JUL 18 1989

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

FROM: Charles J. Haughney, Chief
Events Assessment Branch
Division of Operational Events Assessment

SUBJECT: THE OPERATING REACTORS EVENTS MEETING
July 12, 1989 - MEETING 89-26

On July 12, 1989, an Operating Reactors Events meeting (89-26) was held to brief senior managers from NRR, ACRS, RES, Commission Staff, and Regional Offices on events which occurred since our last meeting on July 5, 1989. The list of attendees is included as Enclosure 1.

The events discussed and the significant elements of these events are presented in Enclosure 2. A summary of reactor scrams for the week ending 07/09/89 is presented in Enclosure 3. One significant event was identified for input into the NRC performance indicator program.

Original signed by:
Charles J. Haughney

Charles J. Haughney, Chief
Events Assessment Branch
Division of Operational Events Assessment

Enclosures:
As stated

cc w/Encl.:
See Next Page

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IDAR-5-1 OPERATING EXPERIENCE

OFC	:EAB/DOEA	:C:EAB/DOEA	:	:	:	:
NAME	:MLReardon	:CJHaughney	:	:	:	:
DATE	:07/12/89	:07/12/89	:	:	:	:

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DF01
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cc:
T. Murley, NRR
F. Miraglia, NRR
J. Sniezek, NRR
E. Jordan, AEOD
J. Taylor, EDO
E. Beckjord, RES
W. Russell, RI
S. Ebneter, RII
B. Davis, RIII
R. D. Martin, RIV
J. B. Martin, RV
W. Kane, RI
L. Reyes, RII
E. Greenman, RIII
L. Callan, RIV
R. Zimmerman, RV
S. Varga, NRR
B. Boger, NRR
G. Lainas, NRR
L. Shao, NRR
B. Grimes, NRR
F. Congel, NRR
E. Weiss, AEOD
T. Martin, EDO
J. Lieberman, OE
J. Guttmann, SECY
A. Thadani, NRR
S. Rubin, AEOD
J. Forsyth, INPO
R. Barrett, NRR
M. Harper, AEOD
R. Newlin, GPA
H. Alderman, ACRS
H. Silver, NRR
H. Berkow, NRR
V. Nerses, NRR
R. Wessman, NRR
J. Hayes, NRR
E. Adensam, NRR

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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ENCLOSURE 1

LIST OF ATTENDEES

OPERATING REACTORS EVENTS BRIEFING (89-26)

July 12, 1989

NAME	ORGANIZATION	NAME	ORGANIZATION
S. Varga	NRR/DRP	D. Tondi	NRR/SELB
J. Dyer	OEDO	J. Partlow	NRR/ADP
J. Zwolinksi	NRR/DRIS	R. Wessman	NRR/PD1-1
W. Scott	NRR/DLPQ	P. Chopra	NRR/SELB
W. Troskoski	OE	D. Matthews	NRR/DRP
L. Reyes	RII	C. Rossi	NRR/DOEA
C. Vandenburgh	NRR/RSIB	C. Haughney	NRR/DOEA
J. Guttmann	SECY	A. Vietti-Cook	OCM/JC
G. Wunder	NRR/PD2-2	E. Butcher	NRR/ILRB
R. Lobel	NRR/DOEA	W. Johnson	RI
D. Trimble	OCM/JC	H. Alderman	ACRS
R. Benedict	NRR/DOEA	J. Hayes	NRR/PD1-2
E. Adensam	NRR/DRP	S. Saba	NRR/SELB
F. Rosa	NRR/SELB	R. Kendall	NRR/DOEA
P. Baranowsky	NRR/DOEA	J. Bess	RIV
R. Woodruff	NRR/DOEA	G. Marino	RES/DSIR
J. Donohew	NRR/ADSP	M. Reardon	NRR/DOEA
N. Fields	NRR/DOEA	J. Carter	NRR/DOEA

ENCLOSURE 2

OPERATING REACTORS EVENTS BRIEFING 89-26
EVENTS ASSESSMENT BRANCH
LOCATION: 12B-11, WHITE FLINT
WEDNESDAY, JULY 12, 1989, 11:00 A.M.

SEABROOK UNIT 1	MANUAL REACTOR TRIP WITH COMPLICATIONS (UPDATE) (AIT)
CRYSTAL RIVER UNIT 3	ONSITE ELECTRICAL DISTRIBUTION SYSTEM PROBLEMS
SUMMER UNIT 1	DEGRADED GRID VOLTAGE

SEABROOK UNIT 1
MANUAL REACTOR TRIP WITH COMPLICATIONS (UPDATE) (AIT)
JUNE 22, 1989

PROBLEM

A MINOR TRANSIENT OCCURRED WHILE CONDUCTING THE NATURAL CIRCULATION STARTUP TEST. THE REACTOR WAS MANUALLY TRIPPED FROM ABOUT 2% POWER.

CAUSE

A STEAM DUMP VALVE (SDV) TO THE MAIN CONDENSER FAILED TO MODULATE CLOSED ON DEMAND (MANUALLY FROM THE CONTROL ROOM), RESULTING IN A PRIMARY SYSTEM PERTURBATION.

SAFETY SIGNIFICANCE

REACTOR OPERATION OCCURRED OUTSIDE THE BOUNDARY CONDITIONS SPECIFIED IN THE TEST PROCEDURE.

DISCUSSION

- ON JUNE 22, 1989, THE LICENSEE CONDUCTED A NATURAL CIRCULATION TEST AT LOW POWER FOR PURPOSES OF OPERATOR TRAINING.
- THIS EVENT WAS PERFORMED ON THE LICENSEE's SIMULATOR IN 1988.
- THE NATURAL CIRCULATION TEST WAS CONSISTENT WITH FSAR GUIDELINES AND REGULATORY GUIDE 1.68, "INITIAL TEST PROGRAMS FOR WATER-COOLED NUCLEAR PWR PLANTS".
- SHORTLY AFTER TRIPPING THE RCPs, RCS TEMPERATURE AND PRESSURIZER LEVEL DECREASED.
- TEMPERATURE AND LEVEL FURTHER DECREASED BECAUSE OF A FAILED OPEN SDV.
- THE TEST PROCEDURE CALLS FOR A MANUAL REACTOR TRIP IF PRESSURIZER LEVEL DECREASES TO 17%. PRESSURIZER LEVEL DECREASED BELOW 17% FOR 4 TO 5 MINUTES, BUT THE REACTOR WAS NOT TRIPPED.
- THE OPERATORS SUBSEQUENTLY TRIPPED THE REACTOR AFTER PRESSURIZER PRESSURE AND LEVEL HAD BEEN RESTORED AND WERE RAPIDLY INCREASING.
- THE PLANT RESPONSE TO THE TRANSIENT INITIATED BY TRIPPING OF THE RCP's (AND TO THE SDV FAILURE) WAS AS EXPECTED.

CONTACT: J. THOMPSON SIGEVENT: NO

REFERENCES: 10 CFR 50.72 #15933 AND PNO-I-89-48 (DATED 06/22/89)

- o THE RAPID INCREASE IN RCS PRESSURE AFTER LEVEL WAS RESTORED TO 17% WAS DUE TO THE CLOSURE OF THE SDV, CVCS LETDOWN ISOLATION, LACK OF PZR SPRAYS, AND CONTINUED CVCS CHARGING. THE PRESSURE RESPONSE WAS AS EXPECTED GIVEN THE ABOVE CONDITIONS.
- o AT NO TIME WAS ANY SAFETY SYSTEM BYPASSED OR TURNED OFF.
- o THE INITIAL TEST CONDITIONS REQUIRED THE REACTOR TO BE CRITICAL AT LOW POWER (LESS THAN 5%). THIS WAS ACHIEVED BY:
  - (1) HEAVY BORATION (1150 PPM) DUE TO THE NEW CORE CONDITIONS AND
  - (2) CONTROL ROD BANK "D" AT 130 STEPS (OUT OF 228 STEPS). BANKS "A", "B", AND "C" WERE FULLY WITHDRAWN.
- o CONSEQUENCES OF A ROD WITHDRAWAL ACCIDENT UNDER THE ABOVE CONDITIONS ARE BOUNDED BY THE SAFETY ANALYSIS.

AIT FINDINGS (PRELIMINARY)

- o THE OPERATORS SHOULD HAVE TRIPPED THE REACTOR WHEN PRESSURIZER LEVEL DECREASED TO 17%, BUT DID NOT.
- o FAILURE TO ADHERE TO TEST PROCEDURES RESULTED FROM MISUNDERSTANDING OF PROCEDURAL IMPORTANCE AND DESIRE TO SUCCESSFULLY COMPLETE THE TEST (THE OPERATORS HAD CONTROL OF THE REACTOR; THE TEST PROCEDURE BOUNDARY CONDITIONS WERE CONSERVATIVE).
- o AN APPARENT HIERARCHY OF IMPORTANCE EXISTED BETWEEN PROCEDURES (TEST PROCEDURES NOT CONSIDERED AS IMPORTANT AS OPERATING PROCEDURES AND TECH SPECS).
- o THERE APPEARS TO BE NO GENERIC IMPLICATIONS REGARDING ADEQUACY OF PROCEDURES OR EQUIPMENT PERFORMANCE FROM THE EVENT.

FOLLOWUP

- o THE PROJECT MANAGER AND THE REGION WILL FOLLOW LONG-TERM CORRECTIVE ACTION.
- o DEST/RSB WILL DETERMINE APPROPRIATENESS OF CONDUCTING STARTUP NATURAL CIRCULATION TESTS WITH THE REACTOR CRITICAL VERSUS USING DECAY HEAT.

CRYSTAL RIVER UNIT 3
ONSITE ELECTRICAL DISTRIBUTION SYSTEM PROBLEMS
JUNE 16, 21, 29, AND 30, 1989

PROBLEM

INADEQUACIES IN THE ONSITE ELECTRIC POWER DISTRIBUTION SYSTEM.

CAUSE

LACK OF ADEQUATE CONTROL OVER DESIGN PROCESSES.

SAFETY SIGNIFICANCE

POTENTIALLY INOPERABLE EMERGENCY POWER DISTRIBUTION SYSTEM.

DISCUSSION

- ON JUNE 16, 1989, WHILE AT 12 PERCENT POWER, A REACTOR TRIP OCCURRED DUE TO THE LOSS OF ALL RCPs. THE RCPs TRIPPED ON UNDERVOLTAGE, DUE TO A LOSS OF THE PRIMARY SOURCE OF OFFSITE POWER. THE SECONDARY SOURCE WAS OUT-OF-SERVICE.
- BOTH EMERGENCY DIESELS STARTED AND LOADED ON THE LOOP.
- ON JUNE 21, 1989, BOTH STATION BATTERIES WERE FOUND BY THE RESIDENT INSPECTOR TO HAVE SEVERAL CELLS INDICATING HIGH ELECTROLYTE LEVELS.
- ON JUNE 26, 1989, EMERGENCY DIESEL GENERATOR "B" WAS DECLARED INOPERABLE DUE TO LOW CRANKCASE VACUUM, PLACING THE UNIT IN A 72 HOUR TECH SPEC ACTION STATION AND RESULTING IN THE REACTOR BEING PLACED IN HOT SHUTDOWN ON JUNE 29, 1989.
- ON JUNE 30, 1989, A LIGHTING STRIKE CAUSED A LOSS OF OFFSITE POWER AND THE SUBSEQUENT START AND LOADING OF THE OPERABLE EDG.
- AS DURING THE JUNE 16, 1989 EVENT, BATTERY CELLS WERE AGAIN FOUND TO HAVE HIGH ELECTROLYTE LEVELS FOLLOWING THE JUNE 30, 1989 EVENT.

CONTACT: N. FIELDS SIGEVENT: YES

REFERENCE: 10 CFR 50.72's 15886, 15923, 15986, 15995 AND MORNING REPORT OF JULY 5, 1989

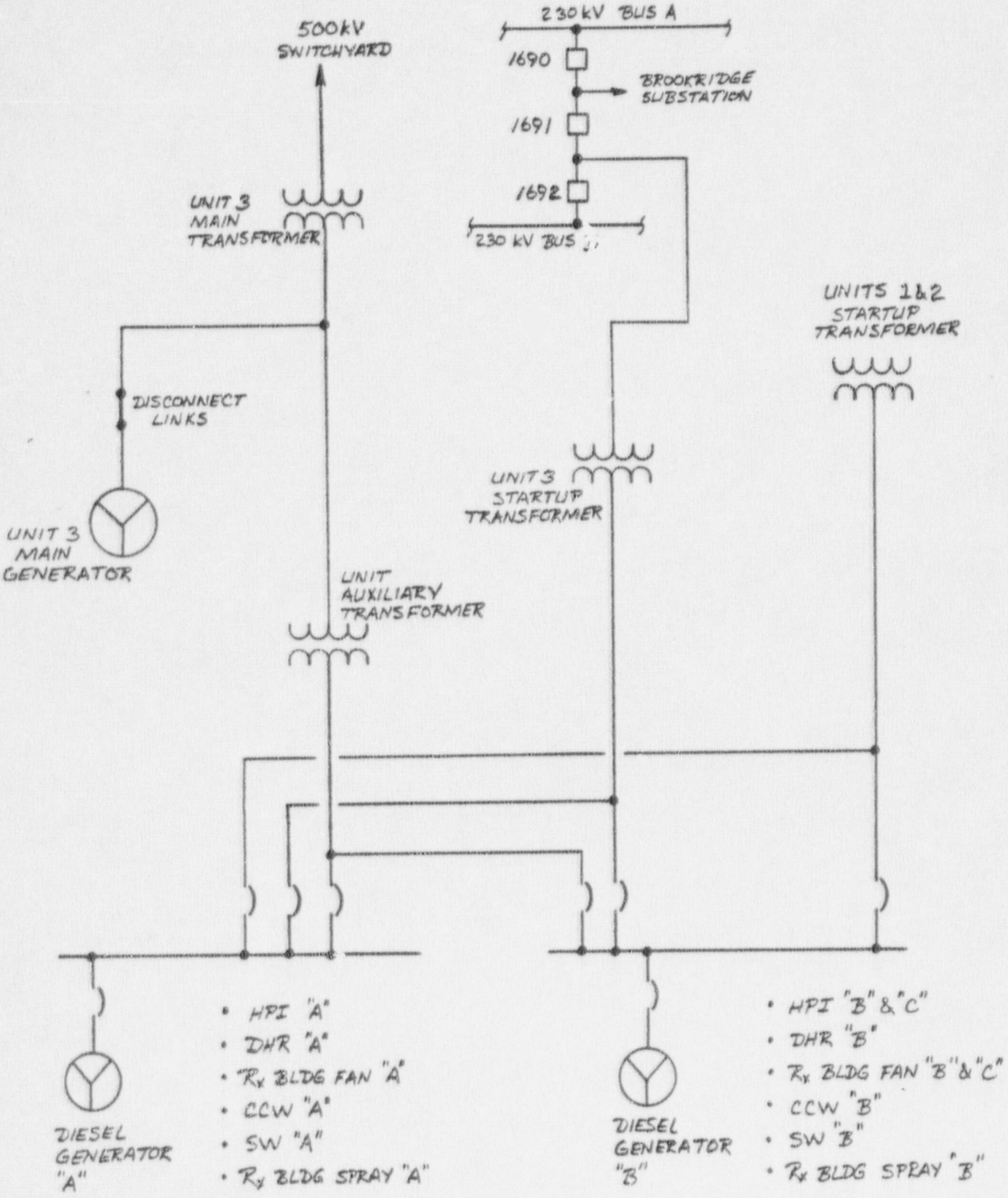
BACKGROUND

- BECAUSE OF THE INADEQUATE CAPABILITY OF THE CRYSTAL RIVER UNIT 1 AND 2 SHARED STARTUP TRANSFORMER (WHICH ALSO SERVES AS CRYSTAL RIVER UNIT 3 SECONDARY PREFERRED OFFSITE POWER SOURCE), LICENSEE VOLUNTARILY ENTERS TECH SPEC LCO WHENEVER THE STARTUP TRANSFORMER IS SUPPLYING POWER TO UNIT 1 OR UNIT 2.
- BECAUSE THE EDGs HAVE BEEN DETERMINED TO BE OF INSUFFICIENT CAPABILITY TO SUPPLY ALL SAFEGUARDS LOADS, THE LICENSEE WAS GRANTED, A TEMPORARY TECH SPEC EXEMPTION WHICH ALLOWS THE 1E BATTERY CHARGERS, AS WELL AS SOME OTHER SAFEGUARDS LOADS, TO BE AUTOMATICALLY SHED ON A LOOP COINCIDENT WITH AN ESF SIGNAL.
- THE LICENSEE RELIES ON THE BATTERIES TO PICK UP ALL 1E DC LOADS FROM THE EDGs DURING THE PERIOD THE CHARGERS ARE OFF LINE.
- THIS EXEMPTION NECESSITATES THE USE OF THE BATTERIES AS THE SOLE SOURCE OF DC POWER DURING LOOP EVENTS WITH ESF. CHARGERS ARE PROCEDURALLY RECONNECTED TO THE SAFEGUARDS BUSES.
- ORIGINALLY ASSESSMENT OF THE ROOT CAUSE OF BATTERY ELECTROLYTE LEVEL PROBLEMS ASSUMED CHARGERS HAD BEEN SHED, RESULTING IN BATTERIES UNDERGOING DISCHARGE/CHARGE CYCLE. SINCE NO ESF SIGNAL WAS PRESENT, LICENSEE STATES THAT CHARGERS WERE NEVER SHED; ROOT CAUSE EVALUATION OF ELECTROLYTE LEVEL FLUCTUATIONS ARE ONGOING.

FOLLOWUP

- LICENSEE IS PREPARING A MODIFICATION PROGRAM TO INCREASE THE CAPABILITY OF THE EDGs.
- LICENSEE IS DETERMINING A ROOT CAUSE OF THE HIGH ELECTROLYTE LEVELS IN THE BATTERY CELLS.
- LICENSEE WILL INSTALL A DEDICATED SECONDARY PREFERRED POWER SOURCE FOR CRYSTAL RIVER UNIT 3.
- HEADQARTERS AND REGIONAL PERSONNEL ARE FOLLOWING LICENSEE'S ACTIONS.

CRYSTAL RIVER UNIT 3 POWER DISTRIBUTION SYSTEM



SUMMER UNIT 1
DEGRADED GRID VOLTAGE
JULY 11, 1989

PROBLEM

A SIGNIFICANT DECREASE IN GRID VOLTAGE OCCURRED FOLLOWING A REACTOR TRIP AT SUMMER.

CAUSE

THE GRID UPSET CAUSED BY THE LOSS OF ABOUT 900 MWe LED TO THE SUBSEQUENT ADDITIONAL LOSS OF ABOUT 700 MWe (A HYDRO STATION AND A COAL UNIT).

SAFETY SIGNIFICANCE

AN UNANALYZED GRID CONDITION OR UNEXPECTED GRID PERFORMANCE (LOAD SHEDDING) MAY EXIST THAT APPEARS TO HAVE POTENTIALLY WIDE-SPREAD IMPACT AND IMPLICATION. (LOSS OF OF SITE POWER.)

DISCUSSION

- SUMMER HAD A TURBINE TRIP FROM 100% POWER BELIEVED TO HAVE BEEN CAUSED BY MAINTENANCE ACTIVITIES.
- VOLTAGE DEGRADED AND DIESEL GENERATORS STARTED AUTOMATICALLY AND LOADED.
- NON-SAFETY BUSES CONTINUED TO BE POWERED FROM OFFSITE SOURCES (230KV TO 205 AND 115KV TO 102).
- DUKE POWER ALSO EXPERIENCED DEGRADED VOLTAGE (CHARLOTTE HOUSE POWER WAS 90V), AND SUPPLIED POWER TO SUMMER'S NETWORK.
- LOAD SHEDDING ON THE GRID DID NOT OCCUR.

FOLLOWUP

ASSURE CONFORMANCE TO GDC-17.

CONTACT: J. CARTER SIGEVENT: NO

REFERENCE: 10 CFR 50.72 #16061

PERFORMANCE INDICATORS SIGNIFICANT EVENTS

ENCLOSURE 3

PLANT NAME	EVENT DATE	EVENT DESCRIPTION	QTR SIGNIFICANCE
INDIAN POINT 2	05/08/89	SINGLE FAILURE OF A SELECTOR SWITCH FOR A VOLTMETER COULD RESULT IN LOSS OF ALL AC BUSES. DEAB NOTIFIED BY PROJECT MANAGER FROM A TELCON PM HAD WITH RI.	0 POTENTIAL FOR OR ACTUAL DEGRADATION OF SAFETY-RELATED EQUIPMENT.

REACTOR SCRAM SUMMARY
WEEK ENDING 07/09/89

I. PLANT SPECIFIC DATA

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE	COMPLI-CATIONS	YTD ABOVE 15%	YTD BELOW 15%	YTD TOTAL
07/04/89	SOUTH TEXAS	1	100	A	EQUIPMENT	NO	3	0	3
07/06/89	VOGTLE	1	100	M	EQUIPMENT	NO	2	0	2
07/09/89	SURRY	1	35	A	EQUIPMENT	NO	1	0	1

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

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

4. "OTHER" INCLUDES AUTOMATIC SCRAMS ATTRIBUTED TO ENVIRONMENTAL CAUSES (LIGHTNING), SYSTEM DESIGN, OR UNKNOWN CAUSE.