May 15, 1992

MEMORANDUM FOR: Charles E. Rossi, Director
Division of Operational Events Assessment

FROM: Alfred E. Chaffee, Chief
Events Assessment Branch
Division of Operational Events Assessment

SUBJECT: OPERATING REACTORS EVENTS MEETING
MAY 6, 1992 - MEETING 92-06

On May 6, 1992, we conducted an Operating Reactors Events meeting (92-06) to inform senior managers from the Commission Office, ACRS, EDO, OE, RES, SECY, AEOD, NRR, and regional offices of selected events that occurred since our last briefing on April 22, 1992. Enclosure 1 lists the attendees. Enclosure 2 presents the significant elements of the discussed events.

Enclosure 3 contains reactor scram statistics for the weeks ending 04/26/92 and 05/03/92. One significant event was identified for input into the NRC performance indicator program (Enclosure 4).

Original signed by

Alfred E. Chaffee, Chief
Events Assessment Branch
Division of Operational
Events Assessment

Enclosures: As stated

cc w/enclosures:
See next page

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EAB/DOEA	EAB/DOEA	EAB/DOEA	EAB/DOEA
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05/12/92	05/12/92	05/13/92	05/15/92

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PDR ORG NRRB
PDR

IDR-5-1
Operating Experience

cc:

T. Murley, NRR (12G18)
F. Miraglia, NRR (12G18)
W. Russell, NRR (12G18)
F. Gillespie, NRR (12G18)
J. Partlow, NRR (12G18)
S. Varga, NRR (14E4)
J. Calvo, NRR (14A4)
G. Lainas, NRR (14H3)
B. Boger, NRR (14A2)
J. Zwolinski, NRR (13H24)
M. Virgilio, NRR (13E4)
D. Crutchfield, NRR (11H21)
W. Travers, NRR (11B19)
J. Richardson, NRR (7D26)
A. Thadani, NRR (8E2)
B. Grimes, NRR (9A2)
F. Congel, NRR (10E2)
J. Roe, NRR (10H5)
M. Pohida, NRR (10E4)
T. Martin, RI
W. Kane, RI
C. Hehl, RI
S. Ebneter, RII
L. Reyes, RII
B. Davis, RIII
E. Greenman, RIII
R.D. Martin, RIV
B. Beach, RIV
J.B. Martin, RV
R. Zimmerman, RV
P. Boehnert, ACRS (P-315)
E. Jordan, AEOD (MN-3701)
T. Novak, AEOD (MN-3701)
L. Spessard, AEOD (MN-3701)
E. Weiss, AEOD (MN-3206)
S. Rubin, AEOD (MN-4106)
M. Harper, AEOD (MN-9112)
W. Bateman, EDO (17G21)
R. Newlin, GPA (2G5)
E. Beckjord, RES (NLS-007)
A. Bates, SECY (16G15)
G. Rammling, OCM (16H3)
C. Trammell (PDV)
T. Quay (PDV)
A. Dromerick (PDI-4)
J. Stolz (PDI-4)

bcc: INPO
ATTN: J. Cowan
1100 Circle 75, Suite 1500
Atlanta, GA 30339

ENCLOSURE 1

LIST OF ATTENDEES

OPERATING REACTORS EVENTS FULL BRIEFING (92-06)

MAY 6, 1992

NAME	OFFICE	NAME	OFFICE
T. MURLEY	NRR	B. GRIMES	NRR
F. MIRAGLIA	NRR	J. BALL	NRR
C. ROSSI	NRR	B. BOGER	NRR
A. CHAFFEE	NRR	J. STOLZ	NRR
J. RAMSEY	NRR	R. JONES	NRR
R. DENNIG	NRR	A. DROMERICK	NRR
T. KOSHY	NRR	J. WECHSELBERGER	EDO
K. BAUMANN	NRR	P. ENG	OCM
R. SCHAAF	NRR	V. BENAROYA	AEOD
J. CARTER	NRR	P. BOEHNERT	ACRS
D. GAMBERONI	NRR	W. MINNERS	RES
S. VARGA	NRR	K. HART	SECY
R. CAPRA	NRR	R. PEDERSEN	OE
D. NOTLEY	NRR		

OPERATING REACTORS EVENTS BRIEFING 92-06
EVENTS ASSESSMENT BRANCH
LOCATION: 8 B11, WHITE FLINT
WEDNESDAY, MAY 6, 1992, 11:00 A.M.

PALO VERDE, UNIT 3	LOSS OF CONTROL ROOM ANNUNCIATION
OYSTER CREEK	MAJOR OFFSITE FIRE CAUSES LOSS OF OFFSITE POWER
LENINGRAD NUCLEAR POWER STATION, UNIT 3	FUEL DAMAGE EVENT (UPDATE)

PALO VERDE, UNIT 3
LOSS OF CONTROL ROOM ANNUNCIATION
MAY 4, 1992

PROBLEM

LOSS OF CONTROL ROOM ANNUNCIATORS, PLANT COMPUTER, AND CORE OPERATING LIMITS SUPERVISORY SYSTEM (COLSS).

CAUSE

THE ANNUNCIATOR POWER SUPPLY WAS LOST WHEN A MAINTENANCE TECHNICIAN INADVERTENTLY SHORT CIRCUITED A 24 VDC ANNUNCIATOR LEAD TO A 480 VAC SUPPLY. THE PLANT COMPUTER LOSS IS STILL UNDER INVESTIGATION.

SAFETY SIGNIFICANCE

THE ANNUNCIATOR PANEL IS NOT A SAFETY-GRADE SYSTEM. HOWEVER, LOSS OF THE ANNUNCIATORS COULD ADD TO THE CONFUSION OF OPERATION DURING AN ACCIDENT OR PLANT TRANSIENT, LESSENING THE EFFECTIVENESS OF OPERATOR RESPONSE. THE LOSS OF THE COLSS NECESSITATED A TECHNICAL SPECIFICATION REDUCTION IN POWER.

DISCUSSION

- THE PLANT WAS OPERATING AT 100% POWER.
- ALL EMERGENCY EQUIPMENT WAS AVAILABLE.
- THE FOLLOWING SEQUENCE OF EVENTS OCCURRED: (TIMES ARE MST)

0436 - ANNUNCIATORS WERE LOST WHEN MAINTENANCE TECHNICIANS SHORT CIRCUITED A 24 VDC LIFTED ANNUNCIATOR LEAD TO A 480 VAC SUPPLY.

0500 - 0700 THE LICENSEE ASSIGNED ADDITIONAL OPERATORS AND AUXILIARY OPERATORS TO MONITOR PLANT PARAMETERS.

CONTACT: D. GAMBERONI, NRR/DOEA
AIT: YES

REFERENCES: 10 CFR 50.72 #23396, AND PNO-V-92-15 DATED 05/04/92
SIGEVENT: TBD

0708 - THE CORE MONITORING COMPUTER COLSS WAS LOST. TECHNICAL SPECIFICATION 3.2.4, ACTION C, REQUIRED A POWER REDUCTION DUE TO LOSS OF THE COLSS. THE LICENSEE COMMENCED A POWER REDUCTION TO 80 PERCENT RATED THERMAL POWER.

0819 - THE PLANT COMPUTER WAS LOST. THE LICENSEE DECLARED AN "ALERT" BASED ON THE LOSS OF CONTROL ROOM ANNUNCIATORS AND THE PLANT COMPUTER.

0835 - REGION V BEGAN INCREASED REGIONAL MONITORING.

0846 - THE LICENSEE MANNED THE EMERGENCY OPERATIONS FACILITY.

0849 - THE LICENSEE EXITED THE ACTION STATEMENT FOR TECHNICAL SPECIFICATION 3.2.4. POWER WAS LESS THAN 78 PERCENT.

0854 - THE LICENSEE MANNED THE TECHNICAL SUPPORT CENTER.

FOLLOWUP

- RESIDENT INSPECTORS MONITORED THE LICENSEE ONSITE ACTIVITIES.
- REGION V STAFFED THE REGIONAL INCIDENT RESPONSE CENTER AND ENTERED INTO THE INCREASED REGIONAL MONITORING MODE.
- NRR, THE OPERATIONS CENTER, REGION V, AND THE LICENSEE MAINTAINED AN OPEN LINE OF COMMUNICATION DURING THIS EVENT.
- A COMMISSIONER ASSISTANTS BRIEFING WAS CONDUCTED.
- AN AUGMENTED INSPECTION TEAM MAY BE FORMED.

OYSTER CREEK
MAJOR OFFSITE FIRE CAUSES
LOSS OF OFFSITE POWER
MAY 3, 1992

PROBLEM

A FOREST FIRE WHICH STARTED MORE THAN A MILE FROM THE REACTOR SITE CAUSED COMPLICATIONS AT THE FACILITY INCLUDING LOSS OF OFFSITE POWER.

CAUSE

SMOKE GENERATED BY THE FIRE CAUSED THE 235 KV INSULATORS TO SHORT.

SAFETY SIGNIFICANCE

THE REACTOR FACILITY WAS IMPACTED TO A GREATER DEGREE THAN WAS ANTICIPATED BY A DISTANT FIRE. WAS THE IMPACT OF AN EXTERNAL EVENT (FIRE) ADEQUATELY CONSIDERED?

DISCUSSION

- REACTOR WAS BEING OPERATED AT 100% POWER.
- LICENSEE NOTIFIED OF A FIRE AT 13:10.
- TEMPORARY LOSS OF OFFSITE POWER DUE TO OFFSITE FIRE.
  - SMOKE BELIEVED TO HAVE SHORTED INSULATORS
- ANTICIPATORY TURBINE TRIP SIGNAL CAUSED REACTOR TRIP AT 13:26.
- SUBSEQUENT LOSS OF REACTOR FEED PUMPS RESULTED IN LOW WATER LEVEL.
- DIESEL GENERATORS STARTED AND LOADED WITH VITAL BUSES.
- ONE OFFSITE LINE WAS RE-ESTABLISHED BY 14:15.
  - FEEDING NON-VITAL BUSES
  - OFFSITE POWER CONSIDERED UNRELIABLE

CONTACT: J. CARTER, NRR

AIT: NO

REFERENCES: 10 CFR 50.72 #23394,
PNO-I-92-22 DATED 05/04/92, AND
MORNING REPORT DATED 05/04/92

SIGEVENT: TBD

- SMOKE GOT INTO CONTROL ROOM.
  - OPERATORS INITIATED RECIRCULATION MODE OF OPERATION
- LICENSEE ESTABLISHED FIRE WATCHES AND STARTED COOLING DOWN THE PLANT.
- NORMAL ELECTRICAL LINE-UP RE-ESTABLISHED BY 6:35 ON MAY 4, 1992.

FOLLOWUP

- LICENSEE IS CONDUCTING POST TRIP REVIEW OF EVENT.
- RESIDENT INSPECTORS ARE FOLLOWING LICENSEE'S REVIEW OF EVENT.
- POTENTIAL IMPACT OF SMOKE ON FIRE PROTECTION SYSTEMS (E.G., DIESEL ROOM AND HALON) AT FACILITY BEING ASSESSED.
  - THE SRP (FIRE PROTECTION PROGRAM) DOES NOT EXPLICITLY ADDRESS THE CONSEQUENCES OF OFFSITE FIRES

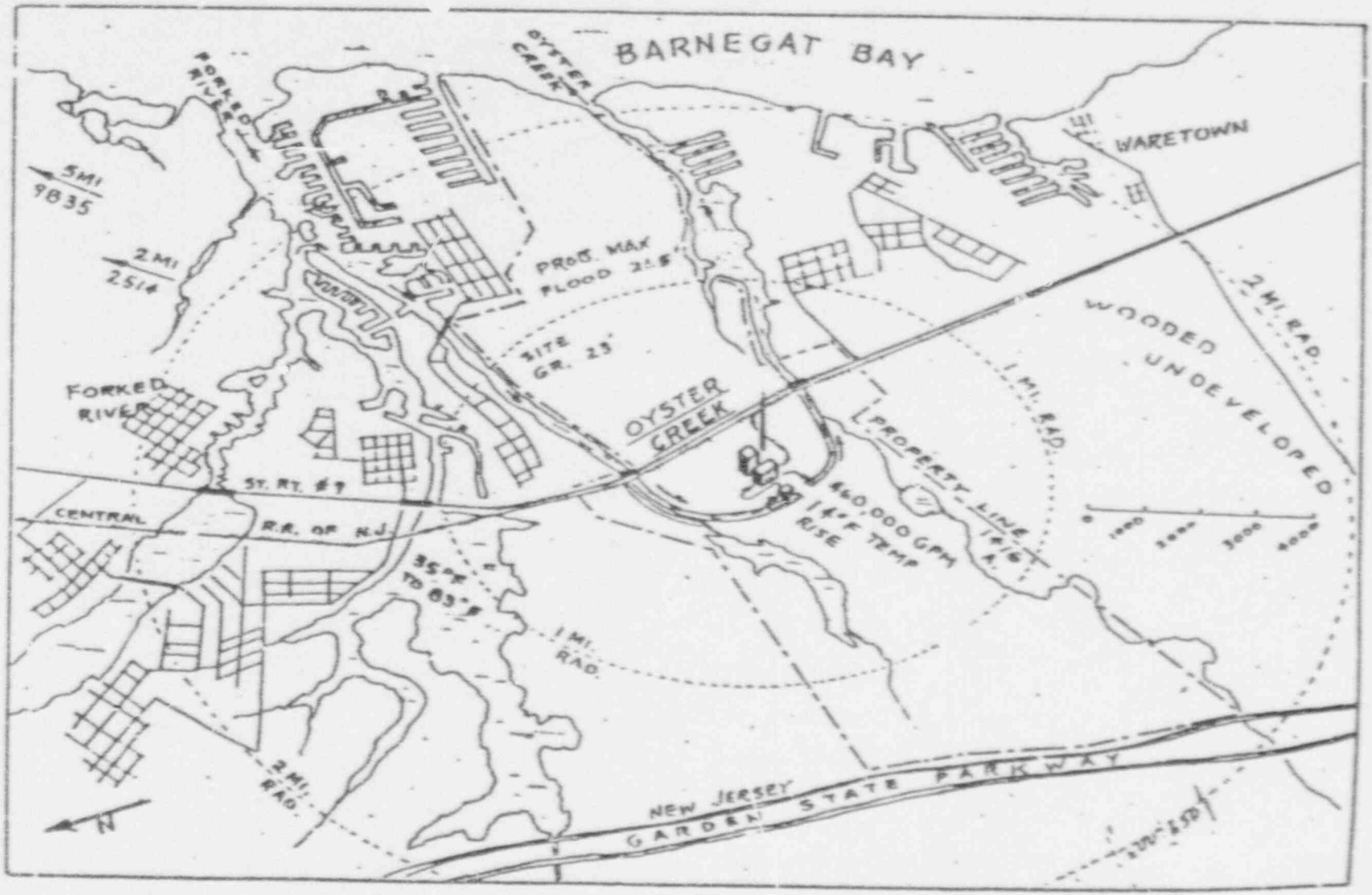


Figure 4-1. General View of Oyster Creek Nuclear Power Plant and Vicinity

CALLED NORTH

LENINGRAD, UNIT 3
FUEL DAMAGE EVENT (UPDATE)
MARCH 24, 1992

PROBLEM

FUEL DAMAGED DUE TO LOSS OF COOLANT FLOW IN ONE OF THE UNIT 3 PRESSURE TUBES.

CAUSE

FAILURE OF SHUTOFF AND CONTROL VALVE.

SAFETY SIGNIFICANCE

RELEASE OF RADIOACTIVITY TO ENVIRONMENT.

EVENT DESCRIPTION

- APPROX 2:34 A.M. LOCAL TIME, FAILURE OF SHUTOFF AND CONTROL VALVE RESULTED IN LOSS OF COOLANT FLOW TO PRESSURE TUBE 52-16.
- LOSS OF COOLANT FLOW WOULD HAVE RESULTED IN INCREASED POWER (POSITIVE VOID AND MODERATOR TEMPERATURE COEFFICIENTS).
- FUEL DAMAGE AND FAILURE OF PRESSURE TUBE OCCURRED.
- REACTOR TRIPPED ON HIGH REACTOR CAVITY PRESSURE.
- STEAM DIRECTED TO REACTOR VAULT OVERPRESSURE PROTECTION COMPARTMENT.
- IODINE AND NOBLE GASES RELEASED TO ENVIRONMENT.

CONTACT: J. RAMSEY, NRR/DOEA
REFERENCE: 10 CFR 50.72 #23087

AIT: NO
SIGEVENT: NO

TYPICAL RBMK OPERATING CHARACTERISTICS

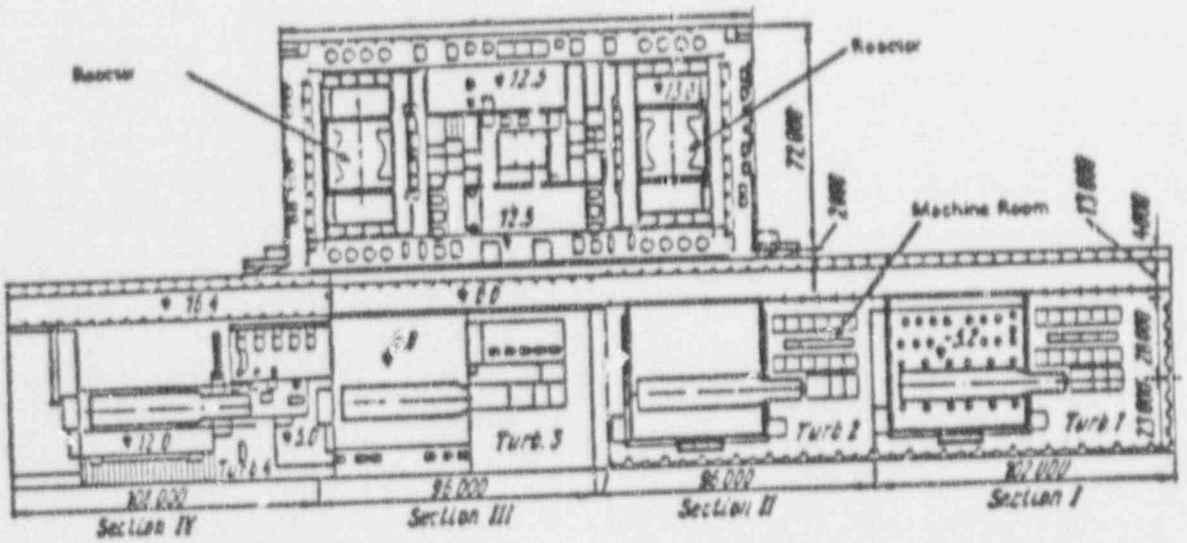
REACTOR

THERMAL POWER (MEGAWATTS)	3200
ELECTRIC POWER (MEGAWATTS)	1000

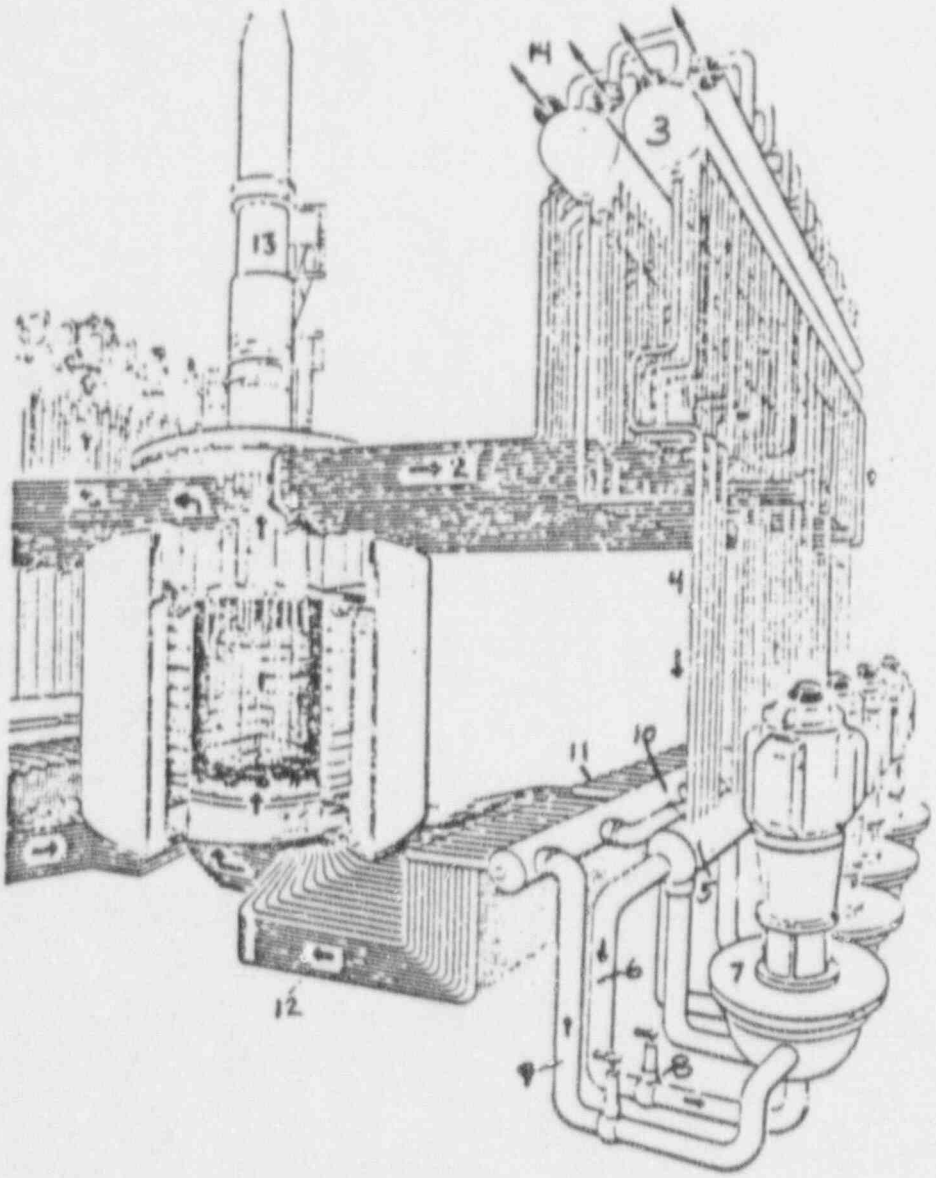
FUEL ASSEMBLIES AND PRESSURE TUBES

NUMBER OF PRESSURE TUBES (APPROX)	1690
NUMBER OF FUEL ASSEMBLIES PER PRESSURE TUBE	2
NUMBER OF FUEL RODS PER FUEL ASSEMBLY	18
THERMAL POWER PER PRESSURE TUBE (MEGAWATTS)	1.9
INLET TEMP (DEGREES F)	518
OUTLET TEMP (DEGREES F)	543
OPERATING PRESSURE (PSIG)	986
PRESSURE TUBE OD (INCHES)	3.46
PRESSURE TUBE WALL THICKNESS (INCHES)	0.158
FUEL ASSEMBLY OD (INCHES)	3.1
FUEL ROD OD (INCHES)	0.5
FUEL ROD CLADDING THICKNESS (INCHES)	0.035
MAX CLAD TEMP (DEGREES F)	613
MAX FUEL TEMP (DEGREES F)	3812

TYPICAL RBMK-1000 POWER STATION LAYOUT

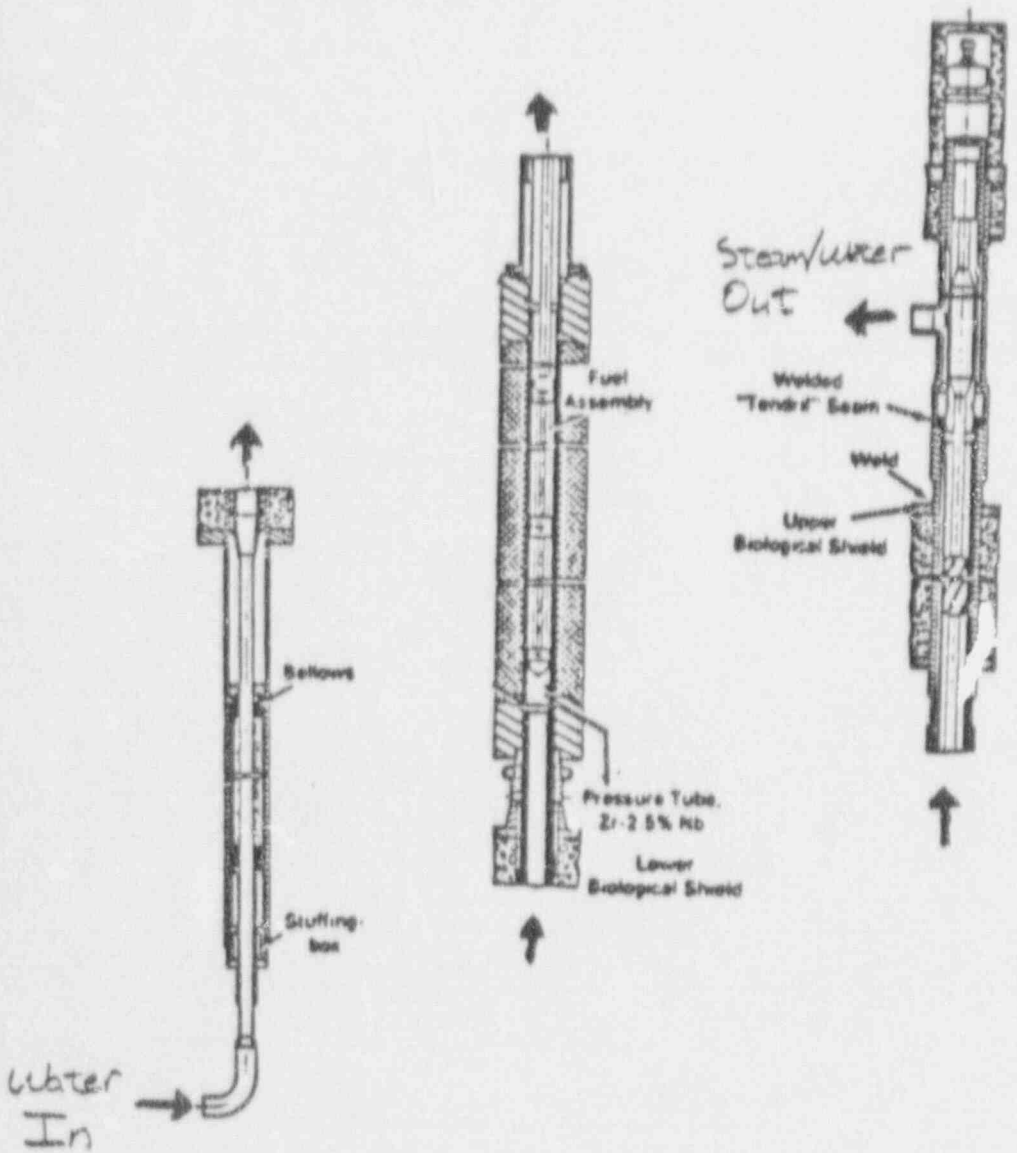


TYPICAL RBMK-1000 REACTOR

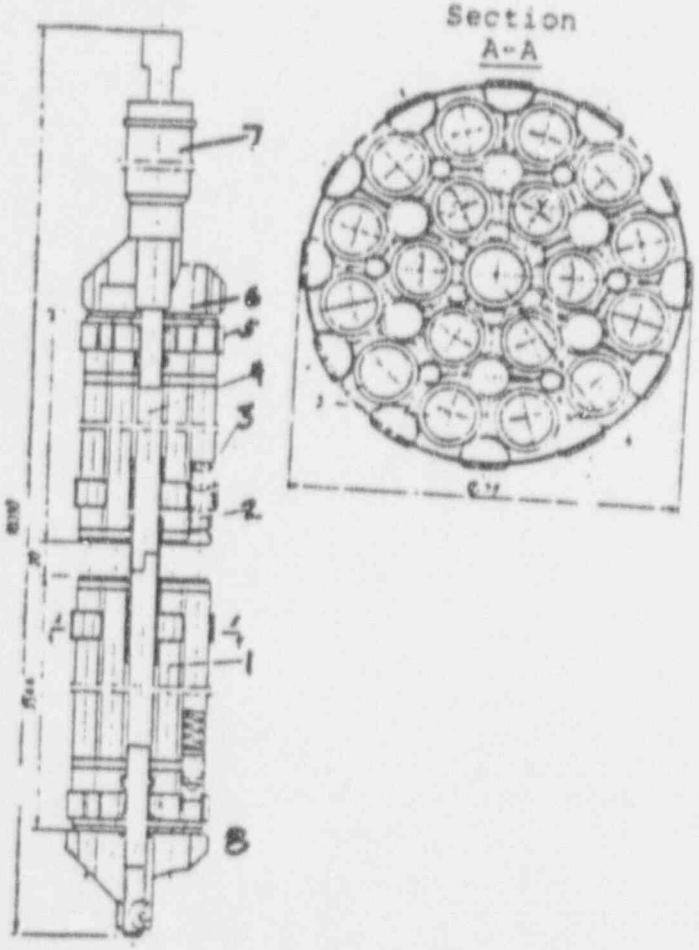


1) Reactor
2) Individual steam/water pipes
3) Horizontal drum separators
4) Drain pipes
5) Primary circulating pump suction header
6) Primary circulating pump suction piping
7) Primary circulating pump
8) Primary circulating pump isolation valve(s)
9) Primary circulating pump discharge pipe
10) Primary circulating pump discharge header
11) Group discharge header
12) Individal pressure tube water pipes
13) Refueling machine
14) Main steam piping

TYPICAL RBMK-1000 FUEL CHANNEL

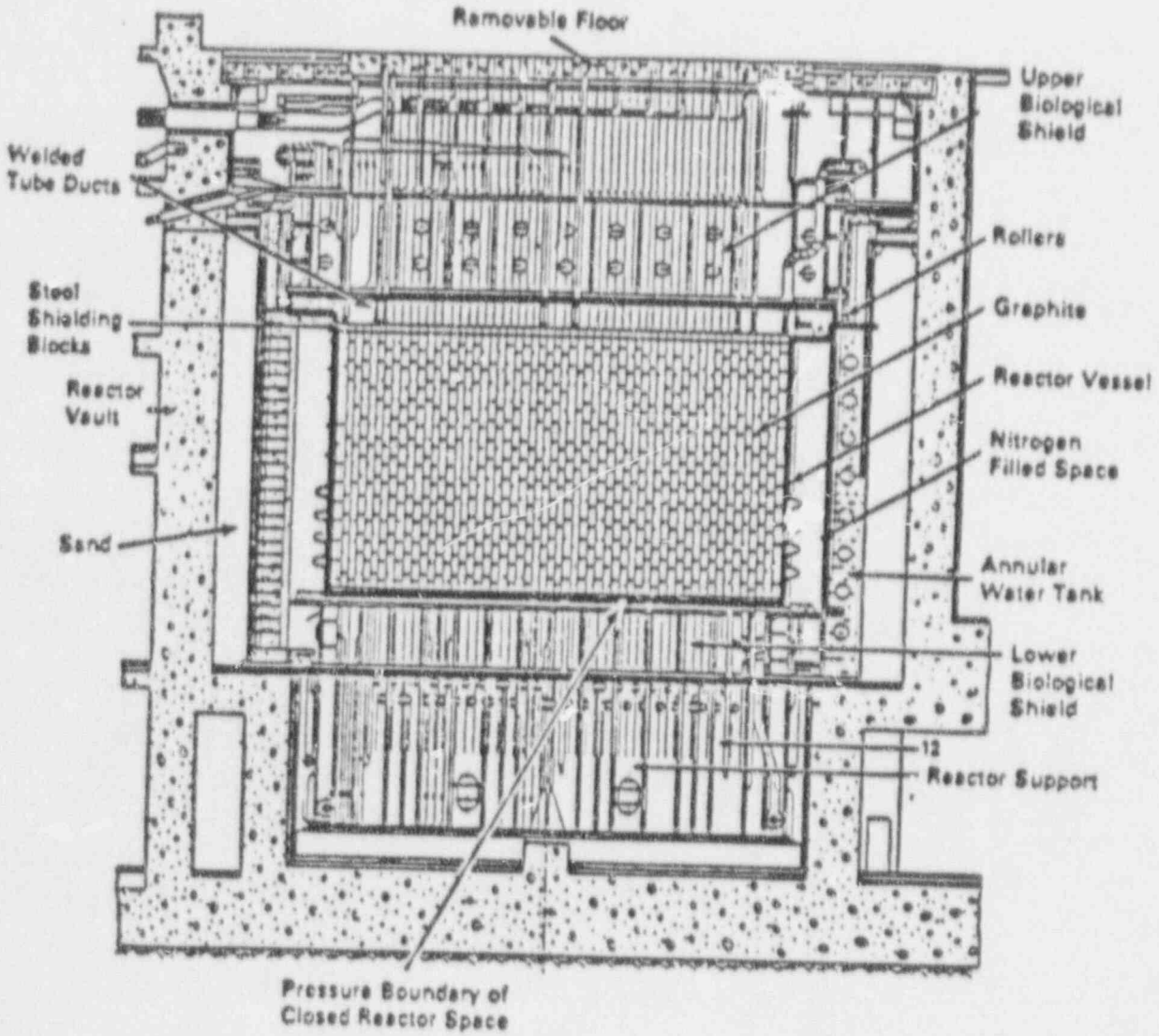


TYPICAL RBMK-1000 FUEL ASSEMBLY

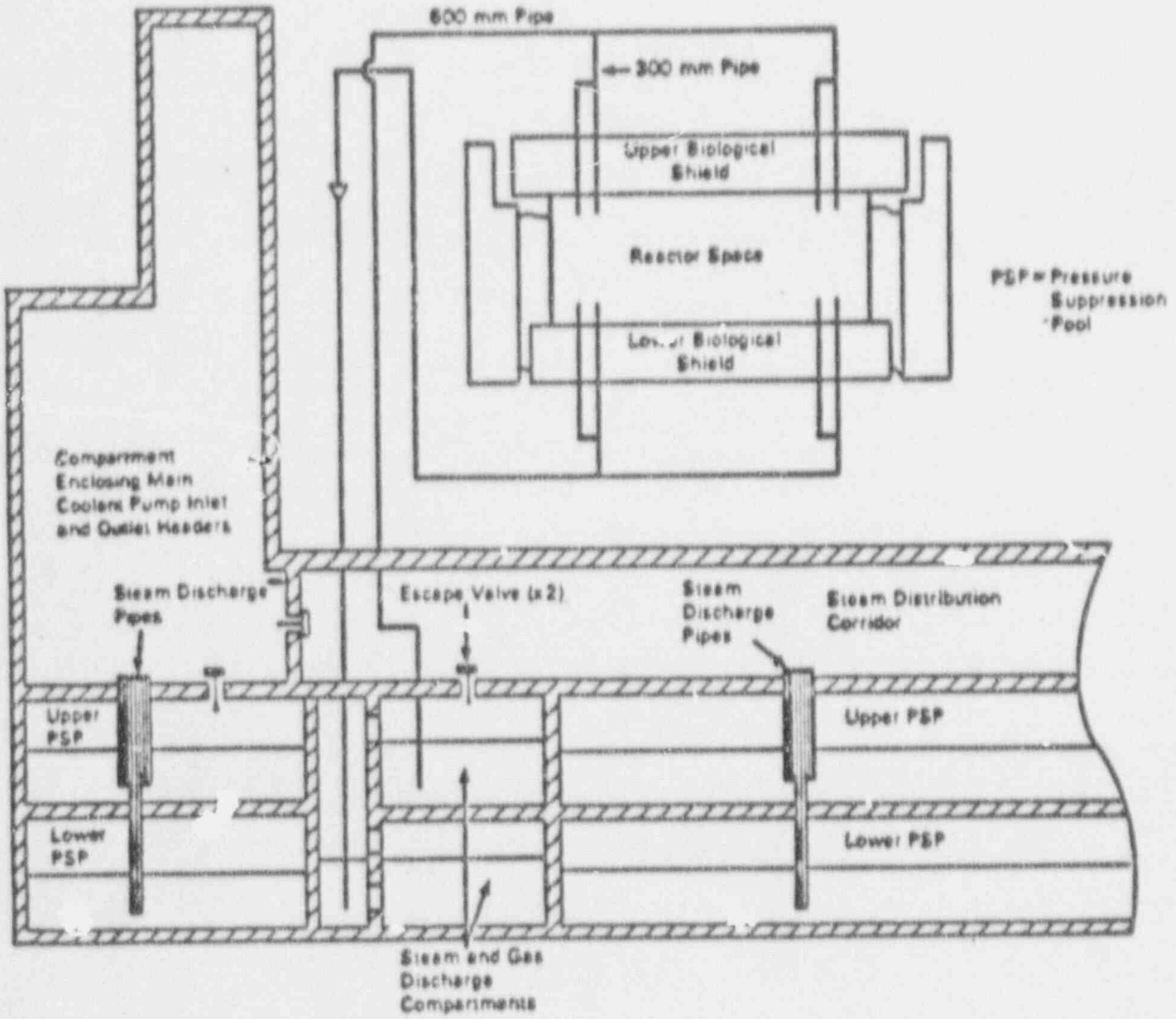


1) Bottom fuel assembly
2) Top fuel assembly
3) Fuel rods
4) Supporting tube
5) Spacing grid
6) Guide
7) Hanger
8) Nosepiece

TYPICAL RBMK-1000 REACTOR CORE ARRANGEMENT



TYPICAL RBMK-1000 ACCIDENT LOCALIZATION SYSTEM



REACTOR SCRAM SUMMARY
WEEK ENDING 04/26/92

I. PLANT SPECIFIC DATA(1)

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE	COMPLI-ANCE(3)	YTD ABOVE 15%	YTD BELOW 15%	YTD TOTAL
04/21/92	ST LUCIE	2	12	P	EQUIPMENT	NO	0	1	1
04/24/92	SAN ONOFRE	2	79	A	EQUIPMENT	NO	1	0	1
04/24/92	SAN ONOFRE	3	0	M	EQUIPMENT	NO	0	1	1
04/25/92	DIABLO CANYON	1	50	A	PERSONNEL	NO	2	0	2
04/26/92	SALEM	2	4	A	PERSONNEL	NO	0	1	1

REACTOR SCRAM SUMMARY
WEEK ENDING 05/03/92

I. PLANT SPECIFIC DATA(1)

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE	COMPLI-ANCE(3)	YTD ABOVE 15%	YTD BELOW 15%	YTD TOTAL
04/27/92	BROWNS FERRY	2	100	A	EQUIPMENT	NO	1	0	1
04/28/92	SEQUOYAH	1	99	A	EQUIPMENT	NO	1	0	1
04/29/92	SEQUOYAH	1	0	A	PERSONNEL	NO	1	1	2
05/01/92	NINE MILE POINT	1	97	A	EQUIPMENT	NO	3	0	3
05/01/92	ARKANSAS	2	0	M	EQUIPMENT	NO	0	1	1
05/03/92	OYSTER CREEK	1	100	A	EQUIPMENT	NO	1	0	1

II. COMPARISON OF WEEKLY STATISTICS WITH INDUSTRY AVERAGES

SCRAMS FOR WEEK ENDING
04/26/92

SCRAM CAUSE	NUMBER OF SCRAMS	1992 WEEKLY AVERAGE (YTD)	1991 WEEKLY AVERAGE	1990 WEEKLY AVERAGE	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE
POWER GREATER THAN 15%						
EQUIPMENT RELATED	1	2.3	2.9	3.4	3.1	3.0
PERSONNEL RELATED (2)	1	0.8	0.6	0.5	1.0	1.0
OTHER (4)	0	0.0	0.0	0.0	0.1	0.4
Subtotal	2	3.1	3.5	3.9	4.2	4.4
POWER LESS THAN 15%						
EQUIPMENT RELATED	2	0.4	0.3	0.4	0.3	0.6
PERSONNEL RELATED (2)	1	0.1	0.2	0.1	0.3	0.4
OTHER (4)	0	0.0	0.5	0.0	0.0	0.2
Subtotal	3	0.6	0.5	0.5	0.6	1.2
TOTAL	5	3.7	4.0	4.4	4.8	5.6

MANUAL VS AUTO SCRAMS

TYPE	NO. OF SCRAMS	1992 WEEKLY AVERAGE (YTD)	1991 WEEKLY AVERAGE	1990 WEEKLY AVERAGE	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE
MANUAL SCRAMS	2	1.0	0.7	1.2	0.9	1.1
AUTOMATIC SCRAMS	3	2.7	3.3	3.2	3.9	4.5

II. COMPARISON OF WEEKLY STATISTICS WITH INDUSTRY AVERAGES

SCRAMS FOR WEEK ENDING
05/03/92

SCRAM CAUSE	NUMBER OF SCRAMS	1992 WEEKLY AVERAGE (YTD)	1991 WEEKLY AVERAGE	1990 WEEKLY AVERAGE	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE
POWER GREATER THAN 15%						
EQUIPMENT RELATED	4	2.4	2.9	3.4	3.1	3.0
PERSONNEL RELATED (2)	0	0.7	0.6	0.5	1.0	1.0
OTHER (4)	0	0.0	0.0	0.0	0.1	0.4
Subtotal	4	3.1	3.5	3.9	4.2	4.4
POWER LESS THAN 15%						
EQUIPMENT RELATED	1	0.5	0.3	0.4	0.3	0.6
PERSONNEL RELATED (2)	1	0.2	0.2	0.1	0.3	0.4
OTHER (4)	0	0.0	0.5	0.0	0.0	0.2
Subtotal	2	0.7	0.5	0.5	0.6	1.2
TOTAL	6	3.8	4.0	4.4	4.8	5.6

MANUAL VS AUTO SCRAMS

TYPE	NO. OF SCRAMS	1992 WEEKLY AVERAGE (YTD)	1991 WEEKLY AVERAGE	1990 WEEKLY AVERAGE	1989 WEEKLY AVERAGE	1988 WEEKLY AVERAGE
MANUAL SCRAMS	1	1.0	0.7	1.2	0.9	1.1
AUTOMATIC SCRAMS	5	2.8	3.3	3.2	3.9	4.5

NOTES

1. PLANT SPECIFIC DATA BASED ON INITIAL REVIEW OF 50.72 REPORTS FOR THE WEEK OF INTEREST. PERIOD IS MIDNIGHT SUNDAY THROUGH MIDNIGHT SUNDAY. SCRAMS ARE DEFINED AS REACTOR PROTECTIVE ACTUATIONS WHICH RESULT IN ROD MOTION, AND EXCLUDE PLANNED TESTS OR SCRAMS AS PART OF PLANNED SHUTDOWN IN ACCORDANCE WITH A PLANT PROCEDURE. THERE ARE 111 REACTORS HOLDING AN OPERATING LICENSE.

2. PERSONNEL RELATED PROBLEMS INCLUDE HUMAN ERROR, PROCEDURAL DEFICIENCIES, AND MANUAL STEAM GENERATOR LEVEL CONTROL PROBLEMS.

3. COMPLICATIONS: RECOVERY COMPLICATED BY EQUIPMENT FAILURES OR PERSONNEL ERRORS UNRELATED TO CAUSE OF SCRAM.

4. [illegible] INCLUDES AUTOMATIC SCRAMS ATTRIBUTED TO ENVIRONMENTAL CAUSES (LIGHTNING), SYSTEM DESIGN, OR UNKNOWN

OEAB SCRAM DATA

Manual and Automatic Scrams for 1987	435
Manual and Automatic Scrams for 1988	291
Manual and Automatic Scrams for 1989	252
Manual and Automatic Scrams for 1990	226
Manual and Automatic Scrams for 1991	206
Manual and Automatic Scrams for 1992 --(YTD 05/03/92)--	068

OPERATING REACTOR PLANTS SIGNIFICANT EVENTS

No Sort Specified
QUERY> Event Type SIG & Event Date >= 03/01/92 & Event Date <= 04/01/92 & "NINE MILE" $ Plant Name

PLANT & UNIT	DATE OF EVENT	50.72 NUMBER	DESCRIPTION OF EVENT	SIGNIFICANCE	OR BRIEFING	PRESENTER	CLOSEOUT RECORD
NINE MILE POINT 2	03/23/92	23078	LOSS OF OFFSITE POWER IN CONJUNCTION WITH A LOSS OF CONTROL ROOM ANNUNCIATORS.	Plant Power	92-03	SKEEN D.	R 92-010