIC INFORMATION

REACTOR, PWR + SCRAM, REAL + INSTRUMENT CALIBRATION + *REACTOR STARTUP TESTING + INSTRUMENT, TEMPERATURE + *INSTRUMENT, TESTING + FAILURE, MAINTENANCE ERROR + TURBINE

29998
LUBE OIL BLOCKAGE BY TAPE FRAGMENT
U. S. ATOMIC ENERGY COMMISSION
RUE-68-12 +. 2 PAGES, DECEMBER 18, 1968

A SMALL PIECE OF TEFLON TAPE (USED AS A SEALANT ON THREADED PIPE JOINTS) PARTIALLY BLOCKED OIL FLOW TO A PRIMARY COOLANT PUMP BEARING, CAUSING BEARING TEMPERATURE TO RISE ABOVE NORMAL ON STARTUP. DURING MAINTENANCE, A FRAGMENT OF TAPE WAS PROBABLY NOT REMOVED FROM A FITTING. THIS TAPE HAS BEEN USED EXTENSIVELY FOR 3 YEARS WITHOUT INCIDENT. MAINTENANCE PROCEDURES SHOULD INCLUDE PRECAUTION TO PREVENT SMALL PIECES BREAKING OFF.

PUMP + REACTOR, AEC OWNED + REACTOR, GENERAL + FAILURE, MAINTENANCE ERROR + *FLOW BLOCKAGE + *LUBRICATION + *BEARING

31254
SELECTED SAN ONOFRE OPERATING EXPERIENCE
SOUTHERN CALIFORNIA EDISON CO., CALIF.
NYO-3270-7 +. 6 PAGES, OPERATIONS REPORT NO. 7, NOVEMBER 20, 1967 DOCKET 50-206, TYPE--PWR, MFG--WEST., AE--BECHTEL

THREE TIMES A FALSE TRIP SIGNAL OCCURED WHILE ONE CHANNEL WAS IN TEST, CAUSING A 2/3 SCRAM. EXCESSIVE VIBRATION OF MAIN CIRCULATION PUMPS WAS DUE TO MUSSELS IN SEAWATER INTAKE LINES. FALSE INDICATION OF A CONTROL ROD IN THE CORE WAS COMING FROM A BAD CONNECTOR. REACTOR-HEAD VENTILATION DUCT COLLAPSED.

REPORT, OPERATIONS + REACTOR, PWR + VENTILATION SYSTEM + SAN ONOFRE (PWR) + HEAT SINK + PUMP + SCRAM, SPURIOUS + FAILURE, SCRAM MECHANISM + VIBRATION + ACCIDENT, CONTROL ROD DROPIN + TURBINE

22257
MOORE JB
SAN ONOFRE INVESTIGATES HIGH DELTA-T ACROSS B STEAM GENERATOR
SOUTHERN CALIFORNIA EDISON CO., LOS ANGELES, CALIF.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(3), PAGES 18-20 (JANUARY 15, 1968), DOCKET 50-206, TYPE--PWR, MFG--WEST., AE--BECHTEL

(LETTER, JANUARY 5) SINCE POWER TESTING IN JULY, CALORIMETRIC MEASUREMENTS OF PRIMARY AND SECONDARY DIFFER BY 4 TO 10%. SIX ERRATIC RESISTANCE TEMPERATURE-DETECTORS IN THE REACTOR LOOP WERE REPLACED IN NOVEMBER. IN DECEMBER, AT 405 MWE (90% LOAD), THE SG DELTA-T WAS 40/48/44 F FOR A/B/C STEAM GENERATORS, GIVING THE AVERAGE PREDICTED FOR 450 MWE (100%). ACCORDING TO RESULTS OF ANALYSIS SINCE THEN, RTDS ARE ACCURATE, BUT PIPE LOCATION AFFECTS INDICATED TEMPERATURE 5 TO 10 F. PUMP FLOWS ARE DIFFERENT (B PUMP LOWEST), THE RANGE BEING FROM 112 TO 94%, DEPENDING ON METHOD. UNIT IS BEING HELD AT 3RD-VALVE POINT (405 MWE), WITH ALARMS SET ACCORDINGLY, FOR FURTHER STUDY.

REACTOR, PWR + COMPARISON, THEORY AND EXPERIENCE + SAN ONOFRE (PWR) + OPERATING EXPERIENCE SUMMARY + INSTRUMENT, TEMPERATURE + PUMP + *REACTOR POWER + FLOW ORIFICE + INSTRUMENT, ABNORMAL INDICATION + STEAM GENERATOR + FLGW, GENERAL

23143
ANALYSIS OF INOPERATIVE CONTROL ROD AT SAN ONOFRE
SOUTHERN CALIFORNIA EDISON COMPANY
6 PAGES, JANUARY 26, 1968, DOCKET 50-260, TYPE--PWR, MFG--WEST., AE--BECHTEL

THE CAUSE OF THE MAY 19, 1967, FAILURE OF ROD G-13 WAS A FAULTY LATCH PIN IN THE MOVABLE GRIPPER ASSEMBLY, WHICH DID NOT HAVE THE PROPER THICKNESS AT ONE END, LOOSENED, AND JAMMED THE MECHANISM AT 80% WITHDRAWN. THE PIN FAILED WHERE IT WAS FLARED (TO HOLD IT IN PLACE) TO 0.009 IN. INSTEAD OF 0.25. QUALITY-CONTROL CHECKS REVEALED THAT THIS STEP HAD BEEN 100% INSPECTED AND THAT TWO PEOPLE HAD INITIALED THE SHEET. THIS IS ATTRIBUTED TO RANDOM OCCURRENCE. *** DEPENDENT ON POSITION AND CORE LIFE, 12-15 RODS COULD STICK, AND THE REACTOR COULD BE SHUT DOWN BY OTHER RODS IF ANOTHER ACCIDENT IS NOT COMPOUNDED.

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

*CONTROL ROD DRIVE + REACTOR, PWR + CONTROL ROD FABRICATION + SAN ONOFRE (PWR) + *FAILURE, SCRAM MECHANISM + EXAMINATION + QUALITY ASSURANCE

23360

COE RN

FAILURE OF CONTAINMENT ELECTRICAL PENETRATION AT SAN ONOFRE, FEB. 7

SOUTHERN CALIFORNIA EDISON COMPANY, LOS ANGELES, CALIF.

5 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(9), PAGES 22-26 (FEBRUARY 26, 1968) DOCKET 50-206

(LETTER, FEBRUARY 15) A FIRE ON THE OUTSIDE SIDE OF CONTAINMENT SPHERE IN A CABLE TRAY LEADING TO A SPHERE PENETRATION CAUSED HIGH PRESSURE/TEMPERATURE INSIDE PENETRATION EPC4, FORCING THE OUTER BULKHEAD OUT OF THE SHELL ASSEMBLY. NO CAUSE FOR PENETRATION FAILURE FROM DEFECTIVE MATERIAL OR WORKMANSHIP HAS BEEN FOUND, CAUSE OF FIRE NOT REPORTED. *** EPC4 SERVED PRESSURIZER HEATERS, SAFETY INJECTION AND RESIDUAL HEAT PUMP A, FANS A2 AND A4, ROD H LIFT COIL, AND AN EMERGENCY LIGHTING PANEL. ELEVEN CABLES IN EPC9 (ABOVE 4) WERE DAMAGED BY THE FIRE. DAMAGED EPC9 CABLES SERVED FAN A8 AND FOUR CONTROL RODS. *** PLANT SHUTDOWN WAS ORDERLY, WITH NO RADIATION RELEASE OR TECH.-SPECS. VIOLATION.

*FAILURE, EQUIPMENT + *FIRE + REACTOR, PWR + SAN ONOFRE (PWR) + SYSTEM OPERABILITY IN ACCIDENT + INDEPENDENCE
+ ENGINEERED SAFETY FEATURE + *CONTAINMENT PENETRATION, ELECTRICAL

25408

FOGARTY DJ + ORTEGA DJ

SAN ONOFRE STARTUP

SOUTHERN CALIFORNIA EDISON CO., LOS ANGELES, CALIF.

3 PAGES, POWER ENGINEERING, 72(4), PAGE 38-40, (APRIL 1968)

STARTUP PROBLEMS EXPERIENCED AT SAN ONOFRE CAN BE DIVIDED AMONG FIVE CATEGORIES - (1) ORGANIZATION, (2) EQUIPMENT OR SYSTEM SEASONING, (3) QUALITY CONTROL, (4) OPERATIONS, AND (5) DESIGN. QUALITY-CONTROL SLIP-UPS WERE DISCOVERED IN A CONTROL-ROD-DRIVE MECHANISM AND OTHER SYSTEMS, COLLECTIVELY RESULTING IN THREE-WEEK DELAY OF PHASE-I TESTING. NUCLEAR-INSTRUMENTATION DEBUGGING WAS A TEDIOUS EXERCISE, WITH NOISE AND COMPONENT FAILURE THE MOST PREVALENT PROBLEMS. HOWEVER, FIRST-OF-A-KIND DESIGN PROBLEMS CAUSED THE BULK OF THE DELAYS.

FAILURE, GENERAL + REACTOR, PWR + TRAINING + SAN ONOFRE (PWR) + INSTRUMENT, TESTING + TEST, INSTRUMENT RESPONSE + QUALITY ASSURANCE + INSTRUMENT, ABNORMAL INDICATION + *OPERATING EXPERIENCE

24817

COE RN

REPORT ON SAN ONOFRE CABLE FIRE, MAR. 12, 1968

SOUTHERN CALIFORNIA EDISON COMPANY

2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGES 31-32 (APRIL 8, 1968), DOCKET 50-206

(LETTER, MAR. 21) AN OPERATOR WAS INVESTIGATING AN INTAKE-STRUCTURE LEVEL ALARM AND CALLED CONTROL ROOM AT 12/21 AM TO REPORT SMOKE AND A BLUE FLASH FROM NO. 2 480-V SWITCHGEAR ROOM. THE ROOM WAS SO FILLED WITH SMOKE THAT FAILURE COULD NOT BE DETERMINED. REACTOR SCRAMMED AT 12/34 AM. *** FOR A WHILE DURING COOLDOWN, BORIC ACID PUMP WAS INOPERABLE AND CHARGING PUMP HAD HIGH SUCTION PRESSURE. BOTH BORIC ACID TANK HEATERS WERE INOPERABLE. *** THREE CARTRIDGE TRAYS CONTAINING 750 CONDUCTORS WERE AFFECTED FOR A 15 FT LENGTH.

*FIRE + REACTOR, PWR + SAN ONOFRE (PWR) + ELECTRIC POWER, SHUTDOWN + *INCIDENT, EQUIPMENT + TECHNICAL SPECIFICATIONS + PUMP + SHUTDOWN SYSTEM, SECONDARY + INDEPENDENCE + *ELECTRICAL CONDUCTION + CONTAINMENT PENETRATION, ELECTRICAL

25721

REPORT ON CABLE FAILURES - 1968 - SAN ONOFRE UNIT 1

SOUTHERN CALIFORNIA EDISON AND SAN DIEGO GAS AND ELECTRIC COMPANY

165 PAGES, 16 FIGURES, 10 TABLES OF REPORT ON CABLE FAILURES - 1968, SAN ONOFRE UNIT 1, (DOCKET 50-206), MAY 1968. TYPE--PWR, MFG--WEST., AE--BECHTEL

FIRE FEB. 7, AND MAR. 12 SHOWED THAT THE AWG6 WIRE FOR THE 480 PRESSURIZER HEATERS WAS BOTH THERMALLY OVERLOADED AND IN AN OVERFILLED CABLE TRAY, THUS OPERATING ABOVE THE 90 C DESIGN. HEAVY MECHANICAL LOADING RESULTED IN PHASE-TO-PHASE CONNECTION BETWEEN TWO SEPARATE HEATER CIRCUITS SUCH THAT CURRENT CONTINUED TO FLOW BELOW THE FUSE-BLOWOUT POINT. ***IN THE MAR. 12 COOLDOWN, BORIC ACID WAS INJECTED BY THE TRANSFER PUMP BECAUSE THE INJECTION-PUMP POWER WAS LOST. FOUR HOURS AFTER COOLDOWN STARTED, IT WAS HALTED WHEN BORON CONCENTRATION WAS FOUND REDUCING RATHER THAN INCREASING. BORIC ACID CRYSTALS WERE BLOCKING THE TRANSFER PUMP, WHILE MAKEUP-PUMP OPERATION WAS UNIMPEDED. ***A 6-MONTH SHUTDOWN TO MAKE \$1.5 MILLION REPAIRS RESULTED.

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

*ACCIDENT ANALYSIS + *FIRE + REACTOR, PWR + SHUTDOWN MARGIN + *POISON, SOLUBLE + SAN ONOFRE (PWR) + *INCIDENT, EQUIPMENT + PRESSURIZER + FAILURE, DESIGN ERROR + SHUTDOWN SYSTEM, SECONDARY + INDEPENDENCE + *ELECTRICAL CONDUCTION + CONTAINMENT PENETRATION, ELECTRICAL

25724
SECTION 7.1.5 - BORIC ACID CRYSTALLIZATION STUDY - SAN ONOFRE
SOUTHERN CALIFORNIA EDISON AND SAN DIEGO GAS AND ELECTRIC COMPANY
3 PAGES, 1 FIGURE, PAGE 1-3 OF REPORT ON CABLE FAILURES - 1968, SAN ONOFRE UNIT 1, (DOCKET 50-206), MAY 1968.
TYPE--PWR, MFG--WEST., AE--BECHTEL

TESTS SIMULATING BORIC-ACID-TRANSFER THE SYSTEM THAT PLUGGED ON MAR. 12 REVEALED THAT BORIC ACID CRYSTALS IN STAGNANT SYSTEM NEAR SATURATION DO NOT DISSOLVE, THUS FORMING PRECIPITATION SITES WHEN HEAT IS LOST. THUS, INJECTION OF CRYSTALS BY STARTING A PUMP OR BY REAPPLYING HEAT TO CRYSTALS ON THE WALLS (BREAKING THEM OFF) RESULTS IN CRYSTALS BEING CARRIED TO ACCUMULATE IN A RESTRICTION IN THE LINE. EXPERIMENTS DEMONSTRATE SEVERE PACKING TENDENCY OF CRYSTALS ONCE FORMED IN A PIPE, GIVING A VERY HIGH CHANCE OF PLUGGING. WITH CRYSTALS IN THE SUCTION LINE FOLLOWED BY A LOSS OF HEAT TRACING, RAPID CRYSTAL DEPOSITION MAY EXIST EVEN AT TEMPERATURE ABOVE 150 F.

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

BORON + DEPOSITION + REACTOR, PWR + SHUTDOWN MARGIN + *POISON, SOLUBLE + SAN ONOFRE (PWR) + TEST, PLANT RESPONSE + INCIDENT, EQUIPMENT + SHUTDOWN SYSTEM, SECONDARY + *OPERATING EXPERIENCE

28033
PARTIAL INOPERABILITY OF SAFETY INJECTION SYSTEM
SOUTHERN CALIFORNIA EDISON COMPANY
3 PAGES, LETTER TO P.A. MORRIS, DRL, SEPTEMBER 6, 1968, DOCKET 50-206, TYPE--PWR, MFG--WEST., AE--BECHTEL

ON AUG. 27, 1968, CALIBRATION SHOWED BOILER FEED PUMP SPEED SWITCHES WERE MADE UP AT 2800 AND 3800 RPM RESPECTIVELY, INSTEAD OF 3200. SPEED SWITCHES ENSURE UNBORATED WATER FLUSHED OUT BEFORE SAFETY INJECTION BEGINS. A 23 CU. FT. DILUTION WAS ANALYZED IN THE FSAR, 10 WOULD HAVE BEEN ADDED HERE. ***SAFETY INJECTION FLOW COMPARATOR DID NOT CLOSE ONE INJECTION VALVE 850 C ON A HIGH FLOW RATE TEST. A BLOCKING DIODE WAS INSTALLED IN THE COMMON GROUND LEG OF THE AUTOGNEERING RELAYS, AND ALL THREE VALVES WORKED PROPERLY. ***EACH CONDITION HAD BEEN ANALYZED IN FSAR. NEITHER WOULD HAVE PREVENTED SAFETY INJECTION SYSTEM FROM WORKING.

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

*FAILURE, COMPONENT + REACTOR, PWR + SAN ONOFRE (PWR) + INSTRUMENT CALIBRATION + INSTRUMENT, FLOW + PUMP + *SHUTDOWN SYSTEM, SECONDARY + *CORE REFLOODING SYSTEM + SET POINT

29807
CONTROL ROD F-10 FULLY INSERTED FOR 19 DAYS OF OPERATION
SOUTHERN CALIFORNIA EDISON COMPANY
3 PAGES, LETTER TO P.A. MORRIS AEC DRL, SEPTEMBER 25, 1968, DOCKET 50-206, TYPE--PWR, MFG--WEST., AE--BECHTEL

CONTROL F-10 REMAINED FULLY INSERTED IN THE CORE FOR 19 DAYS. RECORDER AND ROD BOTTOM LIGHT HAD INDICATED ROD POSITION WAS ZERO. A CHECK OF THE WINDINGS OF THE TRANSFORMER FOR ROD POSITION INDICATED A SHORT, SO IT WAS BELIEVED THAT THE TRANSFORMER HAD FAILED AND THE CONTROL ROD WAS IN THE CORRECT POSITION. SUBSEQUENT IN-CORE THERMOCOUPLE MAPS WERE TAKEN AND IMPROPERLY ANALYZED. ON MARCH 8, A COMPUTER ANALYSIS OF IN-CORE FLUX MEASUREMENTS AND CORE OUTLET DATA REVEALED THE ROD WAS ACTUALLY FULLY INSERTED. CAUSE OCCURRED WHEN 11 CABLES WHICH HAD BEEN DAMAGED WERE REWIRED. THE POSITIVE AND NEGATIVE LEADS TO THE MOVABLE GRIPPER COIL WERE REVERSED, CAUSING INTERACTION OF THE FLUX OF THE LIFT COIL AND MOVABLE GRIPPER COIL SO THAT ROD SLIPS.

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

*CONTROL ROD DRIVE + FAILURE, OPERATOR ERROR + REACTOR, PWR + SAN ONOFRE (PWR) + INCIDENT, HUMAN ERROR + *FAILURE, MAINTENANCE ERROR + *FAILURE, SEQUENTIAL + INSTRUMENT, ABNORMAL INDICATION + ELECTRICAL CONDUCTION

28991
LOW LD
SAFETY MATTERS RELATED TO SAN ONOFRE FIRES
U. S. ATOMIC ENERGY COMMISSION, WASH., D. C.
LETTER TO W. R. GOULD OF SOUTHERN CALIFORNIA EDISON CO., 4 PAGES, OCT. 18, 1968, DOCKET 50-206, TYPE--PWR, MFG--WEST., AE--BECHTEL

REQUESTS MORE INFORMATION AND CORRECTIVE MEASURES, INCLUDING TECH. SPEC. CHANGES, ON (1) NOT ADDING BORON NOR VERIFYING BORON DURING COOLDOWN, NOT HAVING INSTRUCTIONS ABOUT REACTOR SAFETY DURING FIRES, NOT BEING CAPABLE OF TESTING FOR BORON DURING OFF SHIFTS, AND NOT INTERPRETING INFORMATION ON ABNORMAL CONDITIONS, (2) NOT DETERMINING THAT CONTROL ROD F-10 WAS FULLY INSERTED FOR 19 DAYS AT FULL POWER, NOT BEING ABLE TO ANALYZE IN-CORE INSTRUMENTATION DATA IN TIME, AND NOT TESTING FLOW INSTRUMENTATION FREQUENTLY ENOUGH.

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

FIRE + *FAILURE, OPERATOR ERROR + REACTOR, PWR + POISON, SOLUBLE + *COMPLIANCE + SAN ONOFRE (PWR) + SHUTDOWN SYSTEM, SECONDARY + REACTIVITY EFFECT, ANOMALOUS + INSTRUMENT, ABNORMAL INDICATION + ELECTRICAL CONDUCTION

30293

(B) SAFETY MATTERS INDIRECTLY RELATED TO CABLE TRAY FIRES
SOUTHERN CALIFORNIA EDISON COMPANY

4 PAGES, LETTER TO L.D. LOW, AEC COMPLIANCE, NOVEMBER 14, 1968, DOCKET 50-206, TYPE--PWR, MFG--WEST., AE--BECHTEL

REPLY TO COMPLIANCE LETTER OCT. 18. (1) 19 DAY INSERTION OF ROD F-10 INDICATES DEFICIENCIES IN TRAINING, INSTRUMENTATION, AND IN SAFETY ANALYSES. (REPLY) INCREASED TRAINING, MORE COOLING OF LVDT, ANALYSIS IN PROGRESS OF ROD EJECTION AT POWER. (2) IN CORE FLUX DATA WAS NOT ANALYZED IN TIMELY FASHION. (REPLY) SYSTEM IS ADEQUATE, OPERATORS ASSUMED POSITION DATA WAS FALSE. (3) PREOPERATIONAL TEST AUG. 29, 1968, OF SAFETY INJECTION FLOW COMPARATORS INDICATE INADEQUATE TESTS. (REPLY) INCORRECT DESIGN AND INCOMPLETE INITIAL TESTING WERE THE CAUSE, NO FAILURES OR SETPOINT SHIFTS FOUND LATELY. REFUELING INTERVAL TESTS ARE ADEQUATE.

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

FAILURE, OPERATOR ERROR + REACTOR, PWR + COMPLIANCE + *POWER DISTRIBUTION + SAN ONOFRE (PWR) + FAILURE, DESIGN ERROR + FAILURE, ADMINISTRATIVE CONTROL + RESPONSE TO AEC QUESTION + ACCIDENT, CONTROL ROD EJECTION + *CORE REFLOODING SYSTEM + TEST INTERVAL

29676

COE RN

PLUGGING OF BORIC ACID INJECTION AT SAN ONOFRE

SOUTHERN CALIFORNIA EDISON CO., LOS ANGELES, CALIF.

2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(48), PAGE 19 AND 20, (NOVEMBER 25, 1968), DOCKET 50-206, TYPE--PWR, MFG--WEST., AE--BECHTEL

(LETTER NOV. 5) PLUGGING WAS DISCOVERED ON OCT. 14 WHEN BLEND WATER MAKEUP TO THE VOLUME CONTROL TANK WAS AUTOMATICALLY CALLED FOR. A BORON FLOW DEVIATION ALARM WAS RECEIVED, AND THE OPERATOR FOUND BOTH TRANSFER PUMPS WOULD OPERATE BUT WITH NO FLOW. BY STARTING AND STOPPING THE PUMPS SEVERAL TIMES, THE TRANSFER PUMPS FLOW WAS ESTABLISHED IN 5 MIN., AND INJECTION PUMP FLOW IN ANOTHER 5. THE REFUELING STORAGE TANK BORON WAS STILL AVAILABLE, SO TECH. SPEC. REDUNDANCY NOT VIOLATED. TRACE HEATING WAS NORMAL. RECIRCULATION OF TANK CONTENTS FOR 10 MINUTES 3 TIMES A DAY WILL NOW BE REQUIRED, CONTINUOUS RECIRCULATION WILL BE EVALUATED.

BORON + REACTOR, PWR + POISON, SOLUBLE + SAN ONOFRE (PWR) + SHUTDOWN SYSTEM, SECONDARY + FAILURE, SEQUENTIAL + *FAILURE, SIMULTANEOUS + RECONCENTRATION + OPERATOR ACTION

14666

MILLER CE + SHIELDS RP

USED CHARCOAL FILTERS FROM N S SAVANNAH IGNITE AT LOWER TEMPERATURES

OAK RIDGE NATIONAL LABORATORY

ORNL-TM-1742 +. 2 PAGES, ORNL NUCLEAR SAFETY RESEARCH AND DEVELOPMENT PROGRAM 8MONTHLY REPORT FOR NOVEMBER-DECEMBER 1966, PAGES 70-71, JANUARY 13, 1967, DOCKET NO. 50-238

ORNL TESTS ON AGED (USED) CHARCOALS FROM THE CONTAINMENT FILTERS OF THE NS SAVANNAH SHOWED THE CHARCOALS IGNITE AT 150-200 C LOWER THAN SIMILAR NON-AGED ONES. IODINE-IMPREGNATED CHARCOALS GENERALLY HAVE A HIGHER IGNITION TEMPERATURE THAN NON-IMPREGNATED CHARCOALS.

AVAILABILITY - WM. B. COTTRELL, OAK RIDGE NATIONAL LABORATORY, P. O. BOX Y, OAK RIDGE, TENNESSEE

*FILTER + FIRE + REACTOR, MARITIME + NS SAVANNAH (PWR) + REACTOR, PWR + CHARCOAL ADSORBER + *CHARCOAL + *OPERATING EXPERIENCE SUMMARY + HIGH TEMPERATURE + *IGNITION

14078

N S SAVANNAH CORRESPONDENCE

FIRST ATOMIC SHIP TRANSPORT, INC.

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(3) PAGES 19-20 (JANUARY 16, 1967) DOCKET NO. 50-238

(LETTER, NOVEMBER 10, 1966) (1) OPERATION NEAR BILBAO, SPAIN, IN A TWO-OUT-OF-TWO CONCIDENCE MODE WAS CONTRARY TO TECH. SPECS. (2) WHILE THE HEALTH PHYCIST SHOULD REPORT TO THE MASTER FOR UNUSUAL RADIATION CONDITIONS AS IN TECH. SPEC., HIS ROUTINE WORK IS FOR ENGINE DEPARTMENT AND IS SHOWN ACCORDINGLY ON THE ORGANIZATION CHART. (3) CHARCUAL FILTERS HAVE BEEN HEAVILY COVERED WITH OXIDIZED LUBE OIL, BUT THAT DID NOT REDUCE CAPABILITY FOR RETAINING ELEMENTAL IODINE. TESTING IS NOW DONE ONCE PER VOYAGE, RATHER THAN ONCE A YEAR.

ADMINISTRATIVE CONTROL + FILTER + NS SAVANNAH (PWR) + REACTOR, PWR + TEST, FILTER + CHARCOAL + INSTRUMENT, COINCIDENT + *TECHNICAL SPECIFICATIONS

20677

MEHANN RC

N S SAVANNAH PRIMARY SYSTEM LEAK FROM VALVES

FIRST ATOMIC SHIP TRANSPORT, HOBOKEN, N. J.

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(38) PAGES 27-28 (SEPTEMBER 18, 1967)

(LETTER, AUGUST 25) ON AUGUST 19, THE CONTAINMENT DRAIN TANK LEVEL BEGAN INCREASING AT AN ABNORMAL RATE. AFTER A DAY, IT BECAME OBVIOUS THAT THIS 50 GPM WAS NOT RELIEF-VALVE LEAKAGE ALONE, AND THE PLANT COOLED DOWN AND CONTAINMENT ENTERED. ONE LETDOWN-COOLER ISOLATION-VALVE WAS LEAKING THRU A LOOSE CLOSURE ASSEMBLY AND THE OTHER LOOSE BY ONE NUT-TURN. PRESSURIZER VENT VALVE HAD A LEAKY BONNET AND CUT SEAT. LETDOWN FLOW CONTROL VALVE HAD A CUT SEAT AND DISK. 2500 GAL OF COOLANT WERE LOST IN THE 2 DAYS. EACH TIME CONTAINMENT IS ENTERED, THESE VALVES AND CLOSURE ASSEMBLIES WILL BE CHECKED.

*FAILURE, EQUIPMENT + NS SAVANNAH (PWR) + REACTOR, PWR + VALVE + MAIN COOLING SYSTEM + LEAK

21415
NS SAVANNAH REPORTS FAILURE OF VENT PIPING IN A PRIMARY COOLANT PUMP
FIRST ATOMIC SHIP TRANSPORT INC.
2 PAGES, NOV. 27, 1967, DOCKET NO. 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP

WHILE ANCHORED AT THE PACIFIC ENTRANCE TO THE PANAMA CANAL, A RISE IN THE CONTAINMENT DRAIN-TANK LEVEL LED TO THE DISCOVERY OF THE FAILED PIPING. INITIAL LEAK RATE WAS 12 GPH, INCREASING OVER THE NEXT 5 HR TO 120 GPH, AT WHICH TIME THE PLANT WAS SHUT DOWN. THE STARBOARD LOOP WAS SHUT DOWN, AND THE SHIP HEADED FOR NEW YORK FOR REPAIRS, USING ONLY THE PORT LOOP AND AT REDUCED SPEED. A NEW FITTING WAS INSTALLED AND A VIBRATION DAMPENER ADDED.

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

*ACCIDENT, LOSS OF COOLANT + REACTOR, MARITIME + NS SAVANNAH (PWR) + *FAILURE, PIPE + REACTOR, PWR + *INCIDENT, EQUIPMENT + PUMP

21433
NS SAVANNAH INCIDENT REPORT NO. 48--VALVE FAILURE
FIRST ATOMIC SHIP TRANSPORT INC.
7 PAGES, 1 FIGURE, DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP, DECEMBER 4, 1967

AN INCREASE IN PRESSURE IN THE SALT-WATER COOLING CIRCUIT REQUIRED THE SHIP TO RETURN TO HOBOKEN FOR REPAIR SINCE IT COULD NOT BE ESTABLISHED WHETHER THERE WAS A LEAK IN THE EMERGENCY COOLER. THE CAUSE WAS DUE TO FAILURE TO SEAT OF THE INLET AND EXIT VALVES ON THE EMERGENCY COOLING SYSTEM, ALLOWING A SMALL AMOUNT OF PRIMARY WATER AT 508 F TO FLOW THROUGH THE NORMALLY ISOLATED SYSTEM. THE HEAT TRANSFER CAUSED WATER IN THE ISOLATED SALT-WATER COOLING CIRCUIT TO EXPAND, THEREBY INCREASING THE PRESSURE. PRIOR INCIDENT 29 (JAN. 16, 1967) HAD SHOWN SIMILAR RESPONSE. (INCIDENT CONSIDERED INSIGNIFICANT BUT REPORTED BECAUSE OF WIDESPREAD INTEREST OF PRESS AND NEWS MEDIA AND THEIR TENDENCY TO OVERPLAY AND DISTORT FACTS.)

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

*FAILURE, EQUIPMENT + NS SAVANNAH (PWR) + REACTOR, PWR + HEAT EXCHANGER + *VALVE + SHUTDOWN COOLING SYSTEM + FAILURE, TUBING

24816
MEHANN RC
NS SAVANNAH EMERGENCY COOLING SYSTEM FAILURE
FIRST ATOMIC SHIP TRANSPORT
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGE 29-30 (APRIL 8, 1968)

(LETTER, MAR. 15) ON MAR. 18 IN GENOA, DURING FLUSHING OF SALT-WATER DECAY-HEAT-REMOVAL CIRCUIT AFTER A SUCCESSFUL ROUTINE TEST, SALT-WATER INLET VALVE DK-IV DID NOT OPEN. REACTOR WAS SHUT DOWN, AND A FIRE HOSE WAS CONNECTED TO A FLUSHING VALVE. *** THE VALVE BONNET WAS REMOVED, SHOWING THAT THE STEM HAD CORRODED AWAY, ALLOWING DISK TO DROP AND CLOSING VALVE. VALVE REASSEMBLED WITHOUT DISK, TO BE FIXED IN N. Y. CITY. THIS VALVE WILL BE INCLUDED IN THE ANNUAL SEA-VALVE INSPECTION.

*FAILURE, EQUIPMENT + REACTOR, MARITIME + NS SAVANNAH (PWR) + REACTOR, PWR + INCIDENT, EQUIPMENT + TEST, SYSTEM OPERABILITY + *VALVE + *SHUTDOWN COOLING SYSTEM

28597
MEHANN RU
NS SAVANNAH ONBOARD FILTER TESTING PROGRESS
FIRST ATOMIC SHIP TRANSPORT, INC., HOBOKEN, N. J.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(40), PAGE 25 AND 26, (SEPT. 30, 1968), DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP

(LETTER, SEPT. 13) (1) TWO FIRMS ARE PREPARING PROPOSALS ON REPLACEMENT OF THE CHARCOAL FILTERS. (2) FAST FEELS FREON-112 LEAK TESTING IS NOT SUITABLE FOR SHIPBOARD USE. HACI HAS ELIMINATED INTERFERENCE BY COPPER IONS IN THE NONRADIOACTIVE IODINE TEST. AUG. 68 TRIALS WERE ENCOURAGING, AND FURTHER TESTS ARE PLANNED. (3) ORNL TESTS SUGGESTS THAT THE OIL CONTAMINANT IS A VOLATILE FRACTION OF THE CONTROL ROD DRIVE HYDRAULIC OIL, EVOLVED WHEN OIL CONTACTS A SURFACE WARMER THAN 250 F. AN OVERALL PROGRESS REPORT WILL BE SUBMITTED BY MARCH 17, 1969.

*FILTER + NS SAVANNAH (PWR) + REACTOR, PWR + TEST, FILTER + *CHARCOAL + FLOW BLOCKAGE + R AND D PROGRAM + *OPERATING EXPERIENCE

30260
NS SAVANNAH PRIMARY SYSTEM LEAK
FIRST ATOMIC SHIP TRANSPORT, INC.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 15(2), PAGE 14, JAN. 13, 1969, DOCKET 50-238, TYPE--PWR, MFG--B+W, AE--G.G. SHARP

(LETTER DEC. 31.) ON NOV. 25 ENROUTE BILBAO TO CARTAGENA, SPAIN, AN UNEXPLAINED RISE IN THE CONTAINMENT DRAIN TANK LEVEL INDICATED A 5 GPH PRIMARY SYSTEM LEAK. ISOLATION WAS UNSUCCESSFUL. ON DEC. 4, INDICATION INCREASED TO 9 GPH, AND REACTOR SHUTDOWN AT ARRIVAL IN PIRAEUS, GREECE. HINGE PIN PLUG ON VALVE DK-39V CONTAINED AN OLD HAIRLINE CRACK. A NEW PLUG WAS INSTALLED, AND A HYDRO AT 250 F/1735 PSIG SHOWED NO LEAKAGE.

MAINTENANCE AND REPAIR + REACTOR, MARITIME + NS SAVANNAH (PWR) + REACTOR, PWR + INCIDENT, EQUIPMENT + MAIN COOLING SYSTEM + *SHUTDOWN COOLING SYSTEM + *LEAK

19864

ACCIDENTAL INJECTION OF SUPPLEMENTARY SAFETY SYSTEM POISON INTO A PRODUCTION REACTOR AT SAVANNAH RIVER PLANT
 USAEC, DIVISION OF OPERATIONAL SAFETY
 2 PAGES, REACTOR OPERATING EXPERIENCES BULLETIN 67-13, OCTOBER 31, 1967

GADOLINIUM NITRATE WAS INJECTED WHILE THE REACTOR WAS AT FULL POWER. A MAINTENANCE CREW WAS CHECKING THE BATTERY-MONITORING VOLTMETERS ON A POISON-INJECTION SUBSYSTEM WHEN AN ALLIGATOR CLIP SLIPPED FROM A TERMINAL AND SHORTED AN UNRELATED 110-V TERMINAL, APPLYING 110-V AC TO THE DETONATOR OF THE EXPLOSIVE VALVE, RELEASING THE POISON SOLUTION. 22 HR WERE REQUIRED FOR CLEANUP THROUGH DEIONIZER BEDS TO OBTAIN SUFFICIENT REACTIVITY FOR STARTUP. THE INCIDENT WAS ATTRIBUTED TO A CIRCUIT-LAYOUT DEFICIENCY IN THAT THE 110-V TERMINAL WAS ONLY 1/4 IN. FROM THE METER TERMINAL.

AVAILABILITY - USAEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

FAILURE, OPERATOR ERROR + SAVANNAH RIVER (PR) + POISON, SOLUBLE + OPERATING EXPERIENCE SUMMARY + SCRAM, SPURIOUS + *FAILURE, DESIGN ERROR + SHUTDOWN SYSTEM, SECONDARY + REACTOR, PRODUCTION

19254

SAXTON REPORTS CONTROL ROD STUCK IN CORE
 SAXTON NUCLEAR EXPERIMENTAL CORPORATION, SAXTON, PA.
 21 PAGES, OCTOBER 12, 1967, DOCKET NO. 50-146

(JUNE, JULY, AND AUGUST REPORTS) CONTROL ROD 5 FAILED TO RAISE MORE THAN 0.4 IN. DURING STARTUP. A MANUALLY OPERATED GEAR HOIST WAS USED TO FREE THE ROD WITH 162 LB FORCE. IT WAS LOWERED, AND THE ROD OPERATED PROPERLY. VISUAL INSPECTION SHOWED GOUGES (ABOUT 1/8 X 3/8 BY 1/16 IN. DEEP) IN THE ROD OPPOSITE THE CONTROL-ROD GUIDE BLOCK. THE BLOCK HAD BEEN SCORED ON THE VERTICAL EDGE, INDICATING THAT AN OBJECT HAD JAMMED BETWEEN THE ROD AND THE GUIDE BLOCK. ROD WAS OPERATED SUCCESSFULLY.

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

CONTROL ROD + REACTOR, PWR + SAXTON (PWR) + *INCIDENT, EQUIPMENT + *FAILURE, SCRAM MECHANISM + EXAMINATION + REPORT, OPERATIONS SUMMARY

19255

ALSO IN CATEGORY 17

SAXTON REPORT DAMAGE TO FOLLOWER SECTION OF CONTROL ROD
 SAXTON NUCLEAR EXPERIMENTAL CORPORATION, SAXTON, PA.
 7 PAGES, OCTOBER 12, 1967, DOCKET NO. 50-146

SAXTON REPLACED THE FUEL-FOLLOWER SECTION OF CONTROL ROD 2 WHEN VISUAL INSPECTION REVEALED POSSIBLE CLAD FAILURES IN BLACK-RUB AREAS AND DENTS (FROM FABRICATION).

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

CONTROL ROD + REACTOR, PWR + SAXTON (PWR) + FUEL ELEMENT + *MODIFICATION, SYSTEM OR EQUIPMENT + FAILURE, FABRICATION ERROR + FAILURE, CLADDING + FAILURE, SCRAM MECHANISM + REPORT, OPERATIONS SUMMARY

23805

MONTGOMERY CO.

SAXTON REPORTS FAILURE OF CONTROL ROD TO SEAT

SAXTON NUCLEAR EXPERIMENTAL CORPORATION

2 PAGES, FEBRUARY 23, 1968, ATOMIC ENERGY CLEARING HOUSE 14(10), PAGES 44-45 (MARCH 4, 1968) DOCKET 50-146

(LETTER TO DRL, FEB. 23) ON JAN. 22, THE REACTOR WAS SCRAMMED AFTER COMPLETION OF THE DAYS OPERATOR TRAINING. CONTROL-ROD 1 STOPPED 2.98 IN. ABOVE ZERO (IN.) POSITION. A ROD-EXERCISE PROGRAM WAS STARTED, AND THE ROD STUCK AT ABOUT 3 IN. ON THE 16TH AND 64TH ROD DROPS. AN ADDITIONAL 50 DROPS WERE WITHOUT FURTHER DIFFICULTY. CONCLUSION - PROBABLY A SMALL PIECE OF FOREIGN MATTER HAS LODGED IN THE ROD-DRIVE MECHANISM AND WAS REMOVED BY THE SELF-FLUSHING ACTION OF THE DASH POT.

CONTROL ROD DRIVE + REACTOR, PWR + SAXTON (PWR) + *FAILURE, SCRAM MECHANISM

29920

ERRATIC WATER LEVEL INDICATION DUE TO LEAK

SAXTON NUCLEAR EXPERIMENTAL CORPORATION

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(50), PAGE 31, (DEC. 9, 1968), DOCKET 50-146, TYPE--PWR, MFG--WEST., AE--GILBERT ASSOC.

(LETTER NOVEMBER 27) ON OCTOBER 4, SAXTON WAS PLACED IN THE HOT SHUTDOWN CONDITION. AT 700 PM ERRATIC INDICATION WAS OBSERVED ON STEAM GENERATOR WATER LEVEL AND ON PRIMARY COOLANT FLOW. AT 1100 PM PRESSURIZER LEVEL AND PRESSURE INDICATION BECAME ERRATIC. A GLAND NUT ON A D/P CELL HAD LEAKED WATER THAT PENETRATED INTO OTHER D/P CELL TRANSMITTERS. NO GASKETS HAD BEEN INSTALLED IN THEIR VAPORTIGHT HOUSINGS.

REACTOR, PWR + SAXTON (PWR) + *INSTRUMENT, LIQUID LEVEL DETECTION + PRESSURIZER + FAILURE, INSTALLATION ERROR + *INSTRUMENT, ABNORMAL INDICATION + MAIN COOLING SYSTEM + STEAM GENERATOR + INSTRUMENT, PRESSURE + LEAK

26594
 QUARTERLY REPORT NO. 20 (ON SENA REACTOR PROJECT) APRIL 1-JUNE 30, 1967.
 SOCIETE D ENERGIE NUCLEAIRE FRANCO-BELGE DES ARDENNES, CHOOZ-LEZ-GIVET (FRANCE)
 AEC-TR-6912 +. 17 PAGES, JUNE 1967

A 6-WEEK OUTAGE OCCURRED BECAUSE OF FRACTURED VANES ON THE HP STAGE OF TURBINE, APPARENTLY DUE TO RESONANCE. OTHER INCIDENTS WERE - (1) FAULTY OPENING OF ALTERNATOR EXCITER SWITCH, (2) DEFECT IN POLE 4 LINE CONTACTOR, (3) HIGH CONCENTRATION OF CHLORIDE IN SECONDARY WATER CIRCUIT DUE TO OPERATOR ERROR IN VALVING, AND (4) CONTAMINATION OF SEVERAL ROOMS BY EFFLUENT FROM WASTE PROCESS SYSTEM BECAUSE OF IMPROPERLY DESIGNED DRAIN LINES.

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

*FAILURE, EQUIPMENT + FRANCE + FAILURE, OPERATOR ERROR + REPORT, OPERATIONS + REACTOR, PWR + BELGIUM + HEAT SINK + BUILDING + FAILURE, INSTRUMENT + CONTAMINATION + INSTRUMENT, SWITCH + FAILURE, DESIGN ERROR + CHLORIDE + TURBINE BLADE, VIBRATION

24154
 SENA SHUTDOWN ATTRIBUTED TO CORE BARREL BOLT FAILURE
 1 PAGE, NUCLEAR INDUSTRY 15(2), PAGE 56, (FEB. 1968)

WESTINGHOUSE STATEMENT READS IN PART AS FOLLOWS - AS PART OF THE INVESTIGATION OF A STUCK CONTROL ROD, CAUSED BY INTERFERENCE IN THE CORE, INSPECTION REVEALED BROKEN PIECES OF CORE-BARREL BOLTS IN TWO OF THE FOUR STEAM GENERATORS. THESE BOLTS JOIN UPPER AND LOWER CORE BARREL. THEIR USE IS PECULIAR TO THE INTERNAL DESIGN OF SENA AND EARLIER PLANTS. REPAIR TO INTERNALS WILL BE CONCURRENT WITH REPAIR FOR TURBINE AND GENERATOR. REACTOR WAS SHUT DOWN JAN. 30, 1968.

*FAILURE, EQUIPMENT + REACTOR, PWR + ITALY + *FAILURE, SCRAM MECHANISM + *CORE COMPONENTS

16758
 PRESSURIZED WATER REACTOR (PWR) PROJECT. TECHNICAL PROGRESS REPORT FOR THE PERIOD JANUARY 21, 1967 TO APRIL 21, 1967
 BETTIS ATOMIC POWER LABORATORY, PITTSBURGH, PA.
 WAPD-MRP-120 +. 90 PAGES, FIGURES, TABLES, APRIL 1967.

(PAGE 3) - SEED-2 INSTALLATION WILL REQUIRE A SOLUBLE POISON (PTB). ITS CORROSIVE EFFECT ON ALUMINUM CANAL WATER SYSTEM WAS STUDIED. (PAGE 29) - FLUX PLOTS FROM FLUX WIRE, TNO2, AND TURBO-ZIP SHOWED VARYING AGREEMENT DURING XENON TRANSIENTS. TNO2 IS AS GOOD AS OR SUPERIOR TO TURBO-ZIP IN DESCRIBING AXIAL POWER. (PAGE 45) - DURING XENON BURNOUT 12 HR AFTER SHUTDOWN, NEARLY CONTINUOUS ROD INSERTION WAS NECESSARY WITH GROUP III BELOW 20 IN. TO HOLD POWER CONSTANT. SPECIAL TESTS SHOWED THIS DUE TO RAPID DECREASE IN GROUP-III BANK WORTH BELOW 25 IN., APPARENTLY AS FLUX PEAK SHIFTS TO REACTOR TOP.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

CONTROL ROD WORTH + REACTOR, PWR + SHIPPINGPORT (PWR) + *POISON, SOLUBLE + XENON + *POWER DISTRIBUTION + *OPERATING EXPERIENCE SUMMARY + CORROSION + REPORT, OPERATIONS ANALYSIS + REFUELING + REACTIVITY EFFECT, ANOMALOUS

27616
 SELECTED SHIPPINGPORT OPERATING EXPERIENCE
 BETTIS ATOMIC POWER LABORATORY
 WAPD-MRP-122 +. 14 PAGES, PAGES 6, 20-41 AND 43 OF PRESSURIZED WATER REACTOR (PWR) PROJECT. TECHNICAL PROGRESS REPORT, JULY 22, OCTOBER 20, 1967

(PAGE 6) NH4OH ADDITION AND DEGASIFICATION RATES INCREASE DRASTICALLY WITH COOLANT PH ABOVE 10.3. (PAGE 20-41) POWER LIMITS FOR VARIOUS CONTROL ROD PROGRAMS PAST 10,000 EFPH WERE CALCULATED. FOR VARIOUS LOAD SWINGS, XENON BURNOUT RATES AND AXIAL PEAK/AV NEUTRON FLUXES WERE MEASURED AND COMPARED WITH TURBO-ZIP CALCULATIONS. ON THE RETURN TO 100 MWE ON AUGUST 21, XENON OSCILLATION SET IN, GIVING +-9 IN. CONTROL ROD MOTION. OPERATIONAL DETECTORS LOCATED AT CORE MIDHEIGHT WERE IN PHASE WITH ROD BANK MOTION, WHILE TEST CHAMBERS ABOVE THE CORE WERE OUT OF PHASE. OPERATING LIMITS FOR PEAK SINGLE CHANNEL NUCLEAR INSTRUMENT READINGS WERE CALCULATED, AS WAS A CONTROL ROD PROGRAM. (PAGE 43) COMPUTER PROGRAM MO 795 WAS PLACED INTO PRODUCTION. MO 795 PERFORMS ALL FUEL ELEMENT PERFORMANCE LIMITS CALCULATIONS FOR CORE 2, INCLUDING MAXIMUM PERMISSIBLE SINGLE CHANNEL, NUCLEAR INSTRUMENT READINGS.

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

COMPUTER PROGRAM, GENERAL + *CONTROL ROD PROGRAM + REACTOR, PWR + SHIPPINGPORT (PWR) + POWER DISTRIBUTION + COOLANT CHEMISTRY + *FUEL ELEMENT + REPORT, OPERATIONS ANALYSIS + *XENON OSCILLATION + *INSTRUMENT, ABNORMAL INDICATION + *PERFORMANCE LIMIT

28990
 TECHNICAL PROGRESS REPORT PRESSURIZED WATER REACTOR (PWR) PROJECT FOR THE PERIOD APRIL 27, 1968 TO JULY 26, 1968
 BETTIS ATOMIC POWER LABORATORY - PITTSBURGH, PA.
 WAPD-MRP-125 +. 48 PAGES, FIGURES, TABLES, JUNE 26, 1968

1B STEAM GENERATOR TUBES WERE PLUGGED WHERE ULTRASONIC INSPECTION REVEALED THINNING WHERE U-TUBE ENDS CONTACT THE LAST SUPPORT PLATE. ***A SNEAK CIRCUIT THROUGH A COMMON POWER SUPPLY CAUSES COMPENSATION TO VARY AT LOWER POWER GIVING 7% DEVIATION AMONG 4 CHANNELS AT 20% POWER. ***AN AC RIPPLE FROM POWER SUPPLY AND AN UNSHIELDED WIRE CAUSED A SCRAM BY ADDING 5% TO THE TRUE 62% POWER READING. ***ANALYSIS RESULTS OF CONTROL ROD PROGRAM, TEMP. COEFFICIENT TESTS, FUEL BURNUP REACTIVITY PRESENTED.

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

CHAMBER, COMPENSATED + REACTOR, PWR + SHIPPINGPORT (PWR) + REPORT, OPERATIONS ANALYSIS + *SCRAM, SPURIOUS + *INSTRUMENT, ABNORMAL INDICATION + *FAILURE, TUBING + STEAM GENERATOR

15535
 REACTIVITY SHIFT IN SPERT-III REACTOR
 U.S. ATOMIC ENERGY COMMISSION
 REACTOR OPERATING EXPERIENCES 67-4 +. 2 PAGES, APRIL 10, 1967

CONTROL-ROD CRITICAL POSITIONS VARIED ERRATICALLY OVER SEVERAL WEEKS, WITH MAGNITUDES UP TO 20 CENTS, WITH A 15-CENT CHANGE IN ONE TEST. EXPERIMENTS INDICATED ONE ROD AT FAULT, AND THE FLUX SUPPRESSOR WAS CHECKED RADIOGRAPHICALLY. IT WAS FREE TO MOVE 12 INCHES, ON FLOW CHANGES OR ROD DROPS. HOLES WERE DRILLED TO SPOT WELD THE SUPPRESSORS IN 24 LOCATIONS.

AVAILABILITY - AEC, DIVISION OF PUBLIC INFORMATION, WASHINGTON, D. C. 20545

CONTROL ROD WORTH + REACTOR, PWR + SPERT 3 (S-RR) + *REPORT, OPERATIONS ANALYSIS + REACTOR, AEC OWNED + *REACTIVITY EFFECT, ANOMALOUS

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

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

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

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

16404
 SELECTED YANKEE OPERATING EXPERIENCE.
 YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASSACHUSETTS
 8 PAGES, 2 FIGURES, 1 TABLE, MAY 24, 1967, DOCKET NO. 50-79, FROM YANKEE NUCLEAR POWER STATION OPERATIONS REPORT NO. 76 FOR THE MONTH OF APRIL 1967

(1) CGRE REACTIVITY CONTINUES NORMALLY AT 0.74 DELTA K/K PER 1000 MWD/MT. (2) INCREASING NO.-1 STEAM-GENERATOR CHLORIDE LEVEL WAS TRACED TO CHLORIDE CONTAMINATION OF THE PHOSPHATE ADDITIVE, AS OTHER INDICATORS OF TURBINE-CONDENSER TUBE LEAKS WERE ABSENT. (3) AN ACCIDENTAL RELEASE OF BELOW-MPC GAS OCCURRED DURING A ROUTINE SAMPLING OF THE PRESSURIZER GAS SPACE WHEN THE RECIRCULATION VENT VALVE TO THE LOW-PRESSURE SURGE TANK WAS LEFT OPEN, ALLOWING BACKFLOW FROM SURGE TANK TO SAMPLE HOOD. 32 MICROCURIES OF BETA-GAMMA AND 60 MILLICURIES OF TRITIUM WERE RELEASED IN A 2-1/2-HOUR PERIOD.

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

AIRBORNE RELEASE + *FUEL BURNUP + FAILURE, OPERATOR ERROR + REACTOR, PWR + TRITIUM + YANKEE (PWR) + HEAT EXCHANGER + *COOLANT CHEMISTRY + INCIDENT, HUMAN ERROR + *OFF GAS + CHLORINE + REPORT, OPERATIONS SUMMARY + STEAM GENERATOR

21991
PAXSON E + SMALLEY WR
ENGINEERING AND METALLURGICAL EVALUATION OF THE YANKEE CORE I SPENT FUEL
WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA. ATOMIC POWER DIV.
WCAP-6084 +. 171 PAGES, 130 FIGURES, 15 TABLES, 36 REFERENCES, JUNE 1967

CONCLUSION WAS THAT UO2 FUEL AND SS-348 CLAD HAD PERFORMED SATISFACTORILY UP TO 46,000 MWD/MTU AND DOSES OF 8×10^{21} NEUTRONS GREATER THAN 1 MEV. 16 FUEL ASSEMBLIES WERE EXAMINED AND 71 FUEL RODS DESTRUCTIVELY TESTED. CLAD TUBE-BURSTS WERE MADE, AND UO2 MELTING POINT WAS DETERMINED AS A FUNCTION OF FUEL BURNUP. SURFACE FILM DEPOSITS, SCRATCHES, RUB MARKS FROM CONTROL RODS, DISCOLORATIONS, EXTENT OF EROSION, ETC., DESCRIBED. A 2-IN.-LONG, 0.07-IN.-THICK PIECE OF FOLDED SHEET METAL FOUND IN AN ASSEMBLY CAUSED NO OPERATIONAL PROBLEMS.

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

CLADDING + *FUEL BURNUP + REACTOR, PWR + YANKEE (PWR) + STEEL, STAINLESS + *FUEL ELEMENT + MATERIAL + URANIUM DIOXIDE + PROPERTY, PHYSICAL + *EXAMINATION + SURFACE FILM DEPOSIT + FLOW BLOCKAGE + DAMAGE + R AND D PROGRAM

16405
YANKEE 16 HOUR SHUTDOWN FOR CONDENSER TUBE CLEANING.
YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASSACHUSETTS
8 PAGES, 2 FIGURES, 1 TABLE, JUN 20, 1967, DOCKET NO. 50-29, FROM YANKEE NUCLEAR POWER STATION OPERATIONS REPORT NO. 77 FOR THE MONTH OF MAY 1967

THE OUTPUT GRADUALLY LESSENED TO 179 MW(E) AS RIVER-WATER TEMPERATURE ROSE, AND CLEANING INCREASED OUTPUT TO 183. TWO LEAKY TUBES WERE FOUND BY AN ANS SOAP SOLUTION AND BY A SARAN-PLASTIC TECHNIQUE. 16 HOURS BEFORE SHUTDOWN, NaOH INJECTION TO DETERMINE THE STEAM-GENERATOR LEAKAGE RATE INCREASED COOLANT PH FROM 5.2 TO 6.0, CAUSING A REACTIVITY GAIN OF 0.0023 DELTA K/K. LEAK RATES WERE (1) 16 GPD, (2) 60 GPD, (3) AND (4) LESS THAN 0.5 GPD. BORON AND TRITIUM TRACER TECHNIQUES SHOWED THE TOTAL LEAK RATE AS 110 GPD.

USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C.

REACTOR, PWR + *TEST, LEAK RATE + YANKEE (PWR) + TRACER, GENERAL + *COOLANT CHEMISTRY + REACTIVITY EFFECT, ANOMALOUS + REPORT, OPERATIONS SUMMARY + STEAM GENERATOR + PH REACTIVITY EFFECT

25981
HEIDER LH + JONES RF
PRIMARY TO SECONDARY LEAKAGE IN STEAM GENERATORS AND SUBSEQUENT TUBE REPAIRS
YANKEE ATOMIC ELECTRIC COMPANY, ROWE, MASSACHUSETTS
YAEC 1021 +. 30 PAGES, 7 FIGURES, 2 TABLES, NOVEMBER 1, 1967

TUBES IN VARIOUS STEAM GENERATORS WERE PLUGGED AT REFUELING SHUTDOWNS 6/62, 10/63, AND 8/64, USING A DRIVEN TAPERED PLUG, WELDED TO THE TUBE. RADIATION LEVELS OF 2-20 R/HR WERE INSIDE THE SECONDARY HAND HOLES, AND 5-15 R/HR INSIDE THE PRIMARY WATER BOX. NO DETECTABLE BETA. LEAKS WERE LOCATED IN THE TUBES BY A SIMPLE MOVABLE PLUG. CHEMICAL AND WIRE-BRUSH DECONTAMINATION WAS NOT FEASIBLE BECAUSE OF THE IRREGULAR SURFACES AND SHINE DOWN THE TUBES. REWELDING THE DIAPHRAGM BACK ON WAS COMPLICATED BY FITTING PROBLEMS AND BY WATER DRIPPING ON THE ARC.

AVAILABILITY - YANKEE ATOMIC ELECTRIC COMPANY, ROWE, MASSACHUSETTS

DECONTAMINATION + *MAINTENANCE AND REPAIR + REACTOR, PWR + YANKEE (PWR) + WELDING + *FAILURE, TUBING + *STEAM GENERATOR + OPERATING EXPERIENCE

27626
YANKEE REACTIVITY ANOMOLY
YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASSACHUSETTS
1 PAGE. PAGE 1 OF YANKEE OPERATION REPORT 84 FOR DECEMBER 1967, JANUARY 22, 1968 DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

AMMONIATION OF THE MAIN COOLANT (USING AMMONIATED CATION RESIN) GAVE A REACTIVITY INCREASE OF 0.23 PERCENT, ONE THIRD THAT EXPECTED. INVESTIGATION SHOWED A DECREASED FUEL BURNUP RATE BEGINNING AT 6100 MWD/MTU, WHEN MISCALCULATION GAVE AN OVERCHARGE OF HYDRAZINE PRIOR TO THE JULY PLANT HEATUP. RADIOLYTIC DECOMPOSITION GAVE 70 PPM AMMONIA IN COOLANT AND A CRUD BURST. THE AMMONIA AND CRUD WERE REMOVED IN 3 DAYS, BUT THE DECREASED BURNUP RATE GAVE 0.2 PERCENT DK/K INCREASE BY THE END OF CORE LIFE. EFFECT OF THIS OCCURENCE ON CORE REACTIVITY BEHAVIOR CANNOT BE DEFINED YET. ***15 PERCENT OF THE DETERIORATED PHENOLIC COATING OF THE SPENT-FUEL PIT HAS BEEN SANDBLASTED OFF.

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

FUEL BURNUP + MAINTENANCE AND REPAIR + REPORT, OPERATIONS + REACTOR, PWR + POISON, SOLUBLE + FUEL STORAGE + YANKEE (PWR) + *COATING, SURFACE + CRUD + COOLANT CHEMISTRY + INCIDENT, HUMAN ERROR + *CHEMICAL SHIM + SURFACE FILM DEPOSIT + REACTIVITY EFFECT, ANOMALOUS + *PH REACTIVITY EFFECT

27838

YANKEE OPERATION REPORT 91 - JULY 1968
 YANKEE ATOMIC ELECTRIC COMPANY, BOSTON, MASS.
 YA-2662 +. 6 PAGES, AUGUST 20, 1968, DOCKET 50-29; TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

WORK ON THE INCORE FLUX WIRE SYSTEM REQUIRED MORE ENTRY INTO CONTAINMENT. TRITIATED AIR WAS REDUCED FROM .71 TO 0.08 Curies/cc BY DISPERSING STEAM INTO THE VAPOR CONTAINER. REACTOR SHUTDOWN ONE DAY TO REPLACE A MAIN PC PUMP SEAL. ONSTARTUP A SEVERE WATER HAMMER CAME FROM PARTIAL FLOODING OF A HEATER SHELL (BY DRAWING HOT WATER FROM NO. 1 HEATER THRU A COMMON DRAIN LINE). VAPOR CONTAINER LEAKAGE WAS 0.0301/DAY. FUEL BURNUP WAS 0.152 PPM BORON PER MWD/MTU.

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

AIRBORNE RELEASE + CONTAINMENT, HIGH PRESSURE + *FUEL BURNUP + INSTRUMENT, IN CORE + MAINTENANCE AND REPAIR + REPORT, OPERATIONS + REACTOR, PWR + TEST, LEAK RATE + *THERMAL MECHANICAL EFFECT + TRITIUM + YANKEE (PWR)

29558

YANKEE DIESEL FAILS TO RESTART
 YANKEE ATOMIC ELECTRIC COMPANY
 7 PAGES, YANKEE OPERATION REPORT NO. 94, OCTOBER 1968, DOCKET 50-29 TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

AFTER ROUTINE OPERATION OF THE DIESEL SEPT. 24, A RESTART WAS ATTEMPTED TO CHECK GOVERNOR CONTROL. ENGINE CRANKED BUT WOULD NOT RESTART. MAINTENANCE PERSONNEL RESET THE PROTECTIVE RELAYS, AND DIESEL STARTED NORMALLY. THE ALARM SWITCH MUST BE ON FOR START, AND ENGINE STARTED BEFORE A TIME DELAY RELAY CLOSES FUEL VALVE. APPARENTLY, RESTART WAS ATTEMPTED BEFORE THE RELAY RESET. ***UNIT WAS TEST RUN AND RESTARTED EVERY OTHER DAY FOR TWO WEEKS, A NEW OPERATING MEMO ISSUED ON DIESEL START AND CORRECTIVE ACTION. ***REACTOR AT FULL POWER. ALL CORE VI SPENT FUEL HAS BEEN SHIPPED, AS WELL AS CONTROL AND SHIM ROD SECTIONS.

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

*FAILURE, OPERATOR ERROR + REPORT, OPERATIONS + REACTOR, PWR + YANKEE (PWR) + REACTOR, POWER + ELECTRIC POWER, SHUTDOWN + *GENERATOR, ENGINE

30608

YANKEE DIESEL FAILURE ON TEST
 YANKEE ATOMIC ELECTRIC CO., BOSTON, MASS.
 7 PAGES, FIGURES, TABLES, YANKEE OPERATION REPORT 94, (OCT. 1968), NOVEMBER 15, 1968, DOCKET 50-29, TYPE--PWR, MFG--WEST., AE--STONE + WEBSTER

AFTER A ROUTINE TEST OF THE EMERGENCY DIESEL SEPT. 24, ENGINE RESTART GAVE CRANKING BUT NOT OPERATION. AFTER RESET OF PROTECTIVE RELAYS, ENGINE STARTED ON NORMAL PROCEDURE. *** TRIPPING THE ENGINE FROM LOCAL PANEL CAUSED DIFFICULTY. ALARM PANEL SWITCH MUST BE ON BEFORE THE DIESEL CAN BE STARTED, AND DIESEL MUST START BEFORE A TIME DELAY RELAY SOUNDS ALARM (OVERCRANK) AND CLOSES SOLENOID FUEL VALVE. WHEN THIS RELAY OPERATES, ALARM CAN BE CANCELLED BUT RELAY MUST BE RESET BEFORE RESTARTING. APPARENTLY ENGINE RESTART WAS ATTEMPTED BEFORE RELAY WAS RESET.

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

CONTROL SYSTEM + EMERGENCY POWER, ELECTRIC + *FAILURE, OPERATOR ERROR + REPORT, OPERATIONS + REACTOR, PWR + YANKEE (PWR) + *GENERATOR, ENGINE + TEST, SYSTEM OPERABILITY

C. Non-Water Power Reactors

18857

PHILLIPS JL
 DOUNREAY FAST REACTOR MODIFICATIONS
 UNITED KINGDOM ATOMIC ENERGY AUTHORITY, DOUNREAY
 4 PAGES, 6 FIGURES, NUCLEAR ENGINEERING 12(128) PAGES 40-43 (OCTOBER 18, 1967)

MODIFICATIONS WERE NECESSARY BECAUSE OF COOLANT-FLOW INSTABILITIES IN THE OUTER BREEDER ELEMENTS AS A RESULT OF OPPOSING CONVECTIVE AND BUOYANCY-INDUCED FLOWS. THERMAL EFFECTS CAUSED EXCESSIVE FUEL SWELLING IN 1/3 OF THE OUTER BREEDER ELEMENTS TO SUCH AN EXTENT THAT MAJOR MODIFICATIONS WERE NECESSARY TO DISCHARGE MOST OF THEM. THE MODIFICATIONS, TOOLING, AND METHODS ARE DESCRIBED.

REACTOR, BREEDER + REACTOR, FAST + *FAILURE, FUEL ELEMENT + REACTOR, LMCR + MAINTENANCE AND REPAIR + UNITED KINGDOM + MODIFICATION, SYSTEM OR EQUIPMENT + *FAILURE, DESIGN ERROR + DOUNREAY (LMFBR) + FLOW STABILITY + MAINTENANCE, REMOTE

29616
MATTHEWS RR + HENRY KJ
LOCATION AND REPAIR OF THE DFR LEAK
UKAEA, DOUNREAY WORKS
NUCLEAR ENGINEERING, OCTOBER 1968, PG. 840-844

ON MAY 9, 1967, A 100-LITER/DAY SODIUM LEAK APPEARED, YET DISAPPEARED WHENEVER REACTOR SHUT DOWN EVEN THOUGH TEMPERATURES HELD CONSTANT. LEAK ESTIMATED TO BE 0.015 IN. DIA. HOLE. ANTI-LEAK JACKET 1/8-IN. FROM VESSEL MADE LOCATION DIFFICULT. GOLD ADDED TO NAK SHOWED SLIGHT LEAKAGE EVEN AFTER REACTOR DOWN. LOWERING NAK LEVEL WITH 35 PSIG HE IN VESSEL EVENTUALLY SHOWED LEAK WAS AT BOTTOM OF NAK OUTLET NOZZLES. MILDLY STRAINING EACH NOZZLE IN TURN INDICATED NO. 10 HEAT EXCHANGER, AND ACOUSTIC NOISE ANALYSIS INDICATED A LOCATION ON A PIPE. A FIELD WELD CRACKED FROM FATIGUE WHERE THERE WAS A POOR WELD AND A MISALIGNMENT. INTERNAL WELDING HEAD DEVELOPED FOR THE 4-IN. PIPE.

REACTOR, LMCR + *FAILURE, PIPE + REACTOR, TEST + *WELDING + FAILURE, FATIGUE + DOUNREAY (LMFBR) + REMOTE MANIPULATING AND VIEWING + FAILURE, INSTALLATION ERROR + FAULT + *LEAK + REACTOR, LMFBR

26588
ESCAPE OF LUBRICATING OIL INTO THE EBOR PRIMARY SYSTEM AND SUBSEQUENT CLEANUP
GENERAL DYNAMICS CORP., SAN DIEGO, CALIFORNIA
GA-7802 +. 55 PAGES, JANUARY 10, 1967

GIVES A VERY DETAILED DISCUSSION OF THE CLEANUP PROCEDURES USED TO REMOVE 56 GAL OF OIL FROM THE PRIMARY SYSTEM. FAILURE OF A MAIN HELIUM BLOWER SHAFT-SEAL ALLOWED LUBRICATING OIL TO ENTER SYSTEM. MATERIALS USED INCLUDED TURCO 4324-OR DETERGENT, A THINNER, AMMONIA, AND HYDRAZINE.

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

DECONTAMINATION + *FAILURE, EQUIPMENT + REACTOR, GCR + CONTAMINATION + *INCIDENT, RECOVERY FROM + EBOR (GCR) + *SEAL + MAIN COOLING SYSTEM + LUBRICATION + COOLANT QUALITY

28562
WINKLEBLACK RK
RECENT EBR-II OPERATING EXPERIENCE
ARGONNE NATIONAL LABORATORY
15 PAGES, 4 FIGURES, PAPER PRESENTED AT THE 1967 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, CHICAGO, ILLINOIS, NOVEMBER 5-9, 1967

DISCUSSES A FUEL FAILURE AND FISSION PRODUCT RELEASE TO COOLANT AND A SIGNIFICANT DECREASE IN THE POWER COEFFICIENT FOLLOWING A CHANGE IN CORE CONFIGURATION. DESCRIBES ANALYTICAL TECHNIQUE USED TO LOCATE THE FAULTY FUEL. NEED FOR A FAILED FUEL LOCATING METHOD IS DISCUSSED, AND USE OF A TAG MATERIAL IS CONSIDERED. DECREASE IN POWER COEFFICIENT AFTER CORE ENLARGED FROM 73 TO 81 ASSEMBLIES IS ATTRIBUTED TO CHANGE IN CORE AND REFLECTOR SIZE AND COMPOSITION, AND AN INCREASED BOWING OF SUBASSEMBLIES CAUSED BY INSTALLATION OF STAINLESS STEEL SUBASSEMBLIES.

*ACTIVITY BUILDUP + EBR 1 AND 2 (RE) + REACTOR, FAST + FUEL ELEMENT BOWING + REACTOR, LMCR + *POWER COEFFICIENT + REACTOR, RESEARCH + REACTOR, TEST + INSTRUMENT, DETECTION FAILED FUEL ELEMENT + REACTOR, AEC OWNED + *FAILURE, CLADDING + *REACTIVITY EFFECT, ANOMALOUS + MAIN COOLING SYSTEM + OPERATING EXPERIENCE

29834
SMITH RR + EBERSOLE ER + THALGOTT FW
EXPERIENCE WITH A GAS-TYPE FAILURE IN AN EBR 11 DRIVER FUEL ELEMENT
ARGONNE NATIONAL LABORATORY
2 PAGES, ANS TRANS. 11(1), PAGES 279-80, 1968 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY AND CANADIAN NUCLEAR ASSOCIATION, TORONTO, CANADA, JUNE 10-13, 1968

FISSION-GAS MONITOR SHOWED SIGNAL-TO-BACKGROUND RATIO OF 12. (FAILED ELEMENT RADIATION DETECTOR GAVE NO INDICATION). BY RAISING POWER AND STUDYING XE-133 AND 135 BUILDUP, DETERMINED FAILURE WAS FUEL LOADED IMMEDIATELY PRIOR TO STARTUP. OBSERVED THAT ONCE A GAS BUBBLE WAS RELEASED, DRIVING FORCE FOR ADDITIONAL RELEASE IS NEGLIGIBLE, AND CONCLUDED RUNNING REACTOR WITH GAS-TYPE FAILURE IS POSSIBLE.

ACTIVITY BUILDUP + *EBR 1 AND 2 (RE) + REACTOR, FAST + *FISSION GAS RELEASE + FISSION PRODUCT, VOLATILE + *FAILURE, FUEL ELEMENT + REACTOR, LMCR + MEASUREMENT, GENERAL + NOBLE GAS + REACTOR, TEST + XENON + MONITOR, GAS + COVER GAS + FUEL ELEMENT + REACTOR, AEC OWNED

29835
RICE RE + CERUTTI BC + CISSEL DW + DEEGAN GE + KIRN FS
RECENT EBR-11 EXPERIENCE
ARGONNE NATIONAL LABORATORY
1 PAGE, 1 TABLE, ANS TRANSACTIONS 11(1), PAGE 279, 1968 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY AND CANADIAN NUCLEAR ASSOCIATION, TORONTO, CANADA, JUNE 10-13, 1968

BRIEFLY SUMMARIZES INTERESTING EVENTS SINCE THOSE REPORTED IN NOVEMBER 1967. REPLACED CONTROL ROD GUIDE THIMBLE DAMAGED DURING FUEL HANDLING. DAMAGE CAUSED INCREASED CLEARANCES, RESULTING IN GAIN OF REACTIVITY. CONTINUING STUDY OF CORE AND REFLECTOR BORING. MAJOR MAINTENANCE INCLUDES REPAIRS TO SECONDARY SODIUM TRACE HEATING FOLLOWING NA FIRE CAUSED BY MELTING A FREEZE PLUG DURING VALVE REPLACEMENT.

CONTROL ROD + *EBR 1 AND 2 (RE) + GUIDE + REACTOR, FAST + FIRE + FUEL ELEMENT BOWING + FUEL HANDLING + FAILURE, OPERATOR ERROR + REACTOR, LMCR + *MAINTENANCE AND REPAIR + REACTIVITY EFFECT + SODIUM + REACTOR, TEST + *OPERATING EXPERIENCE SUMMARY + REACTOR, AEC OWNED + DAMAGE

29934

DUFFY JG + JENS WH + FELDES JG + JOHNSON KP + MCCARTHY WJ
 INVESTIGATION OF THE FUEL MELTING INCIDENT AT THE ENRICO FERMI ATOMIC POWER PLANT
 ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT
 23 PAGES, PP. 2.15-37 OF FAST REACTORS NATIONAL TOPICAL MEETING, SAN FRANCISCO, CALIFORNIA, APRIL 10-12, 1967,
 HINSDALE, ILL., AMERICAN NUCLEAR SOCIETY, 1967

A DETAILED SUMMARY OF OCTOBER 4-5, 1966 OPERATION OF THE FERMI FAST BREEDER IS GIVEN. THE SUMMARY BEGINS WITH APPROACH TO CRITICAL ON OCT. 4 AND FOLLOWS THROUGH, STEPWISE, TO FINAL MANUAL SCRAM ON OCT. 5, THE FINAL SCRAM DECISION BEING DICTATED BY HIGH RADIATION ALARMS AND SUBSEQUENT ISOLATION OF THE FISSION PRODUCT DETECTOR BUILDING AND CONTAINMENT BUILDING. PLANT INVESTIGATIONS AFTER OCT. 5 ARE OUTLINED. PLANT SYSTEMS ARE ANALYZED FOR OCTOBER, A TEMPERATURE ANALYSIS IS GIVEN, REACTIVITY AND POWER HISTORIES ARE SHOWN AS THEY VARY WITH HOUR OF THE DAY. RESULTS OF PRIMARY NA AND AR ANALYSES ARE TABULATED, 14 CAUSES OF FUEL MELTDOWN ARE POSTULATED. THE DESIGN OF NEW FUEL HANDLING AND INSPECTION EQUIPMENT IS DISCUSSED.

REACTOR, BREEDER + REACTOR, FAST + *FERMI (LMFBR) + *FAILURE, FUEL ELEMENT + *FUEL MELTDOWN + INCIDENT, GENERAL + REVIEW + OPERATING EXPERIENCE + REACTOR, LMFBR

22887

MCCARTHY JF
 SELECTED FERMI OPERATING EXPERIENCES
 ATOMIC POWER DEVELOPMENT ASSOC., INC., DETROIT, MICH. + POWER REACTOR DEVELOPMENT CO., DETROIT, MICH. + DETROIT EDISON CO., MICH.
 APDA-CFE-4 +. 37 PAGES, MAY 1967

CORE-HOLDDOWN MECHANISM REMOVED, CORE SWEEP FOUND NO DEBRIS ABOVE FUEL, NOR PROJECTING ELEMENTS. REVISED FUEL-HANDLING MACHINE FOUND 2 ROWS OF FUEL THAT NEEDED EXCESSIVE FORCE TO LIFT. FOUR ADJACENT ELEMENTS, INCLUDING THE TWO THAT RAN HOT OCT. 5, COULD NOT BE LIFTED. *** BRIEF DISCUSSION SUMMARIZING ANALYSIS OF JULY/AUGUST STEAM-GENERATOR INSTABILITIES. A PRESSURE AND A TEMPERATURE RAMP CAUSED BOILING IN THE DOWNCOMER AND EVENTUAL FLOW STARVATION. PRESSURE RAMPS WILL BE ELIMINATED, AND SODIUM/STEAM CONDITIONS SET TO MAINTAIN A REQUIRED DOWNCOMER HEAT-TRANSFER AREA.

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

REACTOR, FAST + FERMI (LMFBR) + FUEL MELTDOWN + FUEL HANDLING MACHINE + *FLOW STABILITY + REPORT, OPERATIONS SUMMARY + STEAM GENERATOR

22890

MCCARTHY JF
 SELECTED FERMI OPERATING EXPERIENCE - JAN. 1967
 ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., DETROIT, MICH. + POWER REACTOR DEVELOPMENT CO., DETROIT, MICH. + DETROIT EDISON CO., MICHIGAN
 APDA-CFE-6 +. 1 PAGE OF COMPILATION OF CURRENT TECHNICAL EXPERIENCE AT ENRICO FERMI ATOMIC POWER PLANT, MONTHLY REPORT NO. 6, JANUARY 1967, 30 PAGES, MAY 1967

(PAGE 10) A JAN. 10 DOUBLING OF THE SHUTDOWN COUNTING RATE ON CHANNELS 1 AND 2, WHICH TOOK PLACE IN 5 MIN AND LASTED ABOUT 15 HR, WAS APPARENTLY NOISE (FROM AN AC MG SET, STANDBY POWER) ENTERING THE SCALE OF TWO MODULES. DISCRIMINATION CURVES SHOWED NO CHANGE. (PG 15) OF THE 18 1966 SCRAMS TABULATED, 5 WERE SINGLE ROD DROPS, 3 WERE LOSS OF COOLANT DUE TO HIGH FEEDWATER TEMP., TWO WERE UNKNOWN SAFETY-SYSTEM TRANSIENTS, ONE WAS DUE TO FAULTY DETECTORS, AND 4 WERE SCHEDULED. (PG 24) SUBASSEMBLY M099 SHOWED THAT TWO OF FOUR PINS HAD 2500 PPM OF HYDRIDE IN THE CLAD (VS 150 FOR OTHERS, AND 10,000 AS FAILURE THRESHOLD).

18946

KLICKMAN AE + CALLEN RC
 ANOMALOUS REACTIVITY EFFECTS IN THE FERMI INCIDENT
 ATOMIC POWER DEVELOPMENT ASSOCIATES, INC. + POWER REACTOR DEVELOPMENT COMPANY
 CONF-670 602 +. 1 PAGE, ANS TRANSACTIONS 10(1) PAGE 334, 1967 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY, SAN DIEGO, CALIF., JUNE 11-15, 1967

REVIEWS THE REACTIVITY EFFECTS THAT OCCURRED DURING THE FUEL MELTDOWN OF OCT. 1966. WHEN REACTOR POWER REACHED 5.5 MW, REACTIVITY INSERTION WAS AT THE RATE OF 0.185 CENT/MIN FOR 27 MIN UNTIL POWER REACHED 18 MW. THIS WAS ATTRIBUTED TO OVERHEATING OF THE CORE. AT 18 MW, THE RATE ABRUPTLY CHANGED TO 1.17 CENTS/MIN FOR 18 MIN UNTIL THE POWER WAS 30 MW. SUPERIMPOSED ON THIS LATTER TREND WERE THREE TRANSIENTS. THIS TREND AND THE TRANSIENTS WERE ATTRIBUTED TO FUEL MOTION. THE TOTAL REACTIVITY LOSSES WERE ATTRIBUTED TO FUEL MOTION. THE TOTAL REACTIVITY LOSS DETERMINED BY THE SHIM-AND REGULATING-ROD HISTORIES WAS 26 CENTS.

REACTOR, BREEDER + REACTOR, FAST + FERMI (LMFBR) + FAILURE, FUEL ELEMENT + REACTOR, LMC + *POWER COEFFICIENT + INCIDENT, GENERAL + *REACTIVITY EFFECT, ANOMALOUS

22892
 MCCARTHY JF + NASH CR
 COMPILATION OF CURRENT TECHNICAL EXPERIENCE AT ENRICO FERMI ATOMIC POWER PLANT. MONTHLY REPORT NO. 11, JUNE 1967
 ATOMIC POWER DEVELOPMENT ASSOCIATES, INC., + POWER REACTOR DEVELOPMENT CO. + DETROIT EDISON COMPANY, MICHIGAN
 APDA-CFE-11 +. 31 PAGES, FIGURES, AUGUST 1967

CONTAINS SUBJECT INDEX FOR CFE REPORTS 1-11. (PAGE 8) DURING VESSEL DRAINING OPERATIONS, THE COUNTING-RATE CHANNELS INCREASED A FACTOR OF 20, AND THE INTERMEDIATE-RANGE CHANNELS ROSE A FACTOR OF 10,000. SAFETY CHANNELS WERE NOT AFFECTED. SIGNALS WERE CONTINUOUS AND LASTED 6 MIN. CAUSE SUPPOSED ELECTRICAL. (PAGE 12) THE STUCK PAIR OF FUEL ELEMENTS WERE VISIBLE THROUGH BORESCOPES. (PAGE 15) VARIATION OF PREDICTED FROM MEASURED SODIUM DELTA T INCREASES WITH INCREASING DISTANCE FROM CORE CENTER. TWO MODELS WERE DEVELOPED FOR LOCAL FLOW VARIATIONS. (PAGE 17) VARIOUS CONSTRUCTION MATERIALS WERE IMMERSSED IN HOT SODIUM TO SEE IF THEY COULD RETAIN THEIR FORM.

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

REACTOR, FAST + FERMI (LMFBR) + MATERIAL + *FLOW DISTRIBUTION + *FLOW BLOCKAGE + *INSTRUMENT, ABNORMAL INDICATION + REPORT, OPERATIONS SUMMARY + INSTRUMENT, INTERMEDIATE RANGE + INSTRUMENT, STARTUP RANGE

28643
 FERMI MONTHLY REPORT MAY 1968
 POWER REACTOR DEVELOPMENT COMPANY
 EF-57 +. 9 PAGES, MAY 1968, DOCKET 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH ASSOC.

THE LATHE TURNINGS RECOVERED IN APRIL ARE 6061 ALUMINUM SCRAPED FROM BORESCOPES AND OTHER TOOLS. THE MIRROR DAMAGED A FUEL ELEMENT ORIFICE PLATE. 4 ZIRCALOY PLATES STILL TO BE RECOVERED. ACCEPTANCE TESTS BEGAN FOR A1 FUEL TRANSPORT MACHINE. *** CORROSION FAILURE OF (1) CARBON STEEL GUARD PIPE CARRYING WASTE GAS PIPES, AND (2) A BITUMASTIC COVERED LIQUID WASTE PIPE AT LOCAL BITUMASTIC FAILURES. WERE REPAIRED.

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

FERMI (LMFBR) + REPORT, OPERATIONS + FAILURE, PIPE + WASTE TREATMENT, LIQUID + WASTE TREATMENT, GAS + CORROSION + *REMOTE MANIPULATING AND VIEWING + *DAMAGE + *FLOW ORIFICE + REACTOR, LMFBR

25996
 FERMI REPORTS CORROSION FAILURE OF LOW LEVEL WASTE PIPES
 POWER REACTOR DEVELOPMENT COMPANY, DETROIT, MICHIGAN
 3 PAGES, LETTER TO P.A. MORRIS FROM W.J. MCCARTHY, JUNE 4, 1968, DOCKET NO. 50-16, TYPE--LMFBR, MFG--APDA, AE--COMMONWEALTH ASSOC.

ON APRIL 30, A 2-IN.-DIA. CARBON-STEEL GAS-WASTE PIPE WAS FOUND CORRODED THROUGH, 4 FT BELOW GROUND. THE TWO GAS PIPES ARE IN AN 8-IN.-DIA. CARBON-STEEL CONTAINMENT PIPE DEEP UNDER GROUND. THE 8-IN.-DIA. PIPE IS BADLY CORRODED AND MUST BE PERMANENTLY REPAIRED. THE 2-IN. PIPE WAS UNPROTECTED WHERE IT LEFT THE 8-IN. ONE, BUT THE NEW 2-IN. PIPE IS NOW COVERED WITH BITUMASTIC. ***A LIQUID-WASTE PIPE WAS FOUND CORRODED THROUGH IN SEVERAL SPOTS DUE TO LOCAL BITUMASTIC FAILURE. ***SINCE NOV. 1966, THESE PIPES HAVE CARRIED ONLY LOW-LEVEL WASTE. THE FAR-BLOG. LIQUID-WASTE PIPE (SS IN A CARBON-STEEL CONTAINMENT PIPE) WILL BE INSPECTED.

AVAILABILITY - PUBLIC DOCUMENT ROOM

REACTOR, BREEDER + REACTOR, FAST + FERMI (LMFBR) + REACTOR, LMCR + *FAILURE, PIPE + WASTE HANDLING + REACTOR, POWER + *CORROSION + REACTOR, LMFBR

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

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

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

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

19556

CHAPELGT A + CHAUVIN M + DELISLE JP + DENIELOU G + GOLLION H + GRANDCOLAS J + REYNES L
SODIUM LEAKAGE DURING ARGON OVERPRESSURIZATION
FRANCE. COMMISSARIAT A L-ENERGIE ATOMIQUE
13 PAGES, 4 FIGURES, 4 REFERENCES, APRIL 1967, PAPER PRESENTED AT THE NATIONAL TOPICAL MEETING OF THE AMERICAN
NUCLEAR SOCIETY, APRIL 10-12, 1967, FAST REACTORS-OPERATING, UNDER CONSTRUCTION, PLANNED FOR CONSTRUCTION

DURING TESTING OF THE ARGON BLANKET SYSTEM, SODIUM LEAKED THROUGH A PLUNGING TUBE CAUSED BY AN
OVERPRESSURE OF THE BLANKET. REVISIONS INCLUDED (1) EITHER SUPPRESSING THE PLUNGING TUBES OR
BORING THEM TO EQUILIBRATE INTERNAL AND EXTERNAL PRESSURE, AND (2) THE MECHANICAL RELIEF VALVES
WERE REPLACED BY A LARGER HYDRAULIC VALVE. RECOMMENDS AVOIDING USE OF PLUNGING TUBES IN SODIUM
REACTORS. SUPPRESSION OF THE PLUNGING TUBES CAUSED LOSS OF COOLING CAPABILITY DURING TRANSFER OF
A SUBASSEMBLY BETWEEN THE CORE AND THE FUEL-HANDLING MACHINE, AND CONSEQUENTLY THE SUBASSEMBLIES
MUST BE KEPT IN THE VESSEL FOR HEAT DECAY BEFORE REMOVAL.

FRANCE + REACTOR, LMR + SODIUM + MODIFICATION, SYSTEM OR EQUIPMENT + TEST, PREOPERATIONAL + *FAILURE, DESIGN
ERROR + FUEL HANDLING MACHINE + AUXILIARY COOLING + *LEAK

32303

CONTAMINATION FOUND IN WASHED PIPE INTERIORS
CONSUMERS POWER COMPANY
10 PAGES, HALLAM MONTHLY RETIREMENT REPORT NO. 28- NOVEMBER 1968, DOCKET 115-3, TYPE--LMR, MFG--A.E., AE--
BECHTEL

DEMOLITION BEGAN. A NOV. 1 COMPLIANCE SURVEY FOUND 1 MRAD/HR AT CONTACT INSIDE WASHED SCRAP
PRIMARY PIPING THAT HAD BEEN SURVEYED AT THE ENDS OF THE CUT SEGMENTS. RADIATION LEVELS WERE TO
BE MEASURED INSIDE THE PIPE, SO A SURVEY METER WAS MADE TO FIT ON A LONG POLE. PRIMARY 14-IN.
PIPING WAS FOUND TO READ 0.1 TO 1.8 MRAD/HR, HIGHEST AT WELDS NEAR TEES OR ELBOWS, ALSO AT SODIUM
OXIDE DEPOSITS AT PIPE REDUCTIONS. PRIMARY PIPE WILL BE SEGREGATED AND REMONITORED BEFORE
DISPOSAL.

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

DECONTAMINATION + HALLAM (LMR) + REACTOR, LMR + SODIUM + COMPLIANCE + REACTOR, POWER + *CONTAMINATION +
*PIPING + DECOMMISSIONING

28793

LATINA NUCLEAR PLANT ANNUAL REPORT FOR 1966
ENTE NAZIONALE PER L-ENERGIA ELETTRICA, LATINA (ITALY)
AEC-TR-6898 + EUR-34621 +. 79 PAGES, FIGURES, TABLES, MARCH 1967

REACTOR SHUT DOWN MONTH OF JULY TO REMOVE FUEL IN 12 CHANNELS WITH CLAD FAILURES DUE TO A
TEMPERATURE TRANSIENT DURING A REACTOR STARTUP. AVAILABILITY WAS 80.13%. A NEW STARTUP
PROCEDURE REQUIRES FUEL TEMPERATURE TO BE INCREASED IN 30 C STEPS, WITH WAIT TIME BETWEEN STEPS.
MAINTENANCE WAS CARRIED ON BY SHUTTING DOWN PORTIONS OF THE PLANT AND USING WORKERS FROM A
NONNUCLEAR PLANT. SHIPPING OF FIRST 10 CONSIGNMENTS OF IRRADIATED FUEL BACK TO ENGLAND.

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

ECONOMICS + REACTOR, GCR + FAILURE, OPERATOR ERROR + *MAINTENANCE AND REPAIR + TEMPERATURE TRANSIENT +
TRANSPORTATION AND HANDLING + ITALY + FAILURE, CLADDING + REPORT, OPERATIONS SUMMARY

22920

MOLTEN-SALT REACTOR PROGRAM. SEMIANNUAL PROGRESS REPORT FOR PERIOD ENDING FEBRUARY 28, 1967
OAK RIDGE NATIONAL LAB., TENN.
ORNL-4119 +. 5 PAGES, 2 FIGURES, PAGE 14-18, JULY 1967

INTRODUCTION OF XE-135 POISONING WITH MODIFIED XENON REMOVAL (GAS STRIPPING) PARAMETERS REDUCES THE
STEADY-STATE REACTIVITY ANOMALY TO ABOUT 0.031 DK/K. TESTS ON THE CIRCULATING-BUDDLE EFFECTS
(RAISING PRESSURE, OBSERVATION OF REACTIVITY AFTER A STATIONARY FUEL PERIOD) SHOWED THE EFFECT
ABOUT 0.031 DK/K. THERE APPEARS TO HAVE BEEN A POSITIVE SHIFT OF ABOUT 0.051 DK/K DURING THE
FIRST 1000 MW HR. THE SHIFT REMAINS CONSTANT. NO SIGNIFICANT CAUSE HAS BEEN FOUND. THE CHANGE
IS NEAR THE ESTIMATED CONFIDENCE LIMIT (PLUS OR MINUS 0.041) AND MUCH SMALLER THAN THE OPERATING
LIMIT (PLUS OR MINUS 0.51 DK/K).

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

REACTOR, MOLTEN SALT + MSRE (RE) + VOID COEFFICIENT + REPORT, OPERATIONS ANALYSIS + *REACTIVITY EFFECT,
ANOMALOUS

29289
SEMIANNUAL PROGRESS REPORT FOR PERIOD ENDING FEBRUARY 29, 1968. MOLTEN-SALT REACTOR PROGRAM
OAK RIDGE NATIONAL LABORATORY
ORNL-4254 +. 282 PAGES, FIGURES, TABLES, REFERENCES, AUGUST 1968

REACTOR OPERATION FROM 9-67 TO 2-68 IS DESCRIBED IN DETAIL. SEVERAL EXPERIMENTS DEALING WITH FISSION GAS STRIPPING THAT WERE PERFORMED ARE DESCRIBED. AN ANOMALY BETWEEN CALCULATED AND OBSERVED REACTIVITY WAS NOTED. IN GENERAL, ALL COMPONENTS AND SYSTEMS FUNCTIONAL NORMALLY - SOME ELECTRONIC COMPONENTS ASSOCIATED WITH THE CONTROL ROD SCRAM SYSTEM WERE FOUND TO BE DEFECTIVE, HOWEVER. THE CONTINUING DEVELOPMENTAL WORK ON MSBR SYSTEMS IS ALSO REPORTED.

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

REACTOR, BREEDER + FAILURE, EQUIPMENT + REACTOR, MOLTEN SALT + MSRE (RE) + REACTOR, AEC OWNED + FISSION PRODUCT RETENTION + REACTIVITY EFFECT, ANOMALOUS + MSBR (RE)

19893
FAILURE AND REPAIRS ON STEAM GENERATOR SUPERHEATER
PHILADELPHIA ELECTRIC CO., PEACH BOTTOM ATOMIC POWER STATION
37 PAGES, 44 FIGURES, 3 TABLES, AMENDMENT 13 TO PEACH BOTTOM CONSTRUCTION PERMIT AND CLASS 104 LICENSE, SECTION IV, DOCKET NO. 50-171, AUGUST 18, 1966

DESCRIBES DETECTION, ANALYSIS, AND CORRECTION OF FAILURE. STRESS-CORROSION CRACKING OF SUPERHEATER BELLOW, PIPING CONNECTED TO BELLOW, AND TUBING WAS CAUSED BY ONE OR ALL OF THE FOLLOWING - (1) RESIDUAL STRESSES, (2) THERMAL CYCLING, AND (3) CONTACT WITH WATER CONTAINING HALIDES OR DISSOLVED OXYGEN. INCOLOY 800 WAS SELECTED AS REPLACEMENT MATERIAL FOR THE SS 304, AND THE TUBESHEET WAS REDESIGNED TO ELIMINATE POSSIBILITY OF ACCUMULATING CONTAMINANTS.

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

FAILURE, EQUIPMENT + PEACH BOTTOM 1 (HTGR) + *FAILURE, PIPE + STEEL, STAINLESS + MODIFICATION, SYSTEM OR EQUIPMENT + TECHNICAL SPECIFICATIONS + CHLORINE + *STRESS CORROSION + INCONEL + *FAILURE, TUBING + STEAM GENERATOR + REACTOR, HTGR

24282
BOYER VS + KEMPER JS + GIBBONS JP
PEACH BOTTOM OPERATING EXPERIENCE DURING THE APPROACH TO POWER
PHILADELPHIA ELECTRIC COMPANY, DELTA, PENN.
13 PAGES, ABSTRACT IN ANS TRANSACTIONS, 10(1), PAGE 319, PRESENTED AT THE ANS MEETING, SAN DIEGO, CALIF., JUNE 12-15, 1967, DOCKET 50-171

AFTER A BRIEF DESCRIPTION OF THE PLANT, FAILURES AND THE CORRECTIVE MEASURES ARE DISCUSSED. FAILURES INCLUDED STRESS-CORROSION CRACKING OF STEAM-GENERATOR TUBES, A TUBE-TO-SHELL LEAK IN A REGENERATIVE HEAT EXCHANGER RESULTING IN HIGH COOLANT ACTIVITY CAUSED BY ICE PLUGGING IN THE TUBES, HIGH HELIUM TEMPERATURE ON THE EXIT FROM STEAM GENERATOR DUE TO INADEQUATE BAFFLING, RUPTURED DIAPHRAGM ON A STEAM-GENERATOR DUMP VALVE, DUE TO POOR MATERIAL, SAMPLE CORROSION FROM THE CONTAINMENT INERT ATMOSPHERE, PIPE-INSULATION FIRE DUE TO WRONG APPLICATION, AND SEIZURE OF A BOILER-FEED PUMP WHEN A SAMPLE TAP BROKE OFF AND THE DE-AERATOR PRESSURE WAS LOST.

*FAILURE, EQUIPMENT + FIRE + PEACH BOTTOM 1 (HTGR) + *HEAT EXCHANGER + *OPERATING EXPERIENCE SUMMARY + CORROSION + MATERIAL + PUMP + *REACTOR STARTUP EXPERIENCE + VALVE + *FAILURE, DESIGN ERROR + STRESS CORROSION + *CONTAINMENT ATMOSPHERE, INERT + QUALITY ASSURANCE + MAIN COOLING SYSTEM + *FAILURE, TUBING + *STEAM GENERATOR + REACTOR, HTGR

19866
POLYURETHANE THERMAL INSULATION FIRE
USAEC DIVISION OF OPERATIONAL SAFETY
3 PAGES, REACTOR OPERATING EXPERIENCES BULLETIN 67-11, OCTOBER 23, 1967

INSULATION HAD BEEN REMOVED FROM PIPING AND HEAT EXCHANGERS AT PEACH BOTTOM 1 TO PERMIT MODIFICATIONS. WHEN POLYURETHANE WAS SPRAYED BACK ON, SUFFICIENT TIME BETWEEN APPLICATIONS WAS NOT ALLOWED TO PERMIT THE CHEMICALS TO CURE. HEAT RELEASED BY EXOTHERMIC CURING OF THE INSULATION WAS TRAPPED AND LED TO SELF-IGNITION. EQUIPMENT DAMAGE WAS SLIGHT. SOOT AND FIRE DEBRIS WERE SPREAD IN THE BASEMENT. THIS INSULATION WAS REMOVED FROM ALL EQUIPMENT AND WILL NOT BE REAPPLIED. THE REACTORS OPERATING SCHEDULE WAS DELAYED 11 DAYS.

AVAILABILITY - USAEC DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

*FIRE + *MAINTENANCE AND REPAIR + PEACH BOTTOM 1 (HTGR) + OPERATING EXPERIENCE SUMMARY + MODIFICATION, SYSTEM OR EQUIPMENT + *INCIDENT, HUMAN ERROR + *THERMAL INSULATION + FAILURE, INSTALLATION ERROR + REACTOR, HTGR

22621
PEACH BOTTOM 1 QUARTERLY PROGRESS REPORT FOR PERIOD ENDING OCTOBER 31, 1967
GULF GENERAL ATOMIC INCORPORATED
GA-8370 +. 45 PAGES, 24 FIGURES, 5 TABLES, NOVEMBER 30, 1967

PLANT THERMAL-EFFICIENCY TESTS INDICATE THAT PERFORMANCE IS EXCEEDING THE PREDICTED VALUES AT THE LOWER POWER LEVELS (2.5% AT 40% FULL POWER). OF A 20% DISCREPANCY BETWEEN CALCULATED AND ACTUAL XENON EQUILIBRIUM REACTIVITY WORTH, 5% IS ATTRIBUTED TO AXIAL EFFECTS. FURTHER STUDY TO BE MADE. REPAIRS WERE MADE TO A LEAK IN THE FEEDWATER PIPING, TO CRACKED WELDS BETWEEN BAFFLES IN A STEAM GENERATOR, AND TO LEAKING GASKETS ON STEAM-GENERATOR DUMP VALVES. XENON BUILDUP AND DECAY, TEMPERATURE COEFFICIENT, ROD CALIBRATION, POWER COEFFICIENT AND FISSION-GAS-RELEASE TESTS REPORTED.

FISSION GAS RELEASE + MAINTENANCE AND REPAIR + REPORT, OPERATIONS + PEACH BOTTOM 1 (HTGR) + POWER COEFFICIENT + COMPARISON, THEORY AND EXPERIENCE + TEMPERATURE COEFFICIENT + XENON + THERMAL CONSIDERATION + *TEST, PLANT RESPONSE + CONTROL ROD CALIBRATION + *REACTIVITY EFFECT, ANOMALOUS + STEAM GENERATOR + REACTOR, HTGR

23370

PEACH BOTTOM ATOMIC POWER STATION MONTHLY OPERATIONS REPORT NO. 22
 PHILADELPHIA ELECTRIC COMPANY
 14 PAGES, DECEMBER 1967, DOCKET 50-171, TYPE--HTGR, MFG--G.A., AE--BECHTEL

A TWO-DAY OUTAGE OCCURRED FOR AEC EXAMINATIONS AND TEST BLASTING FOR RAILROAD EXCAVATION. FAILURE OF A SOLENOID VALVE ON A SAMPLE LINE RESULTED IN VAPORIZATION OF THE LIQUID NITROGEN IN THE KR-85 TRAP, WHICH DESORBED THE CONTAMINANTS HELD IN THE TRAP. THE PRIMARY SYSTEM ACTIVITY INCREASED TO PEAKS OF 15 CURIES AND 50 PPM. CORRECTION OF PROBLEM RETURNED ACTIVITY TO 300 MILLICURIES. LEAKS IN FITTINGS ON THE DELAY-BED MOISTURE MONITOR RESULTED IN KR-88 CONTAMINATION IN THE AIR ROOM.

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

*ACTIVITY BUILDUP + REACTOR, GCR + REACTOR, GRAPHITE MODERATED + KRYPTON + REPORT, OPERATIONS + PEACH BOTTOM 1 (HTGR) + *FAILURE, INSTRUMENT + CONTAMINATION + *VALVE + *COOLANT PURIFICATION SYSTEM + MAIN COOLING SYSTEM + REACTOR, HTGR

29850

HULL LJ + WATSON JF
 PEACH BOTTOM STRESS CORROSION CRACKING
 GULF GENERAL ATOMIC INCORPORATED, SAN DIEGO, CALIF.
 2 PAGES, ANS TRANS. 11(1), PAGES 136-137, 1968 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY AND CANADIAN NUCLEAR ASSOCIATION, TORONTO, CANADA, JUNE 10-13, 1968

BEFORE INSTALLING CORE AND AFTER SERIES OF HOT RUNS, STRESS-CORROSION CRACKING WAS DISCOVERED IN 304 SS SUPERHEATER COMPONENTS OF STEAM GENERATOR AND IN TWO 304 SS BELLOWS. ATTRIBUTED TO STRESSED 304 SS COMPONENTS BEING EXPOSED TO A CORROSIVE ENVIRONMENT AND ELEVATED TEMPERATURES DURING HOT RUNS. ALL 304 SS MATERIAL REPLACED WITH INCONEL 800 OR 600. TESTS IN BOILING MGC12 FAILED TO SHOW CRACKING OF INCONEL WHEN STRESSED SPECIMENS EXPOSED FOR 500 HR, BUT SIMILAR 304 SS SPECIMENS CRACKED IN LESS THAN 24.

*FAILURE, COMPONENT + PEACH BOTTOM 1 (HTGR) + STEEL, STAINLESS + OPERATING EXPERIENCE SUMMARY + CORROSION + MODIFICATION, SYSTEM OR EQUIPMENT + MAGNESIUM + TEST, BENCH + SEAL + *STRESS CORROSION + INCONEL + COMPONENTS, MISCELLANEOUS + FAILURE, TUBING + *STEAM GENERATOR + REACTOR, HTGR + CHLORIDE + *TUBING

28545

MONTHLY OPERATIONS REPORT NO. 29 - PEACH BOTTOM ATOMIC POWER STATION
 PHILADELPHIA ELECTRIC COMPANY
 MONTHLY OPERATIONS REPORT NO. 29, JULY 1968 +. 14 PAGES, DOCKET 50-171, TYPE--HTGR, MFG--G.A., AE--BECHTEL

SHUTDOWN WAS REQUIRED BECAUSE OF STEAM LEAK FROM STEAM GENERATOR DRUM LEVEL GAGE GLASS. MAIN COOLANT ACTIVITY LEVEL INCREASED TO 8 CURIES AND A THIRD DEFECTIVE ELEMENT IS SUSPECTED. OTHER TOPICS INCLUDE SUMMARY OF OPERATIONS, RADIOACTIVE EFFLUENTS, MAINTENANCE, AND ADMINISTRATION.

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

ACTIVITY BUILDUP + COATED PARTICLE + FAILURE, EQUIPMENT + FAILURE, FUEL ELEMENT + REPORT, OPERATIONS + PEACH BOTTOM 1 (HTGR) + INSTRUMENT, LIQUID LEVEL DETECTION + FISSION PRODUCT RETENTION + MAIN COOLING SYSTEM + STEAM GENERATOR + REACTOR, HTGR + LEAK

29805

SELECTED OPERATING EXPERIENCES
 PHILADELPHIA ELECTRIC COMPANY
 14 PAGES, PEACH BOTTOM MONTHLY OPERATIONS REPORT NO. 31, SEPTEMBER 1968, DOCKET 50-171, TYPE--HTGR, MFG--G.A., AE--BECHTEL

ON THREE OCCASIONS, MAIN-COOLING-SYSTEM ACTIVITY LEVEL INCREASED, INDICATING FAILURE OF A TOTAL OF 7 UNPURGED ELEMENTS AND AN INVENTORY OF 19.3 CURIES. DURING TESTS OF DIESEL GENERATOR, IT FAILED TO START (DIRTY AIR-MOTOR STARTING GEAR).

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

ACTIVITY BUILDUP + FAILURE, EQUIPMENT + FAILURE, FUEL ELEMENT + REPORT, OPERATIONS + PEACH BOTTOM 1 (HTGR) + GENERATOR, ENGINE + FLOW BLOCKAGE + MAIN COOLING SYSTEM + REACTOR, HTGR

21396

PIQUA NUCLEAR POWER FACILITY MONTHLY OPERATING REPORT NO. 42. OCTOBER 1966
 PIQUA NUCLEAR POWER FACILITY, OHIO
 COO-652-32 +. 20 PAGES, OCTOBER 1967

UPON STARTUP OF THE MAIN COOLING SYSTEM A FLOW RATE OF 11,000 GPM WAS OBTAINED (VS THE 16,000 EXPECTED). EACH MAIN-PUMP-SUCTION STRAINER CONTAINED ABOUT 1/2 GAL OF COKE (PARTICLE SIZE UP TO 3/4 IN.). RE-STARTUP STILL SHOWED LOSS OF FLOW RATE. 1/2 GAL OF COKE WAS REMOVED FROM THE P-18 STRAINER BUT ONLY ABOUT 1 PINT FROM THE P-1A. 14,300 GPM FLOW RATE WAS REACHED, BUT STRAINERS AGAIN PLUGGED. AFTER 36 HR, COOLANT-SYSTEM PRESSURES AND FLOW HAD STABILIZED.

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

REPORT, OPERATIONS + REACTOR, ORGANIC COOLED + PIQUA (OCR) + *MAIN COOLING SYSTEM + *COOLANT QUALITY

29297

GAJAC G + REYNES L

EXPERIENCE GAINED FROM THE FINAL CONSTRUCTION PHASE AND THE APPROACH OF POWER OF RAPSODIE
CENTRE D ETUDES NUCLEAIRES DE CADARACHE, FRANCE

22 PAGES, 11 FIGURES, FROM THE INTERNATIONAL CONFERENCE ON THE SAFETY OF FAST REACTORS, SEPT. 1967

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

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

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

29999

LOSS OF WATER IN THE STEAM DRUM OF AN EXPERIMENTAL POWER REACTOR

U. S. ATOMIC ENERGY COMMISSION

ROE-68-13 +. 2 PAGES, DECEMBER 19, 1968

PRIMARY SYSTEM TEMPERATURE STARTED RISING WHILE THE REACTOR WAS AT 50% POWER AND WAS ASCRIBED TO FAILURE OF A SECONDARY PUMP. DURING THE SHUTDOWN, STEAM DRUM WATER LEVEL WAS NOT OBSERVED IN THE SIGHT GLASS. POOR CONTRAST AND LOCATION OF TV MONITOR IN CONTROL ROOM MADE THAT INEFFECTIVE. HIGH WATER LEVEL ALARM ON CONDENSATE STORAGE HAD BEEN REMOVED THE WEEK BEFORE. *** A FIBER GEAR IN THE WATER LEVEL RECORDER-CONTROLLER HAD WORN SO TEETH DID NOT ENGAGE. THIS GAVE INADEQUATE FEED-WATER AND PREVENTED A RECORD OF FALLING LEVEL AND ALARM. *** SEPARATION OF CONTROL FROM ALARM/RECORDING FUNCTIONS WOULD HAVE PREVENTED THIS.

*FAILURE, COMPONENT + CONTROLLER + REACTOR SAFETY SYSTEM + TEMPERATURE TRANSIENT + REACTOR, POWER + INSTRUMENT, CONTROL + INCIDENT, EQUIPMENT + *INSTRUMENT, LIQUID LEVEL DETECTION + REACTOR, AEC OWNED + STEAM GENERATOR + *INDEPENDENCE + INSTRUMENT, RECORDER

D. Research and Test

1. TRIGA

19239

AFRRI-TRIGA REPORTS FUEL ELEMENT FAILURE

DEFENSE ATOMIC SUPPORT AGENCY, ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE, BETHESDA

2 PAGES, DOCKET NO. 50-170, OCTOBER 24, 1967

(LETTER TO ORL) REPORTS OBSERVATION OF GAS BUBBLES ESCAPING FROM A C-RING FUEL ELEMENT DURING ACUTINE INSPECTION. CONTINUOUS AIR MONITORS SHOWED A SLIGHT INCREASE OVER BACKGROUND. THE BUILDING WAS ISOLATED. GAMMA SPECTRUM INDICATED PRESENCE OF RB-88. FUEL ELEMENT WAS SEALED IN A SPECIAL CAN AND PLACED IN FUEL-STORAGE RACK. NO FURTHER GAS EVOLUTION NOTED. NO PERSONNEL EXPOSURE RESULTED.

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

*FISSION GAS RELEASE + *FAILURE, FUEL ELEMENT + KRYPTON + REACTOR, RESEARCH + TRIGA (RR) + *EXAMINATION + RUBIDIUM

25087

MARK H

BERKLEY TRIGA REPORTS WIDE VARIATION IN SAFETY CHANNEL READINGS

UNIVERSITY OF CALIFORNIA, BERKLEY, CALIF.

1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(19), PAGE 16 (MAY 6, 1968), DOCKET 50-224

(LETTER, APRIL 18) REQUESTS A CHANGED TECH. SPEC. FOR ITS TRIGA MARK III TO CHANGE THE ALLOWABLE OVERPOWER MARGIN (WHICH DETERMINES THE SCRAM SETPOINT ON THE SAFETY CHANNEL) FROM 110% TO 130% OF FULL POWER. NEEDED IS THE WIDE VARIATION IN INDICATION AS A FUNCTION OF VARIOUS REACTOR OPERATING PARAMETERS AT 1 MW. THIS VARIATION (FOR A FIXED SCRAM SETTING) GENERATED OCCASIONAL PERIODS OF NONCOMPLIANCE WHEN THE MARGIN HAS EXCEEDED 10%, FOR WHICH THE UNIVERSITY HAS ALREADY BEEN CITED.

REACTOR, RESEARCH + COMPLIANCE + TECHNICAL SPECIFICATIONS + TRIGA (RR) + *INSTRUMENT, ABNORMAL INDICATION + INSTRUMENT, POWER RANGE + *SETPOINT

17666

ANNUAL REPORT OF MODIFICATION OF U OF CALIFORNIA (BERKELEY) TRIGA
UNIVERSITY OF CALIFORNIA, BERKELEY
3 PAGES, AUGUST 2, 1967, DOCKET NO. 50-224, TRIGA MARK III REACTOR

ELEVEN MODIFICATIONS INCLUDING (1) REDESIGN OF ENTRY DOORS BECAUSE OF INFLATABLE-GASKET DAMAGE AND TO PREVENT THE DOUBLE-ENTRY DOOR FROM OPENING SIMULTANEOUSLY UNDER PRESSURE, (2) INSTALLATION OF A SECOND RABBIT IN PLACE OF A GRAPHITE ELEMENT, AND (3) REPLACEMENT OF SHEET-RUBBER SPACER BY ALUMINUM SPACER IN CONTROL-ROD MECHANISM (FORMER CAUSED STUCK ROD, 9-27-66).

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

REACTOR, TRAINING + CONTAINMENT AIR LOCK + CONTAINMENT INTEGRITY + *MODIFICATION, SYSTEM OR EQUIPMENT + TRIGA (RR) + *FAILURE, SCRAM MECHANISM + REPORT, OPERATIONS SUMMARY + IRRADIATION FACILITY

18507

VER PLANCK CW
TRIGA STUCK ROD AT GENERAL ATOMIC, SEPTEMBER 8, 1967
GENERAL DYNAMICS, SAN DIEGO, CALIF.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(42) PAGES 17 (OCTOBER 19, 1967), DOCKET NO. 50-163

(LETTER, OCTOBER 2) THE INCIDENT OCCURRED WHILE MAKING REACTIVITY-EXCESS MEASUREMENTS PRIOR TO \$4.60 PULSING. THE TRANSIENT ROD WAS WORTH \$2.50, BUT THE OTHER 3 WERE WORTH \$6.00, LEAVING \$1.20 SHUTDOWN MARGIN. LUBRICANT WAS SPRAYED ONTO THE TEFLON SLIDE. DROP TIMES WERE THE SAME AS BEFORE. IT IS BELIEVED THAT DIRT AND DUST GOT INTO THE OPEN SYSTEM, SO A COVER WILL NOW BE PROVIDED.

REACTOR, RESEARCH + SHUTDOWN MARGIN + *CONTROL ROD, SHIM SAFETY + INCIDENT, EQUIPMENT + TRIGA (RR) + REACTOR, PULSED + *FAILURE, SCRAM MECHANISM + LUBRICATION

26740

MARK F TRIGA CONTROL ROD STICKS
GENERAL DYNAMICS, GENERAL ATOMIC DIVISION
2 PAGES, LETTER TO D. J. SKOVHOLT, DRL. FROM LETTER TO D. J. SKOVHOLT FROM E. CREUTZ. JUNE 28, 1968. DOCKET 50-163.

ON MAY 29, DURING A ROUTINE PULSE AT THE MARK F, THE SHIM ROD STOPPED 3 IN. SHORT OF FULL INSERTION FOLLOWING THE ROUTINE SCRAM. SHUTDOWN MARGIN WAS \$1.27 WITH THIS ROD FULL OUT. 50% OF THE SUBSEQUENT TEST DROPS SHOWED ROD STOPPED 3 IN. SHORT, IN 50% ROD FELL FULLY DOWN. AFTER ADJACENT ELEMENTS WERE CHECKED FOR INTERFERENCE, ROD DROPPED FREELY. REACTOR RETURNED TO SERVICE JUNE 7 AFTER DISCUSSION WITH COMPLIANCE. EXACT CAUSE NOT RESOLVED, BUT MOST PROBABLE CAUSE WAS IMPROPERLY SEATED ELEMENT OR TEMPORARY FOREIGN OBJECT IN THE DASH POT.

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

FUEL HANDLING + REACTOR, RESEARCH + SAFETY REVIEW + FUEL ELEMENT + TEST, SYSTEM OPERABILITY + TRIGA (RR) + REACTOR, PULSED + *FAILURE, SCRAM MECHANISM + OBSTRUCTION

29760

TRIGA TRANSIENT ROD STICKS FROM FOREIGN MATTER
GULF GENERAL ATOMIC
2 PAGES, LETTER TO D.J. SKOVHOLT, DRL, NOVEMBER 22, 1968, DOCKET 50-163

ON NOV. 12, 68, TRIGA-F TRANSIENT ROD WAS OBSERVED TO FALL INTO THE CORE WHEN AIR SUPPLY SHUT OFF AT THE END OF THE DAY. THE SOLENOID VALVE FAILED TO RELEASE AIR PRESSURE WHEN ELECTRICAL SIGNAL WAS REMOVED, BECAUSE OF A MODEST ACCUMULATION OF FOREIGN MATTER IN THE VALVE. SHUTDOWN MARGIN WAS \$2.20.

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

REACTOR, RESEARCH + TRIGA (RR) + REACTOR, PULSED + *FAILURE, SCRAM MECHANISM

14077

U OF ILLINOIS TRIGA FISSION GAS RELEASE
UNIVERSITY OF ILLINOIS
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(3) PAGES 15-17 (JANUARY 16, 1967) DOCKET NO. 50-151

(LETTER DECEMBER 1968) FISSION GAS WAS RELEASED FROM A DEFECTIVE SEAL BETWEEN THERMOCOUPLE AND FUEL ELEMENT, AND OBSERVED AS A DOUBLING OF GENERAL RADIATION ABOVE THE TANK TOP (3M/HR, CAUSED BY A 50C-MR/HR READING TWO INCHES FROM THE TUBE CONTAINING THERMOCOUPLE LEADS), AND A 20-MIN HALF-LIFE ACTIVITY (RB88) OBSERVED FROM THE AIR-PARTICULATE MONITOR. SEAL WAS PROBABLY BROKEN IN HANDLING, AS ELEMENT HAD BEEN UNUSED FOR A YEAR. THE STACK MONITOR DID NOT SHOW ANY INCREASE, ALTHOUGH THE AIR MONITOR HAD INCREASED TO 7000 CPM.

FISSION GAS RELEASE + FAILURE, FUEL ELEMENT + MONITOR, STACK + REACTOR, RESEARCH + *INCIDENT, EQUIPMENT + INSTRUMENT, TEMPERATURE + TRIGA (RR) + REACTOR, PULSED

22258
BECK GP
UNIVERSITY OF ILLINOIS REPORTS TRIGA PULSE ROD FAILURE
UNIVERSITY OF ILLINOIS
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(3), PAGES 21-22 (JANUARY 15, 1968), DOCKET 50-151

(LETTER, JANUARY 4) (A) A BAD RELAY ALLOWED THE PULSE ROD TO BE RAISED WHEN THE SHIM ROD WAS ABOVE FULLY INSERTED WITH MODE SWITCH IN MANUAL. (B) THE PNEUMATIC SOLENOID VALVE FAILED TO DROP THE PULSE ROD ON SCRAM. THE RUBBER SEATS ON THE SIX-YEAR-OLD VALVES WERE WORN AND OCCASIONALLY ALLOWED AIR TO LEAK TO THE TOP PORTION OF THE DIAPHRAGM, HOLDING AIR PRESSURE ON THE PISTON EVEN WHEN THE ELECTRICAL PORTION WORKED PROPERLY. THE AIR PRESSURE WAS REDUCED FROM 75 TO 40 PSI, WHERE THE ROD DID RELEASE. THE REACTOR OPERATED SATISFACTORILY. A BACKUP SAFETY SYSTEM (RELEASE OF AIR PRESSURE AT A VENT ADJACENT TO CONSOLE) WAS AVAILABLE.

*FAILURE, COMPONENT + CONTROL ROD DRIVE + REACTOR, RESEARCH + INCIDENT, EQUIPMENT + INSTRUMENT, RELAY + TRIGA (RR) + VALVE + *FAILURE, SCRAM MECHANISM + SHUTDOWN SYSTEM, SECONDARY

24823
STEERMAN JJ
EXPOSURE AT U OF ILL. TRIGA
UNIVERSITY OF ILLINOIS, URBANA, ILL.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGES 38-39 (APRIL 8, 1968)

(LETTER, FEB. 27) ON FEB. 12, HP OFFICE WAS NOTIFIED THAT A FILM BADGE WORN JAN. 12-FEB. 9 READ 3.15 R GAMMA AND 2.67 BETA. INVESTIGATION SHOWED THAT A GRADUATE STUDENT HAD REMOVED 6 COPPER SAMPLERS (15 P/HR, CONTACT) JAN. 10-19 FROM REACTOR AND MADE PHYSICAL-PROPERTY MEASUREMENTS (100 MR/HR CONTACT) DURING JAN. 26-31. INDIVIDUAL HAS SINCE LEFT. NO CONTAMINATION FOUND. A SIMILAR PROCEDURE IN DECEMBER GAVE NO EXPOSURE.

REACTOR, RESEARCH + COPPER + *PERSONNEL EXPOSURE, RADIATION + TRIGA (RR) + IRRADIATION TESTING + PROPERTY, PHYSICAL

22954
NORTHROP REPORTS FAILURE OF TRIGA MARK-F FUEL ELEMENT
NORTHROP CORPORATION, BEVERLY HILLS, CALIFORNIA
1 PAGE, JANUARY 18, 1968, DOCKET 50-187

FAILURE WAS DISCOVERED WHEN ELEMENT WAS DIFFICULT TO REMOVE FROM CORE (FOR ROUTINE MEASUREMENT). A SMALL BLISTER IN THE CLADDING AT THE MIDDLE OF THE ELEMENT WAS ABOUT 0.1 IN. IN DIAM AND 0.05 IN. HIGH, APPARENTLY DUE TO CLAD WEAKNESS. ELEMENT WAS FROM C-RING AND HAD RECEIVED 86.43 MW-HR OF STEADY-STATE OPERATION AND \$3705 OF PULSING OPERATION. IT HAD ELONGATED 0.02 IN. SINCE PURCHASE, BUT NO BOWING WAS APPARENT. NO MEASUREABLE FISSION-PRODUCT RELEASE.

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

INCIDENT, GENERAL + TRIGA (RR) + REACTOR, PULSED + *FAILURE, CLADDING + EXAMINATION

19271
PENN STATE LOSES U-235 PLATED CYLINDER
PENNSYLVANIA STATE UNIVERSITY, UNIVERSITY PARK, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 19, (NOVEMBER 6, 1967), DOCKET NO. 70-242

(LTR, OCT. 12) 0.057 GRAM OF U-235 WAS IN ONE OF TWO IDENTICAL ASSEMBLIES. SOMETIME IN THE PAST 5 YEARS ONE WAS DISCARDED THRU NORMAL PROCEDURES, AND THE IDENTIFYING TAGS WERE INTERCHANGED, CAUSING THE WRONG ASSEMBLY TO BE RETAINED. WE RECENTLY CUT OPEN THE ASSEMBLY TO RECLAIM IT, AND DISCOVERED THE LOSS.

*SOURCE MATERIAL + *URANIUM + WASTE DISPOSAL, SOLID + *SOURCE, RADIATION, LOST + FAILURE, ADMINISTRATIVE CONTROL

30310
SLUGGISH TRIGA TRANSIENT-ROD DROP
THE PENNSYLVANIA STATE UNIVERSITY
2 PAGES, LETTER TO P.A. MORRIS, DRL, JULY 29, 1968, DOCKET 50-5

ON JAN. 5, 68, DURING ROUTINE PRESTARTUP TESTS, THE OPERATOR NOTED THAT THE TRANSIENT ROD AIR VALVE WAS TAKING 2-3 SEC TO RELEASE, RATHER THAN THE LESS THAN 1 SEC NORMAL. ON ONE OCCASION, IT FAILED TO RELEASE. THE DISMANTLED VALVE SHOWED EVIDENCE OF GUIDE RUBBING AND WAS REPLACED.

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

FAILURE, COMPONENT + REACTOR, RESEARCH + TRIGA (RR) + *VALVE + *FAILURE, SCRAM MECHANISM

28540

ROSS DA

UNEXPECTED REACTIVITY ADDITION AT PENN STATE UNIV FROM MOVEMENT OF LEAD SHIELD
PENNSYLVANIA STATE UNIVERSITY, UNIVERSITY PARK, PENNSYLVANIA 16802
LETTER TO AEC, DRL +. 6 PAGES, FIGURES, AUGUST 9, 1968, DOCKET 50-5

AN UNEXPECTED AUTOMATIC REGULATING ROD INSERTION OF 37 UNITS REPRESENTING A REACTIVITY ADDITION OF 0.1681 DELTA K/K OCCURRED. THE CAUSE WAS ATTRIBUTED TO A LEAD PLATE BETWEEN THE REACTOR AND THERMAL COLUMN WHICH WAS NOT FITTED PROPERLY AND MOVED DURING OPERATION. CHARTS SHOWED SLIGHT INCREASE IN LOG-N CHANNEL, NO CHANGE IN LINEAR-LEVEL CHANNEL, I-POWER CHANNEL DROPPED 4.5%, AND FUEL TEMPERATURE DROPPED 10 C. LOCATION OF NEUTRON DETECTORS IS SUCH THAT THEY ARE INFLUENCED BY NEUTRON REFLECTED FROM LEAD SHIELD. NO DAMAGE. BETTER MEANS OF SECURING PLATE TO BE OBTAINED.

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

REACTOR, RESEARCH + TRIGA (RR) + SHIELDING + BEAM HOLE + *REFLECTOR + *REACTIVITY EFFECT, ANOMALOUS + *INSTRUMENT, ABNORMAL INDICATION + *DISPLACEMENT, GENERAL + OPERATING EXPERIENCE

27842

LEAD PLATE SHIFT TO CORE ADDS 0.1681 REACTIVITY
PENNSYLVANIA STATE UNIVERSITY

3 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(35), PAGES 12-14 (AUGUST 26, 1968)

(LETTER TO DRL, AUG. 9) ON JULY 24, THE REACTOR OPERATOR WAS OBSERVING XENON BEHAVIOR AND PLOTTING ROD POSITION VS TIME. HE NOTED A 37 UNIT REG ROD WITHDRAWAL IN A FEW SECONDS, A SLIGHT LOG INCREASE, AND A 10 C FUEL TEMP. DECREASE. REACTOR WAS SHUT DOWN. CAUSE WAS A THICK LEAD PLATE (MOUNTED BETWEEN CORE AND THERMAL COLUMN) WHICH HAD SWUNG TOWARD THE CORE AS NYLON ROPES SAGGED. LEAD ADDED 0.0841 AND REFLECTED MORE NEUTRONS TOWARD THE SERVOCHAMBER, CAUSING A 40 KW POWER DECREASE, WITH THIS FUEL COOLING ADDING 0.0841.

CONTROLLER + POWER COEFFICIENT + REACTIVITY EFFECT + REACTOR, RESEARCH + LEAD + INCIDENT, EQUIPMENT + REACTOR POWER + TRIGA (RR) + BEAM HOLE + REFLECTOR + REACTIVITY EFFECT, ANOMALOUS + *INSTRUMENT, ABNORMAL INDICATION + INSTRUMENT, POWER RANGE + *OPERATOR ACTION

25241

MOVEMENT OF AN INSTRUMENTED FUEL ROD AT A RESEARCH REACTOR
UNITED STATES ATOMIC ENERGY COMMISSION, DIVISION OF OPERATIONAL SAFETY
ROE-68-9 +. 2 PAGES, SEPTEMBER 1968

DURING INSTALLATION OF AN EXPERIMENT, THE RIGHT ANGLE BEND AT THE TOP OF THE CONDUIT ON AN INSTRUMENTED FUEL ROD WAS PUSHED OVER ONE OF THE CONTROL ROD MAGNETS. THE REACTOR WAS BROUGHT CRITICAL AND THE ROD APPARENTLY RAISED 8.2 INCHES. THE REACTOR WAS BROUGHT CRITICAL A SECOND TIME AND PULSED FOR THE EXPERIMENT. THIS TIME THE ROD WAS RAISED 12 INCHES AND AN ANOMALOUSLY LOW FUEL TEMP WAS OBSERVED. AFTER THIS THE CRITICAL ROD POSITIONS WERE DIFFERENT. LIFTING THE ROD 8.2 IN. DECREASED REACTIVITY 95 CENTS. ANALYSIS AND CRITICALITY DATA INDICATES A 12 IN. LIFT DECREASES REACTIVITY \$1.70 TO \$1.90. AN UNCONTROLLED INSERTION OF REACTIVITY COULD HAVE TAKEN PLACE IF THE FUEL ROD HAD DROPPED BACK INTO CORE.

FAILURE, OPERATOR ERROR + REACTOR, RESEARCH + IN PILE EXPERIMENT + FAILURE, DESIGN ERROR + REACTIVITY EFFECT, ANOMALOUS + *OPERATING EXPERIENCE

29997

A SUMMARY OF EVENTS INVOLVING THE TRANSIENT RODS OF TRIGA RESEARCH REACTORS
U.S. ATOMIC ENERGY COMMISSION
ROE-68-17 +. 3 PAGES, DECEMBER 26, 1968

RECENT DIFFICULTIES AT DIFFERENT FACILITIES INCLUDE - (1) WORN RUBBER SEATS IN THE SOLENOID LEAKED PRESSURE TO THE REVERSE SIDE OF THE RELEASE DIAPHRAGM, PREVENTING IT FROM RELEASING WHEN DEENERGIZED. (2) EXCESSIVE RUBBING OF THE NEEDLE ASSEMBLY INCREASED SOLENOID VALVE SCRAM TIME. (3) RELAY FAILURE ALLOWED TRANSIENT ROD MOVEMENT DESPITE SHIM ROD ALREADY MOVED. (4) TRANSIENT ROD DID NOT DROP ON SCRAM, DID DROP WHEN PRESSURE MANUALLY VENTED BUT WITHDREW WHEN PRESSURE REAPPLIED. SCRAMMED WHEN SOLENOID POWER REMOVED. NO CAUSE FOUND. (5) RUST ON THE INSIDE TOP OF THE CARRIAGE WAS PICKING UP THE ROD WHEN CARRIAGE WAS WITHDRAWN, EVEN THOUGH AIR PRESSURE WAS OFF.

*CONTROL ROD DRIVE + MAINTENANCE AND REPAIR + REACTOR, RESEARCH + OPERATING EXPERIENCE SUMMARY + CORROSION + RESPONSE TIME + INSTRUMENT, RELAY + TRIGA (RR) + REACTOR, PULSED + *FAILURE, SCRAM MECHANISM + LEAK

32336

PINHOLE LEAK IN TRIGA CONTROL ROD
TEXAS A AND M UNIVERSITY

2 PAGES, LETTER TO D.J. SKOVHOLT, DRL, SEPTEMBER 26, 1968, DOCKET 50-128

ON SEPT. 19, 60 MW-HR AFTER TRIGA CONVERSION MADE, CONTROL RODS WERE INSPECTED DURING GRAPHITE-REFLECTOR INSTALLATION. AS REQ. ROD WAS BROUGHT TO SURFACE, BUBBLES AND WHITE POWDER WERE OBSERVED. ON WET ROD REMOVED FROM POOL, SMALL BUBBLES WERE SEEN FORMING ON WELDED END PLUG, FINAL SEAL AFTER B4C LOADING. ***WEAR, MECHANICAL DAMAGE, CORROSION WERE NOT LIKELY. A SMALL HOLE MAY HAVE BEEN INITIALLY PRESENT OR BARELY SEALED. WE MAY INITIALLY INSPECT RODS MORE FREQUENTLY THAN CALLED FOR IN TECHNICAL SPECIFICATIONS.

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

BORON + CARBIDE + *CONTROL ROD + CONTROL ROD BURNUP + REACTOR, RESEARCH + *CORROSION + TRIGA (RR) + EXAMINATION + *DAMAGE + *LEAK

29978
 RANDALL JD + ROUX DP
 SIMPLE EFFECTIVE MODIFICATIONS FOR MINIMIZING COMPENSATION PROBLEMS IN POOL REACTORS
 TEXAS A AND M UNIVERSITY
 3 PAGES, 2 FIGURES, 1 REFERENCE, NUCLEAR SAFETY, 9(6), PP. 522-24 (NOV.-DEC. 1968)

(TEXAS A AND M) - VERTICAL AIR FILLED COLLIMATORS REACHING DOWN TO THE TOP OF THE REFLECTOR ACT AS BEAM HOLES TO ENHANCE THE N/GAMMA RATIO BY PREFERENTIAL SCATTERING OF NEUTRONS UP THE TUBE TO A STANDARD C/C. TUBE PLUS 1/2 IN. OF LEAD GIVES A FACTOR OF 50 REDUCTION IN CURRENT FROM GAMMA ACTION TO GIVE 5 DECADES OF RANGE FOLLOWING SCRAM. *** (ORNL) - DELIBERATE DESENSITIZATION OF MULTI-SECTION PCP CHAMBERS (BEING DESIGNED) TOGETHER WITH DESIGN TO MAXIMIZE N/GAMMA SENSITIVITY RATIO, ALLOWED THEIR LOCATION WITHIN 20 IN. OF BSR CORE AT 2 MW. THIS GIVES AT LEAST 6 DECADES OF RANGE.

CHAMBER, ION + REACTOR, RESEARCH + *MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, POOL TYPE + SHIELDING + BEAM HOLE + *INSTRUMENT, ABNORMAL INDICATION + *INSTRUMENT, INTERMEDIATE RANGE

22830 ALSO IN CATEGORY 6
 WASHINGTON STATE U REPORTS REACTIVITY EXCESS IN CONVERTED TRIGA
 WASHINGTON STATE UNIVERSITY, PULLMAN, WASHINGTON
 3 PAGES, 1 FIGURE, JANUARY 10, 1968, DOCKET 50-57

THE WORTH OF THE CENTRAL FUEL ELEMENT (4-ROD CLUSTER) WAS PREDICTED AS \$3.61 (BASED ON A CYLINDRICAL CORE) BUT MEASURED AS \$5.36 AND \$5.78 IN THE ACTUAL RECTANGULAR CONFIGURATION. REVISED ACCIDENTAL-FUEL-ADDITION ANALYSIS GIVES 1234 C PEAK FUEL TEMP. (A RISE OF 884 C) INSTEAD OF 853 (LIMIT IS SET AT 1000 C). PRESENT ADMINISTRATIVE CONTROL OF LOADINGS WILL PREVENT SUCH ACCIDENT. IN ADDITION WE PLAN TO LIMIT FUEL TEMP. TO 100 C WHEN A CORE OPENING EXISTS, SO THAT PEAK FUEL TEMP. IN THE ACCIDENT WOULD NOT EXCEED 984 C. THIS WILL ALLOW LOW-POWER TESTING.

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

ACCIDENT ANALYSIS + *REACTIVITY, EXCESS + ACCIDENT, REFUELING + REACTOR, RESEARCH + *COMPARISON, THEORY AND EXPERIENCE + TRIGA (RR) + *REACTIVITY EFFECT, ANOMALOUS

23408
 DODGEN HW
 MOVEMENT OF INSTRUMENTED FUEL ELEMENT BY A CONTROL ROD MAGNET
 WASHINGTON STATE UNIVERSITY
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(8), PAGES 32-33 (FEBRUARY 1968)

(LETTER, FEB. 7) IN A RECENTLY CONVERTED TRIGA, THERMOCOUPLE LEADS FROM A SINGLE UNCLAMPED FUEL ROD ARE IN A STAINLESS-STEEL CONDUIT, WHICH HAS A RIGHT ANGLE 7 IN. ABOVE THE ROD MAGNETS WHEN THEY ARE IN THE DOWN POSITION. INSERTION OF ANOTHER EXPERIMENT PUSHED THE ANGLE OVER NO. 3 MAGNET. ROD 3 POSITION WAS 15.2 IN. AT CRITICALITY, AND THEN WAS RAISED TO 19 IN. BEFORE PULSING, WHICH GAVE ONLY A 70 C READING. CORE CHECK SHOWED THE BEND NOT OVER THE MAGNET, BUT EXPERIMENTS SHOWED THAT FUEL ROD LIFTED 12 IN. (REMOVED \$1.80 REACTIVITY). ROD IS NOW CLAMPED.

FUEL HANDLING + INSTRUMENT, IN CORE + *ACCIDENT, REACTIVITY + TRIGA (RR) + REACTOR, PULSED + *FAILURE, ADMINISTRATIVE CONTROL

24662
 CASHWELL RJ
 REPORT ON REFUELING THE UNIVERSITY OF WISCONSIN NUCLEAR REACTOR
 UNIVERSITY OF WISCONSIN
 NUCLEAR ENGINEERING MEMO NO. 4 +. 45 PAGES, 28 FIGURES, MARCH 1968

THE FLAT-PLATE CORE, OPERATED INTERMITTENTLY AT 250 KW FOR THREE YEARS, WAS UNLOADED, ALLOWED TO DECAY, AND SHIPPED FOR REPROCESSING. RADIATION LEVEL OF FUEL ELEMENT WAS 12 R/HR AT 1 METER IN AIR AFTER 90 DAYS DECAY. MODIFICATIONS WERE MADE TO PERMIT LOADING WITH TRIGA CORE TO OPERATE AT 1 MW. LOADING, TESTING AND RESULTS DESCRIBED IN DETAIL. DURING POWER CALIBRATION, IT WAS FOUND THAT COMPENSATED ION-CHAMBER READINGS DECREASED 25% WHEN ROD-BANK POSITION CHANGED FROM 12 TO 16 IN. CHAMBERS TO BE MOVED TO BELOW CORE CENTER LINE. MOST STRIKING IMPROVEMENT WAS THAT ROD-DROP MEASUREMENTS REQUIRED 4.5 MIN WITH TRIGA CORE, COMPARED WITH 31 MIN FOR MTR CORE, WITH SIMILAR ADVANTAGES FOR OTHER STARTUP-SHUTDOWN CYCLES.

AVAILABILITY - R. J. CASHWELL, NUCLEAR ENGINEERING DEPARTMENT, UNIVERSITY OF WISCONSIN

REACTOR, RESEARCH + REACTOR, TRAINING + INSTRUMENT CALIBRATION + DOSE MEASUREMENT, EXTERNAL + REACTOR STARTUP TESTING + *MODIFICATION, SYSTEM OR EQUIPMENT + *REFUELING + TRIGA (RR) + INSTRUMENT, ABNORMAL INDICATION

2. Test

29316

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

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

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

29314

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

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

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

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

30861

CLARK RH + CARSON JF + JACOVITCH J + FAIRBURN GT
 SELECTED BAWTR OPERATING EXPERIENCE
 BABCOCK AND WILCOX
 BAW-331 +. 15 PAGES, FIGURES, TABLES, 6 REFERENCES, NOVEMBER 1967, DOCKET 50-200

NO DIMENSIONAL CHANGES IN SAFETY RODS. BERYLLIUM REFLECTORS NOT BOWED, ACCORDING TO MIRROR AND GAGING. *** THREE TIMES, THE BATTERY-POWERED DC MOTORS FOR PRIMARY PUMP DID NOT OPERATE DURING TEST (CONTROL RESISTOR BURNED OUT, CIRCUIT BREAKER NOT CLOSED, BEARINGS FAILED). FIRST TWO CAUSES WERE UNDETECTED UNTIL SHUTDOWN. AUXILIARY POWER WAS REVIEWED, AND NON-BAWTR LOADS REMOVED. *** ZR-4 CLADDING TESTS WERE COMPLETED, BURNABLE POISON AND OXIDE FUEL IRRADIATION CONTINUED. HIGH-BURNUP FUEL IRRADIATION BEGAN. *** OF 24 SCRAMS, MOST WERE DUE TO ELECTRICITY INTERRUPTION DURING STORMS, ONE WHEN AN M-G SET BRUSH SLIPPED.

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

BERYLLIUM + EMERGENCY POWER, ELECTRIC + FAILURE, EQUIPMENT + REACTOR, RESEARCH + REACTOR, TEST + TEST, SYSTEM OPERABILITY + IRRADIATION TESTING + REPORT, OPERATIONS SUMMARY + SURVEILLANCE PROGRAM + EXPANSION + GENERATOR, BATTERY

32333

SCUBA USAGE IN FILLING POOL WALL CRACKS
 BABCOCK AND WILCOX
 2 PAGES, LETTER TO AEC-DRL, 1967 ANNUAL REPORT OF CHANGES, FEBRUARY 26, 1968, DOCKET 50-99

(A) IN TWO MONTHS, POOL-WATER MAKEUP INCREASED FROM 10 TO 100 GAL/DAY. SEEPAGE FROM A HAIRLINE CRACK WAS ELIMINATED WHEN A SCUBA DIVER APPLIED SILICONE SEALANT TO POOL WALL. LATER A SCUBA DIVER INSTALLED A GUIDE TUBE BELOW GRID PLATE. EXPOSURES WERE LESS THAN 100 MR. (B) SELF-POWERED RADIATION DETECTORS WERE IRRADIATED IN CORE AT 100-800 F. REACTOR WAS USED AS A NEUTRON SOURCE FOR INSTRUMENT AND THERMOCOUPLE DEVELOPMENT.

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

*MAINTENANCE AND REPAIR + REACTOR, RESEARCH + FUEL STORAGE + REACTOR, TEST + COATING, SURFACE + REACTOR, POOL TYPE + SEAL + REMOTE MANIPULATING AND VIEWING + REPORT, OPERATIONS SUMMARY + FAULT + *LEAK

28169

BAWTR REACTOR HEADER FAILS TO DROP ON LOSS OF FLOW
 BABCOCK + WILCOX CO., LYNCHBURG, VA.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(39), PAGE 19, (SEPT. 23, 1968), DOCKET NO. 50-200

(LETTER, SEPT. 9) FAILURE CAUSED BY 3 HEADER GUIDE RODS BROKEN, WHICH PREVENTED THEIR ALIGNING THE HEADER AND CAUSED IT TO BIND. THESE BROKE DUE TO REPEATED LOADINGS. WE WILL SHUT DOWN UNTIL TECH.-SPEC. APPROVAL OF OPERATION WITH HEADER LOCKED UP. (HEADER IS APPARENTLY FLAPPER VALVE OPENING ON LOW FLOW).

FAILURE, EQUIPMENT + ACCIDENT, LOSS OF FLOW + REACTOR, TEST + TECHNICAL SPECIFICATIONS + REACTOR, POOL TYPE + ENGINEERED SAFETY FEATURE

30199
 BAWTR OPERATIONS APRIL-SEPT 1968
 BABCOCK AND WILCOX
 BAW-349 +. 7 PAGES, 3 TABLES, 8 REFERENCES, NOVEMBER 1968, DOCKET 50-200

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

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

ACCIDENT ANALYSIS + FAILURE, COMPONENT + FAILURE, FUEL ELEMENT + *ACCIDENT, LOSS OF FLOW + REACTOR, TEST + TECHNICAL SPECIFICATIONS + *HEAT TRANSFER, NATURAL CONVECTION + VALVE + REPORT, OPERATIONS SUMMARY + IRRADIATION FACILITY

21082
 THE BR-2 ACCIDENT
 1 PAGE, NUCLEAR ENGINEERING 12(137), PAGE 730 (OCTOBER 1967)

ALPHA LUNAMINATION (CM-242) WAS SPREAD THROUGHOUT THE CONTAINMENT BUILDING WHEN RUPTURED CAPSULES OF AM-241 WERE REMOVED AFTER 46 DAYS OF IRRADIATION. DECONTAMINATION OF THE PRIMARY CIRCUIT PRESENTED TWO PROBLEMS. THE MATERIAL WAS IN THE FORM OF AN INSOLUBLE METALLIC OXIDE, AND ION EXCHANGE COLUMNS HAD NO EFFECT. ALSO, THAT WHICH PLATED OUT ON THE SURFACES WAS VERY TIGHTLY BOUND. LANTHANUM NITRATE WAS ADDED TO THE SYSTEM (PH 6), AIDING REMOVAL BY THE ION EXCHANGE COLUMNS. THE LANTHANUM PLUS A LOW SYSTEM PH HAD SOME SURFACE-STRIPPING EFFECT.

CHEMICAL REACTION + *DECONTAMINATION + REACTOR, RESEARCH + AMERICIUM + *CONTAMINATION + *CURIUM + ION EXCHANGE + LANTHANUM + *INCIDENT, RECOVERY FROM + COOLANT PURIFICATION SYSTEM + MAIN COOLING SYSTEM

26583
 BR2 HEAT EXCHANGER TUBE FAILURES
 CENTRE D ETUDE DE L ENERGIE NUCLEAIRE, MOL, BELGIUM
 EUR-3667 +. 64 PAGES, ANNUAL PROGRESS REPORT OF THE OPERATIONS GROUPS OF THE BR-2 REACTOR AND CONNECTED INSTALLATIONS, 1966, OCTOBER 26, 1967

(PAGES 40-42) RUPTURE OF HEAT-EXCHANGER TUBES WAS DUE TO TUBES RUBBING ON BAFFLE PLATES AS A RESULT OF VIBRATION INDUCED BY POOR SECONDARY-FLOW DISTRIBUTION. DIAPHRAGMS WERE USED TO MAKE PENETRATIONS UNIFORM, AND FLOW WAS REDUCED 25%. ***REPORT ALSO DISCUSSES EXPERIMENTAL PROGRAM, IRRADIATION TESTS, AND POSTIRRADIATION WORK FOR A VARIETY OF PROGRAMS.

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

REPORT, OPERATIONS + REACTOR, RESEARCH + BELGIUM + HEAT EXCHANGER + *IRRADIATION TESTING + FAILURE, DESIGN ERROR + FLOW DISTRIBUTION + BR 2 (RR) + VIBRATION + *FAILURE, TUBING

15627
 DISPLACED ENGINEERING TEST REACTOR FUEL ELEMENT
 IDAHO OPERATIONS OFFICE, U. S. ATOMIC ENERGY COMMISSION
 REACTOR OPERATING EXPERIENCE 67-2, 2 PAGES, FEBRUARY 27, 1967

THE REACTOR WAS TAKEN CRITICAL WITH ONE FUEL ELEMENT INSERTED ONLY 9 IN., LEAVING THE ENTIRE FUELED PORTION ABOVE THE CORE. ONE SHIFT LOGGED THE ELEMENT AS BEING PROPERLY SEATED, AND THE NEXT SHIFT CHECKED THE SEATING AS A PART OF THE PRE-STARTUP CHECK LIST. THE CAUSE WAS ATTRIBUTED TO OPERATOR ERRORS. THE POWER LEVEL NEVER EXCEEDED 1% OF FULL POWER, AND SCRAM WAS INITIATED FOLLOWING INABILITY TO EXPLAIN ROD-POSITION (REACTIVITY) DISCREPANCIES.

AVAILABILITY - AEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

ETR (TR) + FUEL HANDLING + *FAILURE, OPERATOR ERROR + REACTOR, TEST + *OPERATING EXPERIENCE SUMMARY + REACTOR, AEC OWNED + *INCIDENT, HUMAN ERROR + FAILURE, SEQUENTIAL + REACTIVITY EFFECT, ANOMALOUS

16108
 ENGINEERING TEST REACTOR FUEL ELEMENT RUPTURE
 DIVISION OF OPERATIONAL SAFETY, USAEC
 2 PAGES, REACTOR OPERATING EXPERIENCES BULLETIN NO. 67-5, MAY 2, 1967

FUEL ELEMENT MELTING OCCURRED BECAUSE OF COOLANT-FLOW BLOCKAGE BY A PIECE OF SILVERED TAPE. THE TAPE WAS USED DURING THE PRECEDING SHUTDOWN FOR PLACING RADIOGRAPHIC FILM. THE TANK HAD BEEN INSPECTED FOUR TIMES BEFORE STARTUP, BUT THE TAPE WAS NOT OBSERVED THEN NOR SEEN UNTIL THE ELEMENT WAS REMOVED FROM THE REACTOR. PORTIONS OF NINE PLATES MELTED. FOUR WERE FUSED TOGETHER, WITH 50% OF THE PLATE AREA MELTED. A HIGHLY VISIBLE YELLOW TAPE WILL BE USED IN THE FUTURE.

AVAILABILITY - AEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

ETR (TR) + *FAILURE, FUEL ELEMENT + *FUEL MELTDOWN + ACCIDENT, LOSS OF FLOW + REACTOR, TEST + REACTOR, AEC OWNED + *INCIDENT, HUMAN ERROR

28550

SMITH EH ET AL
SELECTED OPERATING EXPERIENCES AT ETR
IDAHO NUCLEAR CORPORATION, IDAHO FALLS, IDAHO
IN-1193 +. 33 PAGES, TABLES, FIGURES, MAY 24, 1968

THE CAUSES OF 153 HR OF DOWNTIME INCLUDED (1) A LOST PLUG ON BOTTOM OF REACTOR FROM A SEAL-REMOVAL PLUGGING TOOL, DUE TO IMPROPER MANIPULATION, (2) LEAK IN HIGH-PRESSURE SYSTEM OF AN EXPERIMENT, AND (3) EXPERIMENT INSTRUMENTATION PROBLEMS. INTERFERENCE OF A WALKIE-TALKIE SIGNAL CAUSED AN ELECTRONIC SCRAM FROM THE NO. 2 LOG-N AMPLIFIER. SUMMARIZES IRRADIATION PROGRAM.

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

ETR (TR) + FAILURE, OPERATOR ERROR + IN PILE LOOP + NOISE + REPORT, OPERATIONS + SCRAM, REAL + REACTOR, TEST + FAILURE, INSTRUMENT + IRRADIATION TESTING + INSTRUMENT, ABNORMAL INDICATION

15011

STUCK CONTROL ROD AT GETR, FEBRUARY 1967
GENERAL ELECTRIC, SAN JOSE
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(10), PAGES 23-24 (MARCH 6, 1967) DOCKET NO. 50-20

(LETTER, FEBRUARY 10) A SHORT BOLT FROM A FUEL TOOL FELL INTO A CONTROL-ROD GUIDE DURING RELOADING AND WAS DISCOVERED ON STARTUP CHECKS WHEN ROD 5 STUCK AT 22 IN. WITHDRAWN. ONLY SELF-LOCKING NUTS WILL BE USED FROM NOW ON.

REACTOR, TEST + GETR (TR) + *INCIDENT, EQUIPMENT + *FAILURE, SCRAM MECHANISM + FUEL HANDLING MACHINE

17128

LARSON HJ + DARMOHRAJ GF
SCRAM REDUCTION AT THE GENERAL ELECTRIC TEST REACTOR
GENERAL ELECTRIC CO., IRRADIATION PROCESSING OPERATION, PLEASANTON, CALIFORNIA
CONF-670-713 +. 10 PAGES, 4 FIGURES, ABSTRACT IN ANS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 3, (JULY 1967), PAPER PRESENTED AT THE CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

THE SCRAM RATE HAS BEEN REDUCED FROM 123/YEAR (1964) TO 50 (HALF YEAR, 1967). BOTH EQUIPMENT- AND MANAGERIAL-ORIENTED APPROACHES ARE NECESSARY. (EQUIPMENT) IN DEC. 1965, A NEW SAFETY SYSTEM AND LOG-N AMPLIFIER WAS INSTALLED BECAUSE THE NO-LONGER-MANUFACTURED ITEM WAS CONTINUALLY BEING REBUILT. THE FLOW SCRAM WAS MADE 2/3 AND CHANGED FROM RELUCTANCE-GRIDGE/MERCURY-RELAY TO PRESSURE SWITCH FOLLOWING LOSS-OF-FLOW CALCULATION. UNNEEDED SCRAMS WERE REMOVED FROM INSTRUMENTS. (MANAGERIAL) A RELIABILITY ENGINEER STUDIED SYSTEMS. ALTHOUGH THE CONTAINMENT AIRLOCK DOORS HAD ZERO FAILURE IN 100,000 ENTRIES OVER 8 YEARS, HE FOUND THAT IN 9 OUT OF 10 KIES, BOTH DOORS WOULD OPEN TOGETHER IF ACTUATED NEARLY SIMULTANEOUSLY. AN ELECTRICAL INTERLOCK WAS INSTALLED TO PARALLEL THE MECHANICAL INTERLOCK. EACH SCRAM IS INVESTIGATED, PROCEDURES ARE PERIODICALLY REVIEWED, AND OPERATORS TESTED.

*RELIABILITY ANALYSIS + REACTOR SAFETY SYSTEM + REACTOR, TEST + CONTAINMENT AIR LOCK + INSTRUMENT, GENERAL + GETR (TR) + *OPERATING EXPERIENCE SUMMARY + REPORT, OPERATIONS ANALYSIS + *SCRAM, SPURIOUS + FAILURE, DESIGN ERROR

19874

ZANOT JR
GETR STARTUP RANGE INSTRUMENT ANOMALIES
GENERAL ELECTRIC COMPANY, VALLECITOS NUCLEAR CENTER, PLEASANTON, CALIFORNIA
2 PAGES, PAGE 9-10 OF RELATING OPERATING EXPERIENCE, PREVENTIVE MAINTENANCE AND RELIABILITY ANALYSES, PRESENTED AT ANS CONFERENCE ON REACTOR OPERATING EXPERIENCES, JULY 23-26, 1967

ON OCTOBER 7, 1966, DURING THE INITIAL STARTUP TO 50 MW, CONTROL RODS WERE WITHDRAWN TO THE UPPER LIMIT OF ESTIMATED CRITICAL POSITION, WITH NO SIGNIFICANT CHANGE IN COUNT RATE BECAUSE OF A LOOSE CONNECTION. AN SOP NOW REQUIRES A COUNT-RATE INCREASE OF 5 BEFORE CRITICALITY. *** THE FISSION CHAMBER IS LOWERED MANUALLY INTO THE POOL NEAR THE CORE UNTIL THE COUNT RATE IS JUDGED ACCEPTABLE BY THE CONTROL-ROOM OPERATOR. NO FIXED REFERENCE POSITION WAS PROVIDED. THE CIRCUIT WAS SUBJECT TO NOISE-ONLY INDICATION, OR TO HELPFUL READJUSTMENT OF THE DISCRIMINATOR. A REFERENCE POSITION IS NEEDED FOR CYCLE-TO-CYCLE STARTUP CHECK.

AVAILABILITY - JOHN R. ZANOT, 175 CURTNER AVENUE, SAN JOSE, CALIFORNIA

FAILURE, OPERATOR ERROR + NOISE + REACTOR, TEST + GETR (TR) + INCIDENT, HUMAN ERROR + FAILURE, DESIGN ERROR + FAILURE, ADMINISTRATIVE CONTROL + *INSTRUMENT, ABNORMAL INDICATION + *INSTRUMENT, STARTUP RANGE

18933

GETR REPORTS CONTROL ROD FAILURE TO COMPLETELY DROP
GENERAL ELECTRIC, PLEASANTON, CALIFORNIA
2 PAGES, AUGUST 1, 1967, DOCKET NO. 50-70

NUMBER 4 ROD STUCK AT 4 IN. ABOVE FULLY INSERTED POSITION DUE TO 4 BROKEN PIECES OF A SELF-LOCKING NUT AND A PIECE OF WELDING SLAG, ALL FOUND IN THE SHOCK SECTION. ROD WAS UNDAMAGED. CONTROL-ROD GUIDE-TUBE COVERS WERE IN PLACE. NUT CAME FROM HANDLING TOOL, SO A NEW LOCKING DEVICE WAS DESIGNED (ELIMINATING SELF-LOCKING NUT). NOW, NO PART IS SMALL ENOUGH TO PASS INTO A SMALL CREVICE OF THE CORE ASSEMBLY.

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

FAILURE, EQUIPMENT + REACTOR, TEST + GETR (TR) + CONTROL ROD SCRAM MECHANISM + MODIFICATION, SYSTEM OR EQUIPMENT + *FAILURE, SCRAM MECHANISM + *FUEL HANDLING MACHINE

32637

NONCOMPLIANCE CITATION FOR GETR POOL WATER LOSS
U.S. ATOMIC ENERGY COMMISSION

2 PAGES, LETTER TO L.S. MOODY, GE-VALLECITOS, OCTOBER 13, 1967, DOCKET 50-70, TYPE--TR, MFG--G.E., AE--G.E.

INVESTIGATION OF AUG. 31, 1967, AFTER A LOSS OF 14,000 GAL FROM REACTOR POOL, RESULTED IN TWO ITEMS OF NONCOMPLIANCE. (1) POWER TO EMERGENCY WATER RECIRCULATION PUMPS WAS REMOVED FOR 7 HR ON AUG. 29, 1967, WHILE A FUELED CONTROL-ROD FOLLOWER WAS IN THE CORE. (2) ITEM 1 WAS NOT REPORTED TO AEC. *** YOUR SEPT. 19 LETTER REQUIRES ADDITIONAL INFORMATION - (1) DETAILED DESCRIPTION OF SAFETY REVIEW PROCEDURES ON CHANGES IN TESTS AND EXPERIMENTS, (2) HAZARDS EVALUATION OF POOL WATER LOSS, STEPS TAKEN TO PREVENT RECURRENCE.

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

EMERGENCY POWER, ELECTRIC + ACCIDENT, LOSS OF COOLANT + REACTOR, RESEARCH + SAFETY REVIEW + *FUEL STORAGE + REACTOR, TEST + COMPLIANCE + GETR (TR) + REACTOR, POOL TYPE + *FAILURE, ADMINISTRATIVE CONTROL + *LEAK

29808

POISON INJECTION SYSTEM FLOW REDUCTION
GENERAL ELECTRIC COMPANY

1 PAGE, LETTER TO P.A. MORRIS, AEC DRL, SEPTEMBER 24, 1968

DURING THE ANNUAL TEST OF THE LIQUID-POISON-INJECTION SYSTEM, THE PUMPING RATE WAS 50% OF DESIGN VALVE. CAUSE WAS PARTIAL AIR BINDING IN AN ELEVATED SECTION OF LINE BETWEEN THE STORAGE TANKS AND THE PUMPS. AIR HAD COLLECTED DURING THE PERIOD FOLLOWING THE LAST TEST. THE PIPING SYSTEM WAS REDESIGNED SO THAT IT IS NO LONGER POSSIBLE FOR AIR TO COLLECT IN THE LINES. SATISFACTORY TEST WAS MADE AFTER MODIFICATION. ANOTHER TEST WILL BE MADE AT NEXT OUTAGE AND AGAIN IN 6 MONTHS.

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

POISON, SOLUBLE + REACTOR, TEST + AIR + GETR (TR) + MODIFICATION, SYSTEM OR EQUIPMENT + TEST, SYSTEM OPERABILITY + *PIPING + *FAILURE, DESIGN ERROR + *SHUTDOWN SYSTEM, SECONDARY + FLOW BLOCKAGE + ENGINEERED SAFETY FEATURE

15994

MCCORD RV + CORBETT BL

HIGH FLUX ISOTOPE REACTOR QUARTERLY REPORT, OCTOBER, NOVEMBER, AND DECEMBER OF 1966
OAK RIDGE NATIONAL LABORATORY, TENNESSEE

ORNL-TM-1811 +. 22 PAGES, 2 FIGURES, 12 TABLES, MARCH 23, 1967

TEN BALLS FROM THE CONTROL-PLATE BEARINGS WERE FOUND IN THE PRIMARY-SYSTEM STRAINER DURING A SHUTDOWN. INSPECTION WITH AN UNDERWATER PERISCOPE SHOWED EXCESSIVE WEAR ON OTHER PLATE BEARINGS. THE WEAR WAS ATTRIBUTED TO FRETTING CORROSION, AND, ALTHOUGH SIGNIFICANT, THE BEARINGS WERE EXPOSED TO THE FLOW ENVIRONMENT TWICE AS LONG AS THEIR DESIGN LIFE. MODIFIED BEARINGS WERE INSTALLED WHICH PROVIDED RETAINERS FOR BOTH BALLS AND THE RACE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

*REPORT, OPERATIONS + OPERATING EXPERIENCE SUMMARY + CORROSION + HFIR (FTR) + REACTOR, AEC OWNED + *FAILURE, DESIGN ERROR + FAILURE, SCRAM MECHANISM + REACTOR, FLUX TRAP

17142

MCCORD RV

OPERATING EXPERIENCE WITH THE HFIR THROUGH JUNE, 1967

OAK RIDGE NATIONAL LAB., TENN.

CONF-670-713 +. 41 PAGES, 25 FIGURES, 2 TABLES, 5 REFERENCES, ABSTRACT IN AHS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 14, (JULY 1967), PAPER PRESENTED AT THE CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

THREE MAIN PROBLEMS HAVE BEEN - (1) EXCESSIVE WEAR OF CONTROL PLATE STELLITE-25 BEARINGS (FRETTING CORROSION, FROM HYDRAULIC VIBRATION). (2) GALLED STAINLESS STEEL CORE-COMPONENT FASTENERS DESPITE THE CARE (DISSIMILAR ALLOYS, INSERTS, ELECTROLYSED THREADS) TAKEN. SOLID LUBRICANTS AND BOLT TENSIONERS ARE NOW USED. DISSIMILAR ALLOYS WERE NOT ADVANTAGEOUS. (3) THE X8001 TARGET RODS CRACKED DUE TO FISSION-GAS-PRESSURE BUILDUP AND EMBRITTLEMENT FROM AN UNKNOWN CAUSE. A HYDRAULIC TUBE WAS ADDED TO THE CENTRAL FLUX TRAP.

*ALUMINUM + FAILURE, COMPONENT + *EMBRITTLEMENT + *OPERATING EXPERIENCE SUMMARY + HFIR (FTR) + REACTOR, AEC OWNED + *FAILURE, CLADDING + *FAILURE, SCRAM MECHANISM + *PRESSURE, INTERNAL + REACTOR, FLUX TRAP + CORE COMPONENTS

16458

MECHANICAL FAILURES OF THE ANTI-CRITICAL GRID OF THE HIGH FLUX BEAM REACTOR

DIVISION OF OPERATIONAL SAFETY, USAEC

5 PAGES, 3 FIGURES, REACTOR OPERATING EXPERIENCES 67-7, MAY 10, 1967

DESCRIBES TWO FAILURES OF THE ANTICRITICAL GRID RESULTING FROM IMPROPER WELDING. (THE GRID IS AN ASSEMBLY OF STEEL BARS WHICH PREVENTS CRITICALITY OF MOLTEN FUEL IN THE EVENT THE CORE MELTS AND RESOLIDIFIES IN THE BOTTOM OF THE VESSEL.) THE FIRST FAILURE WAS IDENTIFIED WHEN A HOLD-DOWN LUG FOR THE GRID WAS FOUND IN THE HEAT EXCHANGER. THE WELD MATERIAL ON THE LUGS WAS NOT PROPERLY DEPOSITED AND LACKED FULL PENETRATION. THE SECOND FAILURE WAS IDENTIFIED AFTER OBSERVING NOISE IN THE VESSEL. AN OUTER BAR OF THE GRID HAD BROKEN LOOSE AS A RESULT OF STRESS CORROSION ENHANCED BY IMPROPER WELDING. ANOTHER GRID IS BEING DESIGNED.

AVAILABILITY - USAEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

REACTOR, RESEARCH + REACTOR, TEST + WELDS + *OPERATING EXPERIENCE SUMMARY + NOISE ANALYSIS + REPORT, OPERATIONS ANALYSIS + *FAILURE, FABRICATION ERROR + HFBR (RR) + STRESS CORROSION + CORE COMPONENTS

17940

HEAT EXCHANGER PROBLEMS AT THE HIGH FLUX BEAM REACTOR
U. S. ATOMIC ENERGY COMMISSION, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.
ROE-67-8 +. 2 PAGES OF OPERATING EXPERIENCES, REACTOR SAFETY, AUGUST 18, 1967

RATTLING WAS HEARD AT FLOWS ABOVE HALF RATED IN THESE HEAT EXCHANGES SIMILAR TO ATR AND MADE BY SAME MANUFACTURER. RATTLING OCCURRED AT LOWER AND LOWER FLOWS. ALTHOUGH TEMA STANDARD IS 60 INCH UNSUPPORTED LENGTH, THE U-BENDS WERE 134 IN, AND THE U-BENDS WERE STRIKING EACH OTHER. ADDITIONAL NOZZLES WERE MADE TO CHANGE FROM COUNTERCURRENT 2-PASS FLOW TO SINGLE-PASS FLOW, LEAVING THE U-BEND IN RELATIVELY MOTIONLESS WATER. PERFORMANCE WAS RESTORED WITHOUT RATTLES FOR LESS THAN \$50,000.

AVAILABILITY - AEC DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

CODES AND STANDARDS + NOISE + REACTOR, RESEARCH + *HEAT EXCHANGER + MODIFICATION, SYSTEM OR EQUIPMENT + FAILURE, DESIGN ERROR + NOZZLE + HFBR (RR) + *VIBRATION + REACTOR, FLUX TRAP + SUPPORT STRUCTURE + FAILURE, TUBING

18689

MARSHALL RP + SELBY CL
FAILURE ANALYSES AND PROPERTIES OF SAFETY ROD GUIDE TUBES FROM THE HWCTR
DU PONT DE NEMOURS (E.I.) AND CO., AIKEN, S. C. SAVANNAH RIVER LAB.
DP-1077 +. 21 PAGES, 7 FIGURES, 8 TABLES, 8 REFERENCES, APRIL 1967

FOUR OF SIX ROD-GUIDE TUBES DEVELOPED LONGITUDINAL AND TRANSVERSE CRACKS IN 1964 AFTER 6000 HR AT 200 C, FOUND WHEN ROD-DROP TIME INCREASED. THE ZIRCALOY FAILURES WERE CAUSED BY STRESS PULSES GENERATED IN THE TUBES DURING HYDRAULIC DECELERATION OF THE FALLING SAFETY RODS. THE CRACKS WERE STARTED BY LOW-CYCLE FATIGUE, DUE TO REPEATED DROPS AT ELEVATED TEMPERATURES, AND WERE PROPAGATED BY DROPS AT LOW TEMPERATURES. RESIDUAL STRESSES AND HIGH HYDROGEN CONTENTS, BOTH FROM FABRICATION AND FROM HIGH IN-PILE CORROSION RATES, WERE SIGNIFICANT CONTRIBUTING FACTORS. IN-PILE CORROSION RATES WERE THREE TO TEN TIMES THE RATES EXPECTED IN AUTOCLAVE TESTS.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

HWCTR (TR) + REACTOR, PWR + CORROSION + INCIDENT, EQUIPMENT + *REPORT, OPERATIONS ANALYSIS + *FAILURE, FATIGUE + FAILURE, DESIGN ERROR + *FAILURE, SCRAM MECHANISM + ZIRCALOY + CORE COMPONENTS

15010

MIT REACTOR HEAT EXCHANGER LEAK, FEBRUARY 21-23, 1967
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(10), PAGE 24 (MARCH 6, 1967) DOCKET NO. 50-20

(LETTER, FEBRUARY 27) 15 GAL OF D2O (TRITIUM CONCENTRATION 1.3 MILLICURIES/CC) REACHED THE 20,000-GAL H2O SECONDARY SYSTEM. SOME CONTAMINATED SECONDARY WATER WAS RELEASED. THE HEAT EXCHANGER WILL BE FIXED. PERMISSION ASKED TO DISCHARGE SECONDARY WATER AT 5 GPM INTO SANITARY SEWER AND CHARLES RIVER.

EFFLUENT + REACTOR, HWR + *FAILURE, PIPE + REACTOR, RESEARCH + TRITIUM + WASTE DISPOSAL, RIVER + *INCIDENT, EQUIPMENT

21715

ALSO IN CATEGORY 17
TRITIUM RELEASE FROM MIT REACTOR DUE TO HEAT EXCHANGER LEAK
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(18), PAGES 14-15 (MAY 1, 1967)

(LETTER, MARCH 24) A TUBE LEAK WAS INDICATED FEB. 21 AND PROVED ON FEB. 23. 60 LITERS OF D2O, CONTAINING 67.8 CURIES OF TRITIUM, HAD LEAKED INTO THE 20,000-GAL SECONDARY SYSTEM. URINE SAMPLES FROM THREE REACTOR-OPERATIONS PERSONNEL WHO SHUT DOWN THE COOLING TOWER WERE 0.29 TO 0.91 MICROCURIE/LITER, BELOW MPC. BLOWDOWN TO THE SEWER AND COOLING TOWER EVAPORATION WERE BOTH BELOW MPC.

EFFLUENT + REACTOR, HWR + INHALATION + *TRITIUM + *HEAT EXCHANGER + *FAILURE, TUBING

15532

FAILURE OF EMERGENCY BATTERY BANK AT THE MATERIALS TESTING REACTOR
U. S. ATOMIC ENERGY COMMISSION
REACTOR OPERATING EXPERIENCES 67-1 + 2 PAGES, JANUARY 31, 1967

ON OCTOBER 4, 1966, A COMMERCIAL POWER FAILURE CAUSED THE M-G SET TO INVERT TO SUPPLY POWER TO EXPERIMENTS MOMENTARILY. THE OPERATOR WAS UNABLE TO RESYNCHRONIZE THE SET WITH COMMERCIAL POWER, AND A DC BREAKER CUT OFF ALL POWER FOR 1 MIN. INVESTIGATION SHOWED THAT 1 MIN OF DRAIN HAD DROPPED THE VOLTAGE SO LOW THAT SYNCHRONIZATION WAS IMPOSSIBLE. THE BATTERIES WERE 10 YEARS OLD, AND THE PLATES HAD BECOME COATED WITH LEAD. ROUTINE VOLTAGE AND SP.-G. CHECKS WERE NORMAL, BUT NO PERIODIC RATED-ROAD DISCHARGE TESTS WERE RUN, AND USUALLY PROMPT SWITCHING ON POWER FAILURE HAD KEPT THE BATTERIES FROM DISCHARGING. THUS, THE DEFECT DID NOT BECOME APPARENT.

AVAILABILITY - AEC, DIVISION OF PUBLIC INFORMATION, WASHINGTON, D. C. 20545

EMERGENCY POWER, ELECTRIC + *FAILURE, EQUIPMENT + ACCIDENT, LOSS OF POWER + MTR (TR) + REACTOR, TEST + *REPORT, OPERATIONS ANALYSIS + REACTOR, AEC OWNED + *TEST, SYSTEM OPERABILITY + *FAILURE, ADMINISTRATIVE CONTROL

30265
KELLER FR
EFFECTS OF FUEL AND EXPERIMENT FAILURES UPON TEST REACTOR OPERATIONS
IDAHO NUCLEAR CORPORATION, IDAHO FALLS, IDAHO
1 PAGE, 1 FIGURE, ANS TRANS. 11(2), PAGE 625, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., 20545 NOV. 10-15, 1968

MTR AND ETR (28 REACTOR-YEARS) EXPERIENCE SHOWS FUELED CAPSULE BREAKS CAN HAVE AS SERIOUS EFFECTS ON EFFLUENT ACTIVITY AS FUEL ELEMENT FAILURES (EG MTR/ETR EFFLUENT ACTIVITY 60-66 SHOWN). ONLY MTR CAPSULE FAILURE OF FEB. 23, 1963 CORRELATED TO HIGH DISCHARGE. *** USEFUL TECHNIQUES DESCRIBED. (1) DECONTAMINATION PROCEDURES (SPECIAL FOAM DECONTAMINANT DEVELOPED). (2) CUSTOM SHIELDING FOR HOT SPOTS. (3) HIGHLY DEVELOPED TRAINING AIDS. (4) CRAFTSMAN CROSS TRAINING TO SPREAD EXPOSURE. (5) DETAILED PLANNING OF SHUTDOWN WORK. (6) DAILY LOGGING OF PERSONNEL RADIATION EXPOSURE.

AVAILABILITY - F. R. KELLER, IDAHO NUCLEAR CORPORATION, P. O. BOX 1845, IDAHO FALLS, IDAHO

DECONTAMINATION + ETR (TR) + *FAILURE, FUEL ELEMENT + *IN PILE LOOP + MAINTENANCE AND REPAIR + MTR (TR) + REACTOR, RESEARCH + REACTOR, TEST + TRAINING + *OPERATING EXPERIENCE SUMMARY + WASTE DISPOSAL, LIQUID + RADIATION SAFETY AND CONTROL + REACTOR, AEC OWNED + SHIELDING

31329
FORD JD
MTR PROGRESS REPORT CYCLE NO. 284, OCTOBER 7, 1968-NOVEMBER 5, 1968
IDAHO NUCLEAR CORP., IDAHO FALLS
IN-1259 +. 33 PAGES, DECEMBER 3, 1968

EIGHTEEN SAMPLES OF HYDRAZINE-VERSENE WERE GIVEN 1-MWD EXPOSURES IN THE HYDRAULIC TUBE. THREE SHIM RODS WOULD NOT WITHDRAW BECAUSE ANODIZING OF THE ARMATURE SPRUNG CUP PREVENTED ELECTRICAL CONTINUITY. PROFILOMETER MEASUREMENTS INDICATED NO DIMENSIONAL CHANGE OF BERYLLIUM IN CORE POSITIONS L-11, -21, -31.

BERYLLIUM + MTR (TR) + REPORT, OPERATIONS + REACTOR, TEST + COOLANT CHEMISTRY + REACTOR, AEC OWNED + *FAILURE, SCRAM MECHANISM + EXPANSION + IRRADIATION FACILITY

26068
NBSR ROD DROP FAILURE
NATIONAL BUREAU OF STANDARDS, WASHINGTON, D.C.
6 PAGES, LETTER TO P.A. MORRIS FROM R.S. CARTER, MAY 10, 1968, DOCKET NO. 50-184

ON MAY 2, 1968, THE NO. 4 SHIM ROD FAILED TO DROP TO THE FULL-INSERT POSITION. INSPECTION SHOWED GALLING OF THE LOWER-SPRING-RETAINER ASSEMBLY. THE ASSEMBLY HAD BEEN ACCIDENTALLY DRIVEN INTO A FIXED MECHANICAL STOP DURING A CHECKOUT OF POSITION INDICATION. MAINTENANCE HAD BEEN PERFORMED, AND THE COMPONENTS HAD POSSIBLY BEEN REASSEMBLED IN A DIFFERENT ORIENTATION, WHICH WOULD AGGRAVATE GALLING. THE BALL SCREW AND SPRING RETAINER ASSEMBLY WERE REPLACED. NO SIMILAR INCIDENTS HAVE OCCURRED OR BEEN INDICATED IN OTHER UNITS.

AVAILABILITY - USAEC, PUBLIC DOCUMENT ROOM

*CONTROL ROD DRIVE + REACTOR, HWR + FAILURE, OPERATOR ERROR + REACTOR, RESEARCH + *FAILURE, SCRAM MECHANISM + FAILURE, MAINTENANCE ERROR + CP 5 (RR) + DAMAGE + NBS + OPERATING EXPERIENCE

15871
TABOR WM + HURT SS
QUARTERLY REPORT JULY, AUGUST, AND SEPTEMBER OF 1966. OAK RIDGE RESEARCH REACTOR
OAK RIDGE NATIONAL LABORATORY
ORNL-TM-1791 +. 51 PAGES, 7 FIGURES, 13 TABLES, MARCH 1, 1967

SECONDARY COOLING EQUIPMENT WAS DAMAGED AS A RESULT OF FLOODING THE BUILDING TO A DEPTH OF 34.5 IN. ABOVE THE FLOOR. A CULVERT HAD BEEN COVERED WITH CHAIN-LINK FENCE, WHICH BECAME CHOKED WITH DEBRIS AND DIVERTED A STREAM TO THE BUILDING DURING A STORM. DAMAGE WAS INFLICTED ON A 2400-V TRANSFORMER, PUMP STARTER, AND PUMP MOTORS. ALUMINUM-CLAD SHIM RODS WERE FOUND TO BE BENT. THE CAUSE WAS ATTRIBUTED TO RADIATION DAMAGE. SHIM-ROD VIBRATION IS STILL OCCURRING, CAUSING WIDE LOG-N PERIOD RECORDER TRACINGS. NO EXPLANATION.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U.S. DEPT. OF COMMERCE, SPRINGFIELD, VA., \$3.00 COPY, \$0.65 MICROFICHE

CONTROL ROD + *FAILURE, GENERAL + ORR (RR) + RADIATION DAMAGE + REACTOR, RESEARCH + WATER, GENERAL + REACTOR, AEC OWNED + EQUIPMENT, GENERAL + REACTIVITY EFFECT, ANOMALOUS + VIBRATION + DAMAGE + MAIN COOLING SYSTEM + FLOOD

17139

HURT SS

EXPERIENCE WITH NEUTRON DAMAGE TO BERYLLIUM AND ALUMINUM LATTICE COMPONENTS AT THE ORR

OAK RIDGE NATIONAL LAB., TENN.

CONF-670-713 +. 22 PAGES, 10 FIGURES, 3 TABLES, 3 REFERENCES, ABSTRACT IN ANS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 11, (JULY 1967), PAPER PRESENTED AT THE CONFERENCE ON REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY, JULY 23-26, 1967

THE SOLID ALUMINUM SECTIONS OF 2 SHIM RODS IN THE REFLECTOR REGION DID NOT PASS A FREEDOM TEST IN SEPT. 1966 DUE TO BOWING TOWARD THE FUEL REGION - SIMILAR TO THE PREVIOUS PROBLEM WITH BERYLLIUM. BOWING PROGRESSES AT ABOUT 0.015 IN./10,000 MWD. REFLECTOR BERYLLIUM DEFLECTION WAS AT 2/3 THAT RATE. PROGRAMMED MOVEMENT OF THE BERYLLIUM IS STRAIGHTENING THEM. A HOLLOW BERYLLIUM PIECE BOWS INWARD.

*ALUMINUM + *BERYLLIUM + ORR (RR) + *RADIATION DAMAGE + FAILURE, SCRAM MECHANISM + REFLECTOR

25001

TABOR WH + HURT SS

OAK RIDGE RESEARCH REACTOR QUARTERLY REPORT, OCTOBER, NOVEMBER, AND DECEMBER OF 1967

OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENNESSEE

ORNL-TM-2147 +. 48 PAGES, FIGURES, TABLES, FEB. 28, 1968

(PG 37-45) A SUDDEN INCREASE IN RADIOACTIVITY OF THE PRIMARY WATER AFTER A SHUTDOWN WAS TRACED TO TWO POSSIBLE FABRICATION ERRORS IN THE CADMIUM SECTION OF A CONTROL ROD. A RIVET USED TO SECURE THE CD TO THE ROD EXTRUSION WAS NOT PULLED TIGHT AGAINST THE CLADDING, AND THE CD LENGTH DID NOT MEET SPECIFICATIONS. THE CD SHOWED EVIDENCE OF CORROSION OR EROSION BY WATER, WHICH HAD BEEN CHANNELLED ACROSS THE FACE OF THE CD TO A PRESSURE-RELIEF HOLE. (PG 32-37) REACTIVITY AND FLUX MEASUREMENTS OF A CD FILTER FOR AN IN-CORE FAST-FLUX FACILITY SHOWED A REACTIVITY LOSS OF 1.4-2.65 (DK/K, AND A FAST/THERMAL FLUX RATIO OF 1000.

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

*ACTIVITY BUILDUP + CADMIUM + *CONTROL ROD + *CONTROL ROD BURNUP + MAINTENANCE AND REPAIR + REPORT, OPERATIONS + ORR (RR) + *REACTIVITY EFFECT + REACTOR, RESEARCH + SCRAM, REAL + CORROSION + FAILURE, FABRICATION ERROR + EROSION + MAIN COOLING SYSTEM + *IRRADIATION FACILITY

28547

TABOR WH + HURT SS III

OAK RIDGE RESEARCH REACTOR QUARTERLY REPORT - JANUARY, FEBRUARY, AND MARCH OF 1968

OAK RIDGE NATIONAL LABORATORY

ORNL-TM-2237 +. 44 PAGES, TABLES, FIGURES, MAY 21, 1968

NAOH WAS FORCED INTO THE PRIMARY WATER SYSTEM WHILE REGENERATING THE DEMINERALIZER, ALTHOUGH IT WAS ISOLATED. HOWEVER, WATER WAS FORCED THROUGH A COMMON DRAIN LINE TO THE MAIN SYSTEM DEMINERALIZER. MISVALVING, PLUS FAILURE OF AN AUTOMATIC VALVE, CONTRIBUTED TO INCIDENT. PH ROSE FROM 5.7 TO 9.65. NO DAMAGE. RESULTS OF CORROSION-SAMPLE TESTS ARE GIVEN. ***ROD-WORTH MEASUREMENTS FOR SHIM RODS WITH 154 G OF U-235 SHOWED 25.25% (DELTA K/K, COMPARED WITH 23.46% FOR 141-G RODS. SUMMARIZES SHUTDOWN CAUSES, ONE CAUSED BY FAILURE OF SERVO AMPLIFIER VACUUM TUBE.

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

ALUMINUM + CONTROL ROD WORTH + *FAILURE, OPERATOR ERROR + REPORT, OPERATIONS + CORROSION + FAILURE, INSTRUMENT + *CONTAMINATION + COOLANT CHEMISTRY + HFIR (FTR) + INSTRUMENT, AMPLIFIER + VALVE + *FAILURE, DESIGN ERROR + REACTOR, FLUX TRAP + FAILURE, SIMULTANEOUS + *MAIN COOLING SYSTEM + OPERATING EXPERIENCE

30268

BARKLEY HB

SIGNIFICANT EXPERIENCES OF THE NASA PLUM BROOK REACTOR FACILITY

NASA, LEWIS RESEARCH CENTER, PLUM BROOK STATION, SANDUSKY, OHIO

2 PAGES, ANS TRANS. 11(2), PAGES 628-9, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C., 20545 NOV. 10-15, 1968

(FACILITY) ZONE LOADED CORE GIVES 60 AT. PERCENT BURNUP. ROD POSITION AND POWER DISTRIBUTION COMPUTER CALCULATED HOURLY. REFINED HEAT TRANSFER ANALYSIS OVERCOMES (XENON) POWER DISTRIBUTION EFFECTS. N-17 FISSION PRODUCT MONITOR. (EXPERIMENTS) EXPERIMENT STANDARDS GUIDE. (PROBLEMS) REPLACEMENT OF SWOLLEN BERYLLIUM REFLECTOR. TOTAL LOSS OF FLOW INCIDENT WITHOUT DAMAGE. CONTAINMENT ELECTRICAL PENETRATION REDESIGN WITH HERMETIC SEALS. REACTOR GRID WEAR. WATER EFFLUENT MONITORING MADE RELIABLE.

AVAILABILITY - H. B. BARKLEY, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION. LEWIS RESEARCH CENTER, PLUM BROOK STATION, SANDUSKY, OHIO 44870

FUEL BURNUP + IN PILE LOOP + ACCIDENT, LOSS OF FLOW + REACTOR, RESEARCH + SAFETY REVIEW + REACTOR, TEST + PLUM BROOK (TR) + POWER DISTRIBUTION + *OPERATING EXPERIENCE SUMMARY + REACTOR POWER + INSTRUMENT, OPERATING REACTIVITY + PERFORMANCE LIMIT

30270
FECYCH W

EXPERIENCES WITH BERYLLIUM SWELLING AND REPLACEMENT IN THE PLUM BROOK REACTOR
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, LEWIS RESEARCH CENTER, SANDUSKY, OHIO
2 PAGES, 1 REFERENCE, ANS TRANS. 11(2), PAGES 649-50, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY,
WASHINGTON, D. C., 20545 NOV. 10-15, 1968

94 DAYS REQUIRED TO REPLACE MASSIVE BERYLLIUM REFLECTOR PRECES. BERYLLIUM SIDE PLATE CRACKED
AFTER 37,256 MWD EXPOSURE. 5 INACCESSIBLE BOLTS WERE SEVERED WITH ELECTRICAL DISCHARGE
MACHINING. TWO PERSONS RECEIVED 2 REMS, OTHERS LESS THAN 1.25. ***DESIGNERS MUST ALLOW FOR
CHANGES IN PHYSICAL DIMENSIONS AND MECHANICAL PROPERTIES SUBJECT TO HIGH FLUX.

AVAILABILITY - W. FECYCH, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, SANDUSKY, OHIO

*BERYLLIUM + *MAINTENANCE AND REPAIR + *RADIATION DAMAGE + REACTOR, RESEARCH + REACTOR, TEST + PLUM BROOK (TR)
+ OPERATING EXPERIENCE SUMMARY + FAILURE, DESIGN ERROR + REFLECTOR + REMOTE MANIPULATING AND VIEWING

26002
RELIANCE ON A SINGLE INFORMATION SOURCE LEADS TO OPERATING ERROR
USAEC, DIVISION OF OPERATIONAL SAFETY
ROE 68-4 +. 3 PAGES, AEC BULLETIN, OPERATING EXPERIENCE, REACTOR SAFETY, MAY 20, 1968

THE FUEL CENTERLINE TEMPERATURE IN THE CENTRAL PRESSURE TUBE WAS TO BE LIMITED TO 2790 C (UO2-PUO2
FUEL) BY LIMITING CENTRAL TUBE POWER TO 18.6 KW/FT (BY LIMITING AVERAGE POWER IN THE 8
SURROUNDING PRESSURE TUBES). THE REACTOR WAS BROUGHT TO 8 MW AND THEN INCREASED STEPWISE TO 45
MW (80% DESIRED). LINEAR-FLUX MONITORS READ HIGHER THAN EXPECTED AND INDICATED FLOW WAS 8,200
GPM RATHER THAN EXPECTED 10,600. A PARTIALLY OPEN BYPASS VALVE AROUND THE FLOWMETER WAS CAUSING
AN ERRONEOUSLY LOW POWER-CALCULATOR READING. ***RISE TO POWER IS NOW IN SMALLER STEPS, WITH HEAT
BALANCES GUIDED BY FLUX LEVELS AS WELL AS THERMAL POWER CALCULATOR.

AVAILABILITY - USAEC, DIVISION OF PUBLIC INFORMATION

CONTROLLER + REACTOR, PRESSURE TUBE + CENTERLINE MELTING + *INSTRUMENT, FLOW + REACTOR POWER + REACTOR, AEC
OWNED + IRRADIATION TESTING + *FAILURE, MAINTENANCE ERROR + FAILURE, ADMINISTRATIVE CONTROL + *INSTRUMENT,
POWER RANGE + OPERATING EXPERIENCE

26003
RUPTURE DISC FAILURES AT A TEST REACTOR
USAEC, DIVISION OF OPERATIONAL SAFETY
ROE 68-5 +. 2 PAGES, USAEC BULLETIN, OPERATING EXPERIENCES, REACTOR SAFETY, MAY 23, 1968

AFTER 4 YEARS OF SATISFACTORY SERVICE, A 2-MIL-THICK SS RUPTURE DISK WAS FOUND FAILED. THE DISK
PROTECTED AGAINST COMPLETE LOSS OF FLOW IN CASE THE PRIMARY-SYSTEM VALVE WAS CLOSED. AFTER 150
HR OF FLUSHING WATER THROUGH SCREENS, 72% OF THE MISSING MATERIAL WAS RECOVERED. TWO MONTHS
LATER, THE DISK FAILED, AND 566 HR OF FLUSHING RECOVERED 64%. ***THE DISKS HAD BEEN INSTALLED
WITHOUT A STAINLESS-STEEL BACKUP PLATE (WHICH PREVENTS DISK FROM COLLAPSING ON A VACUUM),
APPARENTLY BECAUSE PLATE AND DISK WERE SEPARATE STORES ITEMS. DISK IS NOW SCHEDULED FOR ANNUAL
REPLACEMENT WITH A TYPE CONTAINING AN INTEGRAL SUPPORT PLATE.

AVAILABILITY - USAEC, DIVISION OF PUBLIC INFORMATION

REACTOR, TEST + *PRESSURE RELIEF + REACTOR, AEC OWNED + *FAILURE, INSTALLATION ERROR + *MAIN COOLING SYSTEM

26005
FUEL CLADDING FAILURE
USAEC, DIVISION OF OPERATIONAL SAFETY
ROE 68-7 +. 2 PAGES, AEC BULLETIN, OPERATING EXPERIENCES, REACTOR SAFETY, MAY 27, 1968

ALUMINUM-CLAD, 168-G U235, FLAT-PLATE, ETR-TYPE ELEMENTS WERE NORMALLY USED TO 200,000 MWD/T.
SPENT ELEMENTS WERE NORMALLY STORED IN CADMIUM-LINED HOLSTERS INSIDE THE REACTOR VESSEL. A
CHANGE REQUIRED STORAGE IN THE STORAGE POOL, WITH ONLY FILTRATION FOR TREATMENT. A LOW-BURNUP
ELEMENT (5 R AT CONTACT), EXAMINED BEFORE REPLACEMENT, HAD A BLISTER COMPLETELY THROUGH THE 0.015-
IN. CLAD. ALTHOUGH CORROSION WAS NOTED ON ALL 11 ELEMENTS STORED (SOME FOR AS LONG AS 13 MONTHS)
THIS WAS THE ONLY DEFECT.

USAEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D.C. 20545

ALUMINUM + REACTOR, RESEARCH + *FUEL STORAGE + REACTOR, AEC OWNED + *FAILURE, CLADDING + FAILURE,
ADMINISTRATIVE CONTROL + COOLANT PURIFICATION SYSTEM + *COOLANT QUALITY

30267
ROSSILLON M + JACQUEMAIN M
SILUE--ITS OPERATION, HISTORY, AND PROBLEMS
CENTRE D ETUDES NUCLEAIRES, GRENOBLE, FRANCE
1 PAGE, ANS TRANS. 11(2), PAGE 628, 1968 WINTER MEETING OF THE AMERICAN NUCLEAR SOCIETY, WASHINGTON, D. C.,
20545 NOV. 10-15, 1968

STARTUP SEPT. 63 AT 15 MW, SOON TO 30. 40 MW OPERATION REQUIRED ADDITION OF FLYWHEEL TO MAIN
COOLANT PUMPS. MAX/AV NEUTRON FLUX REDUCED FROM 2.8 TO 2.1 BY REDUCING CONTROL ROD WATER
CHANNEL. 23 PLATE FUEL ELEMENT WITH 280G U-235 (WAS 18 WITH 196G) AND COOLANT SPEED 4 M/SEC (WAS
3.2) GIVES SAME MAX HEAT FLUX AT 30 AS AT 15 MW. PIFCOFS OF PLASTIC CAUSED A FLOW BLOCKAGE IN
NOV. 1967, WITH 6 PLATES MELTED.

AVAILABILITY - M. ROSSILLON OR M. JACQUEMAIN, CENTRE D ETUDES NUCLEAIRES, B. P. 269, GRENOBLE 38, FRANCE

BURNOUT HEAT FLUX + CONTROL ROD + FRANCE + FAILURE, FUEL ELEMENT + REACTOR, RESEARCH + REACTOR, TEST +
*OPERATING EXPERIENCE SUMMARY + FUEL ELEMENT + HOT SPOT FACTOR ANALYSIS + MODIFICATION, SYSTEM OR EQUIPMENT +
POWER UPGRATING + FLOW BLOCKAGE

3. Other Research

26738

REPORT ON FUEL TRANSFER INCIDENT 4 JAN 1968
AMES LABORATORY

4 PAGES, 1 TABLE, LETTER TO P. A. MORRIS, DRL. FROM LETTER TO P. A. MORRIS FROM GLENN MURPHY. JUNE 26, 1968.
COCKET 50-116.

LCW-POWER CORE WAS BEING REPLACED BY HOT CORE IN STORAGE PIT. AFTER 4 COLD ELEMENTS WERE TAKEN TO STORAGE, THE FIRST HOT ELEMENT FELL OUT OF THE TRANSFER CASK INTO THE FUEL BOX WHEN THE CASK DOOR WAS OPENED. FUEL ELEMENT END WAS NICKED, BUT NEITHER CONTAMINATION NOR RADIATION WAS EXCESSIVE, AND IT WAS RETURNED TO STORAGE. ***INCIDENT WAS RECONSTRUCTED WHEN (A) HOLD-DOWN SCREW WAS NOT TIGHT AGAINST THE ELEMENT LIFTING ATTACHMENT, (B) WINCH CABLES ALLOWED TO SLACKEN BY RESTING CASK ON ITS DOOR, (C) CABLES AND ELEMENT PICKUP ROTATED INTO THE UNLOCKING DIRECTION.

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

FAILURE, FUEL ELEMENT + *ACCIDENT, REFUELING + REACTOR, RESEARCH + *FUEL HANDLING MACHINE + OPERATING EXPERIENCE

26735

CONTROL ROD STICKS AFTER WITHDRAWAL
UNIVERSITY OF CALIFORNIA, LOS ANGELES

1 PAGE, LETTER TO D. J. SKOVHOLT. LETTER TO D. J. SKOVHOLT FROM CRAIG B. SMITH. JUNE 26, 1968. DOCKET 50-142.

DURING THE 19 JUNE 1968 PRESTART CHECKOUT, CONTROL BLADE NO. 1 DID NOT RETURN TO THE DOWN POSITION WHEN DROPPED. WHATEVER IS INHIBITING MOTION IS NOT IN THE DRIVE. WE HAVE REMOVED THE FUEL AND ARE UNSTACKING THE GRAPHITE CENTER ISLAND TO LOCATE THE DIFFICULTY.

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

REACTOR, RESEARCH + ARGONAUT (TNG) + FAILURE, SCRAM MECHANISM

17510

APPARENT INCREASE IN EXCESS REACTIVITY DURING CORE REASSEMBLY OF AGN 201
CATHOLIC UNIVERSITY OF AMERICA

5 PAGES, JUNE 12, 1967, DOCKET NO. 50-77, CATHOLIC UNIVERSITY OF AMERICA REACTOR

AN INCREASE IN EXCESS REACTIVITY OF ABOUT 0.20% WAS NOTED BETWEEN INITIAL ASSEMBLY (SUMMER, 1966) AND MARCH 1967, WHEN EXCESS REACTIVITY EXCEEDED LICENSE LIMITATION OF 0.25%. PROBABLE CAUSE WAS A MORE OPTIMUM PACKING OF CORE ELEMENTS DURING REASSEMBLY OF CORE. A REFLECTOR ELEMENT IN A BEAM TUBE WAS REMOVED, AND THE TUBE WAS SEALED, PRODUCING A 0.20% DECREASE IN EXCESS REACTIVITY.

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

REACTIVITY, EXCESS + MAINTENANCE AND REPAIR + REACTOR, TRAINING + TECHNICAL SPECIFICATIONS + AGN (TNG) + *REACTIVITY EFFECT, ANOMALOUS

30896

NA-24 SPILL OCT. 24, 1968
CORNELL UNIVERSITY

21 PAGES, LETTER TO COMPLIANCE, NOVEMBER 22, 1968, DOCKET 50-157

POWDERED STONE PLACED IN POLYETHYLENE AND THEN IN POLYSTYRENE FOR 8 HR AT 100 KW WAS BLOWN OUT WHEN PLASTIC WAS BROKEN DURING SAMPLE REMOVAL (IN PLASTIC BAG). CONTAMINANT WAS NA-24, 500 MREM/HR 3 IN. FROM FLOOR. FAST FLUX ESTIMATES WERE 50% LOW. H₂ EVOLUTION GAVE AN 8.4-ATM PRESSURE IN CAPSULE. ***PROCEDURES NOW REQUIRE OPENING UNVENTED SAMPLES IN FUME HOODS, LIMITING POLYSTYRENE CAPSULE IRRADIATION TO 200 KWHR TO PREVENT EMBRITTLEMENT, AND USE OF A POLYETHYLENE GAS EVOLUTION RATE OF 0.14 ML/GM-MEGARAD.

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

RADIATION DAMAGE + REACTOR, RESEARCH + SAFETY REVIEW + *CONTAMINATION + *INCIDENT, EQUIPMENT + TRIGA (RR) + PRESSURE, INTERNAL + *IRRADIATION FACILITY + PLASTICS

16107

FAILURE OF HALVES TO SEPARATE IN A SPLIT TABLE TYPE CRITICAL ASSEMBLY
DIVISION OF OPERATIONAL SAFETY, USAEC

3 PAGES, REACTOR SAFETY OPERATING EXPERIENCE BULLETIN NO. 67-6, MAY 3, 1967

THE HALVES OF A SPLIT-TABLE CRITICAL ASSEMBLY FAILED TO SEPARATE ON SHUTDOWN. THE OVERLOADS IN THE ELECTRIC MOTORS THAT DRIVE THE HALVES APART TRIPPED OUT TWICE. THE ONLY FAULT FOUND WAS EXCESSIVE END PLAY IN THE DRIVE-SCREW MECHANISM. BEARING REPLACEMENT AND LUBRICATION CORRECTED THE PROBLEM. INCREASED MAINTENANCE CHECKS WERE STARTED.

AVAILABILITY - AEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D.C.

MAINTENANCE AND REPAIR + CRITICALITY EXPERIMENT + INCIDENT, HUMAN ERROR + *FAILURE, MAINTENANCE ERROR + LUBRICATION

21434
 CALLIHAN D
 EXCURSION AT THE OAK RIDGE CRITICAL EXPERIMENTS FACILITY, JANUARY 30, 1968
 OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TENN.
 ORNL-TM-2207 +. 13 PAGES, 1 FIGURE, JUNE 1968

A VOLUME OF AN AQUEOUS SOLUTION OF URANYL NITRATE, IN WHICH THE U-233 CONTENT OF THE URANIUM WAS 97.6%, WAS INADVERTENTLY MADE SUPER-PROMPT CRITICAL IN THE OAK RIDGE CRITICAL EXPERIMENTS FACILITY. THE FISSION YIELD WAS 1.1×10 TO THE 16TH. THERE WAS NEITHER INTERNAL NOR EXTERNAL MEASURABLE EXPOSURE OF ANY INDIVIDUAL TO RADIATION. THERE WAS NO PROPERTY DAMAGE OR MATERIAL LOSS. FISSION PRODUCTS DECAYED SUFFICIENTLY WITHIN 24 HOURS TO ALLOW UNRESTRICTED OCCUPANCY OF THE AFFECTED ROOM. SOLUTION CONTAINING AN ESTIMATED 15 G OF URANIUM WAS SPILLED INTO THE REFLECTOR-WATER TANK AS THE RESULT OF A DISLODGED RUBBER STOPPER.

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

CRITICAL ASSEMBLY FACILITY + CRITICALITY SAFETY + ACCIDENT, CRITICALITY + CRITICALITY EXPERIMENT + INCIDENT, NONREACTOR

18040
 G.A. NOTIFIES DRL OF DIFFERENCE IN PREDICTED AND MEASURED WORTH OF SAFETY BLOCK
 GENERAL ATOMIC, DIVISION OF GENERAL DYNAMICS CORPORATION, SAN DIEGO, CALIFORNIA
 2 PAGES, JULY 17, 1967, DOCKET NO. 50-253

G.A. FOUND, BY CONTROL ROD COMPENSATION AND REACTIVITY-METER-CALIBRATION TESTS, THE WORTH OF THE CAM DRIVEN PORTION OF THE SAFETY BLOCK TO BE \$4.70 VS \$7.00 GIVEN IN THE TECH. SPECS. TECH.-SPEC.-CHANGE REQUEST WILL BE MADE AFTER FURTHER TESTS. \$7.00 FIGURE WAS BASED ON AN EXTRAPOLATION FROM LRL INFORMATION, WHICH CONCERNED A LONGER CAM TRAVEL, INDICATING A NONLINEAR RELATIONSHIP. TOTAL SCRAM AVAILABLE IN SAFETY BLOCK IS STILL \$21. CONTROL-ROD TOTAL REACTIVITY WAS MEASURED AT \$4.79, IN GOOD AGREEMENT WITH PREDICTION.

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

CONTROL ROD WORTH + REACTIVITY, EXCESS + *COMPARISON, THEORY AND EXPERIENCE + REACTOR, FAST BURST + *EXTRAPOLATION FACTOR + OPERATING EXPERIENCE SUMMARY + TECHNICAL SPECIFICATIONS + *SHUTDOWN SYSTEM, SECONDARY + REACTIVITY EFFECT, ANOMALOUS

17825
 HOUSTON RW
 SOLENOID AND SEQUENTIAL FAILURE CAUSE HIGH AIR ACTIVITY IN IRL REACTOR BUILDING
 INDUSTRIAL REACTOR LABORATORIES, INC., PLAINSBORO, NEW JERSEY
 4 PAGES, JULY 10, 1967, DOCKET NO. 50-17

AT IRL ON JUNE 20, 1967, A FAULTY SOLENOID COIL CAUSED THE HOLDUP TANK VENT-VALVE TO CLOSE. A COMMON CIRCUIT BREAKER THEN CAUSED THE BUILDING-VENTILATION VALVES TO CLOSE. AIR ACTIVITY NORMALLY RELEASED THRU THE HOLDUP-TANK VENT WAS DIVERTED THROUGH POOL, AND TWO AIR MONITORS TRIPPED. THE REACTOR WAS SHUT DOWN AND THE BUILDING EVACUATED. NO PERSONNEL DOSES EXCEEDED PERMISSIBLE LIMITS. AFTE

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

AIRBORNE RELEASE + *FAILURE, COMPONENT + REACTOR, RESEARCH + *VENTILATION SYSTEM + INCIDENT, EQUIPMENT + REACTOR, POOL TYPE + VALVE

17415 ALSO IN CATEGORY 10
 DETAILED REPORT ON FAILURE OF IRL EMERGENCY GENERATOR DUE TO OVERLOAD JUNE 22, 1967
 INDUSTRIAL REACTOR LABORATORIES, INC., PLAINSBORO, N. J.
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(30), PAGE 18 AND 19, (JULY 24, 1967), DOCKET NO. 50-17

(LETTER, JULY 14) THE 50KW NATURAL-GAS MOTOR-GENERATOR IS RATED AT 174 AMP PER PHASE, AND HAS BEEN RELATIVELY TROUBLE FREE AND HIGHLY DEPENDABLE. ON THE POWER OUTAGE, THE OVERLOAD BREAKER WAS DROPPED OUT. THE NEXT DAY, A SIMILAR OVERLOAD-BREAKER FAILURE WAS ACHIEVED IN TEST. OVERLOADING IS ATTRIBUTED TO SUBTLE ADDITION OF EQUIPMENT TO THE EMERGENCY ELECTRICAL SYSTEM OVER THE YEARS BEYOND THE POINT OF SATURATION. LOAD TEST SHOWED AN AVERAGE OF 200 AMP PER PHASE. VARIOUS (NONESSENTIAL) LOADS WERE REMOVED AND OTHERS PLANNED TO RETURN THE ELECTRICAL LOAD TO BELOW NAMEPLATE. NEW ADMINISTRATIVE PROCEDURES INCLUDE SEMIANNUAL LOAD AND WEEKLY FUNCTIONAL TESTS.

*EMERGENCY POWER, ELECTRIC + *FAILURE, EQUIPMENT + ACCIDENT, LOSS OF POWER + REACTOR, RESEARCH + GENERATOR, ENGINE + TEST, SYSTEM OPERABILITY + REACTOR, POOL TYPE + FAILURE, ADMINISTRATIVE CONTROL

22575
 IRL REPORTS CORROSIVE FAILURE OF PRIMARY PIPING
 INDUSTRIAL REACTOR LABORATORIES, INC.
 2 PAGES, JANUARY 11, 1968, DOCKET 50-17

WATER LEAKAGE DURING A DECEMBER 28 PRESSURE TEST OF THE HOLDUP TANK LED TO DISCOVERY OF EXTENSIVE PITTING OF THE 10-IN.-DIAM ALUMINUM PRIMARY-COOLANT LINES, AND 3- TO 4-IN. DEMINERALIZER LINES. PIPE WILL BE REPLACED WITH 304 SCHED-10 STAINLESS STEEL, WITH INTERVENING DIELECTRIC DEVICES AT FLANGES TO ALUMINUM.

*ALUMINUM + MAINTENANCE AND REPAIR + *FAILURE, PIPE + REACTOR, RESEARCH + STEEL, STAINLESS + *CORROSION + *MAIN COOLING SYSTEM

23366
 U OF MARYLAND CITED FOR NONCOMPLIANCE
 UNIVERSITY OF MARYLAND, COLLEGE PARK, MD.
 3 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(9), PAGES 32-34 (FEBRUARY 26, 1968)

(LETTER, JAN. 16) A DEC. 5-7 INSPECTION REVEALED (1) INCINERATOR ASH RESIDUES WERE NOT SURVEYED, (2) SEALED SOURCES WERE NOT LEAK-CHECKED, (3-5) RECORDS WERE NOT KEPT. THE RADIATION SAFETY OFFICER MADE ONLY 3 SURVEYS IN 30 MONTHS. (REPLY, JAN. 29) RADIATION SAFETY COMMITTEE INVESTIGATION SHOWS A UNIQUE SET OF CIRCUMSTANCES. ONE RADIATION SAFETY OFFICER WAS SERIOUSLY ILL DURING 1966 AND WAS UNABLE TO FULFILL ALL HIS RESPONSIBILITIES. FOLLOWING HIS DEATH, THE SECOND RSO, HIRED JAN. 1967, HAD TO TRAIN A NEW SECRETARY AT A TIME WHEN HE HIMSELF WAS NEW TO THE CAMPUS. OPERATIONAL CONTINUITY WAS THEREFORE LOST. HE LEFT THE UNIVERSITY AT THE END OF DEC. 1967, BUT HIS INTERIM REPLACEMENT HAS BEEN A LICENSED SENIOR REACTOR OPERATOR SINCE JULY 1964, A USER OF RADIOACTIVE MATERIAL SINCE 1952, AND A MEMBER OF THE REACTOR SAFETY COMMITTEE. WHILE HE IS LEAVING JUNE 30, 1968, THE NEW RSO WILL OVERLAP A MONTH. THE SECRETARY IS DUE FOR PROMOTION AND TRANSFER BUT HAS BEEN DIRECTED TO REMAIN UNTIL A NEW SECRETARY IS FULLY TRAINED.

BYPRODUCT MATERIAL + *COMPLIANCE + RADIATION SAFETY AND CONTROL + FAILURE, ADMINISTRATIVE CONTROL

17834
 COX EL
 CONTROL ROD DAMAGE AND FAILURE AT THE UNIVERSITY OF MISSOURI (COLUMBIA)
 UNIVERSITY OF MISSOURI, COLUMBIA
 11 PAGES, 5 FIGURES, JUNE 6, 1967, DOCKET NO. 50-186

DELAYS CAME FROM ACCIDENTAL DROPPING OF CONTROL RODS DUE TO FOREIGN MATTER IN BALL BEARINGS IN DRIVE. NO SOLUTION HAS YET BEEN FOUND. DURING REMOVAL OF ROD ASSEMBLIES WHILE TRYING TO CORRECT THIS PROBLEM, ROD A WAS IRREPARABLY DAMAGED. THE SUSPENSION OF THE BLADE-OFFSET MECHANISM HAD BEEN CHANGED AND TILTED DURING LIFTING, PUTTING TORQUE ON THE CONTROL BLADE (STILL IN GUIDE SLOT), BREAKING WELD JOINT AT TOP OF BLADE AND DENTING BLADE.

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

*CONTROL ROD + CONTROL ROD BURNUP + FAILURE, OPERATOR ERROR + REACTOR, RESEARCH + OPERATING EXPERIENCE SUMMARY + FAILURE, DESIGN ERROR + FAILURE, SCRAM MECHANISM + FAILURE, MAINTENANCE ERROR + REACTOR, FLUX TRAP + *DAMAGE + MURR (RR)

16430
 UNIVERSITY OF MISSOURI (COLUMBIA) SUFFERS CONTROL ROD DAMAGE DURING HANDLING
 UNIVERSITY OF MISSOURI, COLUMBIA, MO.
 3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(27) PAGES 19-21 (JULY 3, 1967), DOCKET 50-186

(LETTER JUNE 6.) BECAUSE OF CONTROL-ROD MODIFICATION, THE SUSPENSION POINT FOR THE CONTROL-BLADE OFFSET MECHANISM WAS SHIFTED TO LIFT AT THE BLADES CENTER OF GRAVITY. HOWEVER THE REPOSITIONING AFFECTED THE OVERALL BALANCE SO THAT (AS DISCOVERED LATER) DURING THE NEXT REMOVAL THE BLADE TILTED SLIGHTLY AND JAMMED. THE CRANE MOTOR WAS USED FOR LIFT, AND A QUARTER-INCH NYLON ROPE FOR CONNECTION. AFTER CHECKING FOR FREEDOM WITH A LONG TOOL, THE CRANE WAS JOGGED TO LIFT THE ROD.

REACTOR, RESEARCH + *CONTROL ROD, SHIM SAFETY + MODIFICATION, SYSTEM OF EQUIPMENT + FAILURE, DESIGN ERROR + FUEL HANDLING MACHINE + REACTOR, FLUX TRAP + *DAMAGE + MURR (RR)

25307
 RELAY FAILURE CAUSES CONTROL ROD WITHDRAWAL
 UNIVERSITY OF MISSOURI AT ROLLA
 4 PAGES, APRIL 25, 1968, LETTER TO P. A. MORRIS FROM D. RAY EDWARDS, DOCKET 50-123

ON MARCH 5, 1968, DURING A ROUTINE SHUTDOWN WITH ALL RODS BEING DRIVEN IN BY GANG MOVEMENT, ROD 1 SUDDENLY STOPPED. THE OPERATOR PUT THE GANG-SWITCH IN NEUTRAL, THINKING THAT THE ROD HAD JAMMED, BUT ROD 1 STARTED MOVING OUT. PUTTING THE RODS IN INSERT STOPPED THE WITHDRAWAL. ***THE ARMATURE SPRING ON RELAY K-9 HAD COME LOOSE, ALLOWING CLOSURE OF THE WITHDRAW CONTACTS, SO THE ROD WOULD WITHDRAW WHENEVER THERE WAS NO INSERT REQUEST (DIAGRAM INCLUDED). NO CHANGE IS RECOMMENDED, ALTHOUGH REDESIGN WILL BE STUDIED. SCRAM ABILITY NOT IMPAIRED.

*FAILURE, COMPONENT + *CONTROL ROD DRIVE + REACTOR, RESEARCH + *ACCIDENT, CONTROL ROD WITHDRAWAL + INSTRUMENT, RELAY + OPERATING EXPERIENCE

29854
 RESEARCH REACTOR ANNUAL REPORT 1968
 UNIVERSITY OF MISSOURI
 100 PAGES, FIGURES, TABLES, REFERENCES, AUGUST 1968, DOCKET 50-186

REPORTS FROM CRITICALITY OCT. 66 TO JULY 31, 1968. SECTIONS INCLUDE LOW POWER CALIBRATION REPORT (85 PG), EXPERIMENTS APPROVED (11 PG), AND ENVIRONMENTAL RADIOACTIVITY (14 PG). CHANGES TO REACTOR AND SAR NOTED. ***PVC TUBING USED IN ISLAND VOID TESTS LEAD A SIGNIFICANT ABSORPTION EFFECT, A1 SHIMS ALSO USED. SIGNIFICANT FLUX TILTS FROM RODS IMBALANCE AFFECTED THEIR REACTIVITY WORTH AND INSTRUMENT READINGS. ROD DROP REACTIVITY MEASUREMENTS PROVED TO DEPEND ON DETECTOR POSITION, SO POSITIVE PERIODS USED FOR CALIBRATION. TEMPERATURE COEFFICIENTS LESS THAN CALCULATED REQUIRED A TECH. SPEC. CHANGE. CIRC VOLTAGE AVAILABLE HAD TO BE REDUCED TO REDUCE OVERCOMPENSATION. COOLING TOWER FLOAT VALVE STUCK TWICE, CAUSING SHUTDOWN DUE TO LACK OF SECONDARY COOLING.

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

FAILURE, EQUIPMENT + REACTOR, RESEARCH + TEMPERATURE COEFFICIENT + REACTOR, TEST + VOID COEFFICIENT + HEAT SINK + *REACTOR STARTUP TESTING + *CONTROL ROD CALIBRATION + VALVE + FLUX TILT + REACTOR, FLUX TRAP + *INSTRUMENT, ABNORMAL INDICATION + REPORT, OPERATIONS SUMMARY + INSTRUMENT, INTERMEDIATE RANGE

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

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

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

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

26536
WATER LEAKAGE FROM RESIN BED
PURDUE UNIVERSITY, LAFAYETTE, INDIANA
1 PAGE, LETTER TO P. A. MORRIS FROM R. L. ANDERSON, MAY 7, 1968, DOCKET 50-182

AT 7 PM ON MAY 2, A GRADUATE STUDENT CALLED ME AT HOME TO REPORT WATER COMING OUT UNDER REACTOR-ROOM DOOR. A CYLINDER USED IN PURIFYING CITY WATER THAT SUPPLIES OUR MAKEUP WATER HAD FAILED, RELEASING WATER AND RESIN. SINCE THE FLOOR HAD BEEN CLEANED THE DAY BEFORE, AND SINCE THIS WAS CITY WATER, I SAMPLED THE WATER, OPENED THE FLOOR DRAIN, AND ROPED OFF THE AREA UNTIL WE CORRECTED THE SITUATION. WE WILL NOW CLOSE THE MAKEUP VALVE EACH EVENING.

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

REACTOR, RESEARCH + WASTE DISPOSAL, LIQUID + *CORROSION + CONTAMINATION + INCIDENT, NONNUCLEAR + *COOLANT PURIFICATION SYSTEM + *LEAK

18661
IMPROPER UTILIZATION OF A BF-3 SENSOR FOR LINEAR POWER MEASUREMENT
UNITED STATES ATOMIC ENERGY COMMISSION, WASHINGTON, D. C., DIVISION OF OPERATIONAL SAFETY
2 PAGES, REACTOR OPERATING EXPERIENCES 57-10, OCTOBER 2, 1967

BF3 PROPORTIONAL COUNTERS, INSTALLED AS LINEAR POWER DETECTORS, WERE DISCOVERED DURING A STARTUP TO 200 WATTS WHEN THE LOG-N CHANNELS READ 100 W BUT THE LINEAR RECORDERS READ 50 W. REACTOR WAS SHUT DOWN. DETECTOR CURRENTS, PLOTTED POWER UP TO 15 WATTS, REVEALED THAT THE LINEAR POWER CHANNELS WERE NONLINEAR. THE DETECTORS HAD BEEN OBTAINED FROM ANOTHER CRITICAL FACILITY WITH ASSURANCE THAT THEY WERE IONIZATION CHAMBERS (OTHER FACILITY HAD ONLY OPERATED IN THE MILLIWATT RANGE, SO NONLINEAR EFFECT WAS NONEXISTENT).

AVAILABILITY - AEC, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

CRITICAL ASSEMBLY FACILITY + OPERATING EXPERIENCE SUMMARY + TEST, PREOPERATIONAL + *FAILURE, ADMINISTRATIVE CONTROL + INSTRUMENT, ABNORMAL INDICATION + *INSTRUMENT, POWER RANGE + *INSTRUMENT, STARTUP

25239
CORROSIVE FAILURE OF UNDERGROUND ALUMINUM PIPE
UNITED STATES ATOMIC ENERGY COMMISSION, DIVISION OF OPERATIONAL SAFETY
ROE- 68-10 +. 3 PAGES, SEPTEMBER 1968

AT A PCLL-TYPE RESEARCH REACTOR, DURING A PRESSURE TEST OF THE PRIMARY SYSTEM HOLDUP TANK, IT WAS DISCOVERED THAT WATER WAS LEAKING INTO A VALVE PIT. EXCAVATION REVEALED CORROSION OF THE 6061-T6 SCHEDULE-40 EXTRUDED AL PIPE BEYOND REPAIR. THE CORROSION ORIGINATED FROM THE OUTSIDE SURFACE FOLLOWING DETERIORATION OF THE SINGLE LAYER OF GLASS REINFORCED PROTECTIVE CRAFT PAPER APPLIED OVER 2 COATS OF BITUMINOUS ENAMEL. THE PIPE HAD BEEN BURIED 9 YEARS. THE PIPE WAS REPLACED WITH 304 STAINLESS STEEL, AND THE FLANGED CONNECTIONS INCORPORATE DIELECTRIC INSERTS IN THE BOLT HOLES FOR FLANGED CONNECTIONS BETWEEN DISSIMILAR METALS TO PROTECT AGAINST ELECTROLYTIC ACTION. RECOMMENDS FACILITIES USING ALUMINUM PIPE UNDERGROUND SHOULD INSTITUTE SURVEILLANCE PROGRAM.

*ALUMINUM + MAINTENANCE AND REPAIR + *FAILURE, PIPE + STEEL, STAINLESS + CORROSION + MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR, PCLL TYPE + MAIN COOLING SYSTEM + SURVEILLANCE PROGRAM

29956
ERROR IN SHIM CYLINDER INDEXING
U.S. ATOMIC ENERGY COMMISSION
ROE-68-14 +. 2 PAGES, DECEMBER 20, 1968

DURING STARTUP OF THE SECOND CORE, CRITICALITY REQUIRED ROTATION OF HAFNIUM/BERYLLIUM REFLECTOR DRUMS 40 DEG BEYOND PREDICTED. INVESTIGATION REVEALED THAT 8 DRUMS HAD ZERO POSITIONS 70 DEG FROM INTENDED. *** POWER DISTRIBUTION IMPROVEMENT REQUIRED SHIFTING THE ZERO POSITIONS OF THESE 8 DRUMS BY 35 DEG BY A MODIFICATION TO A DRIVE PART USED TO INDEX THE DRUMS. TWO OF THESE TYPES OF DRIVE PARTS WERE INTERCHANGED IN THE TABULATION OF PARTS. ONCE ASSEMBLED, THEY COULD NOT BE CHECKED.

*CONTROL ROD DRIVE + REACTOR, TEST + *MODIFICATION, SYSTEM OR EQUIPMENT + REACTOR STARTUP EXPERIENCE + REACTOR, AEC OWNED + INCIDENT, HUMAN ERROR + *REACTIVITY EFFECT, ANOMALOUS + FAILURE, INSTALLATION ERROR + INSTRUMENT, POSITION

29995

FAILURE OF LOG COUNT RATE CHANNELS
U.S. ATOMIC ENERGY COMMISSION
ROE-68-15 +. 2 PAGES, DECEMBER 23, 1968

DURING INITIAL STARTUP, NEITHER STARTUP RANGE CHANNEL SHOWED ANY MULTIPLICATION AS EXPECTED AFTER THE CORE WAS HALF LOADED, THOUGH IN CORE DETECTORS DID. NO SOURCE CHECK HAD BEEN MADE AFTER FINAL POSITIONING OF CHAMBERS. *** DETECTORS WERE HELD IN PLACE BY BRAIDED WIRE, WHICH HAD STRETCHED ENOUGH UNDER THE WEIGHT OF THE CHAMBER TO PULL OUT A SIGNAL CABLE CONNECTION. SHORTENING THE BRAIDED CABLE 2 IN. ELIMINATED THE PROBLEM.

FAILURE, OPERATOR ERROR + SOURCE, NEUTRON + REACTOR, TEST + INSTRUMENT CALIBRATION + REACTOR STARTUP EXPERIENCE + REACTOR, AEC OWNED + FAILURE, DESIGN ERROR + *INSTRUMENT, ABNORMAL INDICATION + *INSTRUMENT, STARTUP RANGE

13998

CONTROL-ROD FUEL ELEMENTS CAUSE NUCLEATE BOILING AT STERLING FOREST REACTOR. OCTOBER 10, 1966
UNION CARBIDE CORPORATION, TUXEDO, NEW YORK
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(2) PAGES 14-15 (JANUARY 9, 1967), DOCKET NO. 50-54

(LETTER, DECEMBER 20, 1966) TEN HOURS AFTER ATTAINING FULL POWER, NUCLEATE BOILING INSTRUMENT INSTABILITY BEGAN. THE SENIOR OPERATOR DETERMINED THIS WAS DUE TO AN IRRADIATION SAMPLE, REMOVED IT, AND RESUMED OPERATION. ANALYSIS SHOWED THAT TWO CONTROL-ROD FUEL ELEMENTS (PLACED WITH CURVED SIDES ADJACENT) INTERFERED WITH EACH OTHERS COOLING FLOW THROUGH PORTS IN CURVED SIDE OF FUEL ELEMENTS. THE SAMPLE HAD NOT CAUSED TROUBLE IN THE SIX MONTHS PREVIOUS TO A FUEL CHANGE THAT INCREASED THE FUEL CONTENT FROM 86 TO 104 GRAMS OF U-235.

*CONTROL ROD + *INSTRUMENT, GENERAL + REACTOR, POOL TYPE + *NUCLEATE BOILING + *FLOW BLOCKAGE + *INSTRUMENT, ABNORMAL INDICATION

30216

CONTROL ROD SWELLING
UNION CARBIDE CORPORATION
1 PAGE, LETTER TO DRL, DEC. 19, 1968, DOCKET 50-54

ROUTINE QUARTERLY INSPECTION OF CONTROL RODS ON DEC. 13 SHOWED SERIAL NUMBER 1 ROD HAD SWELLED MORE THAN 0.055 IN. BUT LESS THAN 0.075. THIS ROD HAS HAD ABOUT 1300 MWD SERVICE. *** CLOSE INSPECTION SHOWED A SINGLE PIT MARK IN A WELD, WHICH PROBABLY ADMITTED WATER WHICH DECOMPOSED. THE OTHER RODS IN THE ORIGINAL COMPLEMENT WILL BE INSPECTED FOR SIMILAR CORROSION.

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

BORON + CARBIDE + *CONTROL ROD + CONTROL ROD BURNUP + REACTOR, RESEARCH + WELDS + CORROSION + EXAMINATION + DAMAGE + *EXPANSION + LEAK

30215

CITATION FOR EXCEEDING REACTIVITY LIMIT
U.S. ATOMIC ENERGY COMMISSION
1 PAGE, LETTER TO S.R. ASTINALL, UNION CARBIDE CORP., DEC. 27, 1968, DOCKET 50-54

ON OCTOBER 22 INSPECTION REVEALED THAT ON MAY 16, 1968, AN EXPERIMENTAL SAMPLE WORTH 0.25 PERCENT DK/K WAS INSERTED, DESPITE THE LIMIT OF 0.15 PERCENT. *** THE SENIOR INSPECTOR ALSO DISCUSSED WITH YOU HIS CONCERN ABOUT THE EFFECTIVENESS OF THE VCC LABORATORY MANAGEMENT SYSTEM FOR AUDITING FACILITY OPERATIONS. *** SUBMIT A WRITTEN STATEMENT OF CORRECTIVE STEPS, AND PLEASE COMMENT ON YOUR AUDIT SYSTEM.

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

*REACTIVITY, EXCESS + REACTOR, RESEARCH + SAFETY REVIEW + COMPLIANCE + *IRRADIATION TESTING + FAILURE, ADMINISTRATIVE CONTROL

15534

LOSS OF REACTIVITY AT THE LOS ALAMOS WATER BOILER REACTOR (SUPO)
U.S. ATOMIC ENERGY COMMISSION
REACTOR OPERATING EXPERIENCES 67-3 +. 2 PAGES, MARCH 23, 1967

ON AUG. 15, 1966, CONTROL-ROD CRITICALITY POSITION INDICATED A REACTIVITY LOSS OF 0.6 (DELTA K/K, KEEPING THE REACTOR FROM FULL POWER. NORMAL VARIATION IS 1/10TH THAT. THE REACTIVITY CONTINUED TO DRIFT DOWN, CAUSING A 1.06 LOSS IN 30 DAYS. WHEN FUEL WAS ADDED TO ATTAIN FULL POWER, THE ION CHAMBERS INDICATED A POWER LEVEL CONSIDERABLY LESS THAN HEAT-POWER MEASUREMENTS. THIS LED TO CALCULATION WHICH INDICATED THAT SMALL AMOUNTS OF WATER LEAKING INTO THE GRAPHITE REFLECTOR WOULD CAUSE THE FLUX TO PEAK NEAR THE CORE, REDUCING THE NEUTRON FLUX AT THE DETECTOR. THIS WAS FOUND TO BE HAPPENING, ALTHOUGH NO SOURCE OF THE WATER WAS FOUND. DRYING THE GRAPHITE RECOVERED HALF THE REACTIVITY, AND SIX MONTHS OF LEAVING THINGS ALONE SHOWS A VERY SLIGHT UPWARD TREND IN REACTIVITY GAIN.

AVAILABILITY - AEC, DIVISION OF PUBLIC INFORMATION, WASHINGTON, D.C. 20545

FLUX DISTRIBUTION + GRAPHITE + REACTOR, HOMOGENEOUS + REACTOR, RESEARCH + LASL + *REPORT, OPERATIONS ANALYSIS + REACTOR, AEC OWNED + REFLECTOR + *REACTIVITY EFFECT, ANOMALOUS + *INSTRUMENT, ABNORMAL INDICATION

17133
 FELTZ DE + MASON PM + RANDALL JD
 DESIGN, INSTALLATION, AND TESTING OF A STAINLESS STEEL LINER FOR A SWIMMING POOL REACTOR
 NUCLEAR SCIENCE CENTER, TEXAS ENGINEERING EXPERIMENT STATION, TEXAS A AND M UNIVERSITY, COLLEGE STATION, TEXAS
 CONF-670-713 +. 7 PAGES, 2 FIGURES, 1 REFERENCE, NUCLEAR SCIENCE CENTER TECHNICAL REPORT NUMBER 21, ABSTRACT
 IN ANS TRANSACTIONS, SUPPLEMENT TO VOLUME 10, PAGE 8, (JULY 1967), PAPER PRESENTED AT THE CONFERENCE ON
 REACTOR OPERATING EXPERIENCE, REACTOR OPERATIONS DIVISION OF THE AMERICAN NUCLEAR SOCIETY, ATLANTIC CITY,
 JULY 23-26, 1967

1000 GAL/DAY LEAKAGE FROM THE ORIGINAL EPOXY/ALUMINUM POOL LINING REQUIRED REPLACEMENT. A SURVEY
 SHOWED METAL LINING PREFERABLE TO CERAMIC TILE OR EPOXY. (ORIGINAL EPOXY WAS APPLIED TO WET
 CONCRETE, AND ALUMINUM HAD NO TESTING PROVISIONS FOR PENETRATIONS). BUILT-IN LEAKOFF SYSTEM WAS
 USED FOR FREON 22 TESTING OF PENETRATION WELDING, WHEN 1500 G/DAY LEAKAGE SHOWED THE VACUUM-BOX
 AND SOAP BUBBLE TECHNIQUE WAS INADEQUATE.

MAINTENANCE AND REPAIR + FUEL STORAGE + TEST, LEAK RATE + COATING + *MODIFICATION, SYSTEM OR EQUIPMENT +
 *STEEL LINER + REACTOR, POOL TYPE + FAILURE, INSTALLATION ERROR + TESTABILITY + OPERATING EXPERIENCE

18856
 VENUS ACCIDENT
 2 PAGES, FIGURES, 3 REFERENCES, NUCLEAR ENGINEERING 12(120) PAGES 36-37 (JULY 18, 1967)

BRIEFLY DESCRIBES THE DEC. 30, 1965 INCIDENT WHEREIN (1) A SAFETY RULE WAS VIOLATED BY THE MANUAL
 MANIPULATION OF REACTOR CONTROL RODS WITHOUT DUMPING THE MODERATOR FIRST, AND (2) A TECHNICIAN
 REVERSED THE PROCEDURE AND REMOVED AN ABSORBER ROD BEFORE INSERTING A SUBSTITUTE IN ANOTHER
 POSITION. MEASUREMENTS SHOWED BOTH CIRCUMSTANCES WERE NECESSARY TO PRODUCE THE INCIDENT. A
 PROMPT-CRITICAL EXCURSION OF 15 MW-SECONDS ENERGY GAVE THE TECHNICIAN A PROBABLE GAMMA DOSE TO
 THE CHEST OF 550 ROENTGENS AND 4000 TO HIS LEFT FOOT. AFTER 21 DAYS, BLOOD DISORDERS RESULTED IN
 SEVERE DETERIORATION, AND THE PATIENT WAS IN A CRITICAL CONDITION FOR THREE WEEKS. LATER HIS
 LEFT LEG WAS AMPUTATED.

INCIDENT, EXPOSURE + ADMINISTRATIVE CONTROL + CRITICAL ASSEMBLY FACILITY + FAILURE, OPERATOR ERROR + BELGIUM +
 ACCIDENT, CRITICALITY + DOSE MEASUREMENT, EXTERNAL + PROMPT CRITICALITY + *INCIDENT, HUMAN ERROR + FAILURE,
 SEQUENTIAL + *FAILURE, ADMINISTRATIVE CONTROL

17864
 ANNUAL REPORT OF OPERATIONS AND MODIFICATION OF U OF VIRGINIA REACTOR FOR PERIOD ENDING 31 JANUARY 1967
 UNIVERSITY OF VIRGINIA, CHARLOTTESVILLE
 UVAR-17 +. 62 PAGES, 10 FIGURES, 18 REFERENCES, PAGE 20 THRU 81 OF SAFETY ANALYSIS REPORT IN SUPPORT OF
 AMENDMENT TO LICENSE R-66 FOR TWO MEGAWATT OPERATION OF THE UNIVERSITY OF VIRGINIA REACTOR, JANUARY 31, 1967,
 DCKET NO. 50-62

SEVEN MODIFICATIONS LISTED INCLUDING (1A) GRADUATE STUDENT IRRADIATING INDIUM IN RABBIT SYSTEM
 WITHDREW SAMPLE, CAUSING BRIDGE MONITOR TO SCRAM REACTOR. PORTABLE SURVEY METER WENT OFF-SCALE
 AND ACTIVITY WAS NOTED ON AIR MONITOR. STUDENT RECEIVED 20-MR DOSE. (2A) REGULATING ROD FAILED
 DUE TO FAILED BEARING. (2C) COOLANT OUTLET HEADER JAMMED AND NEW LIFTING MECHANISM (AIR
 FLOTATION) WAS INSTALLED. (3) DURING COMPLIANCE INSPECTION, IT WAS FOUND THAT UNCONTROLLED
 RELEASE OF RADIOACTIVE WASTE INTO A CREEK WAS BEING ALLOWED, DUE TO AN OPEN VALVE FROM HOLDING
 POOL. PERIODIC TESTS OF ACTIVITY IN HOLDING POOL HAD SHOWN CONCENTRATION TO BE BELOW MPC FOR
 CONTROLLED RELEASE.

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

ADMINISTRATIVE CONTROL + FAILURE, EQUIPMENT + REACTOR, RESEARCH + COMPLIANCE + *PERSONNEL EXPOSURE, RADIATION
 + *RADIOACTIVITY RELEASE + REACTOR, POOL TYPE + REPORT, OPERATIONS SUMMARY + EMERGENCY COOLING CONSIDERATIONS
 + OPERATING EXPERIENCE

24811
 JOHNSON WR
 FAILURE OF BEAM HOLE MODERATOR, RESTART ATTEMPTED WITHOUT SRO
 UNIVERSITY OF VIRGINIA
 2 PAGES, APRIL 3, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(17), PAGES 11-12 (APRIL 22, 1968) DCKET 50-62

(LETTER, APRIL 3) ON MARCH 10, A WELDED SEAM FAILED ON THE MODERATOR BOX OF THE OLD TANGENTIAL
 BEAM PORT, PUTTING GRAPHITE POWDER INTO THE REACTOR POOL. THE REACTOR WAS SCRAMMED BY PERIOD AND
 HIGH FLUX (VARIOUS RECORDS SHOWED 117-161 POWER). THE OPERATOR INCORRECTLY ASCERTAINED THAT
 THIS WAS FAILURE OF THE POWER-CONTROL SERVO AND TRIED TO RESTART THE REACTOR WITHOUT NOTIFYING A
 SENIOR OPERATOR. THE REACTOR COULD NOT OVERCOME XENON. *** THE NEXT DAY, POOL-WATER DARKENING
 WAS SEEN. ON MAR. 14, COMPLIANCE WAS NOTIFIED, AND, ON MAR. 25, INSPECTORS WITNESSED RESTART.
 *** POOR THERMAL CONDUCTIVITY AND A LARGE PLATE SUPPORTED ONLY AT THE SIDES CAUSED THE FAILURE.
 *** OPERATOR PERFORMANCE WAS NOT SATISFACTORY, IN PART BECAUSE AUTOMATIC SHUTDOWNS DUE TO
 INSTRUMENT MALFUNCTION ARE TOO FREQUENT.

*FAILURE, EQUIPMENT + GRAPHITE + FAILURE, OPERATOR ERROR + CONTROLLER + REACTOR, RESEARCH + TRAINING + WELDS +
 COMPLIANCE + MODERATOR + REACTOR POWER + RELIABILITY, SYSTEM + INCIDENT, HUMAN ERROR + REACTOR, POOL TYPE +
 SCRAM, SPURIOUS + FAILURE, DESIGN ERROR + *BEAM HOLE + *REACTIVITY FFFFT, ANOMALOUS

29840

BALL JR + FARRAR JP + JOHNSON WR
UTILIZATION OF THE UNIVERSITY OF VIRGINIA
UNIVERSITY OF VIRGINIA

1 PAGE, 1 FIGURE, ANS TRANS. 11(1), PAGE 269, 1968 ANNUAL MEETING OF THE AMERICAN NUCLEAR SOCIETY AND CANADIAN NUCLEAR ASSOCIATION, TORONTO, CANADA, JUNE 10-13, 1968

VERY BRIEF DESCRIPTION AND DISCUSSION OF POWER CALIBRATION. WITH FORCED COOLANT FLOW, NUCLEAR INSTRUMENTS ARE COMPARED TO TEMPERATURE RISE OR N-16, BUT WITH NATURAL CONVECTION OR CORE OR REFLECTOR CHANGE SUBSTANTIAL ERRORS EXIST. IN ONE CASE FOLLOWING A REFLECTOR CHANGE WITHOUT RECALIBRATION, REACTOR WAS OPERATED FOR SHORT TIMES AT POWER LEVEL TWICE THE LICENSED VALUE OF 1 MW.

*REACTOR DESCRIPTION + REACTOR, RESEARCH + *INSTRUMENT CALIBRATION + TECHNICAL SPECIFICATIONS + REACTOR POWER + REACTOR, POOL TYPE + *FAILURE, ADMINISTRATIVE CONTROL

28543

JOHNSON WR
REACTOR POOL LEAK AT UNIVERSITY OF VIRGINIA
UNIVERSITY OF VIRGINIA
LETTER TO AEC, DRL, AUGUST 8, 1968, DOCKET 50-62

WATER LOSS FROM REACTOR POOL INCREASED FROM 200-400 TO 600-800 GAL/DAY. REACTOR OPERATION TERMINATED BECAUSE OF INABILITY TO DETERMINE WHERE THE WATER WAS GOING. INVESTIGATION UNDERWAY TO DETERMINE SOURCE, PATH OF LEAKAGE, AND MEANS OF REPAIRING LEAK.

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

*FAILURE, EQUIPMENT + FUEL STORAGE + *STORAGE CONTAINER + REACTOR, POOL TYPE + *LEAK

28168

POOL LEAK TO BE REPAIRED
UNIVERSITY OF VIRGINIA, CHARLOTTESVILLE, VA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(39), PAGE 20, (SEPT. 23, 1968), DOCKET 50-62

(LETTER, SEPT. 6) REPORT DESCRIBES PLANS TO REPAIR POOL LEAK BY REPLACING CURRENT EPOXY RESIN LINING MATERIAL (FARBOCOAT 73). ANALYZES ASSOCIATED HAZARDS.

FAILURE, GENERAL + *MAINTENANCE AND REPAIR + REACTOR, RESEARCH + FUEL STORAGE + COATING, SURFACE + *STEEL LINER + REACTOR, POOL TYPE + *RESIN + LEAK

29863

VPI COMPLIANCE CITATION
U.S. ATOMIC ENERGY COMMISSION
2 PAGES, LETTER TO W. BRANDT, VIRGINIA POLYTECHNIC INSTITUTE, NOVEMBER 22, 1968

AN SEPT. 17-18, 1968, INSPECTION REVEALED (1) THE AEC WAS NOT INFORMED WITHIN 10 DAYS OF A JAN. 68 FAILURE OF A SHIM ROD TO INSERT, NOR WAS AN ANNUAL REPORT OF CHANGES SUBMITTED, (2) REACTOR WAS OPERATED AT 129 AND 135% POWER THE DAY AND DAY AFTER ROD FAILURE, (3) INSTRUMENT CALIBRATION AND SCRAM TIME NOT CHECKED QUARTERLY, AND (4) THE OPERATORS DUTIES REQUIRE HIM TO LEAVE THE CONSOLE UNATTENDED DURING OPERATIONS IN ORDER TO WITHDRAW THE STARTUP SOURCE.

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

FAILURE, OPERATOR ERROR + REACTOR, RESEARCH + SOURCE, NEUTRON + *COMPLIANCE + INSTRUMENT CALIBRATION + REACTOR POWER + FAILURE, ADMINISTRATIVE CONTROL + REPORT, OPERATIONS SUMMARY

22787

POSITIVE GRAPHITE-REFLECTOR TEMP COEFF AT U OF WASHINGTON REACTOR
UNIVERSITY OF WASHINGTON, SEATTLE, WASH.
2 PAGES, JAN. 4, 1968, DOCKET NO. 50-139

SINCE RAISING THE POWER FROM 10 KW TO 100, WE OBSERVE THAT THE REG. ROD MUST BE LOWERED TO MAINTAIN CRITICALITY WITH EXTENDED 100-KW RUNS. RECORDS SHOW THAT A TYPICAL RUN ADDS 0.04% DK/K. A TEST SHOWS THE COEFFICIENT TO BE ABOUT PLUS 0.0014% DK/K PER DEG F, ASSOCIATED WITH THE COOLANT WATER TEMPERATURE. THE EXCESS REACTIVITY IS TO BE COMPUTED HOURLY. IF POWER IS LESS THAN 10 KW, THE 0.585% LIMIT IS UNCHANGED. IF POWER IS TO EXCEED 10 KW, AND INITIAL REACTIVITY EXCEEDS 0.5%, THE OPERATOR IS NOT TO PROCEED UNTIL NOTIFYING REACTOR SUPERVISOR.

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

*GRAPHITE + REACTOR, GRAPHITE MODERATED + PROCEDURES AND MANUALS + REACTOR, RESEARCH + *TEMPERATURE COEFFICIENT + *REFLECTOR + POWER UPGRATING + *REACTIVITY EFFECT, ANOMALOUS

-30053
 REACTIVITY LOST TO WATER SOAKED GRAPHITE
 UNIVERSITY OF WASHINGTON
 3 PAGES, 1 FIGURE, LETTER TO D.J. SKOVHOLT, DRL, DECEMBER 16, 1968, DOCKET 50-139

ANNUAL INSPECTION OF REACTOR BY RAD SAFETY OFFICER IN SEPT. 68 REVEALED DETERIORATED GASKETS SEALING GRAPHITE PLUGS TO FUEL BOXES. NEW GASKETS OF SEPARATE PIECES WERE MADE. AFTER THIS, EXCESS REACTIVITY DECREASED FROM 0.52(TO 0.22(IN 4 WEEKS. ***MOISTURE WAS FOUND IN THE GRAPHITE, AND DRYING IT BY LEAVING BLOWERS ON WAS ONLY PARTIALLY SUCCESSFUL. REDUCING CORE FLOW RATE FROM 25 TO 20 GPM, AND STARTING PUMP (FOR PRE STARTUP CHECKS) WITH FLOW LESS THAN 15 GPM (TO REDUCE SURGES) RESTORED REACTIVITY. ONE-PIECE GASKETS WILL BE REINSTALLED.

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

GRAPHITE + REACTIVITY EFFECT + REACTOR, RESEARCH + SAFETY REVIEW + WATER, GENERAL + FUEL ELEMENT + MODIFICATION, SYSTEM OR EQUIPMENT + REFLECTOR + EXAMINATION + SEAL + *REACTIVITY EFFECT, ANOMALOUS + LEAK

23361
 ONEIL RW
 EXPOSURE DURING WELDING AT WATERTOWN ARSENAL REACTOR
 ARMY MATERIALS AND MECHANICS RESEARCH CENTER, WATERTOWN, MASS.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(9), PAGE 27 (FEBRUARY 26, 1968) DOCKET 50-47

(LETTER DEC. 15) A WELDER RECEIVED 1.1 TO 1.3 REMS AUG.-SEPT. 1967 WHILE WELDING IN A GAMMA FIELD (PRODUCED BY MATERIALS ACTIVATED BY UTILIZATION OF REACTOR LICENSE R-65) OF 25-200 MR/HR. SINCE THIS WAS RECEIVED UNDER CONTROLLED CONDITIONS, AND SINCE WELDER HAD NO PRIOR OCCUPATIONAL EXPOSURE, NO FURTHER ACTION IS CONTEMPLATED.

WELDING + *PERSONNEL EXPOSURE, RADIATION + REACTOR, POOL TYPE + POWER UPRATING

II. Radiography Occurrences

25347

NONCOMPLIANCE CITATION OF ARNOLD GREENE RADIOGRAPHY
ARNOLD GREENE TESTING LABORATORIES, INC., NATICK, MASS. + DIVISION OF COMPLIANCE
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(21), PAGES 15-16 (MAY 20, 1968)

(CITATION, FEB. 23) A NOV. 29-30, 1967, INSPECTION AT THE WEST END IRON WORKS SHOWED (1) SURVEYS WERE NOT MADE AFTER EACH EXPOSURE, (2) UTILIZATION LOGS WERE NOT KEPT. ON NOV. 24, TWO EMPLOYEES RECEIVED FILM-BADGE DOSES OF 36 AND 14 REMS, BUT YOUR LETTER OF DEC. 8, 1967, REFERS ONLY TO 2.5-REM CALCULATED DOSES. (REPLY, MAR. 12) ALL RADIOGRAPHERS WERE RETRAINED, AND ONE OF THE MEN IN THE INCIDENT EXPLAINED HOW HE RECEIVED HIS OVEREXPOSURE. BADGE REPORTS SHOW CONSIDERABLY LESS EXPOSURE LATELY. UTILIZATION LOGS ARE BEING KEPT.

COMPLIANCE + *PERSONNEL EXPOSURE, RADIATION + *RADIOGRAPHY + FAILURE, ADMINISTRATIVE CONTROL

17117

ATLANTIC X-RAY INC. CITED FOR NONCOMPLIANCE
ATLANTIC X-RAY, INC., NORRISTOWN, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(33), PAGE 25 (AUGUST 14, 1967)

(LETTER, JUNE 7) SIX ITEMS OF NONCOMPLIANCE NOTED WERE - (1) RECORDS PURPORTED TO SHOW A CERTAIN INDIVIDUAL CALIBRATED SURVEY INSTRUMENTS DURING A CERTAIN PERIOD WHEN HE DID NOT, (2) OPERATIONS WERE CONDUCTED WITHOUT USING CALIBRATED INSTRUMENTS, (3) AN INDIVIDUAL WAS ALLOWED TO ACT AS A RADIOGRAPHER WITHOUT DEMONSTRATING UNDERSTANDING OF 10 CFR 36 APPENDIX A, (4) THREE SEALED SOURCES WERE NOT LEAK TESTED AT 6-MONTH INTERVALS, (5) RECORDS WERE NOT MADE OF SURVEYS TO SHOW SOURCES RETURNED TO SHIELD, AND (6) OTHER RECORDS OF SURVEYS WERE NOT MADE.

SOURCE, RADIATION + *COMPLIANCE + SURVEY, RADIATION, GENERAL + TEST, LEAK LOCATION + RADIOGRAPHY + FAILURE, ADMINISTRATIVE CONTROL

26307

RADIOGRAPHY EXPOSURE AT AVONDALE SHIPYARDS INC.
AVONDALE SHIPYARDS
1 PAGES, TX TO AEC DIVISION OF COMPLIANCE FROM J.K. MCCUE, APRIL 7, 1967

RADIOGRAPHER RECEIVED ESTIMATED EXPOSURE OF 6 REMS WHEN AN IRIIDIUM SOURCE STUCK IN THE CABLE. DOSIMETER DID NOT INDICATE A DOSE. TWO FILM BADGES ARE TO BE PROCESSED.

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

INCIDENT, EQUIPMENT + *PERSONNEL EXPOSURE, RADIATION + INCIDENT, NONREACTOR + *RADIOGRAPHY

16366

BABCOCK AND WILCOX, MT. VERNON INDIANA, CITED FOR NON COMPLIANCE UNDER LICENSE 13-11317-1
BABCOCK AND WILCOX, MT. VERNON, IND.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(24) PAGES 13-14 (JUNE 12, 1967)

(LETTER FROM DIV. COMPLIANCE, APRIL 17, REGARDING FEB. 16 INSPECTION, APPARENTLY RELATING TO A RADIOGRAPHY INCIDENT ON OCT. 10, 1966) - A SURVEY WAS NOT MADE AFTER EACH FILM EXPOSURE TO CHECK THE 141-CURIE CO-60 WAS RETURNED TO THE SHIELD. AN INADEQUATE EVALUATION WAS MADE OF DOSE RECEIVED. THE WARNING SYSTEM WAS A BUZZER ACTIVATED UPON ENTRY TO RADIOGRAPHY ROOM, AND WAS NOT RELATED TO RADIATION LEVEL. (B AND W REPLY, MAY 3) - PROPER SURVEY WAS NOT MADE. DOSE REPORTED NOV. 3 WAS CALCULATED IN GOOD FAITH, HOWEVER FURTHER INFORMATION REPORTED DURING INSPECTION OF FEB. 16 DOES INDICATE AN 8-R CALCULATED DOSE TO UPPER BODY, 3.7-R FILM-BADGE DOSE TO WAIST, AND 27.7/36.6-R CALCULATED DOSE TO L/R HANDS. INCIDENT OCCURRED BECAUSE OF EMPLOYEE PREOCCUPATION WITH PERSONAL MATTERS. WARNING ALARM IS TYPICAL OF THOSE IN OTHER INSTALLATIONS, COMPLIES WITH OUR INTERPRETATION OF 10 CFR 20, AND SHOULD REMAIN AS IS. WE HAVE CHANGED FROM A BELL TO A HORN, AND HAVE POSTED AN AUTHORIZED-ENTRY-ONLY SIGN.

FAILURE, OPERATOR ERROR + *COMPLIANCE + DOSE MEASUREMENT, EXTERNAL + DOSE CALCULATION, EXTERNAL + PERSONNEL EXPOSURE, RADIATION + *INCIDENT, HUMAN ERROR + FAILURE, DESIGN ERROR + *RADIOGRAPHY

26309

ONEIL RW
FAILURE TO SURVEY RESULTS IN OVEREXPOSURES TO RADIOGRAPHERS
BOSTON NAVAL SHIPYARD, BOSTON, MASSACHUSETTS
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(9), PAGES 27-28 (FEBRUARY 26, 1968)

A RADIOGRAPHER AND 2 ASSISTANTS WERE EXPOSED TO A 7.2-CURIE SOURCE WHEN IT FAILED TO RETURN TO ITS SHIELD AND A SURVEY WAS NOT MADE. TWO MEN RECEIVED THEIR DOSE WHILE PERFORMING RADIOGRAPHY, THE THIRD WHILE RETURNING THE TUBE, WHICH CONTAINED THE UNSHIELDED SOURCE, TO STORAGE. INCIDENT DISCOVERED WHEN ANOTHER RADIOGRAPHER SURVEYED THE STORAGE ROOM. ESTIMATED EXPOSURES ARE 2.2 REMS, 800 MILLIREMS, AND A POSSIBLE MAXIMUM OF 230 REMS TO THE THIRD MAN.

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

FAILURE, OPERATOR ERROR + *PERSONNEL EXPOSURE, RADIATION + *INCIDENT, HUMAN ERROR + INCIDENT, NONREACTOR + *RADIOGRAPHY

23362
CLIFFORD FL
RADIOGRAPHY OVEREXPOSURE AT BOSTON NAVAL SHIPYARDS, 11 DEC. 1967
BOSTON NAVAL SHIPYARD, BOSTON, MASS.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(9), PAGES 27-28 (FEBRUARY 26, 1968)

(LETTER, JAN. 9) THE RADIOGRAPHER IN CHARGE FAILED TO SURVEY THE RETURN OF THE SOURCE AFTER EACH EXPOSURE AND UPON COMPLETION OF THE WORK. HIS ASSISTANT WORE DOSIMETER AND FILM BADGE (800 MR, GAMMA), BUT THIS WAS THOUGHT THE LEAST EXPOSURE. A HELPER CARRIED THE COILED TUBE BACK TO THE STOREROOM. ***ANOTHER RADIOGRAPHER SURVEYED THE CONCRETE STORAGE ROOM, AND OBSERVED HIGH READINGS. ***RE-ENACTMENT LED TO ESTIMATE OF 2.2 REMS, 0.8 REM (AS INDICATED BY FILM BADGE), AND 4.2 TC 230 REMS FOR THE THIRD MAN. THE LATTER DOSE WOULD RESULT IF THE SOURCE IN THE COILED TUBE WERE AT MAXIMUM PROXIMITY TO THE BODY WHILE HAND-CARRIED. ***CORRECTIVE STEPS INCLUDE - ALL NOT LAB EMPLOYEES REQUIRED TO WEAR FILM BADGE, A CRITIQUE HELD FOR RADIOGRAPHERS, PLANS TO RE-EXAMINE RADIOGRAPHERS YEARLY, AND PROCUREMENT OF AUDIBLE MONITORING DEVICES.

FAILURE, OPERATOR ERROR + DOSE CALCULATION, EXTERNAL + *PERSONNEL EXPOSURE, RADIATION + *RADIOGRAPHY

26374
RADIOGRAPHY EXPOSURE AT CONAM INSPECTION, INC.
CONAM INSPECTION COMPANY
3 PAGES, LETTER TO AEC DIVISION OF LICENSING AND REGULATIONS FROM L.E. COOMBS, JULY 31, 1967

RADIOGRAPHER PERFORMING ROUTINE MAINTENANCE ON EXPOSURE DEVICE REMOVED 3 SCREWS FROM CAMERA, WHICH PERMITTED SOURCE TO DISLodge FROM SHIELDED POSITION. SOURCE WAS RETURNED BUT WENT BETWEEN LEAD CONTAINER AND OUTSIDE ALUMINUM CASE. SURVEY METER WAS ON TOP OF EXPOSURE DEVICE (PARTIALLY SHIELDED FROM SOURCE), INDICATING SOURCE WAS IN PROPER PLACE. WITH THE SHIELD AND SOURCE IN THE TRUCK, RADIOGRAPHER AND HELPER DROVE 13 HR TO RETURN TO CONAM FACILITY, WHERE THE UNSHIELDED SOURCE WAS DISCOVERED IMMEDIATELY. FILM BADGE OF ONE READ 24.5 MR. DRIVER OF TRUCK WAS NOT WEARING BADGE. ESTIMATED RANGE OF EXPOSURES WAS 15 R TO 300 R.

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

SOURCE, RADIATION + *PERSONNEL EXPOSURE, RADIATION + *INCIDENT, HUMAN ERROR + INCIDENT, NONREACTOR + *RADIOGRAPHY

17419
CONAM INSPECTION, INC., RADIOGRAPHY OVEREXPOSURE DURING MAINTENANCE
CONAM INSPECTION, INC., TULSA, OKLA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(31), PAGE 31, (JULY 31, 1967)

(TWX, JULY 17) A 45-CURIE IR-192 SOURCE WAS ACCIDENTLY REMOVED FROM ITS SHIELDED POSITION DURING ROUTINE MAINTENANCE. EMPLOYEE A REPLACED SOURCE IN CAMERA, BUT IT DID NOT GO IN THE SHIELDED POSITION. A AND B PLACED DEVICE IN TRUCK AND DROVE FROM MISSISSIPPI SITE TO TULSA, OKLA. ONE FILM BADGE REVEALED A 24.5-R EXPOSURE, WHILE THE OTHER HAD A 180-MR EXPOSURE, WHICH IS NOT CORRECT, AS FIRST ESTIMATES OF EXPOSURE ARE 15-300 R.

FAILURE, GENERAL + *MAINTENANCE AND REPAIR + INCIDENT, GENERAL + *PERSONNEL EXPOSURE, RADIATION + *RADIOGRAPHY

18388
SOURCE REMOVAL DURING MAINTENANCE OF A RADIOGRAPHER DEVICE
CONAM INSPECTION, INC., TULSA, OKLA.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(40), PAGE 28 AND 29, (OCT. 2, 1967)

(LETTER, JULY 31) ON JULY 12 A RADIOGRAPHER MAINTAINING A TO-MODEL-490 DEVICE REMOVED 3 SCREWS, DISLodGING SOURCE FROM SHIELD. HE MOVED IT SO IT RETURNED, BUT IT FELL BETWEEN SHIELD AND OUTER CASE. SURVEY METER WENT BACK TO ZERO. MAN WAS CALLED AWAY TO SIGN REPORTS AND RELEASED FROM JOB. NEXT DAY WHEN HE RETURNED TO OFFICE, THE AUTOMATIC GAMMA DETECTOR ALARMED. THE RADIOGRAPHER RECEIVED A 24.5-MR BADGE EXPOSURE. THE DRIVER OF THE OTHER TRUCK CARRYING THE DEVICE WAS ESTIMATED TO HAVE RECEIVED BETWEEN 15 AND 300 R. THE DRIVER QUIT AND HAS NOT COOPERATED IN BEING UNDER A PHYSICIANS OBSERVATION. CAMERAS WILL BE MODIFIED. PROCEDURES WILL NOT BE AMENDED AS THEY FEEL DRIVER WAS SOMEWHAT NEGLIGENT.

*FAILURE, OPERATOR ERROR + MAINTENANCE AND REPAIR + PERSONNEL EXPOSURE, RADIATION + *INCIDENT, HUMAN ERROR + *RADIOGRAPHY + MONITOR, AREA

25348
FLETCHER FR
DELIBERATE EXPOSURE OF RADIOGRAPHY FILM BADGE
CRANE COMPANY
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(21), PAGE 16-17 (MAY 20, 1968)

(LETTER, MARCH 15, INCLUDING A HEALTH PHYSICS ASSOCIATES LTD. REPORT) A FILM BADGE FOR THE WEEK OF FEB. 19-23, 1968, RECORDS A PARTIAL EXPOSURE TO THE FILM OF 36.25 R, AT 100 KEV. THE ROUND, SHARP FIELD WAS DUPLICATED BY HOLDING A BADGE AT THE TUBE BEAM PORT OF THE 250-KVP X-RAY MACHINE. THE EMPLOYEE WAS ABSENT WED. OF THAT WEEK. FURTHER QUESTIONING MAY ARRIVE AT THE ANSWER. OUR OPINION IS THAT THE BADGE WAS DELIBERATELY EXPOSED. OUR RECOMMENDATION IS TO LOCK UP ALL BADGES NOT IN USE.

FAILURE, OPERATOR ERROR + PERSONNEL PROTECTIVE DEVICE + PERSONNEL EXPOSURE, RADIATION + *RADIOGRAPHY + X-RAY

25281

WATKINS CE
 RADIOGRAPHY INCIDENT AT DUKE POWER CO.
 DUKE POWER CO., SOUTH CHURCH ST., CHARLOTTE, N. C. 28201
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 18 AND 19, (MAY 13, 1968)

(LETTER, MARCH 15) ON FEB. 20, 1968, A RADIOGRAPHER AND ASSISTANT WORKING UNDER A LIMITED LICENSE RECEIVED EXCESSIVE RADIATION DOSES. RADIOGRAPHER RECEIVED 800 RADS TO HANDS, BASED ON CALCULATIONS, AND 2966 MILLIRADS WHOLE BODY, BASED ON FILM-BADGE REPORT. ASSISTANT RECEIVED 194 MILLIRADS WHOLE BODY, WITH NO EXTREMITY EXPOSURE. SOURCE HAD NOT BEEN ATTACHED TO CABLE AND COULD NOT BE WITHDRAWN FROM EXPOSED POSITION. RADIOGRAPHER MISTAKENLY THOUGHT HE HAD SUFFICIENT EXPOSURE TIME TO REMOVE SOURCE AND PLACE IT IN SHIELDED CONTAINER. TIME REQUIRED 10 TO 15 SEC.

*PERSONNEL EXPOSURE, RADIATION + *INCIDENT, HUMAN ERROR + INCIDENT, NONREACTOR + *RADIOGRAPHY

15079

RADIOGRAPHY EXPOSURE AT EASTERN TESTING AND INSPECTION INC., DEC. 31, 1966
 EASTERN TESTING AND INSPECTION, INC.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(11), PAGE 33, (MARCH 13, 1967)

ON FEB. 7, EASTERN TESTING AND INSPECTION REPORTED THAT A FORMER EMPLOYEE HAD CHECKED INTO A HOSPITAL WITH RADIATION BURNS ON THE LEFT HAND. CALCULATIONS INDICATED 600 R TO THE FINGERS AND 2 R TO THE BODY, AS THE EMPLOYEE CHANGED THE POSITION OF THE UNSHIELDED SOURCE WITH HIS HANDS. HE DID NOT CHECK THE SOURCE-POSITION LIGHTS, DID NOT USE A SURVEY METER, AND LEFT HIS FILM BADGE ON HIS COAT.

*FAILURE, OPERATOR ERROR + *PERSONNEL EXPOSURE, RADIATION + *INCIDENT, HUMAN ERROR + *RADIOGRAPHY

23363

CLIFFORD FL
 RADIOGRAPHY EXPOSURE AT ELECTRIC BOAT, JAN. 30, 1968
 GENERAL DYNAMICS CORP., GROTON, CONN.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(9), PAGE 28 (FEBRUARY 26, 1968)

(TWX, JAN. 30) FILM-BADGE INTERPRETATION GAVE A CALCULATED 14.5-REM GAMMA EXPOSURE FROM A 96-CURIE IR-192 SOURCE. THE RADIOGRAPHER WAS PLACED UNDER CARE OF THE DIVISION MEDICAL DIRECTOR.

INCIDENT, GENERAL + PERSONNEL EXPOSURE, RADIATION + RADIOGRAPHY

15080

RADIOGRAPHY EXPOSURE AT ERIE FORGE AND STEEL CORP., JAN. 10, 1967
 ERIE FORGE AND STEEL CORP.
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(11), PAGES 33-34, (MARCH 13, 1967)

ON FEB. 7, ERIE FORGE AND STEEL REPORTED AN EXPOSURE OF 4472 R (HARD GAMMA) AS A RADIOGRAPHER ATTEMPTED TO PLUG THE STORAGE SAFE AT THE END OF THE WORK. HE FOUND THE SOURCE 5 IN. FROM THE OPENING AND THEN LEFT. AFTER SEVERAL TRIALS, THE SOURCE WAS FULLY RUN IN. SILT AND DIRT CAUSED THE TROUBLE. THE TECHNICIAN USED A SURVEY METER (APPARENTLY INEFFECTIVE BECAUSE OF GEOMETRY). SOURCE-POSITION INDICATING LIGHTS WERE INEFFECTIVE BECAUSE OF CONTROL-BOX MODIFICATIONS. BLOOD TESTS SHOWED NO IRREGULARITIES.

MAINTENANCE AND REPAIR + *INCIDENT, EQUIPMENT + PERSONNEL EXPOSURE, RADIATION + *FAILURE, MAINTENANCE ERROR + RADIOGRAPHY + *INSTRUMENT, POSITION

26326

RADIOGRAPHY EXPOSURE AT GENERAL DYNAMICS CORP.
 GENERAL DYNAMICS CORP., GROTON, CONNECTICUT
 3 PAGES, LETTER TO AEC DIVISION OF LICENSES FROM W. GORVINE, APRIL 4, 1967

A RADIOGRAPHER RECEIVED A DOSE OF 3.51 REMS WHEN THE SOURCE WAS NOT FULLY RETRACTED INTO ITS SHIELD. BOTH THE RADIOGRAPHER AND ASSISTANT STATED THAT THE STORED LIGHT WAS ON, INDICATING RETRACTION. A SURVEY WAS MADE FROM THE REAR AND SIDE BUT NOT IN FRONT OF THE DEVICE. THE DEVICE WAS LOCKED AND MOVED TO A NEW POSITION. A SECOND ASSISTANT DISCOVERED THE CONDITION WHEN HE NOTED THAT HIS SURVEY METER WAS READING 5 MR/HR.

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

SOURCE, RADIATION + *PERSONNEL EXPOSURE, RADIATION + INCIDENT, HUMAN ERROR + INCIDENT, NONREACTOR + *RADIOGRAPHY

26308

OVEREXPOSURE TO RADIOGRAPHER
 GENERAL DYNAMICS CORP., GROTON, CONNECTICUT
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(9), PAGE 27 (FEBRUARY 26, 1968)

(TWX JANUARY 30) A RADIOGRAPHER RECEIVED A CALCULATED DOSE OF 14.5 REMS GAMMA WHILE PERFORMING OPERATIONS WITH A 96-CURIE IR-192 SOURCE.

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

*PERSONNEL EXPOSURE, RADIATION + INCIDENT, NONREACTOR + RADIOGRAPHY

28851
HIRSCHBERG SM
REPORT OF OVEREXPOSURE DURING RADIOGRAPHY
GENERAL DYNAMICS, GROTON, CONN.
LETTER TO DIRECTOR, DIV. OF COMPLIANCE, USAEC, WASHINGTON, D. C., MARCH 21, 1968

ON JAN. 30, 1968, A RADIOGRAPHER NOTED THAT THE DEVICE WAS OPERATING WITH DIFFICULTY AFTER 21 EXPOSURES, AND HIS DOSIMETER READ 10 MREM. AFTER 28 EXPOSURES IT WAS OFF SCALE. FILM BADGE READ 14.5 REMS. ALTHOUGH RADIOGRAPHER STATED HE SURVEYED, AND STORED LIGHT WAS RECEIVED AFTER EACH EXPOSURE, IT WAS JUDGED HE FAILED TO NOTE THESE. A CRIMPED AREA ON DRIVE HOUSING COULD RESTRICT DRIVE OPERATION. HE WAS ESTIMATED TO RECEIVE 20 REMS WHOLE BODY AND 50 REMS EXTREMITIES. *** (CITATION JULY 31) FOR NOT SURVEYING, NOT NOTIFYING SUPERVISOR, AND NOT FOLLOWING EMERGENCY PROCEDURES. AEC BELIEVES WHOLE BODY DOSE WAS FROM 50 TO 20 REMS.

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

*INCIDENT, EXPOSURE + FAILURE, EQUIPMENT + FAILURE, OPERATOR ERROR + *EMERGENCY PROCEDURE + PERSONNEL EXPOSURE, RADIATION + RADIOGRAPHY

26333
RESPONSE TO AEC CITATION FOR RADIOGRAPHY DEFICIENCIES
NATIONAL TANK COMPANY, TULSA, OKLAHOMA
2 PAGES, LETTER TO AEC, WASHINGTON, D. C. FROM F.L. SILVERS, JUNE 12, 1967

ON MARCH 12, 1967, A RADIOGRAPHER RECEIVED A DOSE OF 4550 MR (APPARENTLY FAILED TO SURVEY AND SOURCE DID NOT RETRACT). COMPANY RESPONSE TO AEC CITATION - (1) CALIBRATED AND OPERABLE SURVEY INSTRUMENTS WILL BE AVAILABLE AND USED AFTER EACH EXPOSURE, (2) APOLOGIZED FOR NOT INCLUDING EXPOSURE INFORMATION IN PREVIOUS LETTER, (3) LOG SHEET IMPROVED, (4) RADIOGRAPHERS INSTRUCTED TO MAKE SURVEYS AT BEGINNING AND END OF EACH SHIFT (IN ADDITION TO OTHER SURVEYS REQUIRED BY PROCEDURES), AND (5) A NEW SURVEY INSTRUMENT WITH AUDIBLE-SIGNAL ATTACHMENT WAS PURCHASED.

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

*FAILURE, OPERATOR ERROR + SOURCE, RADIATION + COMPLIANCE + *PERSONNEL EXPOSURE, RADIATION + INCIDENT, NONREACTOR + RADIOGRAPHY

29810
MOBERG AJ
LOSS OR THEFT OF RADIOACTIVE SOURCE, 0.0325 CURIES OF COBALT 60 DISCOVERED JULY 9, 1968
NEWPORT NEWS SHIPBUILDING AND DRY DOCK COMPANY, NEWPORT NEWS, VIRGINIA
H-4089 +. JULY 22, 1968

ON JULY 9, 1968, IT WAS DISCOVERED THAT A 32.5-MILLICURIE CO-60 SOURCE (EMITTING 450 MR/HR AT 1 FOOT) WAS MISSING. ENSUING INVESTIGATION REPORTED. THE SCREEN PLUG WAS DELIBERATELY OR ACCIDENTALLY REMOVED FROM THE EXPOSURE DEVICE, PERMITTING SOURCE TO BECOME LOST. OVER 250 MAN-HOURS SPENT UNSUCCESSFULLY SEARCHING FOR SOURCE. COMPANY ACKNOWLEDGED LAXITY ON PART OF PERSONNEL TO SURVEY CONTAINERS OF LOW-STRENGTH SOURCES. SEVERAL ENCLOSURES OF NEWSPAPER NOTICES, INVESTIGATIVE REPORTS, AND PICTURES OF CONTAINERS AND EXPOSURE DEVICE.

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

COBALT + COMPLIANCE + RADIATION SAFETY AND CONTROL + INCIDENT, HUMAN ERROR + *INCIDENT, NONREACTOR + *RADIOGRAPHY + *SOURCE, RADIATION, LOST + FAILURE, ADMINISTRATIVE CONTROL

17372
NORTH AMERICA INSPECTION SERVICES CITED FOR RADIOGRAPHY OVEREXPOSURE
NORTH AMERICAN INSPECTION SERVICES, INC.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(34), PAGES 31 THRU 33, (AUGUST 21, 1967)

(LETTER, JUNE 28) NAIS WAS CITED JUNE 28 UNDER LICENSE 29-8122-1 FOR A FEBRUARY 14 EXPOSURE IN ALASKA. (1) EMPLOYEE FAILED TO CONDUCT A SURVEY AFTER EACH EXPOSURE, AND WHEN THE DEVICE MALFUNCTIONED, RECEIVED 11 REMS. (2,3) DID NOT PROCESS FILM BADGE OR EVALUATE EXPOSURE WHEN THE DOSIMETER WAS FOUND TO BE OFF SCALE. (4,5,6) EMERGENCY PROCEDURES WERE NOT FOLLOWED, AND AEC WAS NOT NOTIFIED. (7-11) RECORDS WERE NOT KEPT, SITE AND DEVICES WERE NOT POSTED. (REPLY JULY 11) (2-3) FIELD ESTIMATE OF DOSE WAS IN THE REGION OF 1 R, AND REPLACEMENT BADGE WAS NOT AVAILABLE. (4-5) EMPLOYEE DISCONNECTED PIPELINE CONTROL CABLE, REPORTED TO SUPERVISOR WHO FOUND SOURCE IN THE SAFE POSITION. (6) TWO BRANCHES ASSUMED OTHER HAD REPORTED INCIDENT.

FAILURE, EQUIPMENT + FAILURE, OPERATOR ERROR + *COMPLIANCE + INCIDENT, GENERAL + *PERSONNEL EXPOSURE, RADIATION + *RADIOGRAPHY

24620
SCHROEDER AK
COMPLIANCE CITATION OF PETRO CHEM. CORP.
PETRO-CHEM ENGINEERING CORP., CHICAGO, ILL.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGES 36-38 (APRIL 8, 1968)

(LETTER, JAN. 24) INSPECTION NOV. 17, 1967, AT CITIES SERVICE REFINERY (CHICAGO, ILL.) REVEALED 7 ITEMS (RADIATION OUTSIDE TRAILER GREATER THAN 2 MR/HR, OUTSIDE OF RADIOGRAPHY SHIELD GREATER THAN 500 MR/HR). INSPECTION SEPT. 20, 1967, AT HOUSTON, TEX., REVEALED 8 MORE (RECORDS WERE INCOMPLETE, UNLICENSED DEVICES WERE USED, FILMS WERE NOT USED, INSTRUMENTS NOT CALIBRATED). *** NUMBER AND NATURE OF NONCOMPLIANCE ITEMS INDICATE INADEQUATE MANAGEMENT CONTROL OVER SAFETY.

COMPLIANCE + *RADIOGRAPHY + *FAILURE, ADMINISTRATIVE CONTROL

26366
CITATION FOR DEFICIENCIES IN RADIOGRAPHY PROCEDURES
UNITED STATES ATOMIC ENERGY COMMISSION
2 PAGES, LETTER TO PIPEWELD X-RAY CORPORATION FROM E.R. PRICE, JANUARY 13, 1967

CITED FOR (1) ALLOWING RADIOGRAPHY BY PERSONS NOT INSTRUCTED IN PROCEDURES NOR SHOWN USE OF DEVICES, (2) POOR RECORD KEEPING, AND (3) FAILURE TO SURVEY AFTER EXPOSURES. AEC NOTED THAT ONE RADIOGRAPHER HAD A COPY OF THE QUESTIONS AND ANSWERS TO THE COMPANY'S RADIOGRAPHY EXAMINATION. ITEMS 2 AND 3 ARE VIOLATIONS WHICH HAVE BEEN CITED IN PREVIOUS INSPECTIONS, AND THE REASON FOR THEIR RECURRENCE SHOULD BE IDENTIFIED.

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

FAILURE, OPERATOR ERROR + *COMPLIANCE + *RADIOGRAPHY + *FAILURE, ADMINISTRATIVE CONTROL

26356
RESPONSE TO AEC RADIOGRAPHY CITATION
PIPEWELD X-RAY CORPORATION, PERRYSBURG, OHIO
5 PAGES, LETTER TO AEC DIVISION OF STATE AND LICENSEE RELATIONS FROM C. EARLE, JR., JANUARY 30, 1967

IN THE FUTURE, PERSONNEL WILL SIGN A STATEMENT THAT THEY HAVE RECEIVED INSTRUCTION ON COMPANY RADIOGRAPHY PROCEDURES. PERSON HAVING COPY OF RADIOGRAPHERS TEST QUESTIONS AND ANSWERS HAD GOTTEN AN OLDER RADIOGRAPHER TO WRITE THEM OUT FROM MEMORY TO ASSIST HIM IN STUDYING TO CHANGE HIS CLASSIFICATION (REPRESENTED LESS THAN 1/2 OF TEST QUESTIONS). RECURRING VIOLATIONS - FAILURE TO SURVEY AFTER EXPOSURE AND RECORD KEEPING OCCUR BECAUSE AEC DID NOT DIRECT THE CITATIONS TO THE RADIOGRAPHER BUT TO THE COMPANY. ADVOCATES THAT AEC LICENSE (NOT COMPANY) INDIVIDUAL SO THAT THREAT OF REVOCATION WOULD ELIMINATE RADIOGRAPHER LAXITY IN FOLLOWING PROCEDURES.

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FAILURE, OPERATOR ERROR + TRAINING + *COMPLIANCE + RADIATION SAFETY AND CONTROL + *RADIOGRAPHY + *FAILURE, ADMINISTRATIVE CONTROL

28650
WEISNER WJ
TWO RADIOGRAPHY INCIDENTS
PITTSBURGH-DES MOINES STEEL COMPANY
LETTER TO DIRECTOR, DIV. OF STATE AND LICENSEE RELATIONS, USAEC, WASHINGTON, JULY 19, 1968

TRANSMITS LETTER TO INDIVIDUALS CONCERNED. (1) ON 18 DEC. 1967, AN EMPLOYEE ON NIGHT SHIFT, WORKING ON LAST EXPOSURE AND IN A HURRY TO COMPLETE BREAKDOWN, DID NOT TAKE A SECOND LOOK AND FOUND DRIVE CABLE IN SOURCE TUBE. HE RECEIVED 4.98 REMS, AND HIS ASSISTANT 0.463. HE VIOLATED 3 PROCEDURES. (2) EARLY IN 1968, AN EMPLOYEE RADIOGRAPHING ON NIGHT SHIFT FOUND SOURCE STUCK BECAUSE OF A KINKED GUIDE TUBE. IN DISLOGGING THE SOURCE, HE RECEIVED 1.033 REMS AND HIS ASSISTANT 0.094. NO PROCEDURE VIOLATIONS.

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

FAILURE, OPERATOR ERROR + INCIDENT, EQUIPMENT + *PERSONNEL EXPOSURE, RADIATION + *RADIOGRAPHY

27898
CITATION FOR RADIOGRAPHY NONCOMPLIANCE
PITTSBURGH TESTING LABORATORY, PITTSBURGH, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(34), PAGE 18, (AUGUST 19, 1968)

(COMPLIANCE LETTER, JUNE 6) A FEB. 68 INSPECTION REVEALED ITEMS OF NONCOMPLIANCE - (1) DIRECT SURVEILLANCE WAS NOT DONE TO PROTECT AGAINST UNAUTHORIZED ENTRY TO AN EXPOSED 25-CURIE IR-192 SOURCE AT JOHN HANCOCK BLDG., CHICAGO. (2) HIGH RADIATION AREA WAS NOT POSTED. (3) SAFETY PLUG WAS NOT INSERTED AFTER USAGE. (4) RECORDS OF SURVEYS WERE NOT MAINTAINED. (PTL REPLY, JULY 18) WE HOPE THESE ITEMS WILL NOT HAPPEN AGAIN. OUR RAD SAFETY COORDINATOR HAS SENT A LETTER TO ALL RADIOGRAPHERS.

FAILURE, OPERATOR ERROR + *COMPLIANCE + *RADIOGRAPHY

26340
RADIATION EXPOSURE TO EXPERIENCED RADIOGRAPHERS
U.S. NAVY, PUGET SOUND NAVAL SHIPYARD, BREMERTON, WASHINGTON
4 PAGES, MEMORANDUM OF RADIATION EXPOSURE INCIDENT, SEPTEMBER 6, 1967

RADIOGRAPHER B, WITH 5 YEARS EXPERIENCE, ASSUMED THAT SOURCE HAD BEEN RETRACTED WHEN CRANKING BECAME DIFFICULT. ACTUALLY, MORE EFFORT WAS NEEDED ON LAST TURN TO RETRACT SOURCE AROUND AN S CURVE IN SHIELD. RADIOGRAPHER A, WITH 10 YEARS EXPERIENCE, SURVEYED FROM REAR AND OBTAINED NORMAL READINGS SINCE SOURCE WAS SHIELDED BY CAMERA. NEITHER OBSERVED THAT STORAGE LIGHT WAS NOT INDICATING THAT SOURCE HAD BEEN RETRACTED. RADIOGRAPHER A RECEIVED A DOSE OF 3500 MR, AND B 290 MR.

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*FAILURE, OPERATOR ERROR + *PERSONNEL EXPOSURE, RADIATION + INCIDENT, NONREACTOR + RADIOGRAPHY

29856
 RADIOGRAPHY SOURCE FOUND CONTAMINATED ON RECEIPT
 DEPARTMENT OF THE NAVY, PUGET SOUND
 2 PAGES, LETTER TO DIVISION OF MATERIALS LICENSING, OCTOBER 23, 1968

ON OCT. 18, 68, A GAMMA INDUSTRIES S-17 29 CURIE IR-192 RADIOGRAPHY SOURCE WAS RECEIVED. LEAK TEST CONDUCTED BEFORE RECEIPT SHOWED 0.017 MICROCURIE REMOVABLE IR-192 CONTAMINATION. THE SHIPPING CONTAINER SHOWED NO EXTERNAL CONTAMINATION THOUGH A WIPE OF THE STORAGE WELL SHOWED 0.95 MICROCURIE OF IR-192. ***SOURCE IS BEING RETURNED. BECAUSE THIS IS THE 3RD SUCH INCIDENT IN 1968, VENDOR IS REQUESTED TO REVIEW HIS SOURCE DECONTAMINATION AND WIPE TESTING PROGRAM.

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

BYPRODUCT MATERIAL + *SOURCE, RADIATION + COMPLIANCE + *CONTAMINATION + RADIOGRAPHY + IRIIDIUM

16658
 RADIOGRAPHY INCIDENT AT QUAKER ALLOY CASTING. MAY 17, 1967
 QUAKER ALLOY CASTING CO., MYERSTOWN, PA.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(29), PAGE 27 (JULY 17, 1967)

(JUNE 12) A RADIOGRAPHER ENTERED THE EXPOSURE CELL UNAWARE THAT THE 450-CURIE CO-60 SOURCE HAD SEPARATED FROM THE CABLE. HIS SURVEY METER HAD A DEAD BATTERY, BUT HE HAD CHECKED HIS DOSIMETER, WHICH HE FOUND TO BE OFF SCALE. FILM-BADGE MEASURED 10 REMS. CORRECTIVE ACTION - (1) ONLY FRESH BATTERIES WILL BE USED, RECHARGING WILL BE DISCONTINUED, (2) A SEQUENCE COUNTER WILL RECORD THE CYCLE OF OPERATION, (3) RADIATION DETECTORS AND LIGHTS ORIGINALLY SUPPLIED WILL BE REMOVED, (4) EXPOSURE CELL-DOORS WILL BE INTERLOCKED SO AN ALARM SOUNDS IF DOOR IS OPENED WITH SOURCE EXPOSED.

FAILURE, OPERATOR ERROR + MONITOR, PERSONNEL + INSTRUMENT, INTERLOCK + FAILURE, INSTRUMENT + *PERSONNEL
 EXPOSURE, RADIATION + RADIATION SAFETY AND CONTROL + *RADIOGRAPHY

26314
 CITATION FOR NONCOMPLIANCE TO RADIOGRAPHY REGULATIONS
 UNITED STATES ATOMIC ENERGY COMMISSION
 3 PAGES, LETTER TO RADIOLOGICAL TESTING LAB FROM L.D. LOW, MARCH 6, 1968

AEC CITED COMPANY FOR FAILING TO (1) SURVEY UNRESTRICTED AREAS, (2) MAINTAIN RECORDS OF SURVEYS, (3) POST RADIATION AREAS, (4) PERFORM ADEQUATE SURVEYS AFTER EXPOSURES, (5) DIRECTLY SURVEY TO PROTECT AGAINST UNAUTHORIZED ENTRY DURING OPERATIONS, (6) PREVENT UNAUTHORIZED PERSONNEL FROM PERFORMING RADIOGRAPHY, AND (7) POST THE VEHICLE USED FOR TRANSPORTING SOURCE AND EXPOSURE DEVICE. AEC STATED THAT IMPROVEMENTS WERE NEEDED IN MANAGEMENT.

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SOURCE, RADIATION + *COMPLIANCE + *RADIOGRAPHY + *FAILURE, ADMINISTRATIVE CONTROL

25632
 CITATION OF RADIOLOGICAL TESTING LAB.
 RADIOLOGICAL TESTING LAB., MADISON, WISCONSIN + AEC DIVISION OF COMPLIANCE
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(22), PAGE 21 AND 22, (MAY 27, 1968)

(CITATION, MARCH 6) A DEC. 1967 INSPECTION REVEALED SEVEN ITEMS OF NON-COMPLIANCE (NO SURVEYS NOR RECORDS OF SURVEYS DONE, IMPROPER POSTING, SURVEILLANCE, AND TRANSPORTATION). NUMBER AND NATURE INDICATE INADEQUATE MANAGEMENT CONTROL. (REPLY, MAR. 22). LISTS ACTIONS TAKEN FOR EACH SPECIFIC ITEM AND ASSERTS THE SAFETY OFFICE MAKES FREQUENT ON-SITE INSPECTIONS.

FAILURE, OPERATOR ERROR + COMPLIANCE + *RADIOGRAPHY + *FAILURE, ADMINISTRATIVE CONTROL

26350
 RADIOGRAPHY SOURCE FALLS APART
 RADIATION PRODUCTS, BURLINGTON, MASSACHUSETTS
 2 PAGES, LETTER TO DIRECTOR DIVISION OF MATERIALS LICENSING FROM R.J. PREST, MARCH 24, 1967

A 10-CURIE IRIIDIUM-192 SOURCE FELL APART WHILE BEING USED BY WALWORTH CO., GREENSBURG, PA. RETRIEVAL OF THE 5 PELLETS WAS ACCOMPLISHED WITH MINOR CONTAMINATION AND PERSONNEL EXPOSURES OF 280 AND 5 MR. STEPS WERE TAKEN BY THE FABRICATOR TO EXAMINE AND IMPROVE THE QUALITY OF THE CAPSULE WELDS.

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

*SOURCE, RADIATION + PERSONNEL EXPOSURE, RADIATION + *FAILURE, FABRICATION ERROR

17122
 RICHARDSON X-RAY REPLIES TO COMPLIANCE CITATION OF MAY 17, 1967
 RICHARDSON X-RAY SERVICE, ALHAMBRA, CALIFORNIA
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(33), PAGE 27 AND 28 (AUGUST 14, 1967)

(LETTER, JUNE 16) (ITEMS 1, 2, 6, AND 7) RADIOGRAPHER WAS INVOLVED IN EARLIER VIOLATION (METALINE FALLS, WASHINGTON, 1966), RETRAINED, AND STILL DISREGARDED OUR INSTRUCTIONS. HE WILL NOT BE USED AGAIN. (3, 4, 7) WE DISCONTINUED USE OF THE 5-IN. STORAGE CONTAINERS. THE CONTAINER LEFT ALHAMBRA MARKED. (5, 8, 9) RECORDS HAVE BEEN KEPT.

FAILURE, OPERATOR ERROR + *COMPLIANCE + STORAGE CONTAINER + *RADIOGRAPHY

16659

RICHARDSON X-RAY, ALHAMBRA, CITED FOR NON-COMPLIANCE
 RICHARDSON X-RAY SERVICE, ALHAMBRA, CALIFORNIA
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(29), PAGES 27-28 (JULY 17, 1967)

(MAY 17) A FEBRUARY AND A MARCH 13TH INSPECTION REVEALED 9 ITEMS OF NONCOMPLIANCE. A WELDER'S HELPER WAS ALLOWED TO PLACE FILM ON PIPE AND THEN REMAIN NEAR THE 11-CURIE IR-192 SOURCE DURING EXPOSURE

*COMPLIANCE + PERSONNEL EXPOSURE, RADIATION + *RADIOGRAPHY + FAILURE, ADMINISTRATIVE CONTROL

26344

RADIOGRAPHY SOURCE - LOST AND FOUND
 SCHLUMBERGER WELL SURVEYING CORP., HOUSTON, TEXAS
 1 PAGE, LETTER TO SCHLUMBERGER WELL SERVICES FROM K.N. THOMAS, OCTOBER 16, 1967

A SOURCE WAS PLACED ON THE BUMPER OF A TRUCK PARKED NEXT TO A SECOND TRUCK IN WHICH EQUIPMENT CALIBRATIONS WERE BEING PERFORMED. THE DRIVER DROVE OFF, NOT KNOWING THAT THE SOURCE WAS ON THE BUMPER OF HIS TRUCK, NOR DID HE KNOW THAT IT HAD FALLEN OFF ALONG THE WAY. THE SOURCE WAS FOUND SHORTLY THEREAFTER IN A DITCH BY ONE OF SEVERAL SEARCH PARTIES.

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

FAILURE, OPERATOR ERROR + INCIDENT, HUMAN ERROR + *RADIOGRAPHY + *SOURCE, RADIATION, LOST

26329

FAILURE TO USE SURVEY METER RESULTS IN OVEREXPOSURE TO RADIOGRAPHER
 SCOPE INSPECTION CO., INC., HOUSTON, TEXAS
 2 PAGES, LETTER TO AEC DIVISION OF STATE AND LICENSE RELATIONS FROM D. THOMAS, MAY 11, 1967

ON APRIL 23, 1967, RADIOGRAPHER RECEIVED A WHOLE-BODY DOSE OF 6.1 REMS AND A CALCULATED DOSE OF 162 REMS TO THE LEFT HAND. SOURCE FAILED TO RETURN TO CAMERA, AND RADIOGRAPHER DID NOT USE SURVEY METER. WHEN FILM WAS PROCESSED, HE BECAME AWARE THAT THE SOURCE WAS STILL IN THE SNORKEL. HE GOT SURVEY METER, CUT PLASTIC SNORKEL, AND REPLACED THE SOURCE IN THE CAMERA.

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

SOURCE, RADIATION + *PERSONNEL EXPOSURE, RADIATION + *INCIDENT, HUMAN ERROR + INCIDENT, NONREACTOR + *RADIOGRAPHY

26337

RESPONSE TO AEC CITATION FOR RADIOGRAPHY DEFICIENCIES
 SCOPE INSPECTION CO., INC., HOUSTON, TEXAS
 4 PAGES, LETTER TO AEC DIVISION OF COMPLIANCE FROM D. THOMAS, AUGUST 2, 1967

ON APRIL 27, 1967, RADIOGRAPHER RECEIVED A DOSE OF 6.1 REMS WHILE RETURNING A SOURCE TO SAFE WHICH HAD STUCK IN SNORKEL TUBE. COMPANY RESPONDED TO CITATION THAT (1) ALL EMPLOYEES HAD BEEN NOTIFIED OF INCIDENT AND THAT THE INDIVIDUAL HAD BEEN DISCHARGED (WHICH DID TAKE MORE THAN A WEEK OF LECTURES), (2) RETRAINING OF ALL RADIOGRAPHERS STARTED, (3) IF UNAUTHORIZED PERSONS VISIT EXPOSURE AREAS, RADIOGRAPHY WILL CEASE, (4) WEEKLY UNANNOUNCED INSPECTION AT ALL OF JOB SITES ARE NOW BEING MADE.

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

FAILURE, OPERATOR ERROR + *COMPLIANCE + *PERSONNEL EXPOSURE, RADIATION + RADIOGRAPHY + *FAILURE, ADMINISTRATIVE CONTROL

16761

INCIDENTS DURING 1964 SHIPPINGPORT MODIFICATION
 WESTINGHOUSE ELECTRIC CORP., BETTIS ATOMIC POWER LAB., PITTSBURGH
 WAPD-298 +, 2 PAGES, PAGE 21 AND 43 OF RADIOLOGICAL CONTROL. SHIPPINGPORT PWR CORE 1, CORE 2 REPLACEMENT AND THE PWR CORE 2 MODIFICATION PROGRAM, MARCH, 1967

(PAGE 21) - SEVERAL INCIDENTS INVOLVED UNNECESSARY RADIATION EXPOSURE TO RADIOGRAPHERS WORKING ON PIPE WELDING. IN EACH INSTANCE, THE INCIDENT WAS THE DIRECT RESULT OF CARELESSNESS OR NEGLIGENCE BY THE RADIOGRAPHER OR FAILURE TO FOLLOW THE OPERATING PROCEDURES. (PAGE 43) - A PIPEFITTER REMOVED A PLUG AND GROUND THE HOLE. A 12-IN. BLUE FLAME FLASHED OUT. THE FITTER CONTINUED WORK AND AT SHIFT CHANGE WAS CONTAMINATED (4 MREM/HR). PROCEDURE NOW REQUIRES USE OF A PIPE CUTTER, EXTINGUISHER, AND NITROGEN PURGE.

AVAILABILITY - CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, NATIONAL BUREAU OF STANDARDS, U. S. DEPARTMENT OF COMMERCE, SPRINGFIELD, VIRGINIA, \$3.00 COPY, \$0.65 MICROFICHE

FAILURE, OPERATOR ERROR + *MAINTENANCE AND REPAIR + REACTOR, PWR + SHIPPINGPORT (PWR) + WELDING + *PERSONNEL EXPOSURE, RADIATION + *RADIATION SAFETY AND CONTROL + *RADIOGRAPHY

13999
AEC SUSPENDS SINCO TESTING, INC. RADIOGRAPHY LICENSE
U. S. ATOMIC ENERGY COMMISSION
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(2) PAGES 17-18 (JANUARY 9, 1967)

(LETTER DECEMBER 30) SINCO IS REQUIRED TO CEASE OPERATION PENDING INVESTIGATION. CHARGES INCLUDE ALLOWING 4 PERSONS TO OPERATE A 25-CURIE IR-192 RADIOGRAPHIC DEVICE WITHOUT HAVING CHECKED THEIR QUALIFICATIONS. ONE PERSON LEFT THE SOURCE UNRETRACTED ON DECEMBER 12, 1966, AND SINCE FAILED TO PROCESS HIS FILM BADGE OR RESTRICT HIM FROM FURTHER RADIATION AFTER FINDING HIS POCKET METERS DISCHARGED.

FAILURE, OPERATOR ERROR + MONITOR, PERSONNEL + REGULATION, AEC + PERSONNEL EXPOSURE, RADIATION + *INCIDENT, HUMAN ERROR + *RADIOGRAPHY + FAILURE, ADMINISTRATIVE CONTROL

26386
FORGETFULNESS RESULTS IN OVEREXPOSURE TO RADIOGRAPHER
TWIN CITY TESTING AND ENGINEERING LABORATORY, INC., ST. PAUL, MINNESOTA
3 PAGES, LETTER TO AEC DIVISION OF STATE AND LICENSE RELATIONS FROM H. T. SCHULZE, NOVEMBER 2, 1967

AFTER PERFORMING 15 EXPOSURES, RADIOGRAPHER SURVEYED IN THE USUAL MANNER TO ASCERTAIN THAT SOURCE WAS IN THE SAFE POSITION, BUT THIS ONE TIME HE FORGOT TO PUSH THE KEY-OPERATED LOCK IN, WHICH WOULD LOCK THE SOURCE IN THE EXPOSURE DEVICE. DURING THE TRANSFER TO ANOTHER LOCATION, THE CRANK CAUGHT ON AN OBSTRUCTION AND FORCED THE SOURCE TO AN EXPOSED POSITION. WHILE SETTING UP FOR THE NEXT EXPOSURE HIS FILM BADGE IN THE SHIRT POCKET WAS 3 FT FROM THE 90-CURIE SOURCE. HIS LEFT THIGH WAS 6 TO 12 IN. AWAY. FILM BADGE READ 8.8 REMS. ESTIMATED DOSE TO THIGH WAS 70 REMS.

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

SOURCE, RADIATION + *PERSONNEL EXPOSURE, RADIATION + *INCIDENT, HUMAN ERROR + INCIDENT, NONREACTOR + *RADIOGRAPHY

26387
RESPONSE TO AEC CITATION FOR NONCOMPLIANCE IN RADIOGRAPHY PROCEDURES
TWIN CITY TESTING AND ENGINEERING LABORATORY, INC., ST. PAUL, MINNESOTA
3 PAGES, LETTER TO AEC DIVISION OF COMPLIANCE FROM C. W. BRITZIUS, JANUARY 22, 1968

AEC COMPLIANCE CITED FOUR ITEMS OF NONCOMPLIANCE - (1) RADIOGRAPHER FAILED TO LOCK EXPOSURE DEVICE AFTER EXPOSURE, AND FAILED TO REPORT DISCHARGE OF DOSIMETER, (2) SURVEY WAS NOT MADE TO DETERMINE EXTENT OF DOSE RECEIVED BY RADIOGRAPHER, (3) AEC NOT NOTIFIED IMMEDIATELY OF EXPOSURE INCIDENT, AND (4) STORAGE OF MATERIAL AT PLACE NOT SPECIFIED BY LICENSE. COMPANY RESPONSE - (1) ITEM REVIEWED WITH ALL RADIOGRAPHERS, (2) SURVEY TECHNIQUES WERE REVIEWED AND RADIOGRAPHERS INSTRUCTED TO LEAVE SURVEY METERS ON AT ALL TIMES, (3) FAILED TO MARK ENVELOPE CONTAINING BADGE, SO THAT RESULTS OF READING WERE DELAYED, (4) COMPANY MOVED 2 BLOCKS AWAY AND NEGLECTED TO INFORM AEC.

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

FAILURE, OPERATOR ERROR + *COMPLIANCE + RADIATION SAFETY AND CONTROL + *RADIOGRAPHY + *FAILURE, ADMINISTRATIVE CONTROL

24206
MULLIKIN MS
TWO RADIOGRAPHERS OVER EXPOSED DURING FOURTH QUARTER 1967
UNIVERSAL TESTING CO., INC., SALT LAKE CITY, UTAH
1 PAGE, JAN. 22, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGE 28 (MARCH 18, 1968)

(LETTER, JAN. 22) DOSES OF 2.273 AND 1.59/REMS WERE RECEIVED BY RADIOGRAPHERS DURING THE QUARTER AS A RESULT OF MECHANICAL PROBLEMS WITH A CAMERA. THE EXTENSION ADAPTER WAS TOO LONG FOR PROPER ATTACHMENT OF THE CONTROL CABLE TO THE SOURCE CABLE, AND THE THREADS IN THE CAMERA PULLED OUT, CAUSING THE SOURCE CONNECT AND DISCONNECT TO HANG. THE RADIOGRAPHERS THEN HAD TO WORK THE SOURCE CABLE BACK AND FORTH UNTIL IT CAME FREE. THE SOURCE WAS EXPOSED DURING THIS TIME. THESE TIMES WERE SHORT, BUT THERE WERE SEVERAL DURING THE QUARTER. THE CAMERA WAS RETURNED FOR REPAIR.

FAILURE, EQUIPMENT + SOURCE, RADIATION + PERSONNEL EXPOSURE, RADIATION + INCIDENT, NONREACTOR + *RADIOGRAPHY

16370
SHIELDS RR
RADIOGRAPHY SOURCE CAPSULE SEPARATES AT WALWORTH PRODUCT DIVISION, GREENBURG PA. MARCH 21, 1967
WALWORTH CO., GREENBURG, PA.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(24) PAGES 17-18 (JUNE 12, 1967)

(LETTER, MARCH 22). AFTER AN EXPOSURE, THE SURVEY SHOWED RADIATION LEVELS ABOVE NORMAL IN THE AREA OF THE PROJECTOR. OPERATOR REPORTED TO SUPERVISOR, WHO FOUND 15 MR/HR IN EXPOSURE AREA, AND HIGHER LEVELS AT PROJECTOR-AREA ENTRANCE. REPEATED CONTROL ACTUATION REDUCED RADIATION IN THE EXPOSURE AREA TO NORMAL. ON EXAMINING THE SOURCE SWITCH, A SMALL OBJECT (RESEMBLING THE DUMMY SOURCE CAPSULE, GREATER THAN 50 MR/HR AT CONTACT) FELL OUT. THE MANUFACTURER WAS CALLED, WHO ARRANGED FOR IMMEDIATE HFIP AND THEN CAME HIMSELF. A DETAILED REPORT WILL BE SUBMITTED LATER. THE SMALL OBJECT WAS THE NOSE PIECE OF THE CAPSULE. PELLETS WERE IN PROJECTOR. NO CONTAMINATION WAS FOUND. OPERATING PERSONNEL RECEIVED 30 MR.

FAILURE, EQUIPMENT + SOURCE, RADIATION + *INCIDENT, EQUIPMENT + *RADIOGRAPHY

30044

ACTION TAKEN ON COMPLIANCE CITATION SEPT 25, 1968
 X-RAY ENGINEERING CORPORATION, SAN MATEO, CALIFORNIA

7 PAGES, LETTERS TO USAEC DIVISION OF COMPLIANCE, OCTOBER 11, 1968, OCTOBER 14, 1968, NOVEMBER 6, 1968

(OCT. 11, 14, AND NOV. 6, 1968). INSPECTION AT HUNTERS POINT SHIPYARD ON THE GRAVEYARD SHIFT PLUS LAZINESS CONTRIBUTED TO MAJORITY OF ITEMS. RADIOGRAPHERS HAVE BEEN SEVERELY REPRIMANDED. SIX MANAGEMENT PERSONNEL MUST MAKE UNANNOUNCED FIELD INSPECTIONS ON EACH RADIOGRAPHER AT LEAST ONCE A MONTH. RADIOGRAPHERS HAVE AGAIN BEEN INSTRUCTED TO USE COLLIMATORS, TO USE ROPES AND SIGNS. COMMUNICATION ON BLIND OPERATIONS WILL BE TAKEN CARE OF WITH ISSUANCE OF AUDIBLE POCKET RADIATION DETECTORS TO BE WORN BY RADIOGRAPHERS AND BY AN ADDITIONAL SURVEY INSTRUMENT USED ON THE BLIND SIDE OF THE SUBJECT.

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ADMINISTRATIVE CONTROL + FAILURE, OPERATOR ERROR + PERSONNEL PROTECTIVE DEVICE + COMPLIANCE + *INCIDENT, HUMAN ERROR + RADIOGRAPHY + REMOTE MANIPULATING AND VIEWING

III. Other Facilities Occurrences

15307
FREDRICKSON RL
IODINE INHALATION AT ABBOTT LABORATORIES, DEC. 20-26, 1966
ABBOTT LABORATORY, NORTH CHICAGO
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(13), PAGES 29-30, (MARCH 27, 1967)

ABBOTT LABS., NORTH CHICAGO, ILL., REPORTS (JANUARY 29, 1967) THAT AN EMPLOYEE'S THYROID MEASURED 116% OF MAX. PERMISSIBLE BODY BURDEN (I-131). AIR-CONCENTRATION MEASUREMENTS DO NOT ACCOUNT FOR THIS. ALSO, A SIMILAR OPERATOR DID NOT SHOW THYROID ACCUMULATION.

FISSION PRODUCT, IODINE + INHALATION + MAXIMUM PERMISSIBLE BODY BURDEN + *INCIDENT, GENERAL + *PERSONNEL EXPOSURE, RADIATION

15308
FREDRICKSON RL
IODINE INHALATION AT ABBOTT LABORATORIES, JAN 30 - FEB. 5, 1967
ABBOTT LABORATORIES, NORTH CHICAGO, ILL.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(13), PAGE 30, (MARCH 27, 1967)

ABBOTT LABS., NORTH CHICAGO, ILL., REPORTS (FEB. 27, 1967) THAT AN EMPLOYEE AVERAGED 102% MAX. PERMISSIBLE BODY BURDEN OF I-131 (PEAK 158%) OVER FIVE DAYS. AIR-SAMPLING DATA SHOWS AVERAGE FOR A WEEK WAS 54% OF MPC, EXCEPT THAT NO SAMPLE WAS TAKEN JAN. 27. EMPLOYEE TERMINATED IN FEBRUARY 1967.

FISSION PRODUCT, IODINE + INHALATION + MAXIMUM PERMISSIBLE BODY BURDEN + *INCIDENT, GENERAL + *PERSONNEL EXPOSURE, RADIATION

18387
ABBOTT LAB REPORTS INCONSISTANT FILM BADGE RESULTS
ABBOTT LABORATORIES, NORTH CHICAGO
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(40), PAGE 27 AND 28, (OCT. 2, 1967)

(LETTER, AUGUST 4) AN EMPLOYEE RECEIVED A 3.029 REMS GAMMA DOSE IN THE SECOND QUARTER. A SECOND FILM BADGE FROM ANOTHER COMPANY AGREED WITH BETA BUT ONLY INDICATED 0.7 REM GAMMA. DOSIMETERS DID NOT CONFIRM HIGH READING. BETTER SHIELDING AND NEW GUIDELINES FOR REMOVING WORKERS FROM EXPOSURE PRIOR TO THE 3 REMS ARE BEING STUDIED.

*MONITOR, PERSONNEL + FAILURE, INSTRUMENT + *PERSONNEL EXPOSURE, RADIATION + FILM, GENERAL

19272
ABBOTT LAB EMPLOYEE RECEIVES 2.03 REM THYROID EXPOSURE
ABBOTT LABORATORIES, NORTH CHICAGO, ILL.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 20 AND 21, (NOVEMBER 6, 1967)

(LETTER, OCT. 3) ON SEPT. 4 (LABOR DAY HOLIDAY), WORKER EMPTIED AN ION EXCHANGE COLUMN, FLUSHING IT DOWN A RAD.-WASTE DRAIN WITH WATER. UNKNOWN TO HIM WAS THAT PREPARATION HAD NOT REACTED COMPLETELY AS USUAL, AND 0.3 CURIE OF I-131 WAS ON RESIN. BECAUSE OF HOLIDAY, NO HP WAS PRESENT AND THERE WERE NO AIR SAMPLES. DURING ROUTINE THYROID COUNTING SEPT. 5, 0.175 MICROCURIES WAS FOUND IN HIS THYROID. OVERALL THYROID QUARTERLY DOSE IS ABOUT 5 REMS. BETTER VENTILATION WILL BE PROVIDED.

AIRBORNE RELEASE + *FISSION PRODUCT, IODINE + VENTILATION SYSTEM + WASTE DISPOSAL, LIQUID + DOSE MEASUREMENT, INTERNAL + ION EXCHANGE + *PERSONNEL EXPOSURE, RADIATION + RESIN

20104
ABBOTT LABORATORIES REPORTS OVEREXPOSURE
ABBOTT LABORATORIES, N. CHICAGO, ILL.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(48) PAGES 25-26 (NOVEMBER 27, 1967)

(LETTER, OCTOBER 27) DURING 3RD QUARTER OF 1967, ONE EMPLOYEE HAD AN UNUSUAL WORK LOAD. HIS FILM BADGES READ 3.01 REMS, HIS ION CHAMBER DOSIMETERS READ 2.466 REMS, AND WRIST BADGES 26.19 REMS (6.0% BASED ON ONE WEEK/MONTH, MULTIPLIED BY 4.3). *** NEW GUIDELINES WERE NOT IN EFFECT, AS THEY WERE STILL BEING DISCUSSED BY RADIATION SAFETY COMMITTEE. WORKERS ARE NOW WEARING WRIST BADGES ALL MONTH AND BEING ROTATED FROM JNR TO JNR.

*PERSONNEL EXPOSURE, RADIATION + RADIATION SAFETY AND CONTROL + FAILURE, ADMINISTRATIVE CONTROL

23315
 FREDRICKSON RL
 ABBOTT LABS REPORTS HIGH I-131 IN THYROID
 ABBOTT LABORATORIES, CHICAGO, ILL.
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(8), PAGES 35-36 (FEBRUARY 19, 1968)

(LETTER, JAN. 3) ROUTINE THYROID COUNTING ON NOVEMBER 27 REVEALED ONE PERSON WITH 0.34 MICROCURIE (247(PERMISSIBLE) OF I-131. HIS FOURTH-QUARTER THYROID EXPOSURE WAS 5.56 REMS. NO INCIDENTS OCCURRED, NOR DID AIR SAMPLES INDICATE CONCENTRATION TO EXPLAIN THIS. SEVERAL WORKERS SHOWED ELEVATED THYROID BURDENS IN 1967, WITH NO OBVIOUS EXPLANATION. WE ARE RE-EVALUATING AIR FLOW IN FUME HOODS.

*FISSION PRODUCT, IODINE + *INHALATION + VENTILATION SYSTEM + *PERSONNEL EXPOSURE, RADIATION + RADIOISOTOPE

30895
 LOSS OF RADIOCHEMICALS ON SANTA ANA FREEWAY
 ABBOTT LABORATORIES
 2 PAGES, LETTER TO AEC COMPLIANCE, CHICAGO, ILLINOIS, FEBRUARY 19, 1968

ON FEB. 10, 1968, THE HOOD OF A VOLKSWAGEN BLEW OPEN ON THE SANTA ANA, CAL., FREEWAY, AND 5 PACKAGES OF RADIOPHARMACEUTICALS FELL OUT. THE RED ARROW MESSENGER SERVICE DRIVER FOUND 3, BUT ONLY PIECES OF THE OTHER TWO (2 MILLICURIES OF CR-51, 900 MICROCURIES OF I-131, AND 500 OF I-125). TWO OF THE 3 PACKAGES HAD BEEN RUN OVER, BUT THE RADIOPHARMACEUTICAL WAS STILL SEALED IN THE CONTAINER.

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

24272
 INABILITY OF JUMA HOOD TO PREVENT IODINE RELEASE
 ABBOTT LABORATORIES, NORTH CHICAGO, ILL.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(14), PAGE 30 (APRIL 1, 1968)

(LETTER, FEB. 6) A WORKER WAS EXPOSED TO EXCESSIVE CONCENTRATION OF I-131 IN AIR, AS HIS THYROID AVERAGED 373(PERMISSIBLE I-131 (DEC. 14-20, 1967). AN UNEXPECTED RELEASE OCCURRED DURING PREPARATION OF RADIO-1000-INSULIN, CONTAMINATING HIS HEAD. HIS QUARTERLY THYROID DOSE IS 6.98 REMS. *** ALL FUME HOODS IN THE BUILDING HAVE HAD FACE VELOCITY RE-EVALUATED. PENDING MODIFICATION TO PROVIDE HIGH-VELOCITY AIRFLOW OR BETTER CONTAINMENT, CERTAIN JOBS WILL REQUIRE RESPIRATORY EQUIPMENT AND BREATHING-ZONE SAMPLERS. ROUTINE THYROID COUNTING WILL BE TWICE PER WEEK INSTEAD OF ONCE.

DOSE + *FISSION PRODUCT, IODINE + GLOVE BOX + *INHALATION + PERSONNEL PROTECTIVE DEVICE + VENTILATION SYSTEM + INCIDENT, GENERAL + *PERSONNEL EXPOSURE, RADIATION

24271
 FREDRICKSON RL
 EXPOSURE TO EXCESSIVE AIRBORNE IODINE-131
 ABBOTT LABORATORIES, NORTH CHICAGO, ILL.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(14), PAGE 30 (APRIL 1, 1968)

(LETTER, FEB. 19) AS INDICATED IN THE FEB. 6 LETTER, RESPIRATORY PROTECTION IS BEING USED UNTIL HOOD REVISIONS CORRECT THE AIRBORNE-RELEASE PROBLEM (INADEQUATE AIR VELOCITY). AN EMPLOYEE WAS EXPOSED TO I-131 IN AIR FOR A TOTAL OF 416 MPC-HOURS (JAN. 23-29) AND FOR 164 MPC-HOURS (FEB. 2-8). HIS AVERAGE THYROID BURDEN IN THIS PERIOD WAS 34(, WITH A HIGH OF 52(, INDICATING THAT ADEQUATE RESPIRATORY PROTECTION HAD BEEN PROVIDED.

*FISSION PRODUCT, IODINE + INHALATION + *PERSONNEL PROTECTIVE DEVICE + INCIDENT, GENERAL + *PERSONNEL EXPOSURE, RADIATION

25280
 NON COMPLIANCE CITATION CORRESPONDENCE, ABBOTT LABORATORIES
 ABBOTT LABORATORIES + DIVISION OF COMPLIANCE
 7 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 14-20, (MAY 13, 1968)

COMPLIANCE CITATION, MARCH 22, FOR (1) NOT CONSULTING HP DURING CONTAMINATION OF DEC. 13, 1967 (EMPLOYEE LEFT PLANT STILL CONTAMINATED), (2) FOR OVEREXPOSURE OF 2 MEN ABOVE 3 REMS/QUARTER, (3) FOR NOT WEARING WRIST BADGES AT ALL TIMES, AS NOTED DURING INSPECTION OF JAN. 68. ALSO LACK OF FORMAL RADIATION- SAFETY TRAINING, INADEQUATE FACE VELOCITY OF FUME HOODS, AND FREQUENT IODINE CONTENT OF THYROIDS, INDICATING LACK OF MANAGEMENT CONTROL. (REPLY, APRIL 5) DISCUSSES EACH ITEM, INDICATING SPECIFIC ADMINISTRATIVE CONTROLS AND GUIDELINES ESTABLISHED FOR INTERNAL REPORTING. TRAINING OUTLINE GIVEN. A 400-CHANNEL ANALYSER WAS BOUGHT FOR MEASURING INTERNAL DEPOSITS IN WORKERS.

TRAINING + VENTILATION SYSTEM + *COMPLIANCE + CONTAMINATION + PERSONNEL EXPOSURE, RADIATION + *RADIOISOTOPE + *FAILURE, ADMINISTRATIVE CONTROL

19097
FAILURE OF WASTE-RETENTION DAM AT AMERICAN METAL CLIMAX, COLORADO
AMERICAN METAL CLIMAX
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 10-12 (OCTOBER 30, 1967)

(LETTER, JULY 24) CEASE AND DESIST ORDER FROM AEC TO STOP USING ANY WASTE-RETENTION FACILITY AT GRAND JUNCTION MILL NOT AUTHORIZED. ON JULY 2, 1967, AN UNAUTHORIZED EARTHEN WASTE-RETENTION DAM RUPTURED AFTER 20 DAYS USE. (REPLY TO LETTER, AUG. 21) LIQUID-WASTE RETENTION IS NOW IN ACCORDANCE WITH LICENSE EXCEPT FOR DIVISION OF EAST POND INTO 2 PONDS, AND WATER EROSION. FLOW INTO PONDS IS BEING CONTROLLED BETTER. A DITCH AND PUMP ARE STOPPING SEEPAGE FLOW.

*FAILURE, GENERAL + MILLING + MINING + *WASTE DISPOSAL, TERRESTRIAL + COMPLIANCE + INCIDENT, GENERAL + *IMPOUNDMENT + COLORADO

16520
BANE FW + CARNALL WT + STEWART DC
LANTHANUM CONTAMINATION AT CP5
ARGONNE NATIONAL LABORATORY, ILL
1 PAGE, 1 FIGURE, NUCLEAR APPLICATIONS 3(5), PAGE 270 (MAY, 1967)

A HALF-GRAM SAMPLE OF LANTHANUM OXIDE, OVEN DRIED AT 110 C AND SEALED IN A QUARTZ CAPSULE, WAS IRRADIATED FOR 1.5 X 10 TO THE 19TH M/CM SQ. PREVIOUS SAMPLES HAD BEEN SUCCESSFULLY IRRADIATED. WHEN THE SAMPLE WAS REMOVED, THE CONTAINER WAS DISCOVERED RUPTURED, AND CONSIDERABLE CONTAMINATION OCCURRED. STUDIES SHOWED A DRASTIC WEIGHT LOSS IN LA2O3 AT 300 C (AS TWO WATERS PER MOLECULE WERE LOST) AND AT 450 C (ONE WATER PER MOLECULE LOST), AND A NET 14% WEIGHT LOSS. THE ACCIDENT PROBABLY WAS CAUSED BY RADIOLYTIC GAS DECOMPOSITION DURING IRRADIATION, RUPTURING AN IMPERFECT TUBE.

FAILURE, GENERAL + REACTOR, HWR + IN PILE LOOP + *OXIDE + REACTOR, RESEARCH + SAFETY REVIEW + CONTAMINATION + *INCIDENT, GENERAL + *LANTHANUM + REACTOR, AEC OWNED + *RADIOLYTIC GAS + CP 5 (RR) + PRESSURE, INTERNAL

30035
BETHURUM PV
INCREASED AIRBORNE ACTIVITY IN ORE SAMPLING
ATLAS MINERALS, DIV. OF ATLAS CORP., MOAB, UTAH
LETTER TO DIRECTOR, DIV. OF COMPLIANCE, NOVEMBER 1, 1968

DURING AUG. AND SEPT. 1968, URANIUM ORE DUST IN THE SAMPLING PLANT AVERAGED $16.47 \times 10^{(MINUS 11)}$ MICRO-C/ML, UP A FACTOR OF FOUR FROM EARLIER THAT YEAR. IT IS NOW DOWN TO $1.78 \times 10^{(MINUS 11)}$ MICRO-C/ML. ONE INDIVIDUAL IS REGULARLY EMPLOYED THERE. ***THE INCREASE WAS DUE TO INCREASES IN DUST PRODUCING CHARACTERISTICS OF THE ORE, DECREASE IN LOT SIZES AND INCREASED NUMBER OF SAMPLES, AND A PERIOD OF HIGH PERSONNEL TURNOVER WHICH CAUSED A BREAKDOWN IN INTERNAL COMMUNICATION. EXISTING HOODS AND DAMPERS ARE BEING REVISED AND MORE ADDED.

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

*AIRBORNE RELEASE + *MINING + VENTILATION SYSTEM + SAMPLING + *PERSONNEL EXPOSURE, RADIATION

19095
SAXE D
INHALATIONS OF AIRBORNE URANIUM AT A-I FUEL FABRICATION FACILITY
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF.
7 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 13-19 (OCTOBER 30, 1967)

(LETTER, AUGUST 15) GENERAL DISCUSSION OF THE AIRBORNE URANIUM PROBLEM, WHEREIN URINALYSIS SURVEILLANCE INDICATES A GRADUAL WORSENING SINCE ETR/ATR FUEL-ALLOY FABRICATION BEGAN IN 1965. DISCUSSES PROCESS, SURVEILLANCE PROGRAM, AND VARIOUS STEPS TO MINIMIZE AIRBORNE ACTIVITY (GLOVE BOX AND FURNACE VENTILATION, ETC.).

INCIDENT, EXPOSURE + *AIRBORNE RELEASE + *FABRICATION + GLOVE BOX + INHALATION + *URANIUM + VENTILATION SYSTEM + FUEL ELEMENT + REPORT, OPERATIONS ANALYSIS + PERSONNEL EXPOSURE, RADIATION + FUEL, METALLIC TYPE

29786
PUSCH WM
DETERMINATION OF EFFECTIVE HALF-LIFE OF RU-103 IN MAN AFTER INHALATION
HEALTH PHYSICS DEPT. OF THE AUSTRIAN REACTOR CENTRE
3 PAGES, 1 FIGURE, 1 TABLE, 6 REFERENCES, HEALTH PHYSICS 15(6), PAGES 515-17 (DECEMBER 1968)

SEVEN PERSONS WHO HAD BECOME ACCIDENTALLY CONTAMINATED WITH RU-103 WERE MEASURED BY WHOLE BODY COUNTING. THE EFFECTIVE HALF-LIFE OF BURDENS IN THE CHEST WAS CALCULATED FROM THE DECREASE OF THE RETENTION AND FOUND TO BE 26.6 DAYS. THIS IS NOT IN GOOD ACCORD WITH THAT REPORTED IN OTHER PAPERS.

DEPOSITION + *INHALATION + RUTHENIUM + AUSTRIA + *BIOLOGICAL CONCENTRATION, MAN + *COUNTER, WHOLE BODY + *CONTAMINATION + *INCIDENT, GENERAL

22941

BABCOCK AND WILCOX REPORTS PLUTONIUM NITRATE LEAKAGE FROM POLYETHYLENE BOTTLES
 BABCOCK AND WILCOX COMPANY
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(6), PAGE 8, (FEB. 5, 1968)

(LETTER, JAN. 17) ALTHOUGH NOT REPORTABLE UNDER 10 CFR 20, THIS IS AN EXAMPLE OF LEAKAGE AS IN YOUR HEALTH AND SAFETY BULLETIN 259, DEC. 21, 1967. ON JAN. 8, 1968, ROUTINE INSPECTION REVEALED A LEAK FROM A SMALL CRACK IN A 1-GAL POLYETHYLENE BOTTLE THAT PENETRATED THROUGH THREE 4-MIL-THICK POLYETHYLENE BAGS (TWO WITH POOR HEAT SEALS), DISSOLVED A 3-IN.-DIAM HOLE IN THE CARBON-STEEL SHELF, AND DRIPPED THROUGH TWO OTHER STEEL SHELVES. THE BOTTLE WAS QUITE STIFF, AND CRACK MAY HAVE BEEN CAUSED BY RADIOLYTIC GAS PRESSURE, RADIATION DAMAGE, OR OXIDATION. STAINLESS-STEEL SHELVING AND ACID-RESISTANT DRIP PANS ARE BEING CONSIDERED.

PLUTONIUM + INCIDENT, EQUIPMENT + *STORAGE CONTAINER + *LEAK + NITRATE + PLASTICS

19100

TYREE PM
 BAIRD-ATOMIC OVER EXPOSURE JULY 24-28, 1967
 BAIRD-ATOMIC, CAMBRIDGE, MASS.
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 19-20 (OCTOBER 30, 1967)

(LETTER, SEPT. 6) TWO PERSONS WERE OVEREXPOSED (60 AND 27.326 REMS TO WRIST) IN ASSAYING CO-60 PELLETS. USUALLY THE VACUUM HANDLER FOR THE PELLETS IS PLACED SUCH THAT DOSE RATE IS 100 MR/HR (TO FIGHT HAND), AND 20-HOUR DOSE IS ACCEPTABLE ONCE EACH QUARTER. IN THIS CASE, THE HAND WAS PLACED ON THE HANDLER SUCH THAT THE HAND WAS INTERMITTENTLY EXTENDED WITH THE HAND INTO A 5-TO-7 R/HR FIELD. EQUIPMENT IS BEING REDESIGNED TO UTILIZE A REMOTE ION CHAMBER, WHICH ALSO PROVIDES FASTER RESULTS.

COBALT + HOT CELL + FAILURE, OPERATOR ERROR + *SOURCE, RADIATION + *PERSONNEL EXPOSURE, RADIATION + *INCIDENT, NONREACTOR + FAILURE, ADMINISTRATIVE CONTROL

29991

EXPOSURES DURING HANDLING OF 4 MILLICURIE SOURCES
 U. S. ATOMIC ENERGY COMMISSION
 10 PAGES, LETTER TO J. DEMPSEY, BAIRD ATOMIC, OCTOBER 18, 1968

COMPLIANCE INSPECTION SEPT. 9/12, 68, REVEALED SEVERAL OVEREXPOSURES WERE NOT REPORTED TO AEC (INCLUDING A 135 REM HAND DOSE JUNE 24, 68) AND FAILURES TO SURVEY FOR RADIATION. (BA LETTER SEPT. 30 AND 16, 1968) 8 EMPLOYEES RECEIVED DOSES EXCEEDING QUARTERLY LIMITS DURING FABRICATION OF 4 MILLICURIE CO-60 SOURCES. (BA LETTER AUG. 14, 68) A WORKER RECEIVED A 25 REM WRIST BADGE DOSE ON AUG. 17, 67, WHILE ASSAYING 500 4 MILLICURIE CO-60 SOURCES. SURVEY SHOWED PROPER HAND POSITION WOULD LIMIT DOSE TO 2R. WORKER INADVERTENTLY EXTENDED HAND (EACH TIME HE ASSAYED A SOURCE) INTO THE SHIELDED GLOVE BOX AND NEAR THE COBALT CONTAINERS.

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

INCIDENT, EXPOSURE + *FABRICATION + GLOVE BOX + FAILURE, OPERATOR ERROR + BYPRODUCT MATERIAL + *SOURCE, RADIATION + COMPLIANCE + *PERSONNEL EXPOSURE, RADIATION + SHIELDING

25288

REPORT OF AN ACCIDENTAL SPILL OF RADIO PHOSPHORUS
 AMERICAN MEDICAL ASSOCIATION, INST. OF BIOMEDICAL RESEARCH
 15 PAGES, TABLES, REFERENCES, LETTER TO D L AND R, OCTOBER 3, 1968

ON SEPT. 5, 1968, MOUSE EMBRYO CELLS LOADED WITH 5 MILLICURIES OF P-32 WERE BEING HOMOGENIZED AT 16,000 RPM. THE HOMOGENIZER CAME APART, SPRAYING TWO MEN AND THE ENTIRE ROOM. ROOM WAS PROFESSIONALLY DECONTAMINATED. ***ALTHO THIS WAS THE FIRST DISASSEMBLY KNOWN, FUTURE OPERATIONS WILL BE IN A HOOD. ALL SAFETY PROCEDURES WERE REEXAMINED AND TIGHTENED. THE PROCEDURES MANUAL WILL BE AMPLIFIED AND CLARIFIED.

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

FAILURE, EQUIPMENT + BYPRODUCT MATERIAL + SAFETY REVIEW + TRACER, RADIOACTIVE + PHOSPHORUS + *CONTAMINATION

24275

SPENCER EW
 LOST RADIATION SOURCES
 BROWN UNIVERSITY, PROVIDENCE, R.I.
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(14), PAGES 32-33 (APRIL 1, 1968)

(LETTER, DEC. 2, 1967) THE SEVEN SOURCES (CO-57, THREE CS-137, BA-133, NA-22 AND CO-60) WERE PURCHASED AUG. 27, 1965, LISTED AS 5-10 MICROCURIES EACH. ALL ARE GENERALLY LICENSED, SEALED IN PLASTIC, STORED IN TWO WOODEN CASES. BUILDINGS ARE BEING SEARCHED, AND PERSONNEL QUESTIONED.

OPERATING EXPERIENCE SUMMARY + *SOURCE, RADIATION, LOST

26444
 APPARENT OVEREXPOSURE DURING FLUOROSCOPY
 LOWER BUCKS HOSPITAL, BRISTOL, PENNSYLVANIA
 1 PAGE, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGE 16(JUNE 24, 1968)

(LETTER TO COMPLIANCE, MAY 29) DURING A RECENT COMPLIANCE VISIT, WE DISCUSSED THE RADIATION-EXPOSURE RECORDS OF DR. X - 1.788 REMS (2ND QUARTER 67), 1.483 REMS (3RD QUARTER 67), AND 1.26 REMS (1ST QUARTER 68). DR. X, GREGERSEN, AND I ARE EXPOSED ABOUT THE SAME DEGREE TO X RAYS AND ISOTOPES. GREGERSON AND I WEAR BADGES INSIDE THE LEAD APRON AND AVERAGE 0.1 REM/QUARTER. DR. X NOW WEARS HIS BADGE INSIDE THE LEAD APRON AT BELT LEVEL WHILE FLUOROSCOPING.

PERSONNEL PROTECTIVE DEVICE + *PERSONNEL EXPOSURE, RADIATION + RADIOISOTOPE + X-RAY + *RADIOLOGY

28856
 NELSON CA
 QUARTERLY EXPOSURE EXCEEDS 3 REM
 CAMBRIDGE NUCLEAR CORPORATION
 LETTER TO DIRECTOR, DIVISION OF LICENSING AND REGULATION, USAEC, WASHINGTON, D. C. AUG. 5, 1968

DURING THE PERIOD 8 APRIL TO 30 JUNE 1968, AN EMPLOYEE RECEIVED 3.869 REMS, 2.391 DURING THE LAST TWO WEEKS. HE HAD BEEN ROUTINELY INVOLVED IN PROCESSING NA-24, K-42, AND BR-82 THROUGHOUT THE QUARTER, BUT IN THE LAST TIME PERIOD BEGAN PROCESSING HG-197 (1.2 CURIES). THE OTHER QUANTITIES WERE 0.2 CURIE OR LESS. INVESTIGATION HAS NOT YET INDICATED THE CAUSE.

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

MERCURY + *BYPRODUCT MATERIAL + COMPLIANCE + PERSONNEL EXPOSURE, RADIATION + RADIOISOTOPE

30889
 CITATION FOR EXPOSURE CONTROL
 CAMBRIDGE NUCLEAR CORPORATION
 5 PAGES, LETTER TO COMPLIANCE, NOVEMBER 1, 1968

DETAILED ANALYSIS SHOWS THAT INDIVIDUALS WORK VARIED LITTLE EXCEPT FOR LAST 2 WEEKS WHEN HE WAS PROCESSING HG-197. (CITATION NOV. 25, 1968) - A SEPT./OCT. INSPECTION REVEALED THAT INDIVIDUAL WHO RECEIVED DOSE REPORTED AUG. 5 ALSO RECEIVED 1.8 AND 2.5 REMS 1ST AND 3RD QUARTERS OF 1968. ANOTHER RECEIVED 2 AND 1.4. EXPOSURES SHOULD HAVE BEEN LIMITED TO 1.25. (2-6) - SURVEYS, MONITORING EQUIPMENT, AND RECORDS WERE INADEQUATE. *** IT APPEARS THAT RADIATION PROGRAM HAS DECLINED IN EFFECTIVENESS SINCE LAST INSPECTION. HEALTH PHYSICIST WHO LEFT IN APRIL HAS NOT BEEN REPLACED. BIOASSAY PROGRAM SHOULD BE RE-EVALUATED BECAUSE PRINCIPLE RADIONUCLIDE WAS NOT ALWAYS IDENTIFIED. WHEN IDENTIFIED, SOURCE WAS NOT ALWAYS EVALUATED.

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

INCIDENT, EXPOSURE + MERCURY + BYPRODUCT MATERIAL + COMPLIANCE + SURVEY, RADIATION, GENERAL + RADIATION SAFETY AND CONTROL + FAILURE, ADMINISTRATIVE CONTROL + RADIATION EXPOSURE, RECORD KEEPING

17445
 BIRD PM
 RADIATION ACCIDENTS - CAUSE AND EFFECT
 DEPARTMENT OF NATIONAL HEALTH AND WELFARE, OTTAWA, ONTARIO
 6 PAGES, 6 TABLES, 2 REFERENCES, CANADIAN JOURNAL OF PUBLIC HEALTH PAGES 7-12 (JAN. 1967)

A STUDY OF CANADIAN NONGOVERNMENTAL FILM-MONITORING RECORDS FOR 3 YEARS (58-60) WAS MADE OF ALL FILM DOSES ABOVE 600 MR. SEALED SOURCES ACCOUNTED FOR 107, AND UNSEALED SOURCES FOR THE OTHER 9. THE RECORDS WERE STUDIED, AND ABOUT 1/3 TO 1/5TH JUDGED UNAVOIDABLE. RADIOGRAPHY (42) AND X-RAYS (33) CONTRIBUTED THE BULK OF THE INCIDENTS, WITH ABOUT 6,282,887 R ANNUAL DOSE ACCUMULATED IN 417,351 FILM BADGES IN THOSE THREE YEARS. ARTICLE DISCUSSES METHOD OF DETECTION, INTERNAL AND EXTERNAL EXPOSURES, AND SPECIAL MEDICAL SUPERVISION.

CANADA + *INCIDENT, GENERAL + *PERSONNEL EXPOSURE, RADIATION + RADIOGRAPHY + X-RAY

19273
 CARNEGIE-MELLON UNIVERSITY EXPOSURES
 CARNEGIE-MELLON UNIVERSITY, PITTSBURGH, PA.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 22, (NOVEMBER 6, 1967)

(LETTER, SEPT. 15) DURING THE 3RD QUARTER OF 1964, ONE EMPLOYEE RECEIVED A 3.4-REM WHOLE-BODY DOSE WHILE WORKING INTERMITTENTLY IN A 2-5 R/H AREA WHERE WORK IS TIMED. DURING THE 2ND QUARTER OF 1967, AN EMPLOYEE RECEIVED A 3.23-REM WHOLE-BODY DOSE WHILE WORKING IN A 2-5 R/H AREA WHERE WORK IS TIMED.

*PERSONNEL EXPOSURE, RADIATION + FAILURE, ADMINISTRATIVE CONTROL

18385

CASE INSTITUTE OF TECHNOLOGY REPORTS REFRIGERATOR EXPLOSION ENDANGERING ISOTOPES
 CASE INSTITUTE OF TECHNOLOGY, CLEVELAND, OHIO
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(40), PAGE 28, (OCTOBER 2, 1967)

(LETTER, JULY 31) 9 MICROCURIES OF CARBON-14 AND 2 MICROCURIES OF TRITIUM WERE IN A REFRIGERATOR WHICH EXPLODED JULY 26, RESULTING IN EXTENSIVE DAMAGE TO LAB. THE ISOTOPES WERE IN A BOTTOM DRAWER, WERE DILUTED AND FLUSHED DOWN THE DRAIN.

CARBON + *EXPLOSION + TRITIUM + INCIDENT, GENERAL + STORAGE CONTAINER + *RADIOISOTOPE

16367

FIXMAN M
 COTTER CORP., CANNON CITY, COLORADO EXPOSURE
 COTTER CORP., CANNON CITY, COLORADO
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(24) PAGE 15 (JUNE 12, 1967)

(LETTER, MAY 10). EIGHT INDIVIDUALS WERE EXPOSED TO ABOUT 2.3 MPC DURING MARCH, WHILE SAMPLING BARRELS OF YELLOW CAKE DURING ADVERSE WEATHER. NEW SAMPLING PROCEDURES SHOW EXPOSURE IS NOW DOWN TO 0.4 MPC. TWO MAINTENANCE MEN WERE EXPOSED TO 2.8 TO 6.8 MPC WHILE REPAIRING A YELLOW-CAKE DRYER. DUST WAS RETAINED ON FACE-MASK FILTERS. NOW, DRYERS ARE GIVEN TWO WATER WASHES BEFORE MAINTENANCE TO SETTLE DUST, AND NO ONE IS ALLOWED IN A DRYER MORE THAN 30 MIN/WEEK.

*INHALATION + MAINTENANCE AND REPAIR + *MILLING + URANIUM + SAMPLING + INCIDENT, GENERAL + *PERSONNEL EXPOSURE, RADIATION

16327

RUSH INHIBITOR CAUSES OVEREXPOSURE
 U.S. ARMY, U.S. ARMY NUCLEAR DEFENSE LABORATORY, EDGEWOOD ARSENAL, MARYLAND
 3 PAGES, LETTER TO AEC DIVISION OF STATE AND LICENSEE RELATIONS FROM E.G. WRIGHT, MAY 29, 1967

A 700-CURIE CO-60 SOURCE STUCK DURING TRANSFER FROM A STORAGE SHIELD TO AN OPERATIONS SHIELD. DECOMPOSED RUSH INHIBITOR STORAGE SHIELD TO AN OPERATIONS SHIELD. DECOMPOSED RUSH INHIBITOR CAUSED IT TO JAM IN THE HYDRAULIC-TRANSMISSION TUBING. THE SUPERVISOR TRIED VARIOUS MEANS OF FREEZING THE SOURCE IN THE MEASURED 2-R/HR FIELD, AFTER MONITORING WITH AN AMERICAN-NUCLEAR HIGH-RANGE (0.100 R/HR) SURVEY METER, BUT FINALLY SENT THE PARTIALLY SHIELDED SOURCE TO A HOT CELL. HE THEN FOUND HIS 5-R DOSIMETERS OFF-SCALE (AND APPARENTLY ONLY THEN INFORMED RADIATION PROTECTOR OFFICER). THE SURVEY-METER NEON LIGHT WAS NOT LIT, SHOWING LOW BATTERY VOLTAGE, WHICH CAUSED THE METER TO READ 30-40 R/HR IN FIELDS OF 55-500 R/HR. RUSH INHIBITOR IS NO LONGER USED. PERIODIC INSPECTIONS TO SHOW DEBRIS-FREE HANDLING MECHANISM, BETTER MARKING OF BATTERY INDICATOR, ADDITIONAL TRAINING IN EMERGENCY PROCEDURES WERE INSTITUTED.

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

*FAILURE, EQUIPMENT + SOURCE, RADIATION + *PERSONNEL EXPOSURE, RADIATION + INCIDENT, HUMAN ERROR + INCIDENT, NONREACTOR + INCIDENT, RECOVERY FROM + *RADIOGRAPHY + FAILURE, ADMINISTRATIVE CONTROL + *REMOTE MANIPULATING AND VIEWING

22432

WARD WT
 GENERAL DYNAMICS REPORTS RADIATION OVEREXPOSURES
 GENERAL DYNAMICS CORP., FT. WORTH, TEXAS
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(21), PAGE 26 (MAY 22, 1967)

(LETTER, APRIL 25) DURING AUTHORIZED USE OF BY-PRODUCT MATERIAL, TWO GD/FORT WORTH EMPLOYEES WERE EXPOSED TO 3.2 AND 3.1 REMS THE FIRST FOUR WEEKS OF CALENDAR 1966 AT CAMP MCCOY, WISC. FILM-BADGE RESULTS WERE RECEIVED DEC. 9, 1966. CONTROL OF PERSONNEL EXPOSURES BY LIMITING POCKET-DOSIMETER TOTALS SUFFICIENTLY BELOW LIMITS TO ALLOW FOR DOSIMETER-RESPONSE VARIATION SHOULD PREVENT FUTURE OVEREXPOSURE.

*MONITOR, PERSONNEL + BYPRODUCT MATERIAL + PERSONNEL EXPOSURE, RADIATION + RADIATION SAFETY AND CONTROL + INCIDENT, HUMAN ERROR + FAILURE, ADMINISTRATIVE CONTROL + *SAFETY MARGIN

30897
LEAKY AM-241 SOURCES RECEIVED AT GM ALLISON
GENERAL MOTORS CORP.
2 PAGES, LETTER TO AEC-DML, MARCH 8, 1968

CNE OF TWO NEW SOURCES REMOVED FROM SHIPPING CONTAINER FEB. 26, 1968, HAD 10,000 CPM REMOVABLE ACTIVITY. SOURCES WILL BE RETURNED TO HASTINGS RADIOCHEMICAL. WORK AREA WAS CONTAMINATED TO 2,000 CPM. REPLY FROM DIV. OF COMPLIANCE, MARCH 25, 1968, CALLS ATTENTION TO LICENSE CONDITION 14B, WHICH SPECIFIES THAT RECORDS OF LEAK TESTS BE KEPT IN UNITS OF MICROCURIES RATHER THAN IN UNITS OF COUNTS/MIN.

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

BYPRODUCT MATERIAL + *SOURCE, RADIATION + COMPLIANCE + AMERICIUM + CONTAMINATION + FAILURE, FABRICATION ERROR + *LEAK

29541
AM-241 RADIATION INCIDENT REPORT
ALLISON DIVISION OF GENERAL MOTORS
11 PAGES, LETTER TO DML, OCTOBER 25, 1968

ON 27 SEPT., 1968, A 5-MILLCURIE AM-241 SOURCE (MICROSPHERES INSIDE A 2-IN. LENGTH OF HYPODERMIC TUBING) BROKE WHILE THE BENT TUBE WAS BEING STRAIGHTENED. AUTORADIOGRAPHS OF THE SOURCE INDICATED THAT 0.75-1 MILLCURIE HAD BEEN LOST. AFTER PRELIMINARY DECONTAMINATION, THE ROOM WAS LOCKED (SPECIAL LOCK) FOR THE WEEKEND. TWO UNAUTHORIZED PEOPLE ENTERED BY OBTAINING THE KEY FROM A SECRETARY. A THIRD LOCK WAS OBTAINED, WITH ABSOLUTE CONTROL MAINTAINED OVER KEY DISTRIBUTION.

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

FAILURE, OPERATOR ERROR + ALPHA EMITTER + SOURCE, RADIATION + AMERICIUM + *CONTAMINATION + SPECIAL NUCLEAR MATERIAL

24610
SULLIVAN LO
600 R DOSE TO 3 ACCELERATOR TECHNICIANS
THE WALL STREET JOURNAL, MARCH 4, 1968

ON OCT. 4, THREE TECHNICIANS TURNED OFF THE GULF RESEARCH VAN DE GRAAF ACCELERATOR AT HARMARVILLE, PA., AND REPAIRED A TARGET-COOLING HOSE. APPARENTLY THE INTERLOCKS FAILED, AND DOSES OF 600, 300, AND 110 R WERE RECEIVED. AT FIRST THEY THOUGHT THEY HAD FLU, DESPITE NAUSEA AND VOMITING, BUT FILM BADGES SHOWED DOSES. BONE-MARROW TRANSPLANTS FROM A TWIN BROTHER WERE NECESSARY FOR ONE MAN. INFECTION WAS MINIMIZED AT THE WESTERN PENNSYLVANIA HOSPITAL BY A REVERSE ISOLATION SYSTEM. *** NATIONAL CENTER ON RADIOLOGICAL HEALTH SAYS THERE HAVE BEEN 12 KNOWN ACCIDENTS SINCE 1944 IN THE 600 ACCELERATORS NOW IN USE IN THE U.S.

DOSE + FAILURE, EQUIPMENT + PERSONNEL PROTECTIVE DEVICE + RADIATION INJURY TREATMENT + INCIDENT, EQUIPMENT + *PERSONNEL EXPOSURE, RADIATION + X-RAY + *ACCELERATOR

28968
SINCLAIR PM
CAUSE OF LAB ACCIDENT UNANSWERED
2 PAGES, PAGES 27 AND 30 OF INDUSTRIAL RESEARCH 10(9), SEPTEMBER 1968

BRIEF YET COMPREHENSIBLE REVIEW OF THE GULF OIL R AND D LAB OCTOBER 4, 1967, INCIDENT, RESULTING IN WHOLE-BODY DOSES OF 600, 300, AND 115 R TO THOSE DOING MAINTENANCE OF AN IMPROPERLY OPERATING TARGET COOLING SYSTEM. A VOLTAGE RECORDER INDICATED THAT THE MACHINE WAS NOT TURNED OFF TO PERFORM THE MAINTENANCE. ***DOOR AND OTHER INTERLOCKS WERE FOUND NOT FUNCTIONING, YET THE EXACT CAUSE HAS NOT BEEN REPRODUCED DESPITE HUNDREDS OF OPERATING CYCLES. SAFETY INTERLOCKS ARE NOT SUPPLIED WITH THE MACHINE (BECAUSE MANY STATES DO NOT REQUIRE THEM) AND WERE INSTALLED BY GULF.

INCIDENT, EXPOSURE + FAILURE, GENERAL + MAINTENANCE AND REPAIR + RADIATION INJURY TREATMENT + STATE PROGRAM + PERSONNEL EXPOSURE, RADIATION + RADIATION SAFETY AND CONTROL + *ACCELERATOR

29823
DRY RADIOACTIVE WASTE UNLOADING INCIDENT
USAEC, CIV. OF OPERATIONAL SAFETY
HEALTH AND SAFETY BULLETIN NO. 269 +. 1 PAGE, SEPTEMBER 27, 1968

WHEN A CASK LOAD OF CANNED WASTE WAS DUMPED INTO AN UNDERGROUND CAISSON, RADIOACTIVE DUST ESCAPED, CONTAMINATING CASK, TRUCK, WORKERS, AND GROUND. INCIDENT WAS COSTLY. ALL WERE DECONTAMINATED. A CAN LID HAD COME OFF, ALLOWING DUST TO SPREAD. SOLUTION IS TO USE A TRIPLE-GRIP PAINT-CAN CLIP (COSTS ABOUT ONE CENT) TO SECURE THE DOUBLE-FRICTION LID.

*WASTE DISPOSAL, GENERAL + WASTE HANDLING + CONTAMINATION + *INCIDENT, GENERAL + *STORAGE CONTAINER + RADIOACTIVITY RELEASE + SEAL

21720
 STEERMAN JJ
 UNIVERSITY OF ILLINOIS REPORTS SKIN EXPOSURE TO P-32
 UNIVERSITY OF ILLINOIS, URBANA, ILL.
 3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(18), PAGES 22-24 (MAY 1, 1967)

(LETTER, MARCH 31) THE INDIVIDUAL ASSUMED THAT THE FIRST FEW DROPS OF SOLUTION FROM THE ION EXCHANGE COLUMN WOULD NOT BE VERY HOT AND DID NOT CHECK WITH INSTRUMENTS WHEN HE FOUND HIS GLOVE TORN. FILM BADGE SHOWED 300 MREM BETA AND 13 MR GAMMA (WHOLE BODY). ESTIMATES OF DOSE TO HANDS/THUMB ARE 7.3/147 RADS. IN THE BACK-CALCULATION OF THE HAND DOSE, DECONTAMINATION FACTORS FOR THE VARIOUS TREATMENTS WERE ESTIMATED USING A SIMILAR EXPOSURE AND TREATMENT OF A BABY PIGS SKIN.

*DECONTAMINATION + *FAILURE, OPERATOR ERROR + PERSONNEL PROTECTIVE DEVICE + BETA EMITTER + PHOSPHORUS + *ION EXCHANGE + PERSONNEL EXPOSURE, RADIATION

17123
 UNIVERSITY OF ILLINOIS CITED FOR NON COMPLIANCE
 UNIVERSITY OF ILLINOIS, URBANA, ILL.
 3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(33), PAGES 29-31 (AUGUST 14, 1967)

(LETTER, JUNE 12) INVESTIGATION OF A P-32 SPILL ON MARCH 1, 1967, SHOWED - (1) INCIDENT WAS NOT PROMPTLY REPORTED TO UNIVERSITY, LABORATORY WAS NOT LOCKED WHEN NOT IN USE. (2) AEC WAS NOT NOTIFIED WITHIN 24 HR OF EXPOSURE ABOVE 75 REMS TO HAND. IMPROVEMENTS ARE NEEDED IN CENTRAL MANAGEMENT OF ALL PROGRAMS. (REPLY, JUNE 30) (1) CHARGES INCONTESTABLE. PEOPLE DO VIOLATE RULES, USUALLY ACCIDENTALLY. (2) ORIGINAL ESTIMATES WERE ONLY 8-12 RDS, LATER ESTIMATE LED TO HIGHER ESTIMATES FOR VERY SMALL AREAS OF HANDS. CHICAGO COMPLIANCE ADVISED US TO USE A 30-DAY REPORT BECAUSE OF THE DOUBT. IN FUTURE, WE WILL TAKE MOST CONSERVATIVE COURSE. INCIDENT RESULTED IN REAPPRAISAL OF PROGRAM. HP STAFF HAS BEEN SPREAD THIN. ANOTHER WILL BE HIRED, ALLOWING MORE OBSERVATION, TRAINING, AND UPGRADING IN GENERAL.

FAILURE, OPERATOR ERROR + BETA EMITTER + *COMPLIANCE + PHOSPHORUS + *CONTAMINATION + *INCIDENT, GENERAL + RADIATION SAFETY AND CONTROL + FAILURE, ADMINISTRATIVE CONTROL

30928
 FINAL REPORT ON SEPT. 12, 1968, RADIATION OVEREXPOSURE
 IIT RESEARCH INSTITUTE
 2 PAGES, LETTER TO DIV. OF LICENSING AND REGULATION, OCTOBER 10, 1968

A CHEMIST ENTERED A HOT CELL (IN WHICH A 1020-CURIE SOURCE WAS EXPOSED) TO REMOVE GAMMA IRRADIATED SAMPLES. THE THIRD SOURCE WAS LEFT IN THE TUBE, AFTER DIFFICULTY PLACING TWO IN STORAGE, AND THE TUBE WAS PLACED ON TOP OF LEAD BRICKS. WHEN HE OPENED THE DOOR TO ENTER, THE RADIATION ALARM DID NOT SOUND, THOUGH LATER THE NEEDLE WAS FOUND AGAINST THE ALARM SETTING. A HEALTH PHYSICIST NOTED A HAND/FOOT MONITOR ALARMING AND LOCATED HIGH RADIATION COMING FROM HOT CELL, WHERE THE SOURCE WAS DISCOVERED. REENACTMENT INDICATED 2.09 REMS. BETTER RADIATION ALARM WILL BE PROCURED, AND SURVEY METER WILL BE PLACED AT DOOR FOR USE ON ENTERING CELL.

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

*INCIDENT, EXPOSURE + COBALT + FAILURE, EQUIPMENT + HOT CELL + FAILURE, OPERATOR ERROR + PERSONNEL PROTECTIVE DEVICE + BYPRODUCT MATERIAL + SOURCE, RADIATION + MONITOR, AREA

30929
 CITATION FOLLOWING OVEREXPOSURE OF SEPT. 12
 U.S. ATOMIC ENERGY COMMISSION
 2 PAGES, LETTER TO IIT RESEARCH INSTITUTE, DEC. 4, 1968

A SEPT. 1968 INSPECTION RESULTED IN A NONCOMPLIANCE CITATION FOR (1) ALLOWING AN INDIVIDUAL TO WORK IN A HOT CELL WITHOUT INSTRUCTION IN RADIATION SAFETY, (2) NOT CHECKING RADIATION LEVEL ON ENTERING THE HOT CELL NO CALIBRATION THE MONITOR, AND NOT KEEPING CELL CONTROL PANEL KEY SECURED AGAINST UNAUTHORIZED USAGE, (3) USING BYPRODUCT MATERIAL NOT UNDER AUTHORIZED SUPERVISION. SURVEY METERS ARE NOT ROUTINELY USED BY PERSONNEL. THERE APPEARS TO BE A LACK OF EFFECTIVE MANAGEMENT CONTROL OF LICENSED MATERIAL, AND EMPLOYEES ARE NOT GUIDED IN THEIR RADIATION PROTECTION PROCEDURES.

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

*INCIDENT, EXPOSURE + COBALT + HEALTH PHYSICS TRAINING + HOT CELL + *FAILURE, OPERATOR ERROR + BYPRODUCT MATERIAL + SOURCE, RADIATION + *COMPLIANCE + SURVEY, RADIATION, GENERAL + RADIATION SAFETY AND CONTROL + GAMMA + FAILURE, ADMINISTRATIVE CONTROL + IRRADIATION FACILITY

30927
IMPROVEMENTS IN RADIATION SAFETY EFFECTIVENESS
IIT RESEARCH INSTITUTE
5 PAGES, LETTER TO L.O. LOW, COMPLIANCE, DEC. 18, 1968

(RESPONSE TO DEC. 4 CITATION FOR SEPT. INCIDENT.) HOT CELL WILL BE LOCKED UNTIL PROCEDURES ARE CHANGED AND INSTRUMENTATION REVISED. WHEN THESE CHANGES ARE COMPLETED, A LICENSE AMENDMENT WILL BE SUBMITTED. *** ATTACHED MEMORANDA RELATE TO RADIATION-SAFETY ORGANIZATION CHART AND LIST OF ITEMS TO BE CONSIDERED - (1) FORMAL TRAINING AND CERTIFICATION PROCEDURES FOR OPERATORS, (2) LOGGING MONITOR, (4) REVIEW OF ACCESS CONTROL TO HOT CELL, (5) SURVEY METER LOCATED NEAR HOT CELL DOOR, (6) NEW RADIATION MONITOR WITH BETTER POSITION IN HOT CELL, FAIL SAFE ALARM, AND INTERLOCK WITH HOT CELL DOOR.

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

INCIDENT, EXPOSURE + ADMINISTRATIVE CONTROL + HOT CELL + BYPRODUCT MATERIAL + COMPLIANCE + MODIFICATION, SYSTEM OR EQUIPMENT + *RADIATION SAFETY AND CONTROL + MONITOR, AREA + CERTIFICATION

20623
NUCLEAR SCIENCE AND ENGINEERING CORP. NON-COMPLIANCE CITATION OF MARCH 10, 1967
INTERNATIONAL CHEMICAL AND NUCLEAR CORPORATION
2 PAGES, MARCH 10, 1967, ATOMIC ENERGY CLEARING HOUSE, 13(16), PAGE 18-19 (APRIL 17, 1967)

(LETTER MARCH 10) AFTER A NOVEMBER 29/DECEMBER 1 INSPECTION, THEY WERE CITED FOR 9 ITEMS REGARDING INADEQUATE RADIATION SURVEYS, INADEQUATE INSTRUCTION IN SAFETY PROBLEMS AND PRECAUTIONS, NOT REPORTING A 24-REM DOSE (2ND QUARTER 66) AND A 46-REM DOSE (3RD QUARTER 66) TO SAME PERSONS LEFT HAND. *** COMPLIANCE NOTES SIMILAR CITATIONS OVER A PERIOD OF YEARS, MEETING AUGUST 1966, AND SUBSEQUENT CORRESPONDENCE ON STRENGTHENED SAFETY MANAGEMENT. LETTER CLOSES WITH STATEMENT THAT A FUTURE INSPECTION AND REPLY TO THIS LETTER WILL BE TAKEN INTO ACCOUNT REGARDING RENEWAL OF LICENSE EXPIRING APRIL 30, 1967.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

*COMPLIANCE + *PERSONNEL EXPOSURE, RADIATION + *FAILURE, ADMINISTRATIVE CONTROL + SURVEILLANCE PROGRAM

21719
BRANTLEY JC
NUCLEAR SCIENCE AND ENGINEERING CORP. REPLIES TO MARCH 10 COMPLIANCE LETTER
INTERNATIONAL CHEMICAL AND NUCLEAR CORPORATION
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(18), PAGES 20-21 (MAY 1, 1967)

(LETTER, MARCH 27) ACKNOWLEDGES THAT (1) HEALTH PHYSICS PROGRAM WAS INADEQUATE DURING PERIOD, DUE TO LACK OF EQUIPMENT, (2) HP FUNCTIONS WERE NOT CONSCIENTIOUS, AND (3) MANAGEMENT CONTROLS WERE SLOW TO IDENTIFY THIS. BRIEFLY DISCUSSES 9 ITEMS (AIR SURVEYS, EFFLUENT-AIR SURVEYS, UNRESTRICTED-AREA RADIATION FIELDS, LEAK TESTING OF SEALED SOURCES, RADIOLOGICAL SAFETY INSTRUCTION, RADIATION/CONTAMINATION MONITORING PROGRAM, EXTREMITY DOSES, SURVEY RECORDS).

TRAINING + *COMPLIANCE + SURVEY, RADIATION, GENERAL + MONITORING SYSTEM, RADIATION

26085
NONCOMPLIANCE CITATION OF INTERNATIONAL CHEMICAL AND NUCLEAR CORP.
INTERNATIONAL CHEMICAL AND NUCLEAR CORP., NORTH LAKE ST., BURBANK, CALIF.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(25), PAGE 16 AND 17, (JUNE 17, 1968)

(LETTER, APRIL 10) A JAN. 1968 INSPECTION OF THE PITTSBURGH FACILITY GAVE 5 ITEMS OF NONCOMPLIANCE - (1) LOSS OF 30 MILLICURIES OF SN-113 WAS NOT REPORTED TO RAD-PROTECTION OFFICER, (2) STACK SURVEYS FROM SEPT. 67 WERE INADEQUATE TO DETERMINE I-125 RELEASES FROM LAB 4A, CHARCOAL FILTERS BEING STORED UNANALYZED, (3) SURVEYS WERE INADEQUATE TO DETERMINE LAB AIRBORNE ACTIVITY, (4,5) RECORDS OF CONTAMINATION SURVEYS AND BY-PRODUCT DISPOSAL WERE INADEQUATE. CHEMICAL HOODS ALSO HAVE INADEQUATE FACE VELOCITY. THE STACK PROBE IS PERPENDICULAR TO AIR FLOW, AND RELATIVE VELOCITIES NOT ACCOUNTED FOR. COMPLIANCE LETTER OF MAR. 10, 1967, TO THE THEN NS AND E CO. INDICATED INADEQUATE PERSONNEL SAFETY TRAINING AND INADEQUATE MANAGEMENT CONTROL. PRESENT INSPECTION REVEALS THAT COMPANY RADIATION-SAFETY PROGRAM HAS DECLINED SUBSTANTIALLY. WE DO NOT BELIEVE YOUR HP STAFF IS ADEQUATE TO CONDUCT AN EFFECTIVE RADIATION SAFETY PROGRAM.

GLOVE BOX + HEALTH PHYSICS TRAINING + MONITOR, STACK + TRAINING + VENTILATION SYSTEM + *COMPLIANCE + RADIATION SAFETY AND CONTROL + *RADIOISOTOPE + *FAILURE, ADMINISTRATIVE CONTROL + SURVEILLANCE PROGRAM

29217
ETOH H
ACCIDENTAL INJECTION INTO FINGER TIP IN PREPARATION PROCEDURE OF PU-239 SOLUTION
NATIONAL INST. OF RADIOLOGICAL SCIENCES, CHIBA, JAPAN
5 PAGES, HOKU, BUTSURI, 2, PAGES 116-120 (MARCH 1967) (IN JAPANESE)

AN INTERNAL EXPOSURE ACCIDENT TOOK PLACE ON MARCH 10, 1966, AT THE NATIONAL INSTITUTE OF RADIOLOGICAL SCIENCES WHEN A RESEARCH WORKER WAS ENGAGED IN PREPARATION AND FRACTIONATION PROCEDURES OF A PU-239 SOLUTION. A 37-YR OLD MAN ACCIDENTALLY INJECTED A CONTAMINATED NEEDLE INTO HIS LEFT FOREFINGER DURING A GLOVEBOX PROCEDURE. THE RADIOACTIVITY OF THE CONTAMINATED PORTION OF THE FINGER WAS RAPIDLY AND ACCURATELY DETERMINED, AND RADIATION HAZARDS WERE REDUCED TO A MINIMUM BY SURGICAL REMOVAL OF THE CONTAMINATED TISSUE AND ADMINISTRATION OF A CHELATING AGENT.

GLOVE BOX + *PLUTONIUM + *RADIATION INJURY TREATMENT + *ACCIDENT, RADIOISOTOPE + *DOSE MEASUREMENT, INTERNAL + INCIDENT, HUMAN ERROR

15081

JOHNS HOPKINS UNIVERSITY TRITIUM RELEASE, FEB. 20, 1967
 JOHNS HOPKINS UNIVERSITY, BALTIMORE
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(11), PAGE 34, (MARCH 13, 1967)

JOHNS HOPKINS REPORTS FEB. 21, THAT 10 CURES OF TRITIUM (IN URANIUM HYDRIDE) WERE RELEASED AS A GLASS TUBE BROKE AND THE UH BURNED SPONTANEOUSLY. TWO PERSONS WERE EXPOSED TO 3 MPC AIR, URINE SPECIMENS PEAKED AT 0.1 MPC. VENTILATION SYSTEM SPREAD AIR CONTAMINATION THROUGHOUT BUILDING. INCIDENT OCCURRED AT 6 PM.

INHALATION + *TRITIUM + VENTILATION SYSTEM + *INCIDENT, GENERAL + *PERSONNEL EXPOSURE, RADIATION

17118

JOHNS HOPKINS UNIVERSITY CITED FOR NON COMPLIANCE
 JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD.
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(33), PAGE 25 AND 26 (AUGUST 14, 1967)

(LETTER, JUNE 6) INSPECTION AFTER A RELEASE OF 30 CURIES OF TRITIUM INTO AN UNRESTRICTED LAB ON FEBRUARY 20 REVEALED (1) TRITIUM POSSESSED, BUT NO VALID AEC LICENSE, (2,3) SURVEYS FOR AIRBORNE TRITIUM WERE INADEQUATE, (4) TWO INDIVIDUALS WERE EXPOSED TO ABOVE MPC FOR TRITIUM, (5-7) TRITIUM WAS STORED IN AN UNRESTRICTED, UNPOSTED AREA AND RECORDS NOT KEPT, (8) THE EXPOSURE IN ITEM 4 AND THE RELEASE ITSELF WERE NOT REPORTED IN WRITING. THERE APPEARS TO BE A LACK OF CENTRAL CONTROL OF PROCUREMENT AND USE OF BY-PRODUCT MATERIAL, WITH NO ONE ASSIGNED OVERALL RESPONSIBILITY TO ENSURE COMPLIANCE WITH LICENSES.

*AIRBORNE RELEASE + TRITIUM + COMPLIANCE + *INCIDENT, GENERAL + RADIATION SAFETY AND CONTROL + FAILURE, ADMINISTRATIVE CONTROL

18386

JOHNS HOPKINS U TRITIUM ACCIDENT
 JOHN HOPKINS UNIVERSITY, MCCOLLUM-PRATT INSTITUTE, BALTIMORE, MD.
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(40), PAGE 29 AND 30, (OCTOBER 2, 1967)

(LETTER, JUNE 16) AN INDIVIDUAL BROUGHT 5 SAMPLES OF 10 CURIES EACH OF TRITIUM DIRECTLY FROM ARGONNE WITHOUT A LICENSE AND WITHOUT NOTIFYING PHYSICS DEPT. CHAIRMAN OR SAFETY OFFICER. PROCEDURES THAT THE INDIVIDUAL SET UP FOR HANDLING AND IN CASE OF BREAKAGE WERE TOTALLY INADEQUATE. TWO OTHER INDIVIDUALS RECEIVED 0.8 AND 0.2 REM, FOLLOWING A SPILL ON FEBRUARY 20. CENTRAL AIR CONDITIONING SPREAD TRITIATED WATER THROUGH THE BUILDING BEFORE IT WAS TURNED OFF. CORRECTIONS - (A) BLDG. WAS SEARCHED FOR UNLICENSED SOURCES, WHICH WERE DISPOSED OF. (B) STAFF MEMBERS NOTIFIED. (C) UNIVERSITY VP HAS DEMONSTRATED HE WILL TAKE A PERSONAL INTEREST IN PROBLEMS ENCOUNTERED BY RADIATION SAFETY OFFICER, WHOSE STAFF IS EXPANDED.

TRITIUM + VENTILATION SYSTEM + *CONTAMINATION + *INCIDENT, HUMAN ERROR + RADIOISOTOPE + *FAILURE, ADMINISTRATIVE CONTROL

20619

KAMAN NUCLEAR DIV. CITED FOR NON-COMPLIANCE FEBRUARY 28, 1967
 KAMAN AIRCRAFT CORP., KAMAN NUCLEAR DIV., COLORADO SPRINGS, COLORADO
 1 PAGE, FEBRUARY 28, 1967, ATOMIC ENERGY CLEARING HOUSE, 13(16), PAGE 16, (APRIL 17, 1967)

(LETTER FEBRUARY 28) A DECEMBER 1966 CHECK REVEALED 4 ITEMS OF NONCOMPLIANCE SIMILAR TO FEBRUARY 1965 AND FEBRUARY 1966 INSPECTIONS. (1) INADEQUATE TRITIUM RADIATION SURVEYS, (2) BYPASSING HIGH-RADIATION-AREA INTERLOCKS WHEN HIGH RADIATION AREAS EXISTED, (3) USED ACCELERATOR TUBES HANDLED IN UNRESTRICTED AREAS WITHOUT RADIATION SAFETY OFFICERS KNOWLEDGE, (4) USED TRITIUM TARGETS WERE NOT LABELED. *** COMPLIANCE DIVISION BELIEVES IMPROVEMENTS ARE NEEDED IN MANAGEMENT OF COMPANIES RADIATION SAFETY PROGRAM.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

TRITIUM + *COMPLIANCE + INSTRUMENT, INTERLOCK + FAILURE, ADMINISTRATIVE CONTROL + SURVEILLANCE PROGRAM

17418

DETAILED REPORT ON KERR-MCGEE ION EXCHANGE REACTION
 KERR-MCGEE CORP., OKLAHOMA CITY, OKLA.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(31), PAGE 31, (JULY 31, 1967)

(LETTER, JUNE 29) ON MAY 24, 1967, DEPLETED URANIUM WAS BEING STRIPPED FROM IRA-400 ANION RESIN WITH NITRIC ACID. A PRESSURE BUILDUP OCCURRED DUE TO A RAPID CHEMICAL REACTION, PROBABLY AS FOLLOWS - (1) THE ACID-WATER BLENDING EQUIPMENT MALFUNCTIONED SO A SLUG OF ACID WAS FED, (2) DILUTION BY WATER AND EXOTHERMAL REACTION WITH SOLIDS AND ELUTED URANIUM, (3) NITRIC ACID WAS SEQUENTIALLY HEATED TO ACHIEVE AN AUTOCATALYTIC REACTION WITH RESIN. CORRECTIVE ACTIONS INCLUDE (1) BATCH MAKEUP OF ACID-WATER, (2) PROVISION OF A RUPTURE DISK, (3) CONTINUOUS FLOW REGENERATION FOR HEAT REMOVAL, (4) EFFLUENT-TEMPERATURE MONITORING.

CHEMICAL REACTION + FAILURE, EQUIPMENT + *EXPLOSION + INCIDENT, EQUIPMENT + *ION EXCHANGE + *REPORT, OPERATIONS ANALYSIS + RESIN

28858
MULLER GE
UF6 RELEASE THROUGH OPEN VALVE
KERR-MCGEE CORPORATION, OKLAHOMA CITY, OKLAHOMA
TWX TO B. H. GRIER, DIRECTOR, DIVISION OF COMPLIANCE, USAEC, WASHINGTON, JULY 23, 1968

ON JULY 19, 1968, ABOUT 100 POUNDS OF UF6 ENRICHED TO 1.5% WAS RELEASED THRU AN INADVERTANTLY OPEN VALVE, DURING STARTUP OF NEW VAPORIZATION EQUIPMENT AT THE CIMARRON FACILITY. ONE EMPLOYEE RECEIVED SKIN BURNS (NECK) DURING REENTRY WITH SCUBA GEAR TO DETERMINE SOURCE OF LEAK. VALVE WAS OPEN FROM 6.40 TILL 7.00 PM. GROUND LEVEL RELEASE RAPIDLY DISPERSED.

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

*AIRBORNE RELEASE + *FAILURE, OPERATOR ERROR + SOURCE MATERIAL + VALVE + *URANIUM HEXAFLUORIDE + FUEL CONVERSION

30042
LOW LD
FUEL SOLUTIONS IMPROPERLY STORED
US ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.
LETTER TO W. J. SHELLEY, KERR-MCGEE CORP., NOV. 6, 1968

A SEPT. 4, 1968, INSPECTION AT THE GUTHRIE, OKLAHOMA, CIMARRON FACILITY REVEALED 16 ELEVEN LITER BOTTLES CONTAINING ENRICHED URANIUM SOLUTIONS WERE STORED IN A FREE STANDING CONDITION. *** DURING JUNE 6-12, 1968, SIX EMPLOYEES WERE EXPOSED TO AIRBORNE ACTIVITY IN EXCESS OF 10 CFR 20, APPARENTLY BECAUSE OF A LACK OF EFFECTIVE SURVEY PROCEDURE TO ENSURE GLOVE INTEGRITY IN GLOVE BOXES

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

INCIDENT, EXPOSURE + AIRBORNE RELEASE + HOT CELL + PERSONNEL PROTECTIVE DEVICE + *FUEL STORAGE + COMPLIANCE + SURVEY, RADIATION, GENERAL + *FAILURE, ADMINISTRATIVE CONTROL + URANIUM-235 + SPECIAL NUCLEAR MATERIAL

30926
CORRECTIVE ACTION ON FUEL PROCESSING
KERR-MCGEE CORPORATION
1 PAGE, LETTER TO L.D. LOW, COMPLIANCE NOV. 25, 1968

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

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

14726
LAGRUA JD
OVEREXPOSURE AT NAVAL SHIPYARD DURING DEMINERALIZER RESIN TRANSFER
LONG ISLAND NUCLEAR SERVICE CORPORATION
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(7) PAGE 21 (FEBRUARY 13, 1967)

(LETTER DECEMBER 30) A LONG ISLAND NUCLEAR SERVICE CORPORATION EMPLOYEE RECEIVED AT LEAST 3-6 REMS (AS SHOWN BY A NUCLEAR CHICAGO FILM BADGE) BETWEEN NOVEMBER 27 AND DECEMBER 4 INCLUSIVE. DURING THE PERIOD 18-22, THE SHIPYARD SYSTEM SHOWED AN EXPOSURE OF 1.69 REMS. THESE EXPOSURES WERE RECEIVED BY THE CONTRACTORS SUPERVISOR DURING RESIN TRANSFERS AT PORTSMOUTH NAVAL YARD.

*PERSONNEL EXPOSURE, RADIATION + *INCIDENT, HUMAN ERROR + FAILURE, MAINTENANCE ERROR + FAILURE, ADMINISTRATIVE CONTROL + RESIN + *COOLANT PURIFICATION SYSTEM

16368
LAGRUA JD
COMPLIANCE CITATION OF LONG ISLAND NUCLEAR SERVICE CORP. FOLLOWING RESIN HANDLING INCIDENT AT PORTSMOUTH NAVAL SHIPYARD
LONG ISLAND NUCLEAR SERVICE CORP., BELLPONT, N.Y.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(24) PAGES 15-16 (JUNE 12, 1967)

(LETTER, APRIL 24, 1967, REGARDING NOV. INCIDENT AND INSPECTION IN DEC. 1966 AND JAN. 1967). RESIN HANDLING AND DECONTAMINATION WERE NOT AUTHORIZED BY LICENSE 31-8360-1, A POSSESSION LICENSE. RADIATION SURVEYS WERE NOT CONDUCTED. TWO PERSONS WERE RE-EXPOSED WITHOUT CHECKING THEIR RADIATION HISTORY. NOTICE WAS NOT GIVEN AEC OF OVEREXPOSURE TO TWO OTHERS. RADIATION AREAS WERE NOT POSTED. AN EMPLOYEE WAS NOT GIVEN WRITTEN NOTICE OF HIS OVEREXPOSURE. IN ADDITION, WRITTEN RECORDS WERE NOT AVAILABLE FOR OTHER LICENSED MATERIAL DURING THE INSPECTION.

HEALTH PHYSICS TRAINING + *MAINTENANCE AND REPAIR + *COMPLIANCE + REGULATION, AEC + RADIATION SAFETY AND CONTROL + *INCIDENT, HUMAN ERROR + *FAILURE, ADMINISTRATIVE CONTROL + RESIN + COOLANT PURIFICATION SYSTEM

17420

CORRESPONDENCE RELATED TO CITATION OF LONG ISLAND NUCLEAR CORPORATION
LONG ISLAND NUCLEAR SERVICE CORPORATION
7 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(32), PAGES 47 THRU 53, (AUGUST 7, 1967)

ABSTRACTS OF 8 LETTERS (APRIL-JULY 1967) BETWEEN AEC, LONG ISLAND NUCLEAR SERVICE CO., AND NAVAL SUPPLY SYSTEMS COMMAND. LINS WAS CITED FOR HANDLING RESIN NOVEMBER 1966 AT PORTSMOUTH NAVAL SHIPYARD WITHOUT A LICENSE, FOR NOT POSTING RADIATION SIGNS, NOT INFORMING AEC OF OVEREXPOSURE. REPLY MAINTAINS NO LICENSE IS NEEDED FOR THIS WORK, AND SHIPYARD WAS RESPONSIBLE FOR SURVEYS AND MONITORING.

REACTOR, PWF + *COMPLIANCE + ION EXCHANGE + *PERSONNEL EXPOSURE, RADIATION + RESIN + COOLANT PURIFICATION SYSTEM

25284

NON COMPLIANCE AT LONG ISLAND NUCLEAR SERVICE CORP.
LONG ISLAND NUCLEAR SERVICE CORP., STATION ROAD, BELLPORT, N. Y. 11713
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 21, (MAY 13, 1968)

(LETTER, MARCH 13) AFTER A NOV. AND DEC. 1967 INSPECTION, CITATION WAS ISSUED FOR (1) INCOMPLETE PERSONNEL MONITORING RECORDS FOR 2 EMPLOYEES, (2) WASTE PICKUPS OF LICENSED MATERIAL WERE NOT RECEIVED BY THE SPECIFIED PERSONNEL. OTHER ITEMS WERE - (A) POCKET DOSIMETERS NOT WORN, (B) SURVEY INSTRUMENTS NOT CALIBRATED OR RECORDS MAINTAINED, (C) SURVEYS OF WASTE CONTAINER NOT MADE. YOUR APPLICATION FOR REMOVAL OF LICENSE 31-8360-1 IS CURRENTLY BEING EVALUATED BY DML.

COMPLIANCE + *WASTE MANAGEMENT + RADIATION SAFETY AND CONTROL + FAILURE, ADMINISTRATIVE CONTROL

18389

MALLINCKRODT OVEREXPOSURE
MALLINCKRODT CHEMICAL WORKS, MALLINCKRODT/NUCLEAR DIV., LAMBERT FIELD, ST. LOUIS, MO.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(40), PAGE 30 THRU 32, (OCT. 2, 1967)

ON JULY 25, MCW WAS CITED FOR ALLOWING AN EMPLOYEE TO RECEIVE 1.9 REMS IN A QUARTER WITHOUT FILLING OUT AEC FORM 4, AND NOT REPORTING IT, ALONG WITH OTHER ITEMS. REPLY DATED AUG. 16 INDICATED THAT THE EMPLOYEE RECORDS WERE AT ANOTHER MCW INSTALLATION, THAT WORKER WAS NOT REALLY OVEREXPOSED.

REGULATION, AEC + *PERSONNEL EXPOSURE, RADIATION + RADIOCHEMICAL PROCESSING

22521

MALLINCKRODT REPLIES TO NOV. 30, 1967 NON-COMPLIANCE CITATION
MALLINCKRODT CHEMICAL WORKS, ST. LOUIS, MO.
4 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(4), PAGES 22-25 (JANUARY 22, 1968)

(LETTER, DEC. 20.) ACTION TAKEN IN PRODUCTION OF I-131 DIAGNOSTIC CAPSULES INCLUDES MORNING MONITORING OF WORKER THYROID AND IMMEDIATE INVESTIGATION, USE OF DISPOSABLE GLOVES, GENERAL HP ON-THE-JOB TRAINING OF WORKERS, A DAILY SURVEY OF REFUSE CONTAINERS. COMPILATION OF EVIDENCE REVEALS THAT THE PROBLEM IS (QUOTE) PRINCIPALLY ONE OF IMPROVING WORKING HABITS AND ATTITUDES RATHER THAN EXPOSURES OF PERSONNEL TO HIGH AIRBORNE RADIOACTIVITY CONCENTRATION (UNQUOTE).

ADMINISTRATIVE CONTROL + FISSION PRODUCT, IODINE + INHALATION + TRAINING + COMPLIANCE + *RADIATION SAFETY AND CONTROL + FAILURE, ADMINISTRATIVE CONTROL + *ORE CONVERSION

25283

SOLDAN DW
THYROID INTAKE OF IODINE 131
MALLINCKRODT NUCLEAR, BOX 10172, LAMBERT FIELD, ST. LOUIS, MO., 63145
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 21, (MAY 13, 1968)

(LETTER, MAR. 23) ROUTINE THYROID MEASUREMENTS DISCLOSED 0.22 MICROCURIE OF I-131 IN AN INDIVIDUAL'S THYROID ON FEB. 25. INDEPENDENT MEASUREMENTS ON MAR. 4 AT CRAWFORD W. LONG HOSPITAL WERE INVALID, BUT AT SOUTH FULTON HOSPITAL CONFIRMED WITH A READING OF 0.17 MICROCURIE. BASED ON TOTAL ELIMINATION IN 13 WEEKS FOR AN ACUTE INTAKE, THE INTEGRATED THYROID DOSE IS 1.42 REMS.

*FISSION PRODUCT, IODINE + PERSONNEL EXPOSURE, RADIATION + *RADIOISOTOPE

26086

SOLDAN DW
IODINE INHALATION DURING CAPSULE MACHINE ADJUSTMENT
MALLINCKRODT NUCLEAR, LAMBERT FIELD, ST. LOUIS, MO.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(25), PAGE 18, (JUNE 17, 1968)

(LETTER, APRIL 23) ROUTINE THYROID-BURDEN MEASUREMENTS SHOWED 0.06 MICROCURIE I-131 ON 3/25 AND 0.30 ON 3/28. THE AVERAGE BURDEN FOR THE PRECEDING 12 WEEKS WOULD GIVE AN 0.8-REM THYROID EXPOSURE, WHILE THIS ACUTE UPTAKE WOULD GIVE A 2-REM EXPOSURE. THIS EXPERIENCED EMPLOYEE HAS ADJUSTED THE SODIUM IODIDE MACHINE FREQUENTLY. A SMALL LEAK IN THE PLASTIC TUBING LED TO A HIGH LOCAL AIRBORNE CONCENTRATION. NEW FILTERS AND A MANOMETER WERE INSTALLED, PLUS PRESSURIZED PLASTIC HOODS ALONG WITH A COMPRESSED-AIR SUPPLY PROVIDED AT THIS LOCATION FOR ANYONE WHO ENTERS THE ENCLOSURE.

FISSION PRODUCT, IODINE + *INHALATION + MAINTENANCE AND REPAIR + PERSONNEL PROTECTIVE DEVICE + PERSONNEL EXPOSURE, RADIATION + RADIATION SAFETY AND CONTROL + *RADIOISOTOPE

16365
KELLER CW
10 RAD SKIN EXPOSURE DURING HOT CELL DECONTAMINATION AT MARTIN-MARIETTA BALTIMORE MD., 21 APRIL 1967
MARTIN MARIETTA CORP., BALTIMORE, MD.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(24) PAGES 16-17 (JUNE 12, 1967)

(LETTER, MAY 16). SINCE NORMALLY THE FILM BADGE SHOWS 4 TO 6 TIMES THE DOSIMETER READINGS, DOSIMETER READINGS ARE MULTIPLIED BY 8 FOR CONTROL PURPOSES. IN THIS CASE THE RATIOS WERE 36 TO 1, AND 9 TO 1. SURVEYS SHOWED 2 TO 4 RADS/HOUR. PERHAPS GROSS CONTAMINATION OF CLOTHING NEAR FILM BADGE OCCURRED. HOWEVER, CUMULATIVE EXPOSURE OF 200 MR BY DOSIMETERS WILL BE USED TO LIMIT WORKERS UNTIL FILM BADGES ARE PROCESSED.

DECONTAMINATION + HEALTH PHYSICS TRAINING + HOT CELL + MONITOR, PERSONNEL + BETA EMITTER + *DOSE MEASUREMENT, EXTERNAL + *PERSONNEL EXPOSURE, RADIATION + RADIATION SAFETY AND CONTROL

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

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

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

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

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

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

22433
MASSE FX
MIT REPORTS ASSAY ERROR RESULTS IN CLINICAL OVEREXPOSURE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(21), PAGE 26 (MAY 22, 1967)

(LETTER, MARCH 20) AN ADULT MALE WAS ADMINISTERED IODINE TO BE EQUIVALENT TO 200 MICROCURIES OF I-125, WELL BELOW THAT AUTHORIZED (5 MICROCURIES/KG). ANALYSIS OF THE ROUTINE BIO-SAMPLES INDICATED ADMINISTRATION IN EXCESS OF 200. CHECKING REVEALED THAT A FACTOR-OF-TEN ASSAY ERROR HAD BEEN MADE BY THE PHARMACEUTICAL COMPANY. METHIMAZOLE WAS GIVEN FOR EIGHT DAYS AFTER IODINE TO INCREASE TURNOVER. CALCULATED DOSE IS 50 RADS BEFORE METHIMAZOLE AND 100 RADS THEREAFTER TO INFINITY. WE NORMALLY DOUBLE-CHECK MATERIAL BUT NOW WILL PERFORM ROUTINE GROSS ASSAY ON ALL SUCH INCOMING MATERIAL.

IODINE + PERSONNEL EXPOSURE, RADIATION + INCIDENT, HUMAN ERROR + FAILURE, ADMINISTRATIVE CONTROL + RADIOLOGY

25285
MASSE FX
EXPOSURE AT SANDERS NUCLEAR PLANT
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, MEDICAL DEPT., 77 MASSACHUSETTS AVE., CAMBRIDGE, MASS.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 21 AND 22, (MAY 13, 1968)

(LETTER, APRIL 5) AN EXPOSURE OCCURRED FEB. 27, 1968, AT THE SANDERS NUCLEAR PLANT IN PROCESSING A 50-CURIE THULIUM SOURCE LICENSED BY THE STATE OF NEW HAMPSHIRE. A FULL-TIME MIT GRAD. STUDENT (WHO WORKS WITH LICENSED MATERIAL AT MIT) IS A PART-TIME CHEMIST THERE AND WORE BOTH SETS OF FILM BADGES. (MIT WRIST BADGE - 45 RADS BETA, AND BODY BADGE - 0.305 RAD BETA). (SANDERS WRIST BADGE - 250 RADS BETA, BODY BADGE - 0.44 RADS BETA). FINGER EXPOSURE MAY HAVE EXCEEDED WRIST EXPOSURE BY A FACTOR OF 4. MIT RAD. PROTECTION COMMITTEE ALLOWS WORK TO CONTINUE AT MIT ONLY IF HAND DOSE DOES NOT EXCEED 10% PERMISSIBLE. RECOMMENDS HE DROP OUTSIDE ACTIVITIES THAT MAY RESULT IN FURTHER EXPOSURE.

FABRICATION + SOURCE, RADIATION + BETA EMITTER + STATE PROGRAM + *PERSONNEL EXPOSURE, RADIATION + DOSIMETRY, PHOTOGRAPHIC

23319
SOLARI AJ
UNIVERSITY OF MICHIGAN REPORTS A POSSIBLE OVEREXPOSURE
UNIVERSITY OF MICHIGAN, ANN ARBOR, MICHIGAN
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(8), PAGE 39 (FEBRUARY 26, 1968)

(LETTER, DEC. 27, 1968) A GRADUATE STUDENT WAS A TEMPORARY DISHWASHER AT THE NUCLEAR MEDICINE UNIT FROM APRIL 24 AUGUST 31, 1967. HIGHEST RADIATION LEVELS IN THE HOT ROOM WHERE SHE WORKED WERE 1-2 MR/HR. FILM BADGE REPORT DATED OCT. 3 GIVES A 1,680 AND 610 MR RECORD. PERSON IS NO LONGER A STUDENT AND CANNOT BE TRACED. SOME BELIEVE SHE MAY HAVE LEFT HER LAB COAT AND BADGE IN THE HOT ROOM.

*PERSONNEL EXPOSURE, RADIATION + RADIATION SAFETY AND CONTROL + INCIDENT, NONREACTOR

26395
SOURCE DAMAGED - STARTS LEAKING
UNIVERSITY OF MINNESOTA, MINNEAPOLIS, MINNESOTA
1 PAGE, LETTER TO AEC DIVISION OF MATERIALS LICENSING FROM J. W. STAIGER, MARCH 22, 1967

ON MARCH 8, 1967, A 4-CURIE IRIIDIUM-192 SOURCE WAS DAMAGED AND STARTED LEAKING. THE SOURCE WAS ATTACHED TO A ROD USED TO PUSH IT THROUGH TWO CYLINDRICAL LEAD VALVES INTO A VAN DE GRAAFF ACCELERATOR TANK. IN RETRACTING THE SOURCE INTO ITS LEAD SHIELD, IT WAS WITHDRAWN ONLY PARTIALLY, AND, IN CLOSING A VALVE, THE SOURCE WAS CLIPPED OFF, ALLOWING POWDERED IRIIDIUM TO LEAK INTO THE SPACE BETWEEN SHIELD AND STEEL CASING. UNIT WRAPPED IN POLYETHYLENE BAGS FOR DISPOSAL.

*FAILURE, OPERATOR ERROR + *SOURCE, RADIATION + *CONTAMINATION + RADIOGRAPHY + *DAMAGE

20622
3M REPORTS AN AUGUST 1962 CASE OF RADIO-DERMATITIS
3M COMPANY, ST. PAUL, MINN.
2 PAGES, MARCH 10, 1967, ATOMIC ENERGY CLEARING HOUSE, 13(16), PAGE 19-20, (APRIL 17, 1967)

(LETTER, MAR. 10) TWO EMPLOYEES IN AUG. 1962 DEVELOPED RADIO-DERMATITIS, ALTHOUGH NO UNUSUAL WORK WAS DONE. WRIST BADGES INDICATED 538 AND 860 MREMS. TESTS SHOWED THAT A CORRECTION FACTOR OF 13 GAVE EXPOSURES WELL WITHIN 10 CFR 20 LIMITS.

AVAILABILITY - USAEC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

RADIATION DAMAGE + DOSE MEASUREMENT, EXTERNAL + *PERSONNEL EXPOSURE, RADIATION

16326
W133INK R0
FOUR INCIDENTS REPORTED BY MMM, ST PAUL, MINN.
3M COMPANY, ST. PAUL, MINN.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(25) PAGES 26-27 (JUNE 19, 1967)

(MAY 25) - FOR SEPARATE INCIDENTS OCCURRED BETWEEN JAN. AND APRIL 1967, INVOLVING AIRBORNE ACTIVITY. (1) 44 MPC OF AM-241 WAS INHALED THROUGH FACE MASKS DUE TO INADEQUATE AIR FLOW IN GLOVE BOXES. (2) 1653 MPC SR-90 WAS INHALED THROUGH FACE MASKS FOR 1 HR WHILE LOADING SOURCES WITH 3M MICROSPHERES IN A HOD. (3) 4070 MPC AND (4) 66 MPC SR-90 WAS INHALED DURING HOT-CELL CLEANUP.

*AIRBORNE RELEASE + FABRICATION + INHALATION + SOURCE, RADIATION + STRONTIUM + AMERICIUM + *PERSONNEL EXPOSURE, RADIATION + *RADIOISOTOPE

17121
3M COMPANY NOTIFICATION OF DOSE TO EMPLOYEES
3M CO., ST. PAUL, MINN.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(33), PAGE 28 AND 29 (AUGUST 14, 1967)

(LETTER, JUNE 28) DIV. OF COMPLIANCE CALLS ATTENTION OF 3M CO. TO 10 CFR 20.405(B), REQUIRING THAT EMPLOYEES BE NOTIFIED OF EXCESSIVE DOSES. (3M LETTER OF JULY 14). THE EMPLOYEES CONCERNED IN THE INCIDENT REPORTED IN 3M LETTER OF MARCH 10, 1967, WILL BE NOTIFIED THAT AEC COMPLIANCE IS OF THE OPINION THAT THEY RECEIVED EXPOSURES OF AT LEAST 1000 RADS TO THEIR HANDS, BASED ON STATEMENTS OF THEIR MEDICAL CONSULTANT.

DOSE + *COMPLIANCE + INCIDENT, GENERAL + PERSONNEL EXPOSURE, RADIATION

19281
MMM REPORTS TECHNICAL OVEREXPOSURE TO 4 DURING HOT CELL CLEANUP
MINNESOTA MINING AND MANUFACTURING CO.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 29, (NOV. 6, 1967)

(LETTER, SEPT. 14) OVEREXPOSURES TO SR-90 (4.8, 12, 53, AND 17.2 TIMES MPC) WAS LESS THAN 2.7 HR AUG. 18-24. EACH WAS IN RESPIRATOR AND PROTECTIVE CLOTHING. THE WORK INVOLVED OPENING HOT-CELL DOORS TO REMOVE CONTAMINATED MATERIAL FOR WASTE DISPOSAL. LETTER OF MAY 26, 1967, REPORTED SIMILAR INCIDENTS AND POINTED OUT HOT-CELL CLEANUP WILL BE A QUARTERLY PROBLEM. WE FIRMLY BELIEVE THAT ACTUAL EXPOSURES ARE NOT TAKING PLACE BECAUSE OF PROTECTIVE EQUIPMENT, AND THAT THESE REPORTS CONCERN TECHNICAL OVEREXPOSURE DUE TO 10 CFR 20.103 DEFINITION OF EXPOSE.

AIRBORNE RELEASE + *HOT CELL + INHALATION + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *PERSONNEL PROTECTIVE DEVICE + STRONTIUM + *REGULATION, AEC + *WASTE DISPOSAL, SOLID + *PERSONNEL EXPOSURE, RADIATION + *RADIOISOTOPE

25631
 SELDEN JV
 CITATION OF MMM AMERICIUM SOURCE RUPTURE
 MINNESOTA MINING AND MANUFACTURING CO., ST. PAUL, MINN. + AEC DIVISION OF COMPLIANCE
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(22), PAGE 20 AND 21, (MAY 27, 1968)

(COMPLIANCE LETTER, APRIL 15) A FEB. 7-9, 1968, INSPECTION FOLLOWING A RUPTURE OF AN O.1C SOURCE CAUSED CITATION FOR WELDING AN UNFINISHED SOURCE IN AN OPEN-FACED HOOD. (MMM LETTER, MARCH 25) THE 30-DAY REPORT OF THE RUPTURE WAS FILED FEB. 22, 1968. USUALLY, COMPLIANCE FOLLOWS UP THESE REPORTS ON THE NEXT VISIT, BUT THE SPECIAL VISIT HAS CAUSED CONCERN BY RADIATION WORKERS THAT THERE WAS A SERIOUS ACCIDENT AND THAT COMPANY EVALUATION WAS INCORRECT. AEC IS IN UNIQUE POSITION TO PROVIDE INFORMATION AND SERVICES NOT OTHERWISE AVAILABLE, AND IT SHOULD BE PROVIDED TO ALLEVIATE CONCERN RATHER THAN CREATE A SENSE OF INSECURITY.

CONTAINMENT, SOURCE + *GLOVE BOX + SOURCE, RADIATION + COMPLIANCE + *WELDING + AMERICIUM + RADIATION, PUBLIC EDUCATION + *FAILURE, CLADDING + RADIOLOGICAL ASSISTANCE

28171
 CONTAMINATION DUE TO POWER FAILURE AND LOOSE STOPPER
 3M COMPANY, ST. PAUL, MINN.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(39), PAGE 26, (SEPT. 23, 1968)

(LETTER TO COMPLIANCE AUG. 14) ON THE MORNING OF JULY 24, ALL HOOD FANS WERE NOT WORKING DUE TO A POWER FAILURE DURING THE NIGHT. IN CHECKING MODULE 107N, A SMALL BRASS BOTTLE CONTAINING 50 CURIES OF SR-90 WAS MOVED, AND ITS LOOSE TOP NOTED. HIS GLOVE AND SHOE COVERS WERE CONTAMINATED, AND THE HOOD WAS CONTAMINATED TO 2R/HR. TWO EMPLOYEES DRESSED IN FULL ANTI-C SUITS WITH RESPIRATORS SPENT 25 MIN CLEANING UP THE HOOD. A SAMPLER SHOWED THEY WERE EXPOSED TO 14.1 MICRCC/ML AIR, GIVING A TECHNICAL OVEREXPOSURE OF 14.7 MPC. URINALYSIS SHOWED NEGATIVE RESULTS. NO CORRECTIVE ACTION IS CONTEMPLATED, ELECTRICAL FAILURES MUST BE EXPECTED.

AIRBORNE RELEASE + GLOVE BOX + FAILURE, OPERATOR ERROR + INHALATION + ACCIDENT, LOSS OF POWER + PERSONNEL PROTECTIVE DEVICE + *STRONTIUM + *CONTAMINATION + PERSONNEL EXPOSURE, RADIATION + RADIOISOTOPE + *FAILURE, SIMULTANEOUS

20621
 MONSANTO RESEARCH CORP. REPORTS RADIATION EXPOSURE
 MONSANTO RESEARCH CORP., DAYTON, OHIO
 1 PAGE, MAFCH 13; 1967, ATOMIC ENERGY CLEARING HOUSE, 13(16), PAGE 17 (APRIL 17, 1967)

(LETTER, MARCH 13) UNFORSEEABLE COMPLICATIONS IN FABRICATION OF TWO 6 X 10(8TH) N/SEC PU-BE NEUTRON SOURCES, FIRST OF THEIR KIND, LED TO QUARTERLY WHOLE BODY EXPOSURE OF 3.11, 3.35, AND 3.57 REMS. POCKET DOSIMETERS AND SURVEYS WERE NOT ABLE TO PREVENT EXCESSIVE EXPOSURES. MORE SHIELDING WILL BE USED FOR THE SECOND AND LAST SET.

AVAILABILITY - USAFC PUBLIC DOCUMENT ROOM, WASHINGTON, D. C. 20432

FABRICATION + SOURCE, NEUTRON + *PERSONNEL EXPOSURE, RADIATION + NEUTRON + FAILURE, ADMINISTRATIVE CONTROL

22434
 MALSON HA
 MONSANTO REPORTS THREE EXPOSED TO AIRBORNE PU-238
 MONSANTO RESEARCH CORP., DAYTON, OHIO
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(21), PAGE 27 (MAY 22, 1967)

(LETTER, APRIL 7) ON FEB. 13, 1967, HIGH CONCENTRATIONS OF AIRBORNE PU-238 WERE DISCOVERED IN A GLOVE-BOX AREA. THE INDIVIDUALS WERE ASSIGNED MAXIMUM EXPOSURE PERIODS OF 1 HR, 1 HR, AND 15 MIN, RESPECTIVELY, TO A MAXIMUM OF 1.01 X 10(-8TH) MICROCURIE/CC. (CAUSE) FAILURE OF GLOVES TO WITHSTAND DELETERIOUS EFFECTS OF PU-238. DIFFERENT TYPE OF GLOVES AND MORE FREQUENT MONITORING WILL BE CORRECTIVE STEPS. REPORT IS LATE BECAUSE OF A MATHEMATICAL ERROR IN CONSIDERING EXPOSURE TIME VS WEEKLY MPC FOR INSOLUBLE PU-238 IN AIR.

*FAILURE, COMPONENT + *GLOVE BOX + INHALATION + PLUTONIUM + PERSONNEL EXPOSURE, RADIATION

19101
 MONSANTO CITED FOR NON COMPLIANCE REGARDING PU-BE SOURCE
 MONSANTO RESEARCH CORP., ST. LOUIS, MO.
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGES 20-21 (OCTOBER 30, 1967)

(LETTER AUGUST 10) CITATION FOR EXCEEDING QUARTERLY WHOLE-BODY DOSE LIMIT FOR 6 EMPLOYEES, INADEQUATE SURVEYS, AND INADEQUATE HAND DOSIMETRY. SUGGESTS LACK OF ADMINISTRATIVE CONTROL DUE TO REPEATED EXPOSURES, INCLUDING 1965. (REPLY LETTER, AUGUST 18) UNDERESTIMATION WAS DUE TO FIRST-TIME CIRCUMSTANCE. WORK IS NOW CONTRACTED OUT. IN 3 OVEREXPOSURES, FAST-NEUTRON DOSIMETERS WERE ASTONISHINGLY MISLEADING, EVEN THEN THERE WAS ONLY 10% OVEREXPOSURE ON FILM BADGES. EXTREMITY-MONITORING HAS IN THE PAST PROVIDED DATA SO ERRATIC AS TO BE MEANINGLESS.

INCIDENT, EXPOSURE + BERYLLIUM + DOSIMETRY, GENERAL + FABRICATION + *MONITOR, PERSONNEL + PLUTONIUM + SOURCE, NEUTRON + FAILURE, INSTRUMENT + PERSONNEL EXPOSURE, RADIATION + RADIATION SAFETY AND CONTROL + *INCIDENT, NONREACTOR + *RADIOISOTOPE + FAILURE, ADMINISTRATIVE CONTROL

19275

MONSANTO RESEAPCH CORP. CITED FOR NON COMPLIANCE, AUG. 10, 1967
 MONSANTO RESEARCH CORP., ST. LOUIS, MO.
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 24 AND 25, (NOVEMBER 6, 1967)

(LETTER AUGUST 10) FOLLOWING AN APRIL AND JUNE INSPECTION, A CITATION WAS ISSUED FOR (1) SIX EMPLOYEES RECEIVED 1ST-QUARTER 1967 WHOLE-BODY DOSES GREATER THAN 3 REMS, (2) SURVEYS WERE INADEQUATE IN PU-BE SOURCE FABRICATION. THIS APPEARS TO INDICATE A LACK OF A ADMINISTRATIVE CONTROL. 5 EMPLOYEES WERE PREVIOUSLY OVEREXPOSED IN 1965 IN FABRICATING HIGH-ACTIVITY NEUTRON SOURCES.

PLUTONIUM + *SOURCE, NEUTRON + SURVEY, RADIATION, GENERAL + *PERSONNEL EXPOSURE, RADIATION + *FAILURE, ADMINISTRATIVE CONTROL + SPECIAL NUCLEAR MATERIAL

30894

OVEREXPOSURE WHILE NOT WEARING LEAD APRON
 MORGAN, MORGAN, UTNE AND BROGHAMMER (CLINIC)
 2 PAGES, LETTER TO DIVISION OF LICENSING AND REGULATION, DEC. 5, 1968

DR. X WAS UNABLE TO WEAR HIS LEAD APRON WHILE FLUOROSCOPING PATIENTS (COULD NOT TOLERATE THE WEIGHT ON A HERNIATED DISK). RECEIVED 3.672 REMS FIRST QUARTER OF 1968.

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

*FAILURE, OPERATOR ERROR + PERSONNEL EXPOSURE, RADIATION + RADIOGRAPHY

29990

OVEREXPOSURE DURING ISOTOPE HANDLING
 NEUTRON PRODUCTS, INC.
 2 PAGES, LETTER TO COMPLIANCE, OCTOBER 24, 1968

THE JULY-SEPT. 68 FILM BADGE OF ONE EMPLOYEE READ 3.24 R VS 2.5 R FROM DAILY DOSIMETER READINGS. ***DOSIMETER USUALLY READ 10X HIGHER THAN FILM BADGES. UPON QUESTIONING, THE EMPLOYEE REMEMBERED LOSING HIS BADGE FOR A DAY AND FINDING IT IN A 20 MR/HR FIELD. WE BELIEVE THE ACTUAL DOSE WAS 2.5-2.8 R. ***EMPLOYEE ENGAGED IN HANDLING 1.5 MEGACURIES OF CO-60 AND ALSO RADIOACTIVE ION EXCHANGE RESINS.

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

COBALT + MONITOR, PERSONNEL + PERSONNEL PROTECTIVE DEVICE + BYPRODUCT MATERIAL + SOURCE, RADIATION + TRANSPORTATION AND HANDLING + *PERSONNEL EXPOSURE, RADIATION

14080

TRITIUM EXPOSURE AT NEW ENGLAND NUCLEAR CORPORATION
 NEW ENGLAND NUCLEAR CORPORATION
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(3) PAGES 20-21 (JANUARY 16, 1967)

(LETTER NOVEMBER 22) A CHEMIST RECEIVED 0.46 REM TRITIUM DOSE AFTER THE BREAKING OF A GLASS REACTION VESSEL BY A STIRRING BAR, WHILE INCORPORATING 175 CURIES OF TRITIUM INTO A PLASTIC.

FAILURE, OPERATOR ERROR + TRITIUM + *PERSONNEL EXPOSURE, RADIATION

26087

INTERNAL EXPOSURE OF CHEMIST TO TRITIUM
 NEW ENGLAND NUCLEAR CORP., ALBANY ST., BOSTON, MASS.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(25), PAGE 19, (JUNE 17, 1968)

(LETTER, MAY 8) ON APRIL 4, A JUNIOR CHEMIST WAS SYNTHESIZING AN ORGANIC COMPOUND CONTAINING TRITIUM IN A HOOD UNDER VACUUM WITH A GAS CHROMATOGRAPH. HE RECEIVED A CALCULATED INTERNAL WHOLE-BODY EXPOSURE OF 662 MR/HR FROM TRITIUM AND CARBON-14. EXPOSURE WAS FROM MULTIPLE CAUSES - (1) LOOSENING OF FAN BELTS, (2) PLACING HEAD IN THE HOOD, (3) POSSIBLE FATIGUE OF RUBBER TUBING AND LEAKS. A NEW FACE DESIGN FOR HOOD WILL PREVENT ENTRY OF HEAD. RUBBER TUBING WILL BE CHANGED OFTENER. CHROMATOGRAPH EXIT PORTS WILL BE DIRECTED TO THE SIDE OF HOOD RATHER THAN TO PORT.

GLOVE BOX + FAILURE, OPERATOR ERROR + *INHALATION + TRITIUM + *VENTILATION SYSTEM + *PERSONNEL EXPOSURE, RADIATION + *RADIOISOTOPE

14081

NFS UTILITY OUTAGE DUE TO TRUCK WRECK
 NUCLEAR FUEL SERVICES, INC.
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(3) PAGES 21-22 (JANUARY 16, 1967) DOCKET NO. 50-201

(LETTER, NOVEMBER 21) ON AUGUST 29, 1966, AIR-BRAKE HOSE RUPTURE ON A NITRIC ACID TANK TRUCK ALLOWED THE TRUCK TO ROLL DOWNHILL THROUGH THE FIRE PUMP HOUSE INTO THE UTILITY BUILDING. AIR, WATER, AND STEAM SERVICE WAS INTERRUPTED FOR 10 HOURS.

ACCIDENT, LOSS OF POWER + *INCIDENT, EQUIPMENT + NFS + *FUEL REPROCESSING

14082
CONTAMINATION OF ACID RECOVERY EQUIPMENT AT NFS, AUGUST 30, 1966
NUCLEAR FUEL SERVICES, INC.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(3) PAGES 21-22 (JANUARY 16, 1967) DOCKET NO. 50-201

(LETTER NOVEMBER 21) THE LOW-LEVEL-WASTE EVAPORATOR UC-2 BURPED 75 GALLONS OF CONDENSATE INTO THE ACID CATCH TANK. FURTHER CONCENTRATION LED TO RADIATION LEVELS ABOVE 70 R/HR IN THE UNSHIELDED ACID-STORAGE-TANK AREA. A WEEK LATER, THE ACID WAS RETURNED TO SHIELDED CELLS. DECONTAMINATION OF EQUIPMENT WAS DIFFICULT BECAUSE SUCH PROVISION WAS NOT DESIGNED IN. SYSTEM MODIFICATIONS ARE LISTED. REPL 14082 ABST (LETTER NOVEMBER 21) THE LOW-LEVEL-WASTE EVAPORATOR UC-2 BURPED 75 GALLONS OF CONDENSATE INTO THE ACID CATCH TANK. FURTHER CONCENTRATION LED TO RADIATION LEVELS ABOVE 70 R/HR IN THE UNSHIELDED ACID-STORAGE-TANK AREA. A WEEK LATER, THE ACID WAS RETURNED TO SHIELDED CELLS. DECONTAMINATION OF EQUIPMENT WAS DIFFICULT BECAUSE SUCH PROVISION WAS NOT DESIGNED IN. SYSTEM MODIFICATIONS ARE LISTED.

DECONTAMINATION + WASTE TREATMENT, GENERAL + EVAPORATION + *INCIDENT, EQUIPMENT + FAILURE, DESIGN ERROR + NFS + *FUEL REPROCESSING

14083
INHALATION EXPOSURE AT NFS DUE TO IMPROPER VENTILATION, NOVEMBER 28, 1966
NUCLEAR FUEL SERVICES, INC.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(3) PAGES 22-23 (JANUARY 16, 1967) DOCKET NO. 50-201

(LETTER, DEC. 28) WHOLE-BODY COUNTS INDICATE THAT ONE MAN WILL RECEIVE A ONE-YEAR DOSE OF 360 MREMS (BONE), AND THE OTHER 280, DESPITE FOUR TWO-QUART NASAL IRRIGATIONS. THE WORKERS HAD OPENED BOTH AIPLOCK DOORS OF THE CONTAMINATED CRANE ROOM FOR MAINTENANCE, SO THAT WHEN A VENTILATION PRESSURE-CONTROLLER SET POINT WAS CHANGED NEARBY, AIR REVERSED FLOW TO MOVE FROM CRANE ROOM TO ANALYTICAL CLEAN ROOM. INVESTIGATION FOLLOWING A CAM ALARM FROM THE ANALYTICAL ROOM REVEALED THE SITUATION. AIP-SUPPLIED RESPIRATORY EQUIPMENT IS NOW REQUIRED, AS A FULL-FACE FILTER MASK WAS INEFFECTIVE. DIFFERENTIAL PRESSURE GAGES AND RECORDERS WILL GIVE PRESSURE ACROSS THE AIR LOCKS, AND ENTRY FORBIDDEN UNLESS THERE IS A 1/4-INCH PRESSURE.

FAILURE, OPERATOR ERROR + INHALATION + *PERSONNEL PROTECTIVE DEVICE + *VENTILATION SYSTEM + CONTAINMENT AIR LOCK + DOSE MEASUREMENT, INTERNAL + *PERSONNEL EXPOSURE, RADIATION + INCIDENT, HUMAN ERROR + FAILURE, DESIGN ERROR + NFS + *FUEL REPROCESSING

14727
NUCLEAR FUEL SERVICES CITED FOR NONCOMPLIANCES
NUCLEAR FUEL SERVICES, INC.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(7) PAGES 22-24 (FEB. 13, 1967) DOCKET NO. 50-201

(LETTER, DEC. 13, 1966) VARIOUS VIOLATIONS ARE NOTED, MOSTLY WASTE DISCHARGE WITHOUT PROPER MONITORING, FOLLOWING AN OCTOBER COMPLIANCE INSPECTION. ABSENCE OF SAFETY COMMITTEE REVIEWS OR OPERATING PROBLEM INVESTIGATIONS, AND USE OF PARTS FROM STANDBY EQUIPMENT RATHER THAN SPARE PARTS INDICATES, AMONG OTHER ITEMS, THAT NUMEROUS FILTER FAILURES DUE TO HIGH DELTA P SHOW THAT THE STACK MONITOR IS AS SENSITIVE AS THE DOP TEST. FAILURE OF THE TOP LAYER OF HIGH-EFFICIENCY GLASS WOOL OCCURRED.

MONITOR, STACK + *COMPLIANCE + FILTER OPERATION + TEST, DOP FILTER + *TECHNICAL SPECIFICATIONS + FILTER, DAMAGED + FAILURE, ADMINISTRATIVE CONTROL + NFS + FUEL REPROCESSING

14728
LEWIS WH
POTENTIAL INHALATION INCIDENT AT NFS, OCTOBER 1966
NUCLEAR FUEL SERVICE
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(7) PAGES 24-25 (FEBRUARY 13, 1967) DOCKET NO. 50-201

TWO SUBCONTRACTOR EMPLOYEES SANDBLASTED A VAULT WITHOUT THE RESPIRATORY EQUIPMENT ORDERED BY A NFS FOREMAN. (THE VAULT HAD PREVIOUSLY BEEN DECONTAMINATED TO A MAXIMUM SURFACE READING OF 23 MR/HR). TWO WEEKS LATER, SODIUM IODIDE COUNTS (GAMMA RAYS ABOVE 100 KEV) WERE ONLY 1 PERCENT ABOVE CONTROLS. ALL SUBCONTRACT WORK NOW MUST HAVE A SPECIAL WORK PERMIT.

INHALATION + *INCIDENT, HUMAN ERROR + *FAILURE, ADMINISTRATIVE CONTROL + NFS + FUEL REPROCESSING

14808
DRL ADVISES IMPROVEMENTS TO NFS ADMINISTRATIVE CONTROL
DIVISION OF REACTOR LICENSING
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(8), PAGES 6-7 (FEBRUARY 20, 1967)

(LETTER, FEB. 7) DRL HAS BECOME INCREASINGLY CONCERNED ABOUT SPREAD OF LOW-LEVEL CONTAMINATION, LACK OF INTERNAL COMMUNICATION, AND VARYING DEGREE OF EFFECTIVENESS OF CORRECTIVE ACTIONS. NEW DEFICIENCIES ARE FOUND AT EACH INSPECTION, SIMILAR TO PAST ONES. DRL REQUESTS MODIFICATIONS TO MANAGEMENT SYSTEM AND FACILITY SUFFICIENT TO DEMONSTRATE IN 60 DAYS THAT ABNORMAL SITUATIONS CAN BE PREVENTED OR CONTROLLED. DRL WILL SEND PROPOSED TECHNICAL-SPECIFICATION REVISIONS FOR RADIOACTIVE-EFFLUENT CONTROL, SINCE THIS HAS BEEN HANDLED DIFFERENTLY FROM THE FINAL SAFETY-ANALYSIS REPORT.

*ADMINISTRATIVE CONTROL + EFFLUENT + MONITOR, STACK + *WASTE DISPOSAL, GENERAL + COMPLIANCE + TECHNICAL SPECIFICATIONS + NFS + FUEL REPROCESSING

15008

NUCLEAR FUEL SERVICES TO REORGANIZE PLANT OPERATIONS, FEBRUARY 11, 1967
 NUCLEAR FUEL SERVICES, INC., WHEATON
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(10), PAGES 26 (MARCH 6, 1967) DOCKET NO. 50-201

(LETTER, FEB. 11) NFS REPLY TO AEC LETTER OF FEBRUARY 7 MENTIONS A FORTHCOMING REORGANIZATION AND APPOINTS DR. RUSSEL WISCHOW AS ASSISTANT GENERAL MANAGER FOR THE WEST VALLEY PLANT. HE WILL COORDINATE AEC MATTERS AND HAVE EXTENSIVE ADDITIONAL DUTIES.

*ADMINISTRATIVE CONTROL + *RADIATION SAFETY AND CONTROL + NFS + *FUEL REPROCESSING + STAFFING

15082

NUCLEAR FUEL SERVICES SIX DAY SHUTDOWN FEB. 14, 1967
 NUCLEAR FUEL SERVICES, WEST VALLEY, NEW YORK
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(11), PAGE 35 (MARCH 13, 1967) DOCKET NO. 50-201

NUCLEAR FUEL SERVICES REPORTS FEB. 15 THAT A PIPE LEAK IN THE ACID-RECOVERY SYSTEM DURING WASTE SYSTEM TRANSFER RELEASED NEUTRALIZED EVAPORATION BOTTOMS, WHICH WERE CAUGHT BY INTERCEPTOR GATE (0.001 CURIE/LITER). LAGOON ITSELF SHOWED NO INCREASE IN ACTIVITY. NO OTHER RELEASES OR EXPOSURES OCCURRED.

*FAILURE, PIPE + WASTE HANDLING + WASTE DISPOSAL, LIQUID + EVAPORATION + *INCIDENT, EQUIPMENT + NFS + *FUEL REPROCESSING

15007

NUCLEAR FUEL SERVICES PLANT SHUTDOWN, FEBRUARY 17
 NUCLEAR FUEL SERVICES, INC., WHEATON
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(10), PAGE 26 (MARCH 6, 1967) DOCKET NO. 50-101

(LETTER, FEB. 11) NFS WILL SHUT DOWN FOR 30 DAYS FOR MAINTENANCE AND EXAMINE OPERATIONS FROM VIEW POINT OF AEC FEBRUARY 7 LETTER. A LETTER 14 FEBRUARY RELATED AN ACCIDENTAL TRANSFER OF LOW-LEVEL WASTE SOLUTIONS TO THE WASTE INTERCEPTOR.

*ADMINISTRATIVE CONTROL + WASTE HANDLING + *INCIDENT, HUMAN ERROR + NFS + FUEL REPROCESSING

21716

NUCLEAR FUEL SERVICES REPORTS ON WASTE EVAPORATOR LEAK OF FEBRUARY 15, 1967
 NUCLEAR FUEL SERVICES, INC., WEST VALLEY, NEW YORK
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(18), PAGES 15-16 (MAY 1, 1967)

(LETTER, MARCH 14) DURING TRANSFER OF EVAPORATOR BOTTOMS TO WASTE STORAGE, A TECHNICIAN ENTERED THE PUMP ROOM AND DISCOVERED A LEAK IN A PIPING TEE. ABOUT 2100 LITERS WENT TO THE INTERCEPTOR FROM FLOOR DRAINS. THE INTERCEPTOR WAS NOT BEING DISCHARGED, CONTAINED 37,000 GALLONS, AND WAS 200 MR/HR AT THE RAILING. THE INTERCEPTOR CONTENTS WERE RETURNED FOR REWORK, AND THEY WERE BYPASSED FOR ROUTINE DISCHARGES DURING NONOPERATING PERIODS.

*FAILURE, PIPE + *WASTE TREATMENT, GENERAL + EVAPORATION + RADIOCHEMICAL PROCESSING + NFS + LEAK

15077

NUCLEAR FUEL SERVICES ADVISED (FEBRUARY 24) OF EFFLUENT DISCHARGE TECHNICAL SPECIFICATIONS CHANGES
 NUCLEAR FUEL SERVICES, INC.
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(11), PAGES 28-29 (MARCH 13, 1967) DOCKET NO. 50-201

(LETTER, FEB. 24) AEC DIVISION OF REACTOR LICENSING SUGGESTS TECHNICAL-SPECIFICATIONS CHANGES FOR NUCLEAR FUEL SERVICES CONSIDERATION. (A) GASEOUS EFFLUENTS (4) INCLUDES SPECIFYING METEOROLOGICAL PARAMETERS FOR DISCHARGES, QUANTITY, MONITORING AND PARTICULATE LIMITS FOR STACK DISCHARGE. (B) LIQUID EFFLUENTS (5) INCLUDING CONCENTRATION LIMITS, COLLECTION OF POTENTIALLY CONTAMINATED MATERIAL IN AN INTERCEPTOR TANK. (C) ADMINISTRATIVE REQUIREMENTS (4) INCLUDING RESPONSIBILITY FOR SAFETY REVIEW, PLANT PERSONNEL KNOWLEDGE OF EMERGENCY PROCEDURES, RECORDS OF INTERNAL INVESTIGATIONS, AND PERIODIC AUDITS.

ADMINISTRATIVE CONTROL + *EFFLUENT + WASTE DISPOSAL, GAS + WASTE DISPOSAL, LIQUID + *TECHNICAL SPECIFICATIONS + RADIOCHEMICAL PROCESSING + NFS

22435

NFS CITED FOR NON-COMPLIANCE WITH 10 CFR 20
 NUCLEAR FUEL SERVICES, INC., WHEATON, MD.
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(21), PAGES 27-28 (MAY 22, 1967)

(LETTER, APRIL 26) BASED ON INSPECTIONS JANUARY-MARCH 1967, CITATION WAS ISSUED. (1) STACK MONITORING WAS INOPERATIVE DURING FIRST HOUR OF DEC. DISSOLUTIONS OPERATIONS. DOORS TO HIGH RADIATION AREAS WERE NOT LOCKED. (2) MAINTENANCE WORKERS WERE NOT SUPPLIED PERSONNEL MONITORING TO DETERMINE RADIATION DOSE TO HANDS AND FOREARMS. (3) VARIOUS WORKERS WERE NOT ADEQUATELY INSTRUCTED IN RADIATION SAFETY PROBLEMS AND TECHNIQUES. (4) SURVEYS WERE NOT PERFORMED WHEN IT WAS NECESSARY TO EVACUATE THE LAUNDRY BECAUSE OF THE FIXED AIR-SAMPLER READING.

MONITOR, PERSONNEL + MONITOR, STACK + TRAINING + COMPLIANCE + NFS + FUEL REPROCESSING + SURVEY, GENERAL

16657
NUCLEAR FUEL SERVICES PLUTONIUM INHALATION
NUCLEAR FUEL SERVICES, NEW YORK
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(29), PAGE 26 (JULY 17, 1967), DOCKET NO. 50-201

(JUNE 7) ANALYSIS RECEIVED JUNE 6, 1967. A URINE SPECIMEN TAKEN APRIL 18, 1967, SHOWED 34 DPM PU/24 HRS. THE WORKER RECALLED THAT DURING HOT-CELL WORK, HE LET A DOOR SLAM CLOSED, CUTTING HIS AIR HOSE. HE WAS WITHOUT FRESH AIR FOR 2-3 MIN. WE ESTIMATE HIS UPTAKE TO BE EQUAL TO 90% OF THE BODY BURDEN OF PLUTONIUM.

FAILURE, GENERAL + HOT CELL + *INHALATION + MAINTENANCE AND REPAIR + PERSONNEL PROTECTIVE DEVICE + *PLUTONIUM + *PERSONNEL EXPOSURE, RADIATION + RADIOCHEMICAL PLANT SAFETY + NFS + *FUEL REPROCESSING

19102
NUCLEAR FUEL SERVICES CITED FOR NON COMPLIANCE
NUCLEAR FUEL SERVICES, INC., WHEATON, MD.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGE 22 (OCTOBER 30, 1967)

(LETTER, AUGUST 28) CITATIONS INCLUDE NOT SAMPLING WHEN STACK MONITOR AND SPARE WERE INOPERATIVE, LOCKED DOORS NOT USED FOR CONTROLLING ACCESS, NEITHER POLYETHYLENE NOR STAINLESS-STEEL BOTTLES WERE FULLY TESTED. ASKS FOR INFORMATION ON EROSION OF LAGOON AND ON DELAY IN URINE-MONITORING RESULTS.

SOURCE MATERIAL + MONITOR, STACK + FUEL STORAGE + TESTING + *COMPLIANCE + ANALYTICAL TECHNIQUE, URINE + STORAGE CONTAINER + FAILURE, ADMINISTRATIVE CONTROL + NFS + FUEL REPROCESSING + IMPOUNDMENT

19276
NFS REPORTS A POSSIBLE EXCESSIVE INTERNAL PLUTONIUM EXPOSURE
NUCLEAR FUEL SERVICES, WEST VALLEY, N. Y.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 25, (NOVEMBER 6, 1967)

(LETTER, OCT. 17) NFS REPORTS URINE SAMPLES COLLECTED OCT. 4-8. THE LAST SAMPLE, 10 DAYS AFTER THE INCIDENT, INDICATED AN EXCRETION OF 26 DPM PER DAY.

*PLUTONIUM + ANALYTICAL TECHNIQUE, URINE + INCIDENT, GENERAL + *PERSONNEL EXPOSURE, RADIATION + NFS + *FUEL REPROCESSING

22853
AEC-COMPLIANCE AUTHORIZES NFS CONTINUED OPERATION UNDER PLAN OF ACTION
UNITED STATES ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.
13 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(5), PAGE 29-41, (JAN. 30, 1968), DOCKET NO. 50-201

(TWX, JAN. 19) AGREES WITH PLAN OF ACTION AND SCHEDULE OF EXCEPTIONS OUTLINED IN JAN. 13/15 LETTERS. (NFS LETTER, JAN. 13.) REPLIES IN DETAIL TO DEC. 28 LETTER. NFS BELIEVES CONTAMINATION-CONTROL PROBLEMS WERE CAUSED BY VENTILATION SYSTEM BEING MARGINAL FOR UPSET CONDITIONS AND FOR HIGH BURNUP FUEL, AND TO UNEXPECTED FREQUENCY OF MAINTENANCE IN HANDLING EQUIPMENT - VENT MODIFICATIONS AND DECONTAMINATION FACILITY WILL BE COMPLETE BY APRIL 68. MANY PROBLEMS RESULT FROM LACK OF COMMUNICATION - MANY REMEDIAL STEPS BEGAN AFTER YOUR OCT. 67 INSPECTION AND WE DID NOT FURNISH YOU PROGRESS REPORTS. ADDITIONALLY, AMBIGUITIES (E.G. ADEQUATE CONTROLS) IN AEC REGULATIONS AND OUR TECH. SPECS. POSE MORE OF A PROBLEM IN THE FIELD.

ADMINISTRATIVE CONTROL + DECONTAMINATION + *MAINTENANCE AND REPAIR + *VENTILATION SYSTEM + COMPLIANCE + MODIFICATION, SYSTEM OR EQUIPMENT + TECHNICAL SPECIFICATIONS + NFS + FUEL REPROCESSING

24273
LEWIS WH
HAND OVEREXPOSURE DURING MAINTENANCE
NUCLEAR FUEL SERVICE, INC.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(14), PAGES 31-32 (APRIL 1, 1968), DOCKET 50-201

(LETTER, JAN. 31) ON DEC. 27, 1967, A MAINTENANCE FOREMAN INSPECTED EQUIPMENT IN THE GP-CELL DRAPE ROOM FOR 30 MIN. HIS THERMOLUMINESCENT DOSIMETERS (FINGER RINGS) READ 160 RADS. AN HP RESURVEY SHOWED A MAX. DOSE RATE OF 16 RADS/HR. 26 TLD FINGER RINGS ON HIS GLOVE SHOWED AN AVERAGE OF 21 RADS/HR. WITH A MAX. OF 90.6 RADS/HR AT THE PALM. THE AVERAGE HAND EXPOSURE IS ESTIMATED AT 44 RADS. *** THE BETA/GAMMA RATIO USED IN TIME LIMITS IS NOW INCREASED. GLOVES WHICH DECREASE HAND EXPOSURE YET WHICH ARE FLEXIBLE ENOUGH FOR WORK ARE BEING TESTED.

MAINTENANCE AND REPAIR + *PERSONNEL PROTECTIVE DEVICE + BETA EMITTER + *DOSIMETRY, THERMOLUMINESCENCE + *CONTAMINATION + INCIDENT, GENERAL + NFS + FUEL REPROCESSING

23364
RUNION TC
NFS DISCUSSES COMPLIANCE CITATION
NUCLEAR FUEL SERVICES
4 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(9), PAGES 28-31 (FEBRUARY 26, 1968) DOCKET 50-201

(LETTER, FEB. 2) WITH THE EXCEPTION OF ITEM 1A OF THE SEPT. 26-29 CITATION (FAILURE OF AN INDIVIDUAL TO FOLLOW NFS PROCEDURE, THE INDIVIDUAL IS NO LONGER EMPLOYED BY NFS), THE ACTIVITIES CITED WERE IN COMPLIANCE WITH TECHNICAL SPECIFICATIONS AND 10 CFR 10 AND 55. DETAILED DISCUSSION FOLLOWS.

*COMPLIANCE + FAILURE, ADMINISTRATIVE CONTROL + NFS + *FUEL REPROCESSING

23365

BAIN EE
NFS REPORTS EXPOSURE
NUCLEAR FUEL SERVICES, INC.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(9), PAGES 31-32 (FEBRUARY 26, 1968)

(LETTER, FEB. 2) THE FOURTH-QUARTER FILM BADGE OF A PLUTONIUM PRODUCTION PLANT WORKER INDICATED 3.07 REMS EXTERNAL WHOLE-BODY GAMMA RADIATION. HIS 1967 TOTAL IS 3.53 REMS AND LIFETIME TOTAL 9.18. ***ALL STATIONS WITH SIGNIFICANT PLUTONIUM WILL BE SHIELDED, AND THE CURRENT EXPOSURE RATE WILL BE POSTED DAILY.

PLUTONIUM + *PERSONNEL EXPOSURE, RADIATION + RADIATION SAFETY AND CONTROL + NFS + FUEL REPROCESSING

30900

NFS DISSOLVER OPERATIONS SUSPENDED
NUCLEAR FUEL SERVICES, INC.
2 PAGES, LETTER TO L.O. LOW, DIV. OF COMPLIANCE, MARCH 22, 1968, DOCKET 50-201

DISSOLVER OPERATIONS WERE SUSPENDED MAR. 20 WHEN (A) MAR. 8, A FILTER FAILED, RELEASING THE MONTHLY ALLOWANCE, (B) MAR. 20, AN ADDITIONAL 15% WAS RELEASED DURING REPLACEMENT OF A VESSEL OFF-GAS FILTER. THIS IS UNLIKELY TO RECUR, SINCE NUMEROUS TIMES IN THE PAST WE HAVE REPLACED FILTERS WITHOUT RUPTURE OR RELEASE.

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

FAILURE, EQUIPMENT + FILTER + COMPLIANCE + STACK + *RADIOACTIVITY RELEASE + OFF GAS + NFS + FUEL REPROCESSING

24274

PERSONNEL OVEREXPOSURES DURING FOURTH QUARTER 1967
NUCLEAR FUEL SERVICES, INC.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(14), PAGE 32 (APRIL 1, 1968), DOCKET 50-201

(LETTER, FEB. 19) REPORT DESCRIBES OVEREXPOSURES AND CORRECTIVE ACTIONS. (WHOLE BODY) - 3 EMPLOYEES RECEIVED 3.1, 3.2, AND 3.4 REMS. (SKIN) - THREE RECEIVED 7.7, 8.2, AND 9.8 REMS. (EXTREMITY) - SIX RECEIVED 10.02, 19.11, 19.41, 19.62, 20.55, AND 20.56 REMS, ALL DUE TO SPOT SOURCES. *** CHANGES TO SOP FOR CONTAMINATED WORK AREAS, TO EQUIPMENT TO MINIMIZE CONTACT MAINTENANCE, AND TO IMPROVE VENTILATION ARE BEING UNDERTAKEN. A MANIPULATOR REPAIR AND DECONTAMINATION FACILITY IS BEING BUILT.

MAINTENANCE AND REPAIR + CONTAMINATION + MODIFICATION, SYSTEM OR EQUIPMENT + *PERSONNEL EXPOSURE, RADIATION + NFS + FUEL REPROCESSING

24635

COMPLIANCE INVESTIGATION OF ALLEGED NFS EXCESSIVE DISCHARGE OF SR-90 IN LIQUID EFFLUENT
U.S. ATOMIC ENERGY COMMISSION
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(16), PAGES 3-5 (APRIL 15, 1968)

PUBLIC RELEASE OF A REPORT BY ROCHESTER COMMITTEE FOR SCIENTIFIC INFORMATION CHARGING NFS CAUSED A FEB. 27-29, 1968, INVESTIGATION. ON DEC. 16, 1967, AN RCSI AGENT SAMPLED BUTTERMILK CREEK AND THE NFS LAGOON DISCHARGE PIPE AFTER ENTERING A GAP IN THE FENCE. THE AEC-NYOO HEALTH AND SAFETY LABORATORY FIRST SAID THE SAMPLES CONTAINED 3.6 AND 0.28 MICROCURIE/LITER, AND THESE WERE QUOTED IN FEB. 25 NEWSPAPERS. A RECHECK BY HASL GAVE ONLY 0.0869 AND 0.004. NFS LOGS INDICATE A CONTROLLED RELEASE THAT DATE, BUT WITH ADEQUATE DILUTION FACTOR (4000). ORIGINAL RCSI BULLETIN USED OLD LIMIT OF 100, WHILE NEWEST LIMIT IS 0.3 MICROCURIE/LITER. INVESTIGATION SHOWED LIMITS BEING MET.

DILUTION + EFFLUENT + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + COMPLIANCE + *WASTE DISPOSAL, LIQUID + *RADIATION, PUBLIC EDUCATION + NFS + FUEL REPROCESSING

24632

AEC-NFS CORRESPONDENCE ON NFS FILTER SYSTEM PROBLEMS
U.S. ATOMIC ENERGY COMMISSION
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(16), PAGES 33-34 (APRIL 15, 1968), DOCKET 50-201

(LETTER TO COMPLIANCE, MARCH 22.) DISSOLVER OPERATIONS SUSPENDED AS DISSOLVER OFF-GAS FILTER FAILURES AND REPLACEMENTS ALLOWED MONTHLY RELEASE OF PARTICLES TO REACH 115%. (REPORT TO COMPLIANCE, MARCH 24) FILTER FAILURES DUE TO RADIATION WEAKENING ORGANIC BINDER OR GASKETS. (MARCH 26 TWX FROM COMPLIANCE) CONDITIONAL AUTHORIZATION TO RESUME OPERATIONS. (APRIL 2 LETTER FROM COMPLIANCE) LISTS 5 QUESTIONS TO BE ANSWERED IN REPORT - (1) CONSEQUENCES OF A PUFF RELEASE OF 100% OF MATERIAL IN FILTER. (2) MAXIMUM AMOUNT POSSIBLE ON FILTERS. (3) RADIATION-DAMAGE EFFECTS. (4) POSSIBILITY OF CHEMICAL AGENTS TRANSPORTED TO THE FILTER. (5) DO RADIATION/CHEMICAL AFFECTS AGGRAVATE EACH OTHERS EFFECTS.

*AIRBORNE RELEASE + AEC QUESTION + EFFLUENT + RADIATION DAMAGE + COMPLIANCE + STACK + HAZARDS ANALYSIS + *FILTER, DAMAGED + NFS + FUEL REPROCESSING

24270

NORTH ED

FILTER FAILURE ALLOWS HIGHER PARTICULATE RELEASE RATE
NUCLEAR FUEL SERVICES, INC., WEST VALLEY, N. Y.

4 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(14), PAGES 25-28 (APRIL 1, 1968), DOCKET 50-201

(LETTER, MARCH 24) ON MAR. 8-10, THE PARTICULATE RELEASE FROM THE STACK ALMOST EQUALED THE MONTHLY ALLOWANCE, DUE TO FAILURE OF THE DISSOLVER OFF-GAS FILTER (PLACED IN SERVICE MAR. 7). IT HAD BEEN LOADED FOR SEVERAL MONTHS PRIOR, READING 5 R/HR. ALTHOUGH IT MET THE DOP TEST MAR. 7, EITHER THE MEDIA BECAME POROUS OR DEVELOPED A CRACK, OR THE SEALANT HARDENED AND FAILED TO SEAL. MORE PROBABLY, THE ORGANIC BINDER EMBRITTLED, FREEING THE GLASS FIBERS AND ALLOWING THEM TO VIBRATE TO THE POINT OF FAILURE, OR TO PERMIT THEM TO MOVE RELATIVE TO EACH OTHER. FILTERS WILL BE REPLACED WITHIN A SHORT TIME AFTER REMOVAL FROM SERVICE FOR HIGH PRESSURE DROP OR HIGH RADIATION.

FAILURE, EQUIPMENT + *RADIATION DAMAGE + *FILTER, FIBERGLASS + *STACK + *FILTER, DAMAGED + *RADIOACTIVITY RELEASE + NFS + FUEL REPROCESSING

29535

A STUDY OF PARTICULATE RELEASE RATE DURING THE PERIOD MARCH 8-10, 1968
NUCLEAR FUEL SERVICES, INC.

19 PAGES, 5 FIGURES, LETTER TO J.A. MCBRIDE, DML, MARCH 24, 1968, DOCKET 50-201

DISCUSSES CAUSES AND CORRECTIVE ACTION TAKEN RELATED TO THE ABNORMAL RELEASE OF PARTICULATE MATTER TO THE STACK OF THE NFS PLANT. RELEASE CAUSED BY FAILURE OF DISSOLVER OFF-GAS FILTER, AND SEVERAL DAYS LATER, BY THE VESSEL OFF-GAS FILTER. PERIMETER MONITORS FOR RADIOACTIVITY SHOWED CONTAMINATION LEVELS AT SAME LEVEL AS PRE-OPERATIONAL DATA.

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

AIRBORNE RELEASE + *FAILURE, EQUIPMENT + FILTER, HIGH EFFICIENCY + FILTER, DAMAGED + *OFF GAS + RESPONSE TO AEC QUESTION + *NFS + SOLVENT EXTRACTION PROCESS + *FUEL REPROCESSING

24635

COMPLIANCE INVESTIGATION OF ALLEGED NFS EXCESSIVE DISCHARGE OF SR-90 IN LIQUID EFFLUENT
U.S. ATOMIC ENERGY COMMISSION

3 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(16), PAGES 3-5 (APRIL 15, 1968)

PUBLIC RELEASE OF A REPORT BY ROCHESTER COMMITTEE FOR SCIENTIFIC INFORMATION CHARGING NFS CAUSED A FEB. 27-29, 1968, INVESTIGATION. ON DEC. 16, 1967, AN RCSI AGENT SAMPLED BUTTERMILK CREEK AND THE NFS LAGOON DISCHARGE PIPE AFTER ENTERING A GAP IN THE FENCE. THE AEC-NYOO HEALTH AND SAFETY LABORATORY FIRST SAID THE SAMPLES CONTAINED 3.6 AND 0.28 MICROCURIE/LITER, AND THESE WERE QUOTED IN FEB. 25 NEWSPAPERS. A RECHECK BY HASL GAVE ONLY 0.0869 AND 0.004. NFS LOGS INDICATE A CONTROLLED RELEASE THAT DATE, BUT WITH ADEQUATE DILUTION FACTOR (4000). ORIGINAL RCSI BULLETIN USED OLD LIMIT OF 100, WHILE NEWEST LIMIT IS 0.3 MICROCURIE/LITER. INVESTIGATION SHOWED LIMITS BEING MET.

DILUTION + EFFLUENT + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + COMPLIANCE + *WASTE DISPOSAL, LIQUID + *RADIATION, PUBLIC EDUCATION + NFS + FUEL REPROCESSING

26088

URBON WG

OVEREXPOSURES IN DECONTAMINATION AND IN FILTER REPAIRS

NUCLEAR FUEL SERVICES, WEST VALLEY, N. Y.

2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(25), PAGE 19 AND 20, (JUNE 17, 1968)

(LETTER, APRIL 29) - EMPLOYEE RECEIVED 3.27 REMS WHOLE-BODY IN FIRST QUARTER 1968, 1.27 WHILE DIRECTING REMOVAL OF A COLLAPSED DISSOLVER OFF-GAS FILTER. FILTERS WILL NOW HAVE A DOWNSTREAM SUPPORT SO THEY CAN BE PLACED IN THE SHIELDED REMOVAL CASK AS A UNIT. (LETTER, MAY 6) - EMPLOYEE RECEIVED 21.55 REMS EXTREMITY EXPOSURE IN FIRST QUARTER 1968, ABOUT HALF HIGHLY LOCALIZED. AFTER EQUIPMENT REPAIR, A FINGER DOSIMETER READ 10.3 RADS. THE PRE-SURVEY GAVE EXTREMITY RADIATION LEVELS OF 590-650 MILLIRADS/HR. THE POST-SURVEY FOUND THREE SMALL HIGH-RADIATION AREAS, ONE 3 R/HR. MORE CLEANUP, REVISED PROCEDURES, AND A SAFETY FACTOR OF 2 FOR DOSE ESTIMATION ARE NOW USED.

DECONTAMINATION + MAINTENANCE AND REPAIR + *PERSONNEL EXPOSURE, RADIATION + RADIATION SAFETY AND CONTROL + FILTER, DAMAGED + NFS + FUEL REPROCESSING

28854

BAIN EE

QUARTERLY DOSE LIMITS EXCEEDED
NUCLEAR FUEL SERVICES, INC.

LETTER TO DIRECTOR, DIVISION OF COMPLIANCE, USAEC, WASHINGTON, D. C., JULY 29, 1968

DURING THE SECOND QUARTER OF 1968, FILM BADGES SHOWED ONE OPERATOR RECEIVED 3.16 REMS AND ANOTHER 3.13 WHOLE BODY GAMMA RADIATION. NEITHER EXCEEDS (5 N-18) LIMITS. BOTH WERE WITHDRAWN FROM PLUTONIUM PRODUCTION FACILITY WORK WHEN DOSIMETERS INDICATED A 2.5 QUARTERLY DOSE. ***WE WILL CONTINUE TO MINIMIZE FIELD RADIATION, TO USE MOBILE SHIELDS, AND WILL LOWER DOSE LIMITS FROM 2.5 TO 2.0 REMS.

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

FABRICATION FACILITY + PERSONNEL PROTECTIVE DEVICE + PLUTONIUM + COMPLIANCE + FUEL ELEMENT + PERSONNEL EXPOSURE, RADIATION + RADIATION SAFETY AND CONTROL + SHIELDING + FILM, GENERAL + *SPECIAL NUCLEAR MATERIAL

28049

FILTER FAILURE AT WEST VALLEY PLANT
NUCLEAR FUEL SERVICES, INC., WEST VALLEY, N. Y.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(38), PAGE 29 AND 30, (SEPT. 16, 1968), DOCKET NO. 50-201

(TWX TO COMPLIANCE) ON SEPT. 4, 1968, ONE FILTER OF 30 IN THE MAIN VENTILATION FILTER BANK FAILED. 1-2(OF THE FILTER WAS DISCHARGED FROM THE STACK AND FELL ON TO ROOF. PROBABLE CAUSE WAS FILTER PRESSURE DROP, AT UPPER OPERATING LIMIT. HIGH PRESSURE DROP ALARM IS BEING REDUCED 18(, AND LOW PRESSURE DROP ALARM IS ADJUSTED TO INCREASE SENSITIVITY TO SINGLE FILTER FAILURE. NOT A REPORTABLE INCIDENT BECAUSE ANALYSIS OF ADJACENT FILTER AND STACK SAMPLER INDICATE 11(OF MONTHLY ALLOWANCE DISCHARGED. SURVEY OF SITE PERIMETER DID NOT SHOW RADIATION INCREASE ABOVE BACKGROUND.

AIRBORNE RELEASE + VENTILATION SYSTEM + STACK + INCIDENT, EQUIPMENT + *FILTER, DAMAGED + *PRESSURE DROP + NFS
+ FUEL REPROCESSING

28050

NFS SHUTDOWN TO EVALUATE FILTER FAILURE
NUCLEAR FUEL SERVICES, INC., WEST VALLEY, N. Y.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(38), PAGE 30, (SEPT. 16, 1968), DOCKET NO. 50-201

(LETTER TO NFS, SEPT. 6, 1968) CONFIRMS SEPT. 6 PHONE CALL THAT WEST VALLEY PLANT OPERATION WILL NOT BE RESUMED UNTIL THE FOLLOWING IS REVIEWED BY AEC - (1) AMOUNT OF RADIOACTIVITY RELEASED FROM STACK SEPT. 4, 1968, (2) NFS EVALUATION, INCLUDING PROBABLE CAUSE AND CORRECTIVE ACTION, (3) INFORMATION REQUESTED IN APRIL 2, 1968, LETTER, INCLUDING IMMEDIATE WARNING OF ABNORMAL CONDITIONS IN VENTILATION AND OFFGAS SYSTEMS. ITEMS 1 AND 2 ARE NECESSARY TO CONFIRM TECH.-SPEC. REQUIREMENTS MET (PARAGRAPHS 4.1.1, 7.1.2.2 AND 7.1.7.3).

*AIRBORNE RELEASE + VENTILATION SYSTEM + COMPLIANCE + STACK + INCIDENT, EQUIPMENT + *FILTER, DAMAGED + OFF GAS
+ NFS + FUEL REPROCESSING

28128

LETTER, NFS TO DIVISION OF MATERIAL LICENSING (AEC)
NUCLEAR FUEL SERVICES, INC.
2 PAGES, LETTER TO J. A. MCBRIDE FROM E. D. NORTH, SEPTEMBER 10, 1968, DOCKET 50-201

BRIEF DISCUSSION OF FINDINGS OF STUDIES SURROUNDING FAILURE OF DISSOLVER OFF-GAS FILTER.

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

WASTE TREATMENT, GAS + FILTER, HIGH EFFICIENCY + *FILTER, DAMAGED + *NFS + *FUEL REPROCESSING

28161

CORRESPONDENCE RELATIVE TO NFS OFFGAS FILTERS
NUCLEAR FUEL SERVICES, INC.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(39), PAGE 14 AND 15, (SEPT. 23, 1968), DOCKET NO. 50-201

(SEPT. 10) MARCH 1968 DOG FILTER FAILURE WAS DUE TO MOISTURE WEAKENING PLYWOOD CASING. (SEPT. 11 TWX) PROVIDES INTERIM TECHNICAL SPECIFICATIONS ON FILTER RESISTANCE AND PRESSURE DROP. (SEPT. 14 TWX) SPECS. CANNOT BE MET WITHOUT EXTENSIVE SHUTDOWN AND REDESIGN OF PLANT. (SEPT. 16 TWX) INTERPRETATIONS SUPPLIED BY NFS OF AEC SEPT. 13 TWX. (SEPT. 16 TWX) AEC NOT AWARE OF NFS SEPT. 14 TWX DURING MEETING OF SEPT. 14. CONFIRM ORAL AGREEMENTS. (SEPT. 17 TWX) DML AGREES NFS MAY OPERATE ACCORDING TO AEC SEPT. 13 SPECIFICATIONS INTERPRETED BY NFS SEPT. 16 TWX.

COMPLIANCE + *FILTER, HIGH EFFICIENCY + *TECHNICAL SPECIFICATIONS + FILTER, DAMAGED + OFF GAS + *PRESSURE DROP
+ FAILURE, ADMINISTRATIVE CONTROL + NFS + FUEL REPROCESSING

28596

UNION TC
SUMMARY OF INFORMATION REQUESTED ON NFS FILTER FAILURE
NUCLEAR FUEL SERVICES, INC., WHEATON, MD.
4 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(40), PAGE 26-29, (SEPT. 30, 1968), DOCKET NO. 50-201

(LETTER TO NFS, SEPT. 17) TWO ANALYSES HAVE BEEN REQUESTED - (1) A TECHNICAL ANALYSIS OF THE SEPT. 4, 68, FILTER FAILURE, (2) A SAFETY ANALYSIS OF THE FINAL FILTER SYSTEM. FROM NFS FACTS, IT APPEARS NEW TECHNICAL SPECIFICATIONS ARE REQUIRED. ALSO PROVIDE (1) COMPREHENSIVE EVALUATION OF MATERIAL RELEASED SEPT. 4, (2) EVALUATE FILTER FAILURE CORRECTIVE ACTION, (3) EXPLAIN WHY DP SENSEP DID NOT SWITCH IN ALTERNATE FILTERS SEPT. 4, (4) 10 SPECIFIC QUESTIONS REGARDING OPERATING BEHAVIOR AND LIMITS OF FILTERS.

AEC QUESTION + FILTER OPERATION + INSTRUMENT, FLOW + TECHNICAL SPECIFICATIONS + *FILTER, DAMAGED + *OFF GAS +
PRESSURE DROP + NFS + FUEL REPROCESSING

14084
 PERSONNEL EXPOSURE AT NUMEC OCTOBER 19/20, 1966
 NUCLEAR MATERIALS AND EQUIPMENT CORPORATION
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(3) PAGE 24 (JANUARY 16, 1967)

(LETTER, NOV. 18) VALVE SETTINGS MADE IT POSSIBLE TO DRAW CONTAMINATED LIQUID INTO A STEAM CONDENSATE RECEIVER IN A WASTE EVAPORATOR. A TECHNICIAN WAS EXPOSED TO AIRBORNE PLUTONIUM NITRATE FOR 381.9 MPC HOURS DURING REPAIR OF A STEAM LEAK.

FAILURE, OPERATOR ERROR + MAINTENANCE AND REPAIR + PLUTONIUM + WASTE HANDLING + *PERSONNEL EXPOSURE, RADIATION
 + *FUEL CONVERSION + NUMEC

14085
 GLOVE BOX EXPLOSION AT NUMEC, NOVEMBER 30, 1966
 NUCLEAR MATERIALS AND EQUIPMENT CORPORATION
 4 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(3) PAGES 24-27 (JANUARY 16, 1967)

(LETTER, DEC. 27) A CREW WAS THERMALLY DECOMPOSING A FILTRATE SOLUTION (WASTE PRODUCT OF PLUTONIUM PEROXIDE PRECIPITATION) WHICH CONTAINS H₂O₂ AND PLUTONIUM PEROXIDE - DECOMPOSITION OF THE H₂O₂ BROKE THE GLASS VESSEL, PROJECTILES BROKE THE GLOVE BOX. THE OPERATOR RAN 4 TIMES THE QUANTITY DIRECTED, THE VENT WAS INADEQUATE, AND IMPURITIES COULD HAVE BEGUN CATALYTIC DECOMPOSITION. MEASUREMENTS OF UP TO 2,000,000 CPM WERE MADE, RESULTING FROM THE 0.1 GRAM PLUTONIUM LOST.

CHEMICAL REACTION + *EXPLOSION + *GLOVE BOX + FAILURE, OPERATOR ERROR + *PLUTONIUM + *FUEL CONVERSION + NUMEC

15310
 FORSCHER F
 DETAILS OF NUMEC IRIIDIUM 192 RELEASE JAN. 14, 1967
 NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(13), PAGES 31-32, (MARCH 27, 1967)

NUMEC REPORTS (FEB. 13, 1967) THAT ABOUT NOON DURING DECAPSULATION OF 2000 CURIES OF IRIIDIUM-192, SIX PELLETS WERE CUT INTO WITH A HIGH-SPEED WHEEL. HOT-CELL AIRFLOW PATTERN WAS DISTURBED BY VARIOUS OPENINGS, INCREASED FILTER PRESSURE DROP, AND INTERACTION BETWEEN THE INTRACELL ALPHA-BOXES VENT SYSTEMS AND THE NORMAL HOT-CELL VENTILATION SYSTEMS. TWO OPERATORS RECEIVED ABOUT 1 REM AND WERE EXPOSED AT 125 MPC-HOURS. DOSIMETERS INDICATED ONLY 1/10 THE FILM-BADGE READINGS. CELL MODIFICATION WILL TAKE A MONTH.

*HOT CELL + FAILURE, OPERATOR ERROR + *VENTILATION SYSTEM + MODIFICATION, SYSTEM OR EQUIPMENT + *PERSONNEL EXPOSURE, RADIATION + INCIDENT, HUMAN ERROR

15309
 FORSCHER F
 INHALATION OVEREXPOSURES OF 8 EMPLOYEES AT NUMEC APOLLO, PA.
 NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(13), PAGE 31, (MARCH 27, 1967)

NUMEC REPORTS (FEB. 20, 1967) 8 AIRBORNE EXPOSURES ABOVE 40 MPC-HOURS TO ENRICHED URANIUM. (1) TWO BLENDERS (ONE TOOK 1300 MPC-HOURS) FOUND THAT CONTAMINATED GLOVES RELEASED AEROSOLS. (2) THREE MAJAC-MILL/FILTER CUTTERS BEAT DUST BAGS THROUGH OPEN HOOD-DOORS. (3) ONE FURNACE OPERATOR WAS INEXPERIENCED AND HAD JUST BEEN TRANSFERRED. (4) TWO INCINERATOR EXPOSURES WERE DUE TO NOT CONFINING ASHES DURING TRANSFER FROM INCINERATOR TO ASH BOX.

INHALATION + *INCIDENT, GENERAL + *PERSONNEL EXPOSURE, RADIATION + FAILURE, ADMINISTRATIVE CONTROL

16324
 FORSCHER F
 AIRBORNE EXPOSURE TO 12 OPERATORS AT NUMEC, APOLLO, PA.
 NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(25) PAGE 24 (JUNE 19, 1967)

(LETTER, MAY 1) 12 OPERATORS WERE EXPOSED TO AIRBORNE ENRICHED URANIUM FOR 7-DAY PERIODS BETWEEN FEB. AND APRIL 1967, GIVING EXPOSURES MORE THAN 40 MPC-HOURS. (PWR, 4 OPERATORS) - OPERATOR ERRORS. AFTER REINSTRUCTION, NO MORE OVEREXPOSURE OCCURRED. (CE-2, 7 OPERATORS) - STRICTER SUPERVISION AND TOTAL ENCLOSURE ARE BEING CONSIDERED. (VAULT, 1 OPERATOR) - MORE-RESTRICTIVE SURFACE CONTAMINATION LIMITS ARE APPLIED TO CONTAINERS IN THE VAULT.

FABRICATION FACILITY + *INHALATION + *URANIUM + *PERSONNEL EXPOSURE, RADIATION + FUEL, POWDER TYPE

22436

NUMEC CITED FOR NON-COMPLIANCE
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(21), PAGES 28-30 (MAY 22, 1967)

(LETTER, MARCH 24) LICENSE SNM-414 (NOV. 30, 1966, EXPLOSION) THE HEAT-KILL OF EXCESS H2O2 HAD NOT BEEN REVIEWED BY THE SAFETY COMMITTEE, AND THE PLUTONIUM CONTENT WAS 10 X PERMISSIBLE.
***LICENSE 37-4456-3 (JAN. 14, 1967, IR-193 RELEASE) MATERIALS WERE NOT UNDER THE SPECIFIED SUPERVISORS. TECHNICIANS DID NOT SURVEY THEMSELVES, NOR WAS THE MONITORING INSTRUMENTATION WORKING PROPERLY. INDIVIDUAL HAD NOT BEEN ADEQUATELY INSTRUCTED IN RADIATION-SAFETY PRECAUTIONS.
***SINCE EARLY 1966, DEFICIENCIES HAVE RECURRED, AND THE NUMBER IS INCREASING. THIS APPEARS TO INDICATE ABSENCE OF EFFECTIVE MANAGEMENT CONTROLS TO ENSURE COMPLIANCE WITH SAFETY PROCEDURES.

*EXPLOSION + HOT CELL + PLUTONIUM + TRAINING + COMPLIANCE + INCIDENT, GENERAL + IPIIDIUM + FAILURE,
ADMINISTRATIVE CONTROL + SPECIAL NUCLEAR MATERIAL + *FUEL CONVERSION + NUMEC

22437

NUMEC REPLIES TO COMPLIANCE CITATION OF MARCH 24, 1967.
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(21), PAGES 30-31 (MAY 22, 1967)

(LETTER, APRIL 13) INDICATES PUZZLEMENT BY GENERAL INDICTMENT OF MANAGEMENT SAFETY CONTROLS. FACILITY IS NOT STATIC IN NATURE OF WORK, WHICH IS EXPANDING, AND DRAFT AND FULL EMPLOYMENT CAUSES EMPLOYEE MIGRATION. WE ARE INCREASING THE HP STAFF, AND AN INTERNAL REPORT FORM FOR DEFICIENCY CORRECTION HAS BEEN ESTABLISHED. THE APOLLO PLANT HAS TWICE AS MANY EMPLOYEES, AND WE INCREASED THE STAFF BY 107 IN 1966. TO MAINTAIN THIS NUMBER, WE HIRED AND TRAINED 534 PEOPLE.

*TRAINING + COMPLIANCE + RADIATION SAFETY AND CONTROL + FAILURE, ADMINISTRATIVE CONTROL + *FUEL CONVERSION + NUMEC + STAFFING

22438

PUECHL KH
NUMEC REPORTS EXPOSURES TO AIRBORNE PLUTONIUM
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(21), PAGES 31-32 (MAY 22, 1967)

(LETTER, MAY 10) THREE TECHNICIANS WERE EXPOSED ON APRIL 17 (56.2, 63, AND 68 MPC-HR) BECAUSE OF A PUNCTURED GLOVE-BOX GLOVE. SURVEY AT THE TIME REVEALED A COVERALL SLEEVE CONTAMINATED TO 50,000 CPM IN SPOTS.

GLOVE BOX + *INHALATION + PLUTONIUM + CONTAMINATION + INCIDENT, EQUIPMENT + PERSONNEL EXPOSURE, RADIATION + *FUEL CONVERSION + NUMEC

19278

NUMEC APOLLO PLANT AIR CONTAMINATION OVER EXPOSURES
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 26 AND 27, (NOVEMBER 6, 1967)

(LTR, JUNE 1) THREE MEN WERE EXPOSED TO AIR CONCENTRATIONS EXCEEDING 40 MPC-HOURS/WEEK (49.2, 198 AND 55.9, AND 58). NO CREDIT IS TAKEN FOR RESPIRATORS AT HAMMERMILL AND FURNACE. HAMMERMILL AND POWDER HANDLING ARE BEING REVISED FOR ENCLOSED OPERATIONS. SPEX MILL TRANSFERS WILL NO LONGER BE MADE AFTER DAMP-WIPING EACH CONTAINER. A PLASTIC BAG WILL BE USED.

AIRBORNE RELEASE + GLOVE BOX + *INHALATION + VENTILATION SYSTEM + *PERSONNEL EXPOSURE, RADIATION + *FUEL CONVERSION + NUMEC

19279

NUMEC PLUTONIUM-RELEASE OVER EXPOSURE MAY 4, 1967
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 27, (NOVEMBER 6, 1967)

(LETTER, JUNE 2) 5 TECHNICIANS WERE OVER EXPOSED (150, 120, 120, 120, AND 80 MPC-HOURS) TO PLUTONIUM RELEASED BY A PUMP LOCATED IN A NITRIC ACID SYSTEM WHICH CONTAINS PLUTONIUM. THE PUMP, A MINOR SOURCE OF CONTAMINATION, HAD BEEN ENCLOSED IN A PLASTIC TENT. NOW A PERMANENT GLOVE BOX HAS BEEN INSTALLED. DURING THE RELEASE, BREATHING-ZONE SAMPLERS INDICATED THAT SOLUBLE PU ROSE TO 60 MPCL NEAR THE PUMP, WHILE THE FABRICATION AREA LEVELS REMAINED BELOW 10 MPCL.

*AIRBORNE RELEASE + GLOVE BOX + *PLUTONIUM + VENTILATION SYSTEM + INCIDENT, EQUIPMENT + PERSONNEL EXPOSURE, RADIATION + PUMP + LEAK + *FUEL CONVERSION + NUMEC

19280

NUMEC DISCHARGE OF 600 GRAMS U-235 FROM LIQUID WASTE TANK
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 27 THRU 29, (NOV. 6, 1967)

(LETTER, JUNE 21) ON APRIL 24, 1967, A 1000-GAL WASTE-TANK SAMPLE ALPHA COUNT INDICATED 1.2 G/LITER OF U-235. VALVES AND AREA WERE ISOLATED, AND MIXER KEPT RUNNING. WASTE WAS DRAINED INTO 3 GALLON BOTTLES FOR REPROCESSING. LATER, ABNORMALLY LOW LIQUID LEVEL LED TO DISCOVERY OF OPEN INTERCONNECTION VALVE TO NEXT TANK, WHICH WAS BEING DUMPED TO RIVER BY A DIFFERENT CREW. ESTIMATED LOSS WAS 175 GAL OF HIGH WASTE. WASTE SYSTEM IS BEING EVALUATED FOR FIXED POISONING AND GAMMA MONITORS. SOURCE WAS APPARENTLY 4-INCH SOLVENT-EXTRACTION FACILITY AND EVAPORATORS, THROUGH SOME UNKNOWN MECHANISM.

CRITICALITY SAFETY + *FAILURE, OPERATOR ERROR + URANIUM + *WASTE DISPOSAL, LIQUID + INCIDENT, HUMAN ERROR + VALVE + FAILURE, ADMINISTRATIVE CONTROL + SPECIAL NUCLEAR MATERIAL + *FUEL CONVERSION + NUMEC

19277

NUMEC CITED FOR NON COMPLIANCE
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 25 AND 26, (NOV. 6, 1967)

(LTR, SEPT. 5) CITATIONS WERE (SNM-145) UNREPORTED EXPOSURE TO EXCESSIVE AIRBORNE URANIUM, INADEQUATE AIR-MONITORING SURVEYS, AND NOT CONDUCTING CONTAMINATION SURVEYS OR EVACUATION DRILLS AND NOT FOLLOWING ADMINISTRATIVE CONTROLS IN TRANSFERRING SNM TO UNSAFE-GEOMETRY WASTE TANKS. (SNM-414) EXPOSURES TO AIRBORNE PLUTONIUM MARCH 9 WERE NOT REPORTED UNTIL JUNE 29, 67. (37-4456-3) RADIATION LEVELS EXCEEDED 2 MREM/HR IN UNRESTRICTED AREAS. REGARDING LOSS OF URANIUM, PLEASE INFORM US OF YOUR WASTE-DISCHARGE STUDY. ROUTINELY-WORN RESPIRATORS ARE NOT AN ACCEPTABLE SUBSTITUTE FOR PROCESS CONTAINMENT AND VENTILATION CONTROLS.

CRITICALITY SAFETY + PERSONNEL PROTECTIVE DEVICE + PLUTONIUM + BYPRODUCT MATERIAL + URANIUM + VENTILATION SYSTEM + WASTE DISPOSAL, GENERAL + *COMPLIANCE + *SURVEY, RADIATION, GENERAL + *PERSONNEL EXPOSURE, RADIATION + SPECIAL NUCLEAR MATERIAL

19103

CALDWELL RD
NUMEC AIRBORNE EXPOSURE JUNE-JULY 1967
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(44) PAGE 23-(OCTOBER 30, 1967)

(LETTER, SEPT. 15) SEVERAL APOLLO-PLANT CRYSTAL OPERATORS WERE EXPOSED 1035 TO 44.5 MPC HRS. SINCE THEN THE URANYL NITRATE CRYSTALLIZATION HAS BEEN DONE IN GLOVE BOXES. THE RESPIRATORS USED WILSON R-520 FILTERS (WHICH TESTS SHOWED WERE EXCESSIVELY PENETRATED BY URANYL NITRATE CRYSTAL AEROSOL) AND A WILSON 43 CHEMICAL CARTRIDGE.

AIRBORNE RELEASE + *FILTER EFFICIENCY + *INHALATION + URANIUM + AEROSOL PROPERTIES + FILTER, HIGH EFFICIENCY + *PERSONNEL EXPOSURE, RADIATION + *FUEL CONVERSION + NUMEC

22525

NUMEC REPORTS AIRBORNE RADIOACTIVITY
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(4), PAGE 26 (JANUARY 22, 1968)

(LETTER, NOV. 13.) TWO CP-1 OPERATORS WERE EXPOSED TO AIR CONCENTRATIONS EXCEEDING 40 MPC-HR/WEEK WHILE LOADING A LOW-ENRICHMENT HAMMERMILL WITHOUT ADEQUATE VENTILATION. LOCAL EXHAUST IS BEING DESIGNED. *** APPARENTLY TWO OTHERS WERE EXPOSED (AS SHOWN BY ROUTINE BIOASSAY) WHILE CLEANING UP AFTER A COOLING-WATER LINE BROKE IN A CONTAMINATED HOOD AND LEAKED ON THE FLOOR. FIXED AIR SAMPLERS SHOWED NO DETECTABLE ACTIVITY. ANALYTICAL WORKERS WERE REINSTRUCTED TO CALL HEALTH AND SAFETY BEFORE CLEANING UP SPILLS.

*DECONTAMINATION + FAILURE, OPERATOR ERROR + *INHALATION + *VENTILATION SYSTEM + *PERSONNEL EXPOSURE, RADIATION

22524

NUMEC REPORTS AIR EXPOSURE USING
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(4), PAGES 25-26 (JANUARY 22, 1968)

(DECEMBER 13.) ONE APOLLO CRP-3 OPERATOR WAS EXPOSED IN NOVEMBER TO AIRBORNE CONCENTRATIONS OF ENRICHED URANIUM EXCEEDING 40 MPC-HR/WEEK. THE DISSOLVING OPERATIONS WILL BE REVISED, AND FUME HOODS WILL BE REPLACED WITH GLOVE BOXES.

GLOVE BOX + *INHALATION + *PERSONNEL EXPOSURE, RADIATION + URANIUM-235

22522

NUMEC REPORTS AMPUTATION IN A GLOVE BOX
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(4), PAGE 25 (JANUARY 22, 1968)

(TWX, DEC. 15.) ON DEC. 14, 1967, A TECHNICIAN OPERATING A MILLING MACHINE IN A GLOVE BOX AMPUTATED HIS HAND. HE WAS TAKEN TO A PITTSBURGH HOSPITAL AND THE HAND GRAFTED BACK ON THE ARM. ESTIMATES INDICATE LESS THAN 10 MICROCURIES OF INSOLUBLE AM/PU IN THE WOUND. REMOTE MACHINERY OPERATIONS ARE SHUT DOWN PENDING REVIEW.

*GLOVE BOX + PLUTONIUM + RADIATION INJURY TREATMENT + AMERICIUM + CONTAMINATION + *INCIDENT, NONREACTOR

24277

CALDWELL R
MILLING MACHINE ACCIDENT
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(14), PAGE 33-24 (APRIL 1, 1968)

(LETTER, FEB. 16) ON DEC. 14, 1967, A TECHNICIAN AMPUTATED HIS HAND IN A GLOVE BOX BY REACHING PAST THE CUTTER TO ADJUST A NITROGEN HOSE, ORDINARILY DONE WITH THE MACHINE OFF. THE HAND WAS DECONTAMINATED AND GRAFTED BACK ON, BUT WARMTH FAILED TO RETURN. *** CHANGES MADE WERE - (1) ADD 2 SWITCHES IN MOTOR CIRCUIT SO BOTH HANDS ARE NEEDED TO OPERATE MACHINE. (2) AN INTERLOCK PREVENTS OPERATION WHEN ACCESS TO CUTTING TOOLS IS OPEN. (3-6) SWITCHES RELABELED AND RELOCATED, LIGHTING IMPROVED, AND INDICATOR LIGHTS INSTALLED.

FABRICATION + PERSONNEL PROTECTIVE DEVICE + RADIATION INJURY TREATMENT + *CONTAMINATION + FUEL ELEMENT + MODIFICATION, SYSTEM OR EQUIPMENT + INCIDENT, NONREACTOR + NUMEC

24280

NUMEC CITED FOR NON-COMPLIANCE
NUCLEAR MATERIALS AND EQUIPMENT CORP. APOLLO, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(14), PAGE 35 (APRIL 1, 1968)

(LETTER, FEB. 21) CITATIONS AFTER AN INSPECTION WERE FOR THE FOLLOWING REASONS - (1) PERSONNEL HAVE BYPASSED THE CHANGE AREAS BY FREQUENT USE OF REAR DOORS. (2) NUMEC FAILED TO REPORT A 3.76-REM EXPOSURE DURING THE FIRST QUARTER OF CY 1966. *** (REPLY, MAR. 5) WE ARE PLEASED NO NONCOMPLIANCE NOTED TO SNM-145 AND 37-4456-3 LICENSES. THIS REFLECTS OUR EFFORT. (1) BYPASSING IS NOT ROUTINE. WAS USED ONLY FOR IN-PLANT TRANSFER OF CONSTRUCTION MATERIAL, AND DOORS HAVE BEEN POSTED. TRAINING CLASS HAS BEEN HELD ON USE OF CHANGE ROOMS. MATERIAL NOW STORED ELSEWHERE. (2) THIS WAS AN OVERSIGHT. IN SEPT. 1967, AN OVERINSPECTION PROCEDURE WAS INSTITUTED.

*COMPLIANCE + PERSONNEL EXPOSURE, RADIATION + FAILURE, ADMINISTRATIVE CONTROL + SPECIAL NUCLEAR MATERIAL + *FUEL CONVERSION + NUMEC

24278

OVER EXPOSURES TO GAMMA RADIATION, LAST HALF 1967
NUCLEAR MATERIALS AND EQUIPMENT CORP., APOLLO, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(14), PAGE 34 (APRIL 1, 1968)

(LETTER, FEB. 29) (1) THREE 18-YEAR OLD EMPLOYEES EXCEEDED 1.25 REMS IN THE QUARTER, AND WERE REMOVED FROM EXPOSURE UNTIL 5(N-18) ALLOWS RETURN. WE WERE AWARE OF THE AM-241 PRESENT IN ZPPR FUEL BUT WERE NOT AWARE OF THE 18-YEAR-OLD. PU DUST EMITS MORE X RAY BECAUSE OF LITTLE SELF-SHIELDING. (2) A 19-YEAR-OLD WAS TAKEN FROM HANDLING ZPPR AM-241-CONTAMINATED CRUCIBLES. (3) A SOURCE TECHNICIAN EXCEEDED LIFETIME LIMITS DURING THE FOURTH QUARTER. HIS JULY 1967 FILM BADGE HAD BEEN DAMAGED, AND EXPOSURE OMITTED. ESTIMATION YIELDED OVEREXPOSURE. (4) JAN.-MAR. 66 EXPOSURE TO SOURCE FOREMAN EXCEEDED 3 REMS.

*FABRICATION + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + PLUTONIUM + SOURCE, RADIATION + *AMERICIUM + *FUEL ELEMENT + *PERSONNEL EXPOSURE, RADIATION + X-RAY + NUMEC

24279

OVER EXPOSURE TO AIR CONCENTRATIONS AT APOLLO
ATOMIC ENERGY COMMISSION
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(14), PAGE 35 (APRIL 1, 1968)

(LETTER, MAR. 1) FIVE OPERATORS WERE EXPOSED TO MORE THAN 40 MPC-HOURS/WEEK. EACH WAS WEARING A RESPIRATOR, BUT NASAL CONTAMINATION EXCEEDED LIMITS, SO NO CREDIT WAS TAKEN. EXPOSURES WERE DETECTED WITH PERSONAL AIR SAMPLERS. ONE EXPOSURE OCCURRED DURING CLEANUP OF A CP-2 FURNACE. TWO OCCURRED DURING CRP-3 DISSOLVING OPERATIONS. TWO OCCURRED DURING FILTER HANDLING. FILTERS ARE ROUTINELY BAGGED, BUT OCCASIONALLY A BAG IS PUNCTURED.

*FABRICATION + *INHALATION + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + *FUEL ELEMENT + PERSONNEL EXPOSURE, RADIATION + NUMEC

25346
AEC COMPLIANCE ISSUES CEASE AND DESIST ORDER FOR NUMEC APOLLO PLANT
NUCLEAR MATERIALS AND EQUIPMENT CORP.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(21), PAGES 10-12 (MAY 20, 1968)

(LETTER, MAY 10) NUMEC FILED JAN. 31, 1968, LICENSE-AMENDMENT APPLICATION FOR CP-2 (CONVERSION) AND CF-4 (CERAMIC FABRICATION) AREAS. A COMPLIANCE INSPECTION APRIL 30 TO MAY 2, 1968, REVEALED THAT UNLICENSED OPERATIONS IN THESE AREAS BEGAN MAR. 4 AND MAR. 25. (REPLY, TWX) OPERATIONS DISCONTINUED. WE TAKE STRONG EXCEPTION TO ALLEGATION OF WILFUL NONCOMPLIANCE. MANAGER SAYS THAT OUR PRESENT LICENSE COVERS THESE OPERATIONS AND THAT CHANGES WERE PRIMARILY ENCLOSURES TO CONTROL AIRBORNE ACTIVITY AND WERE MADE ACCORDING TO SNM-145. LICENSE SUBMISSIONS WERE FOR INFORMATION BECAUSE AEC SUGGESTED THAT ALL CHANGES BE SUBMITTED TO DML FOR CASE-BY-CASE DETERMINATION IF THEY WERE NECESSARY AMENDMENTS. TALKS WITH DML LEFT HIM WITH THE IMPRESSION THAT THE MATTERS WERE PERFUNCTORY AND NO LICENSING PROBLEMS WERE INVOLVED. MANAGER WILL NOW SPECIFICALLY INQUIRE WITH EACH SUBMISSION WHETHER THE ITEM REQUIRES A LICENSE AMENDMENT, AND WILL NOT AUTHORIZE OPERATION UNTIL HE GETS WRITTEN REPLY.

*AIRBORNE RELEASE + FABRICATION FACILITY + COMPLIANCE + FUEL ELEMENT + FAILURE, ADMINISTRATIVE CONTROL + OPERATING LICENSE PROCESS + *SPECIAL NUCLEAR MATERIAL + *FUEL CONVERSION + NUMEC

28848
CALDWELL RD
WHOLE BODY COUNT EXPERIENCE
NUCLEAR MATERIALS AND EQUIPMENT CORPORATION
LETTER TO L. D. LOW, AEC COMPLIANCE, MAY 17, 1968

ALTHOUGH 10 CFR 20 DOES NOT REQUIRE REPORTING THIS, WE BELIEVE YOU WOULD BE INTERESTED. THIRTY-THREE EMPLOYEES WERE COUNTED MARCH/APRIL 1968, SELECTED BECAUSE OF PAST EXPOSURE. EIGHT EXCEEDED ICRP RECOMMENDATIONS, 6 FROM ENRICHED URANIUM OPERATIONS AT APOLLO, PA., AND 2 FROM PLUTONIUM SCRAP RECOVERY AT PARKS. FRACTION PERMISSIBLE RANGED BETWEEN 2.44 AND 1.13. THEY WILL BE RECOUNTED IN MID-JUNE, AND LUNG RETENTION TIMES WILL BE GOVERNING. WE REALIZE THAT LONG RETENTION TIMES ARE POSSIBLE FOR HIGH FIRED ACTINIDE OXIDES.

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

FABRICATION FACILITY + PLUTONIUM + OPERATING EXPERIENCE SUMMARY + *COUNTER, WHOLE BODY + *DOSE MEASUREMENT, INTERNAL + FUEL ELEMENT + ICRP + PERSONNEL EXPOSURE, RADIATION + URANIUM-235 + SPECIAL NUCLEAR MATERIAL

17273
PENNSYLVANIA STATE UNIVERSITY RECEIVES TRITIUM CONTAMINATED PACKAGE
PENNSYLVANIA STATE UNIVERSITY
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(34), PAGE 33, (AUGUST 21, 1967)

(TWX, JULY 11) LOUISIANA STATE UNIVERSITY SHIPPED A PACKAGE CONTAINING 1 CURIE OF TRITIUM AS 1 ML OF WATER. RECEIVED BY PENNSYLVANIA STATE UNIVERSITY ON JULY 10, 1967. THE PACKING MATERIAL WAS GROSSLY CONTAMINATED, AND THE LAST TUBE WITH STOPPER APPEARED TO BE EMPTY. FURTHER INVESTIGATION UNDERWAY.

SHIPPING CONTAINER + *TRANSPORTATION AND HANDLING + TRITIUM + INCIDENT, GENERAL + *RADIOISOTOPE

21656
CALIFORNIUM-252 SPILL AT PRINCETON U, SEPT. 19, 1967
PRINCETON UNIVERSITY, N. J.
4 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 33-36, (DEC. 18, 1967), DOCKET NO. 50-219

(LETTER, NOV. 1) THE SPILL OCCURRED ON SEPT. 19 DURING TRANSFER OF THE SOURCE TO A NEW MOUNT. FLAKES FROM THIN NICKEL FOILS (USED TO REDUCE CF-252 SELF-TRANSFER) HAD ACCUMULATED ON THE MOUNT AND HAD APPARENTLY DROPPED OFF WHEN THE TRANSFER (IN VIOLATION OF STANDARD PRACTICE) WAS MADE OUTSIDE A GLOVE BOX AND WITHOUT HEALTH-PHYSICS PARTICIPATION. THE SCIENTISTS CHECK SHOWED NO CONTAMINATION OF THEIR STREET CLOTHING. THE SPILL WAS DETECTED DURING A ROUTINE RADIATION SURVEY ON OCT. 3, WHEN 17 OF 24 SMEARS EXCEEDED 100 DPM. ABOUT 150 SPOTS EXCEEDED 1000 CPM. SHOES WERE CONTAMINATED BUT NO HOMES OR AUTOS.

*FAILURE, OPERATOR ERROR + SURVEY, RADIATION, GENERAL + *CONTAMINATION + FAILURE, ADMINISTRATIVE CONTROL + *CALIFORNIUM

23317
PRINCETON UNIVERSITY CITED FOR NONCOMPLIANCE
PRINCETON UNIVERSITY, PRINCETON, NEW JERSEY
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(8), PAGES 36-37 (FEBRUARY 19, 1968)

(LETTER, DEC. 15) FOLLOWING A CF-252 RELEASE DURING GLOVE-BOX OPERATIONS SEPT. 19, 1967, PRINCETON CITED FOR INADEQUATE SURVEYS, DELAYED NOTICE, AND NOT FOLLOWING RADIATION SAFETY GUIDE IN NOT USING A GLOVE BOX. (REPLY, JAN. 3) A COMPLETE REVIEW OF CF-252 HANDLING PROCEDURES HAS RESULTED IN INTENSIFIED SURVEILLANCE.

COMPLIANCE + *CONTAMINATION + RADIATION SAFETY AND CONTROL + *FAILURE, ADMINISTRATIVE CONTROL + *CALIFORNIUM

28853
BERMAN HL
LEAKING CS-137 SOURCE
DEPT. OF THE NAVY (PUGET SOUND)
LETTER TO DIRECTOR, DIV. OF MATERIALS LICENSING, USAEC, WASHINGTON, D. C., JULY 25, 1968

DURING ROUTINE LEAK TESTING OF 8 SEALED 10 MGM RA EQUIVALENT SOURCES, TWO WERE FOUND LEAKING. A TEST TUBE USED TO STORE THEM DURING CHECK WAS CONTAMINATED TO 50 MR/HR, YET THE NORMAL STORAGE WAS NOT CONTAMINATED. THEY ARE EXCELLENT FOR TREATMENT OF PELVIC CANCER BUT SHOULD THEY BE CHECKED MORE FREQUENTLY. (REPLY AUG. 12, 1968) - SINCE 1963, SEVEN LICENSES HAVE REPORTED A LEAKING MMM CS-137 SOURCE, A RATHER SMALL PERCENTAGE OF THOSE IN USE.

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

CESIUM + BYPRODUCT MATERIAL + *SOURCE, RADIATION + OPERATING EXPERIENCE SUMMARY + SURVEILLANCE PROGRAM + LEAK

29988
NONCOMPLIANCE CITATION
U.S. ATOMIC ENERGY COMMISSION
3 PAGES, LETTER TO RADIATION FACILITIES, INC., OCTOBER 2, 1968

AN INSPECTION JUNE 7, 1968, RESULTED IN A CITATION FOR (1) NOT NOTIFYING AEC WITHIN 24 HR OF AN APRIL 18, 1968, INCIDENT GIVING A PERSON A WHOLE BODY DOSE ABOVE 5 REM AND EXTREMITY DOSE ABOVE 75 REM. (2,3,4) RADIATION SURVEYS WERE NOT MADE DURING RECEIPT AND ASSEMBLY OF THE IRRADIATIONS, NGR WERE SURVEY REPORTS SENT TO REGIONAL COMPLIANCE.

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

*INCIDENT, EXPOSURE + BYPRODUCT MATERIAL + SOURCE, RADIATION + PERSONNEL EXPOSURE, RADIATION + FAILURE, ADMINISTRATIVE CONTROL

18390
OVEREXPOSURE AT ST. FRANCIS HOSPITAL
ST. FRANCIS HOSPITAL, TULSA, OKLA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(40), PAGE 32, (OCTOBER 2, 1967)

(LETTER, AUG. 10) AN EXPOSURE OF 1.519 REMS WAS RECEIVED THE SECOND QUARTER OF 1967 BY A TECHNICIAN, WHEN HE FREQUENTLY HAD TO HOLD A PATIENT FOR THE FILM. HE HAS BEEN INSTRUCTED TO WEAR A LEAD APRON FOR ALL FUTURE USE OF PORTABLE RADIOGRAPHIC DEVICES.

*PERSONNEL PROTECTIVE DEVICE + *PERSONNEL EXPOSURE, RADIATION + *RADIOGRAPHY + RADIOLOGY

23378
KAUTH JE
RADIOLOGY OVEREXPOSURES AT ST. FRANCIS HOSPITAL
ST. FRANCIS HOSPITAL, TULSA, OKLA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(15), PAGE 38, (APRIL 8, 1968)

(LETTER, MAR. 7) THREE EXPOSURES IN 4TH QUARTER 1967 EXCEEDED 1.25 REMS - (1) 1.55 REMS (2) 1.426, (3) 2.727. ALL ARE LESS THAN 5 REMS FOR THE YEAR. *** THE WORKER WITH THE LARGEST DOSE HAS BEEN DOING ALL THE SPECIAL PROCEDURES BUT NOW IS CHIEF TECHNICIAN AND SHOULD HAVE NO FURTHER PROBLEM.

PERSONNEL EXPOSURE, RADIATION + *RADIOLOGY

25633
KAUTH JE
RADIOLOGY OVEREXPOSURE
ST. FRANCIS HOSPITAL, TULSA, OKLA.
1 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(22), PAGE 22, (MAY 27, 1968)

(LETTER, MARCH 19) THE RADIOLOGY TECHNICIAN RECEIVED 1.874 REMS IN THE 4TH QUARTER OF 1967, AND 6.723 REMS FOR THE YEAR. THIS WAS BECAUSE HE WAS HOLDING PATIENTS WHILE PORTABLE FILMS WERE BEING TAKEN. HE HAS BEEN ADVISED BY LETTER AND DISCUSSION NOT TO EXPOSE HIMSELF TO A DIRECT RADIATION BEAM.

PERSONNEL EXPOSURE, RADIATION + *RADIOLOGY

17116
T. R. SCHWALM REPLIES TO COMPLIANCE CITATION OF MAY 11, 1967
THEO. R. SCHWALM, INC., LANCASTER, PA.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(33), PAGE 28 (AUGUST 14, 1967)

(LETTER, JUNE 6) (1) PLANT HAS BEEN DECONTAMINATED, (2) TRITIUM STACK RELEASE FROM NEW FACILITIES IS WELL WITHIN LIMITS, ROOF IS A RESTRICTED AREA, (3,4) MONTHLY SURVEYS ARE TAKEN OF TRITIUM RELEASED TO SEWERS, WATER SAMPLES TAKEN OF WASH LINES, (5) SURGE TESTS OF SCREENS FOR TRITIUM PAINTING SHOW 1000 DPM/100 CC. MOVING TO A SEPARATE BUILDING WILL ELIMINATE MANY PROBLEMS.

TRITIUM + *COMPLIANCE + CONTAMINATION + RADIOISOTOPE

15038
VACUUM-DRYBOX IMPLOSION
DIVISION OF OPERATIONAL SAFETY, U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, D. C. 20545
1 PAGE, SERIOUS ACCIDENTS, ISSUE NO. 276, (FEBRUARY 3, 1967)

A SIMILAR WINDOW SHOWED A SMALL CRACK WHERE FLEXING OF THE O-RING SEAL ALLOWED THE GLASS TO TOUCH A HIGH SPOT IN THE PANEL CAUSED BY WELDING DISTORTION. RECOMMENDATIONS - MACHINE FLAT THE O-RING SUPPORT CHANNEL, INSPECT, REPLACE WINDOW GASKETS REGULARLY, PROVIDE AN IMPLOSION SHIELD.

AVAILABILITY - ATOMIC ENERGY COMMISSION, DIVISION OF PUBLIC INFORMATION, WASHINGTON, D. C. 20545

ADMINISTRATIVE CONTROL + *EXPLOSION + *GLOVE BOX + WELDING + *FAILURE, FATIGUE + SHIELDING

15918 ALSO IN CATEGORIES 13 AND 17
SPONTANEOUS IGNITION OF URANIUM FOILS
DIVISION OF OPERATIONAL SAFETY, USAEC
2 PAGES, 1 FIGURE, SERIOUS ACCIDENTS BULLETIN NO. 278 (MARCH 17, 1967)

A CONTAINER WAS OPENED TO REMOVE 32 UNALLOYED 93% ENRICHED URANIUM FOILS FOR TRANSFER TO A DIFFERENT CONTAINER. LESS THAN A MINUTE AFTER THE FOILS WERE REMOVED, AND WHILE 25 FOILS WERE STILL HANDHELD, THE ENVELOPES BROKE OUT IN FLAMES. THE FIRE WAS EXTINGUISHED WITHOUT DAMAGE TO THE FACILITY, AND THE WORKERS DID NOT RECEIVE INTERNAL DEPOSITION EXCEEDING PERMISSIBLE LEVELS. THERE IS EVIDENCE THAT STORAGE OF URANIUM IN LOW-OXYGEN-CONTENT ATMOSPHERES, PARTICULARLY IN THE PRESENCE OF SMALL AMOUNTS OF WATER VAPOR, CAN LEAD TO SELF-IGNITION ON EXPOSURE TO AIR.

AVAILABILITY - AEC DIVISION OF PUBLIC INFORMATION, WASHINGTON, D. C. 20545

*ACCIDENT, GENERAL + *FABRICATION + FIRE + URANIUM + *FUEL ELEMENT + *REACTOR, GENERAL + STORAGE CONTAINER + *RADIOISOTOPE + IGNITION + *FUEL REPROCESSING + URANIUM-235

28470
SERIOUS ACCIDENTS, ISSUE NO. 292, JULY 31, 1968
ATOMIC ENERGY COMMISSION
SERIOUS ACCIDENTS, NO. 292 +. 3 PAGES, 1 FIGURE, JULY 1968

DURING CONDUCT OF NORMAL INCINERATOR OPERATIONS WITHIN A GLOVEBOX, SMOKE FROM THE FEED-END OF THE INCINERATOR CALLED ATTENTION TO THE OBVIOUSLY INADEQUATE AIRFLOW IN THE OFF-GAS SYSTEM (SEE ENCLOSED SKETCH). AFTER NOTING THAT A 6-IN. PRESSURE DROP EXISTED ACROSS THE OFF-GAS SYSTEM PRIMARY FILTER (NOTE - MAXIMUM ALLOWABLE PRESSURE DROP IS 4 IN., W.G.), BURNING WAS STOPPED AND MAINTENANCE WAS NOTIFIED TO REPLACE THE FILTER. PROPERTY DAMAGE CONSISTED OF WARPAGE OF THE 30-IN. FILTER-BOX PORT COVER. NO CONTAMINATION SPREAD WAS INVOLVED.

*FILTER + *FIRE + WASTE HANDLING + FILTER, GLASS + *WASTE TREATMENT, SOLID + WASTE MANAGEMENT + CONTAMINATION + *RADIATION SAFETY AND CONTROL + IGNITION

28127
GLOVEBOX EXPLOSION CAUSES \$42,000 DAMAGE AND PLUTONIUM 238 CONTAMINATION SPREAD
U.S. ATOMIC ENERGY COMMISSION
10 PAGES, 5 FIGURES, SERIOUS ACCIDENTS ISSUE NO. 293, AUGUST 26, 1968

PRESS RELEASE OF ACCIDENT IN WHICH THREE EMPLOYEES RECEIVED PLUTONIUM UPTAKE. FACILITIES AND OPERATIONS DESCRIBED BRIEFLY. FINDINGS DISCUSSED.

*ACCIDENT, GENERAL + AIRBORNE RELEASE + EXPLOSION + *GLOVE BOX + INHALATION + PLUTONIUM + RADIOACTIVITY RELEASE + *RADIOISOTOPE + *FUEL REPROCESSING + *FUEL CONVERSION

30001 ALSO IN CATEGORY 17
HAND EXPOSURE FROM COBALT 60 SOURCE
U. S. ATOMIC ENERGY COMMISSION
SERIOUS ACCIDENTS NO. 297 +. 3 PAGES, DECEMBER 12, 1968

A 10 CURIE CO-60 SOURCE AND A 300 CURIE SOURCE WERE RECEIVED TOGETHER AND STORED FOR 3 WEEKS. AFTER THEIR REMOVAL, A ROUTINE SURVEY FOUND THE SHIPPING CONTAINER CONTAMINATED. THE 10 CURIE SOURCE WAS FOUND CONTAMINATED. DURING DECONTAMINATION, A SCREW TOP WAS FOUND LOOSE AND CONTENTS DUMPED OUT BY HAND (DESPITE INSTRUCTION TO USE TOOLS), ASSUMING CONTENTS WAS A CAPSULE. PELLETS FOUND INSTEAD, AND REPLACED BY HAND, USING TWEEZERS. FILM BADGES LATER SHOWED (A) 655 (+-45%) REM LEFT HAND AND 54 REM RIGHT HAND, (B) 23 REM LEFT HAND AND 10 REM RIGHT HAND. SELF READING DOSIMETERS WERE NOT WORN. PARTIAL BODY SHIELDING WAS USED.

INCIDENT, EXPOSURE + COBALT + *DECONTAMINATION + FAILURE, OPERATOR ERROR + PERSONNEL PROTECTIVE DEVICE + *SOURCE, RADIATION + PERSONNEL EXPOSURE, RADIATION + INCIDENT, NONREACTOR + FAILURE, ADMINISTRATIVE CONTROL + REMOTE MANIPULATING AND VIEWING

26394

LOST SOURCE USED FOR DENSITY GAUGE
THE SHERWIN-WILLIAMS CO., CHICAGO, ILLINOIS
1 PAGE, LETTER TO AEC DIV. OF COMPLIANCE FROM W. A. STARKOVICH, APRIL 2, 1968

IN EARLY DEC. 1967, COMPANY DISCOVERED THAT A 50-MILLICURIE CESIUM-137 SEALED SOURCE (PART OF A DENSITY GAUGE) WAS MISSING BUT FAILED TO NOTIFY AEC UNTIL MARCH 26, 1968. DURING THE INTERIM, AN EXTENSIVE SEARCH WAS MADE. ONE EMPLOYEE STATED THAT HE REMEMBERED CLEANING UP THE AREA AND HAD THROWN THE MATERIAL IN THE WASTE DUMPSTER. THE COMPANY WAS CITED FOR FAILURE TO NOTIFY.

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

RADIATION SAFETY AND CONTROL + *RADIOGRAPHY + *SOURCE, RADIATION, LOST + FAILURE, ADMINISTRATIVE CONTROL

25634

LOST RADIATION SOURCE
SHERWIN WILLIAMS CO., CHICAGO, ILL.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE, 14(22), PAGE 22 AND 23, (MAY 27, 1968)

(LETTER, APRIL 2) A 0.05-CURIE CS-137 SOURCE WAS NOT IN ITS LOCATION FOR DEC. 1967 WIPE TESTS. THE INSTRUMENT SUPERVISOR WAS OFF WORK DUE TO ILLNESS, AND WE AWAITED HIS RETURN BECAUSE THE ELECTRONIC PORTION OF THIS DENSITY GAUGE WAS OUT FOR REPAIR. ON FEB. 22, A CLEANER REMEMBERED THROWING THE SOURCE IN THE WASTE DUMPSTER. IN MARCH, THE LOCAL AEC OFFICE CITED US FOR LACK OF COMMUNICATION. WORK ON THE REMAINING UNITS WILL REQUIRE A SAFETY PERMIT, AND THIS WILL BE SO POSTED AT THE UNITS. MONTHLY, THE INSTRUMENT MAN WILL CHECK THAT THE UNITS ARE IN PLACE.

CESIUM + RADIOISOTOPE + FAILURE, MAINTENANCE ERROR + *SOURCE, RADIATION, LOST

24203

BERMAN HL
CO-60 TELE THERAPY INCIDENT AT SINAI HOSPITAL
SINAI HOSPITAL OF BALTIMORE, INC., BALTIMORE, MD.
2 PAGES, JANUARY 11, 1968, ATOMIC ENERGY CLEARING HOUSE, 14(12), PAGES 27-28 (MARCH 18, 1968)

(LETTER, JAN. 11) ON DEC. 28, 1967, A PATIENT RECEIVED AN EXTRA 5 R (AIR DOSE) WHEN THE SOURCE FAILED TO RETURN TO THE SHIELD AFTER THE PRESET TIME. THE TECHNICIAN PRESSED THE OFF SWITCH WITHIN 5 SEC, ENDING THE EXPOSURE. ON JAN. 3, THE SHUTTER SPRING WAS FOUND BROKEN, RATHER THAN AN ELECTRICAL CIRCUIT MALFUNCTION.

COBALT + FAILURE, EQUIPMENT + *INCIDENT, EQUIPMENT + PERSONNEL EXPOSURE, RADIATION + *RADIOLOGY

14226

LOCKER JL
EXPLOSION AT STANDARD OIL CATALYST PLANT, LIMA OHIO, APRIL 25, 1967
STANDARD OIL COMPANY, LIMA, OHIO
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(25) PAGES 25-26 (JUNE 19, 1967)

(MAY 23) - DEPLETED URANIUM IS A COMPONENT OF CATALYST 21, WHOSE MANUFACTURE IS BEGUN BY THERMALLY DECOMPOSING A MIXTURE OF U AND AMMONIUM NITRATES, PRINCIPALLY TO GET RID OF THE NH_4NO_3 (AS N_2 , NO_2 , NO , ETC.) AND WATER. IN THE INITIAL STARTUP OF THE PLANT, AN EXPLOSION OCCURRED DUE TO A REACTION IN THE FEED MATERIAL IN THE FEED HOPPER. THE HOPPER WAS HEATED BY CONDUCTION FROM THE CALCINER, CAUSING A REACTION WHICH HEATED MORE FEED. SOON, GAS EVOLUTION EXCEEDED VENT CAPACITY. NO DAMAGE OR EXPOSURE RESULTED. INCREASED DRAFT, DECREASED FEED-HOPPER SIZE, PHYSICAL SEPARATION BETWEEN FEED HOPPER AND CALCINER, AND PRESSURE AND TEMPERATURE INDICATORS WERE ALL ADDED.

CHEMICAL REACTION + EXPLOSION + *INCIDENT, NONREACTOR + *RADIOISOTOPE + FAILURE, DESIGN ERROR + *INCIDENT, NONNUCLEAR + PRESSURE, INTERNAL

24821

ICE RD
TECHNETIUM SPILL
TEMPLE UNIVERSITY, PHILADELPHIA, PA.
1 PAGE, ATOMIC ENERGY CLEARINGHOUSE 14(15), PAGE 38 (APRIL 8, 1968)

(FEB. 27, TELEGRAM) 250 MICROCURIES OF TC-99M WAS SPILLED AT 9/30 A.M., FEB. 26, 1968. NO SIGNIFICANT WHOLE-BODY EXPOSURE, INGESTION, OR PROPERTY DAMAGE. CITY NOTIFIED SITUATION UNDER CONTROL.

*CONTAMINATION + *TECHNETIUM

25899
ICE RD
TE-99M SPILL DUE TO CARELESSNESS
TEMPLE UNIVERSITY, HEALTH SCIENCES CENTER, SCHOOL OF PHARMACY, PHILADELPHIA, PA.
3 PAGES, ATOMIC ENERGY CLEARING HOUSE 14(24), PAGE 12-14, (JUNE 12, 1968)

(LETTER, MAP. 22) AT 9 AM ON MONDAY, FEB. 26, 1968, A NUCLEAR-MEDICINE TECHNICIAN DROPPED A VIAL CONTAINING 250 MILLICURIES OF TE-99M. SHE HAD JUST FINISHED MILKING THE MO-99 GENERATOR, AND WAS CARRYING THE VIAL IN A LEAD CONTAINER TO AN ELECTROMETER WHEN SHE COUGHED AND DROPPED THE GLASS VIAL. REPLAY SHOWED THAT WHEN THE RETAINING RING WAS PLACED WELL DOWN IN THE CONTAINER, IT WAS IMPOSSIBLE TO SHAKE THE VIAL OUT. RADIATION 1 FT FROM THE SPILL WAS 48 MILLI-R/HR, AND CERTAIN FLOOR AREAS OUTSIDE THE LAB SHOWED 35,000 CPM. AREA WAS POSTED AND 6-HR HALF-LIFE TE-99M WAS ALLOWED TO DECAY (PREFERABLE TO DECONTAMINATING THE AREA).

FAILURE, OPERATOR ERROR + CONTAMINATION + *INCIDENT, HUMAN ERROR + *RADIOISOTOPE + TECHNETIUM + *ISOTOPIC GENERATOR + RADIOLOGY

19282
TRACERLAB OVEREXPOSURE DURING SOURCE LOADING
TRACERLAB, WALTHAM, MASS.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(45), PAGE 29, (NOV. 6, 1967)

(LETTER, SEPT. 5) AN EMPLOYEE RECEIVED A WHOLE-BODY DOSE OF 1.7 REMS THE WEEK OF AUG. 14, 67. THIS WAS RECEIVED DURING LOADING OF A LARGE NUMBER OF LOW-LEVEL GAMMA SOURCES, AND A SUBSTANTIAL ACCUMULATION WAS PERMITTED AT THIS WORK STATION WITHOUT REGARD TO THE DOSAGE BUILDUP.

*SOURCE, RADIATION + *PERSONNEL EXPOSURE, RADIATION + FAILURE, ADMINISTRATIVE CONTROL

17374
UNITED NUCLEAR FILTER RUPTURE RELEASE ESTIMATED AT LESS THAN 1 GRAM U235
UNITED NUCLEAR CORPORATION, NEW HAVEN, CONN.
2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(34), PAGES 33 AND 34, (AUGUST 21, 1967)

(TWX, JULY 25) WOOD RIVER JUNCTION FUELS RECOVERY PLANT SHUT DOWN OXYGEN-BURNING SYSTEM 8 (IN SNM 777) BECAUSE A RUPTURED EXHAUST FILTER WAS SUSPECTED TO HAVE RELEASED U-235, ESTIMATED AT LESS THAN 1 GRAM. INVESTIGATION UNDERWAY.

*AIRBORNE RELEASE + *URANIUM + INCIDENT, GENERAL + *FILTER, DAMAGED + URANIUM-235 + *FUEL CONVERSION

22526
CRONIN OF
UNITED NUCLEAR REPORTS OVEREXPOSURE TO AIRBORNE ACTIVITY
UNITED NUCLEAR CORP., NEW HAVEN, CONN.
1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(4), PAGE 27 (JANUARY 22, 1968)

(LETTER, DEC. 13.) THREE RECEIVED 1.5 TIMES MAXIMUM ALLOWABLE WEEKLY EXPOSURE, IN FOUR HOURS, TO AIRBORNE ALPHA EMITTER DURING CLEANUP OPERATIONS. MSA COMFO RESPIRATORS WITH TYPE-II ULTRAFILTERS WERE WORN. NO PROTECTION FACTOR ASSUMED. *** INCREASED HP COVERAGE AND EXPOSURE CONTROL DURING NONROUTINE OPERATIONS WILL BE PROVIDED. APPLICATION WAS MADE FOR USE OF A RESPIRATORY PROTECTION FACTOR.

*DECONTAMINATION + FILTER EFFICIENCY + *INHALATION + ALPHA EMITTER + PERSONNEL PROTECTIVE DEVICE + FILTER, GAS MASK + *PERSONNEL EXPOSURE, RADIATION + *RADIOISOTOPE

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

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

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

29823
 DRY RADIOACTIVE WASTE UNLOADING INCIDENT
 USAEC, DIV. OF OPERATIONAL SAFETY
 HEALTH AND SAFETY BULLETIN NO. 269 +. 1 PAGE, SEPTEMBER 27, 1968

WHEN A CASK LOAD OF CANNED WASTE WAS DUMPED INTO AN UNDERGROUND CAISSON, RADIOACTIVE DUST ESCAPED, CONTAMINATING CASK, TRUCK, WORKERS, AND GROUND. INCIDENT WAS COSTLY. ALL WERE DECONTAMINATED. A CAN LID HAD COME OFF, ALLOWING DUST TO SPREAD. SOLUTION IS TO USE A TRIPLE-GRIP PAINT-CAN CLIP (COSTS ABOUT ONE CENT) TO SECURE THE DOUBLE-FRICTION LID.

*WASTE DISPOSAL, GENERAL + WASTE HANDLING + CONTAMINATION + *INCIDENT, GENERAL + *STORAGE CONTAINER + RADIOACTIVITY RELEASE + SEAL

15083
 TRITIUM EXPOSURE AT US RADIUM CORP., DEC. 13, 1966
 U.S. RADIUM CORPORATION
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(11), PAGES 35-36, (MARCH 13, 1967)

U.S. RADIUM CORP. REPORTS JAN. 24 THAT AN R AND D SCIENTIST BREATHED AIR CONTAINING TRITIUM FROM A LEAKY GLASS TUBE FILL FACILITY. LATE REPORTING IS DUE TO ORIGINAL USE OF SUBMERSIBLE TRITIUM MPC (WHICH INDICATED NO OVEREXPOSURE). IF THE SOLUBLE MPC VALUE IS USED, ASSUMING OXIDATION HAD TAKEN PLACE, AN OVEREXPOSURE OCCURRED. IN ADDITION, AN ION CHAMBER INDICATED 100 TIMES HIGHER THAN AN IMPINGER SAMPLE.

*FAILURE, EQUIPMENT + INHALATION + MAXIMUM PERMISSIBLE CONCENTRATION (MPC) + TRITIUM + *INCIDENT, EQUIPMENT + *PERSONNEL EXPOSURE, RADIATION

15084
 TRITIUM EXPOSURE AT U.S. RADIUM CORP. JAN. 11, 1967
 U.S. RADIUM CORPORATION
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(11), PAGE 36, (MARCH 13, 1967)

U.S. RADIUM CORP., JAN. 25, REPORTS THAT A DIAL PAINTER WAS EXPOSED TO 1.46 MPC, DUE TO (1) AN ACCUMULATION OF FRESHLY PAINTED DIALS NEXT TO THE MACHINE, (2) RESIDUAL CONTAMINATION OF SAMPLING-TRAIN COMPONENTS (DRY GAS METER). THE MACHINE IS COMPLETELY ENCLOSED AND KEPT AT MINUS 3 INCHES (WATER) PRESSURE, ALTHOUGH THE AIR FLOW IS BARELY PERCEPTIBLE.

*GLOVE BOX + TRITIUM + VENTILATION SYSTEM + INCIDENT, GENERAL + *PERSONNEL EXPOSURE, RADIATION + FAILURE, DESIGN ERROR + FAILURE, ADMINISTRATIVE CONTROL

15085
 U.S. RADIUM CORPORATION TRITIUM LEAK AND STACK-DISCHARGE
 U.S. RADIUM CORPORATION
 2 PAGES, ATOMIC ENERGY CLEARING HOUSE 13(11), PAGES 36-37, (MARCH 13, 1967)

U.S. RADIUM CORP. REPORTS JAN. 31 TWO INCIDENTS. (1) JAN. 10. DURING FILLING OF GAS TUBES, SOLUBLE TRITIUM WAS MONITORED AT STACK AS 30.65 X MPC AND 763.3 X MPC. THIS IS BELIEVED DUE TO FLUSHING GAS TRAPPED IN PUMP OIL. (2) JAN. 20. DURING A REPAIR OF A GAS-FILLING TUBE, 76 CURIES WAS LOST, GIVING STACK DISCHARGE AS EITHER 9.05 X MPC (USING SUBMERSIBLE MPC) OR 1810 X MPC (USING SOLUBLE MPC). STACK WAS NOT BEING MONITORED THAT DAY.

EFFLUENT + MONITOR, STACK + TRITIUM + STACK + *INCIDENT, EQUIPMENT

21657
 US RADIUM CORP REPORTS AM-241 INHALATIONS SEPT. 11, 67
 U.S. RADIUM CORP., BLOOMSBURG, PA.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 36, (DECEMBER 18, 1967), DOCKET NO. 50-219

(LETTER, OCT. 20, 67) THREE WERE EXPOSED IN THE AM-RA-PO LABORATORY DURING GENERAL DECONTAMINATION AND ONE DURING FILTER CHANGES. ALL WERE RESPIRATORS. BASED ON AM-241(S), EXPOSURES WERE EXCESSIVE BY FACTORS OF 3.99, 3.97, 2.76, AND 1.27. THE CAUSE OF THE EXCESSIVE AIRBORNE CONTAMINATION WAS APPARENTLY A COMBINATION OF INADEQUATE VENTILATION AND EXCESSIVE REMOVABLE CONTAMINATION ON SURFACES WITHIN THE FACILITY.

*AIRBORNE RELEASE + DECONTAMINATION + *INHALATION + MAINTENANCE AND REPAIR + PERSONNEL PROTECTIVE DEVICE + VENTILATION SYSTEM + POLONIUM + RADIUM + *AMERICIUM + PERSONNEL EXPOSURE, RADIATION + FAILURE, ADMINISTRATIVE CONTROL

21659
 US RADIUM CORP REPORTS AM-241(S) INHALATION ON SEPT. 25, 1967
 U.S. RADIUM CORP., BLOOMSBURG, PA.
 1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 37, (DEC. 18, 1967), DOCKET NO. 50-219

(LETTER, OCT. 24, 67) DURING GENERAL CLEANUP OF THE AM-RA-PO LABORATORY, AN INDIVIDUAL WEARING A RESPIRATOR WAS OVEREXPOSED A FACTOR OF 24.26 ABOVE AM-241(S) MPC, BASED ON BREATHING-ZONE AIR SAMPLES. THE CAUSE OF THE EXCESSIVE AIRBORNE CONCENTRATION WAS A COMBINATION OF INADEQUATE VENTILATION AND EXCESSIVE REMOVABLE CONTAMINATION. CONTROLLING OCCUPANCY TIMES WILL BE ATTEMPTED.

AIRBORNE RELEASE + DECONTAMINATION + *INHALATION + MAINTENANCE AND REPAIR + VENTILATION SYSTEM + POLONIUM + RADIUM + *AMERICIUM + PERSONNEL EXPOSURE, RADIATION + FAILURE, ADMINISTRATIVE CONTROL

21660

US RADIUM CORP REPORTS 6 AM-241 INHALATIONS OCT. 1967

U.S. RADIUM CORP., BLOOMSBURG, PA.

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(51), PAGE 38, (DEC. 18, 1967), DOCKET NO. 50-219

(LETTER, NOV. 2, 67) FIVE INDIVIDUALS WERE OVEREXPOSED DURING DECONTAMINATION WHILE WEARING RESPIRATORS. RECEIVED 27.3, 11.37, 10.96, 1.68, AND 1.06 TIMES MPC. ONE RECEIVED 1.39 TIMES MPC WHILE FCIL PLATING 68.8 MILLICURIES OF AM-241. CONTAMINATION COULD BE HAND-TRANSFERRED DIRECTLY TO SAMPLE FILTER WHEN OPERATOR EASES DISCOMFORTURE OF LONG USE OF A RESPIRATOR. SOME INDIVIDUALS SAMPLED CONSECUTIVELY 4 OR 5 DAYS SHOW BZ AT 1/10 TH MPC, AND THEN ONE DAY SHOW 10 MPC WITHOUT LOGICAL REASONS.

AIRBORNE RELEASE + DECONTAMINATION + *INHALATION + MAINTENANCE AND REPAIR + *PERSONNEL PROTECTIVE DEVICE + POLONIUM + RADIUM + *AMERICIUM + PERSONNEL EXPOSURE, RADIATION

22527

BURTSavage EM

U.S. RADIUM ASKS CLARIFICATION OF BREATHING ZONE SAMPLES

U.S. RADIUM CORP., BLOOMSBURG, PA.

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 14(4), PAGE 27 (JANUARY 22, 1968)

(LETTER, NOV. 28.) REPORTS EXCESSIVE CONCENTRATIONS OF AIRBORNE AMERICIUM DURING WEEK OF SEPT. 4, 1967. THIS WAS NOT REPORTED ON OCT. 18 BECAUSE WE INTERPRETED 10 CFR 20.103 TO MEAN THAT ROOM-AIR CONCENTRATIONS APPLY TO ANY PERSONNEL NOT SAMPLED IN THEIR BREATHING ZONES. HOWEVER, ALL PERSONS WERE BZ SAMPLED SIMULTANEOUSLY, WHICH WAS CONSIDERED MORE VALID THAN ROOM-AIR SAMPLES, AND THUS 5 PERSONS WERE NOT REPORTED, WHILE 4 WERE REPORTED ON THE BASIS OF THEIR B-Z SAMPLES. PLEASE CLARIFY THIS INTERPRETATION.

*INHALATION + *PERSONNEL PROTECTIVE DEVICE + COMPLIANCE + *SAMPLING + REGULATION, AEC + AMERICIUM + PERSONNEL EXPOSURE, RADIATION + RADIATION SAFETY AND CONTROL

26447

DETAILED REPLY TO COMPLIANCE LETTER OF APRIL 1, 1968

U.S. RADIUM CORPORATION, MORRISTOWN, NEW JERSEY

8 PAGES, ATOMIC ENERGY CLEARINGHOUSE, 14(26), PAGES 19-26 (JUNE 24, 1968)

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

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

29142

CITATION CORRESPONDENCE

UNITED STATES RADIUM CORPORATION

LETTER TO COMPLIANCE, OCTOBER 8, 1968

REGARDING THE CITATIONS SEPT. 19, WE ARE SURPRISED AT 2 AND 4 (SURFACE CONTAMINATION) AS THESE WERE ISOLATED SPOTS BEING CLEANED UP. (1) - DURING 7 OPERATING CYCLES, OPERATOR WAS EXPOSED ONCE (TO 2X LIMIT FOR 48 MIN). THIS CHECKS WITH URINE SAMPLING. (2,4) - MEN HAVE BEEN ASSIGNED TO REMOVE FIXED RADIUM CONTAMINATION. A NEW CONTROL PROGRAM IS EFFECTIVE. DAILY WIPE SAMPLES AND HP RESPONSIBLE UNTIL CLEANED UP. (3) - THE AREA HAS BEEN OUT OF PRODUCTION SINCE LATE 1966 AND HAS NOW BEEN LOCKED. (A) TRITIUM RELEASE MAXIMUMS IN 1968 HAVE BEEN WITHIN SITE BOUNDARIES, (B) THE STACK SUMMATION METHOD WAS USED TO TREAT THE SEVERAL STACKS AS AN AREA SOURCE, USING LEAST FAVORABLE METEOROLOGY.

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

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

14079

OVEREXPOSURE AT MEDICAL COLLEGE OF VIRGINIA, NOVEMBER 29TH

MEDICAL COLLEGE OF VIRGINIA

1 PAGE, ATOMIC ENERGY CLEARING HOUSE 13(3) PAGE 20 (JANUARY 16, 1967)

(LETTER, NOVEMBER 29) A FILM BADGE RECEIVED 4 REMS IN OCTOBER. QUESTIONING AND OBSERVANCE OF WORKING HABITS REVEAL NO EXPLANATION.

*PERSONNEL EXPOSURE, RADIATION + FILM, GENERAL

26379

OVEREXPOSURE TO THERAPY TECHNICIAN
U.S. ARMY, WALTER REED ARMY MEDICAL CENTER
8 PAGES, LETTER TO AEC DIVISION OF LICENSING AND REGULATION FROM R. NYSTROM, JR., JANUARY 19, 1967

A FILM-BADGE REPORT INDICATED THAT A RADIATION-THERAPY TECHNICIAN HAD RECEIVED AN EXPOSURE OF 15.3 REMS GAMMA AND 4.93 BETA FOR THE PERIOD 6 NOV. THROUGH 3 DEC. 1966. ON ONE OCCASION THE TECHNICIAN WAS REQUIRED TO ASSIST A PATIENT FROM THE TREATMENT TABLE WHEN THE 1850-CURIE COBALT-60 SOURCE FAILED TO RETRACT. A DOSE OF 3.3 REMS WAS ATTRIBUTED TO THIS INCIDENT. WHEN AND HOW THE ADDITIONAL DOSAGE WAS ACQUIRED COULD NOT BE DETERMINED. A COMMITTEE DECLARED THE THERAPY UNIT UNSAFE, SHUT IT DOWN FOR REPLACEMENT, AND RECOMMENDED THAT TECHNICIAN BE RETURNED TO DUTY.

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

FAILURE, EQUIPMENT + SOURCE, RADIATION + INCIDENT, EQUIPMENT + *PERSONNEL EXPOSURE, RADIATION + INCIDENT, NONREACTOR + RADIOGRAPHY + *RADIOLOGY

25286

JOHNSON JL
INHALATION OF AIRBORNE URANIUM ORE DUST
WESTERN NUCLEAR, INC., JEFFREY CITY, WYO., 82310
1 PAGE, ATOMIC ENERGY CLEARING HOUSE, 14(20), PAGE 22, (MAY 13, 1968)

(LETTER, MARCH 12) BETWEEN DEC. 13, 1967, AND FEB. 6, 1968, TWO CRUSHER OPERATORS WERE EXPOSED TO AIR CONCENTRATIONS 1.05-1.70 MPC FOR NATURAL URANIUM. THIS WAS DUE TO ORE-DRYING OPERATIONS REQUIRED ONLY IN WINTER. A DIFFERENT HANDLING METHOD HAS LOWERED AIRBORNE LEVELS. OVERTIME WORK WILL BE IN ANOTHER JOB. IF INDIVIDUAL EXPOSURE APPROACHES MPC, THAT PERSON WILL BE ROTATED TO ANOTHER JOB. BASED ON 160 HR IN A 28-DAY PERIOD, EXPOSURES WERE BELOW THE TIME-WEIGHTED MPC. HOWEVER, A RECENT COMPLIANCE INSPECTION POINTED OUT THE EXCESSIVE OVERTIME WORKED.

ADMINISTRATIVE CONTROL + *INHALATION + MILLING + PERSONNEL EXPOSURE, RADIATION + *URANIUM, NATURAL

29989

OVEREXPOSURE BECAUSE OF UNUSUAL BETA TO GAMMA RATIO
WESTINGHOUSE ELECTRIC COMPANY
4 PAGES, LETTER TO L. D. LAW, COMPLIANCE, OCTOBER 22, 1968

A JULY FILM BADGE, REPORTED SEPT. 25, 68, INDICATED A MAN RECEIVED A WHOLE BODY DOSE OF 0.64 RAD (B) AND 0.07 R (G), AND A HAND DOSE OF 39.6 RAD (B) AND 1.45 R (G). ***THIS OCCURRED DURING A 40 MIN TRANSFER OF AN ACID SOLUTION OF MIXED FISSION PRODUCTS, IN A 1-3 R/HR (G) FIELD. THE NORMAL B/G RATIO IS 3. EXPERIMENTS HAVE NOT DUPLICATED THE UNUSUAL B/G RATIO, BUT FUTURE WORK WILL RECOGNIZE THIS POSSIBILITY.

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

BYPRODUCT MATERIAL + BETA EMITTER + SURVEY, RADIATION, GENERAL + FISSION PRODUCT ACTIVITY, GROSS + *PERSONNEL EXPOSURE, RADIATION

IV. Miscellaneous Occurrences

16310

AEC TESTIMONY ON REACTOR NON COMPLIANCE BEFORE JCAE, APRIL 1967
1 PAGE, NUCLEONICS WEEK, VOLUME 8 (17) (APRIL 1967)

THE DIRECTOR OF AEC COMPLIANCE DIVISION TESTIFIED THAT REGULATORY VIOLATIONS WERE FOUND IN 401 OF ALL LICENSED REACTORS IN U.S. IN 1966, FOLLOWING THE PATTERN OF THE LAST FOUR YEARS. NONCOMPLIANCES WERE FOUND IN 371 OF THE 90 REACTORS, 21 FOR FAILURE TO COMPLY WITH PROCEDURES ON IN-PLANT SAFETY REVIEW OF EXPERIMENT AND PLANT MODIFICATION OR OBSERVATION OF INSTRUMENTATION DURING CORE CHANGES, 13 FOR EXCEEDING LIMITS ON POWER OR REACTIVITY OR BORON CONCENTRATION, AND 14 FOR OPERATION WITH LESS THAN THE MINIMUM EQUIPMENT. OTHER VIOLATIONS INCLUDED INADEQUATE RADIATION SURVEYS OR RECORDS, FAILURE TO FILE REPORTS OR MAKE ROUTINE MEASUREMENTS OR TESTS OR INSPECTIONS, AND FAILURE TO POST RADIATION AREAS AS REQUIRED.

SAFETY REVIEW + *COMPLIANCE + INCIDENT, GENERAL + TECHNICAL SPECIFICATIONS + RADIATION SAFETY AND CONTROL + *FAILURE, ADMINISTRATIVE CONTROL

17941

DRL LETTER TO REACTOR FACILITY SUPERINTENDENT ON OPERATING EXPERIENCE NOTES
U. S. ATOMIC ENERGY COMMISSION, DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.
1 PAGE, AUGUST 18, 1967

(TRANSMITS ROE 67-8 AND -9) P. A. MORRIS NOTES DISTRIBUTION EXTENDED TO ALL LICENSED FACILITIES, INSTEAD OF JUST AEC-OWNED REACTORS. REPORTS ADDRESSED TO PLANT SUPT. (AS DIRECTLY RESPONSIBLE FOR OPERATION) AS WELL AS TO CORPORATE HEADQUARTERS. EXPERIENCES REPORTED WILL BE OF BENEFIT TO OPERATORS, NOT JUST ALL-INCLUSIVE INCIDENT REPORTING. EXPERIENCE HAS SHOWN THAT EVENTS AND MALFUNCTIONS ARE OFTEN REPEATED AT DIFFERENT FACILITIES, AND ONE OPERATOR'S SOLUTION MAY BE JUST WHAT ANOTHER IS LOOKING FOR.

AVAILABILITY - AEC DIVISION OF OPERATIONAL SAFETY, WASHINGTON, D. C.

REACTOR, POWER + *INCIDENT, GENERAL + REACTOR, AEC OWNED

25276

A SUMMARY OF INDUSTRIAL ACCIDENTS IN USAEC FACILITIES 1965-1966
USAEC, DIVISION OF OPERATIONAL SAFETY
TID-5360(SUPPL.6) +. 49 PAGES, DECEMBER 1967

111 OCCURRENCES (EXPOSURES ABOVE QUARTERLY LIMIT OR LOSSES GREATER THAN \$5000) LISTED. HIGHEST EXPOSURE WAS 50 REMS (AT AN ACCELERATOR), AND HIGHEST LOSS WAS \$1.45 MILLION (HARVARD ACCELERATOR FIRE). OF THE 14 DEATHS, 8 WERE FROM FALLS OR FALLING OBJECTS, 3 FROM ELECTROCUTION, 2 FROM BURNS OR EXPLOSIONS (INCLUDING 1 FROM BURNING RECORDING TAPES PRIOR TO DISPOSAL IN A WASTE PIT), AND 2 FROM AUTO ACCIDENTS. THE ONLY SERIOUS REACTOR ACCIDENT (PRTR FUEL FAILURE) COST \$0.895 MILLION (SECOND HIGHEST COST) BUT PRODUCED NO EXPOSURES ABOVE NORMAL LIMITS.

AVAILABILITY - SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C. 20402, \$0.35 COPY

EXPLOSION + FIRE + FUEL MELTDOWN + FAILURE, OPERATOR ERROR + *INCIDENT COMPILATION + PRTR (TR) + REACTOR, TEST + REACTOR, POWER + INCIDENT, FATALITY + CONTAMINATION + INCINERATION + PERSONNEL EXPOSURE, RADIATION + INCIDENT, NONREACTOR + INCIDENT, NONNUCLEAR + RADIOGRAPHY + ACCELERATOR + INDUSTRIAL SAFETY

30967

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

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

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

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

25238

CONTROL ROD MALFUNCTIONS CAUSED BY FOREIGN MATERIAL
 UNITED STATES ATOMIC ENERGY COMMISSION, DIVISION OF OPERATIONAL SAFETY
 ROE 68-8 +. 2 PAGES, SEPTEMBER 1968

DESCRIBES FIVE INSTANCES THAT OCCURRED IN 1967, AND EMPHASIZED IMPORTANCE OF SYSTEM CLEANLINESS AND ACCOUNTABILITY OF PARTS THROUGHOUT PLANT LIFE. INCIDENT (1), A 1/2-IN. NUT MISSING FROM A REPLACEMENT PROGRAM FOR BEAM CLAMP BOLTS CONDUCTED 2 MONTHS PREVIOUSLY LODGED IN DRIVE MECHANISM. (2) AT BWR, 6 ROD MALFUNCTIONS CAUSED BY FOREIGN MATERIAL INTERFERING WITH LATCHING MECHANISM. (3) AT PWR, ROD STUCK AT FULLY INSERTED POSITION (FOREIGN MATTER IN GUIDE BLOCK). (4) AT PWR, ROD STUCK 16 IN. FROM FULL INSERT BECAUSE OF METAL OBJECT IN CONTROL ROD SNUBBER, PROBABLY FROM CONSTRUCTION. (5) AT A TRIGA REACTOR, TRANSIENT ROD STUCK FULLY WITHDRAWN (DIRT IN THE PNEUMATIC CYLINDER).

REACTGR, BWR + *CONTROL ROD DRIVE + REACTOR, PWR + REACTOR, RESEARCH + OPERATING EXPERIENCE SUMMARY + TRIGA (RR) + *FAILURE, SCRAM MECHANISM + *OBSTRUCTION

KEYWORD INDEX

INFORMATION AT NSIC IS DIVIDED INTO 21 CATEGORIES. AN ITEM OF INFORMATION MAY BE KEYED TO AS MANY AS THREE OF THESE. A COLLECTION OF SELECTORS OR KEYWORDS IS USED TO DENOTE THE MAIN SAFETY RELATED POINTS COVERED IN AN ARTICLE. THE FOLLOWING INDEX IS AN ALPHABETICAL LISTING OF SELECTORS GIVING REFERENCES TO EACH ARTICLE WHICH WAS KEYED TO IT. THE CATEGORY NUMBER IS GIVEN FIRST, FOLLOWED BY THE ACCESSION NUMBER. THE ACCESSION NUMBERS ARE USED TO LOCATE BIBLIOGRAPHIC ITEMS WITHIN A CATEGORY.

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