

MAR 31 1988

MEMORANDUM FOR: Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

FROM: Wayne Lanning, Chief
Events Assessment Branch
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

SUBJECT: THE OPERATING REACTORS EVENTS MEETING
March 29, 1988 - MEETING 88-13

On March 29, 1988 an Operating Reactors Events meeting (88-13) was held to brief senior managers from NRR, RES, AEOD and Regional Offices on events which occurred since our last meeting on March 22, 1988. The list of attendees is included as Enclosure 1.

The events discussed and the significant elements of these events are presented in Enclosure 2. Enclosure 3 presents a report-to-date of long-term followup assignments and a summary of reactor scrams. No significant events were identified for input to NRC's performance indicator program. Three events were suggested for long-term followup.

151

Wayne Lanning, Chief
Events Assessment Branch
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc w/Enclo.:
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DATE	:03/30/88	:03/31/88	:	:	:	:	:

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

MAR 31 1988

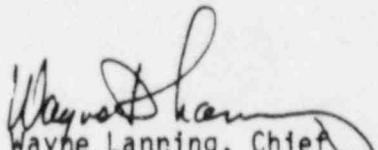
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LIST OF ATTENDEESOPERATING REACTORS EVENTS BRIEFING (88-13)

March 29, 1988

<u>NAME</u>	<u>ORGANIZATION</u>	<u>NAME</u>	<u>ORGANIZATION</u>
W. Lanning	NRR/DOEA	S. Varga	NRR/DRP
P. Baranowsky	NRR/DOEA	G. Klingler	NRR/PMAS
C. Schulten	NRR/DOEA	J. Thompson	NRR/DOEA
M.L. Reardon	NRR/DOEA	H. Berkow	NRR/PD2-2
T. Silko	AEOD	J. Stone	NRR/RVIB
M. Padovana	RES/INSP	D. Cruickfield	NRR/DRSP
N. Fields	NRR/DOEA	D. Neighbors	NRR/PD1-1
O.D.T. Lynch, Jr.	NRR/PRPB	D. Moran	OSP/TVA
D.R. Muller	NRR/PD3-2	S. Sands	NRR/PD3-2
G. Holahan	NRR/DRSP	C. McCracken	NRR/EAD
F. Miraglia	NRR/ADP	T.M. Novak	AEOD/DSP
C.E. Rossi	NRR/DOEA	J. Roe	NRR/DLPQ
J. Sniezek	NRR		

OPERATING REACTORS EVENTS BRIEFING 88-13

LOCATION: 12-B-11 WHITE FLINT

TUESDAY, MARCH 29, 1988, 11:00 A.M.

THIS INFORMATION MAY ALSO BE OBTAINED BY DIALING EXTENSION 21449.

BRAIDWOOD 1&2

USE OF UNQUALIFIED LUBRICANTS

GENERIC ISSUE

GE CIRCUIT BREAKER PROBLEMS

INDIAN POINT 2

REFUELING WATER STORAGE TANK
LEAKAGE TO RIVER

BRAIDWOOD 1/2
UNQUALIFIED GREASE IN MOTOR OPERATORS
MARCH 29, 1988

PROBLEM

MIXING OF LITHIUM-LEAD AND CALCIUM-BASED GREASES IN THE GEAR BOXES OF LIMITORQUE MOTOR OPERATORS CAN RESULT IN CHEMICAL REACTIONS THAT REDUCE THE LUBRICATING PROPERTIES OF THE GREASE.

CAUSE

INADEQUATE MAINTENANCE IN CHANGING GREASE. PROCEDURES DID NOT PROVIDE GUIDANCE ON METHOD TO BE USED FOR CHANGING GREASE.

INADEQUATE FEEDBACK OF OPERATING EXPERIENCE.

POTENTIAL QA/QC BREAKDOWN.

SAFETY SIGNIFICANCE

LIMITORQUE MOTOR OPERATORS WITH SAFETY APPLICATIONS COULD BE SUSCEPTIBLE TO COMMON CAUSE FAILURE.

DISCUSSION

- ° PROBLEM AT BRAIDWOOD FOUND AS A RESULT OF RIII EQ INSPECTION MARCH 4, 1988; IDENTIFIED AT BYRON 1 IN 1985.
- ° EPRI REPORT NP-4916 (1/87) IDENTIFIED THE INCOMPATIBILITY OF THESE GREASES.
- ° THE REVISED LIMITORQUE PROCEDURES AND RECOMMENDATIONS ON THE CHANGING OF LUBRICANTS FOR MOV OPERATORS MANUFACTURED AFTER 1979 WERE NOT HIGHLIGHTED AND SOME LIMITORQUE CUSTOMERS DID NOT RECEIVE THE REVISED PROCEDURES AND RECOMMENDATIONS.
- ° INPO ISSUED SER 84-07, "MIXING OF GREASES IN LIMITORQUE MOTOR OPERATORS MAY CAUSE OPERATOR FAILURE".
- ° WHEN MIXED TOGETHER, THE GREASES REACT CHEMICALLY OVER TIME AND MAY RESULT IN THE FOLLOWING:
 - ° BREAKDOWN INTO A "DRIED MUD-LIKE" SUBSTANCE

CONTACT: S. SANDS

REFERENCE: MORNING REPORT 03/24/88

- ° BREAKDOWN INTO A WATERY LIQUID, OR
- ° SEPARATION INTO A HARD CAKE-LIKE SUBSTANCE AND A WATERY LIQUID.
- ° THIS PROBLEM IMPACTED ALL SAFETY-RELATED LIMITORQUE VALVE OPERATORS. NO KNOWN OPERATIONAL PROBLEMS TO DATE.
- ° 15% OF THE VALVES INSPECTED THUS FAR HAD SOME EVIDENCE OF CONTAMINATION.
- ° IN THOSE 15% SAMPLED, SOME HAD UP TO 6% CONTAMINATION (I.E., LITHIUM BASE IN THE CALCIUM-BASED GREASE).
- ° CURRENT STATUS: ALL LIMITORQUE VALVE OPERATORS WILL UNDERGO A VISUAL INSPECTION.
- ° THOSE IDENTIFIED AS HAVING POSSIBLE CONTAMINATION WILL BE ANALYZED BY PERFORMING AN ASTM PENETRATION TEST ON THE GREASE.

FOLLOWUP

- ° REGION ISSUED CALs TO BOTH UNITS: UNIT 1 WAS SHUTDOWN FROM 25% POWER; UNIT 2 PREVIOUSLY SHUTDOWN BY EQ PROBLEMS WITH BUNKER RAMO PENETRATION.
- ° MEETING MARCH 28 WITH LICENSEE, REGION III AND NRR (BY TELEPHONE) TO DISCUSS RESOLUTION OF THIS ISSUE AT BRAIDWOOD.
- ° CHEMICAL ENGINEERING BRANCH HAS LEAD FOR FOLLOWUP.
- ° VIB WILL DO INSPECTION AT LIMITORQUE IN EARLY MAY.

GE CIRCUIT BREAKER PROBLEM
THREE MILE ISLAND 1 AND RANCHO SECO
MARCH 16 AND MARCH 23, 1988

PROBLEM

UNDervOLTAGE TRIP ATTACHMENT (UVTA) ON GE REACTOR TRIP BREAKERS
FAILED DURING ROUTINE SURVEILLANCE.

CAUSE

BINDING OR MISALIGNMENT OF LINKAGE IN UVTA.

SIGNIFICANCE

ATWS IMPLICATIONS.

DISCUSSION

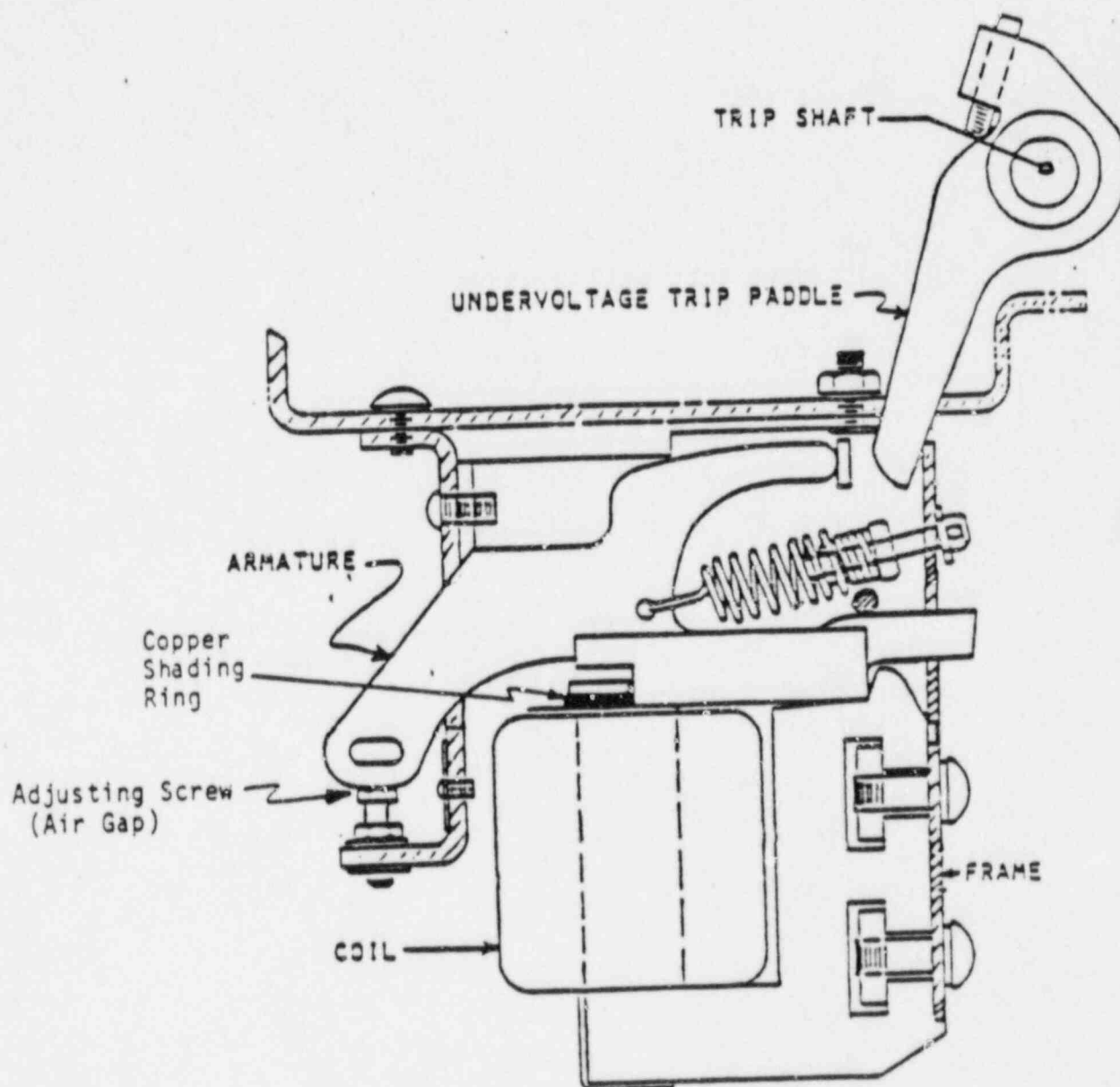
- o ON MARCH 16, 1988 A TMI REACTOR TRIP BREAKER, GE MODEL AK 1-15-2, FAILED A MONTHLY SURVEILLANCE DUE TO AN INOPERABLE UVTA.
- o ON MARCH 23, 1988 A RANCHO SECO REACTOR TRIP BREAKER, GE MODEL AK 2-25, FAILED A MONTHLY SURVEILLANCE DUE TO AN INOPERABLE UVTA.
- o THE TMI RTB UVTA FAILED BECAUSE THE TRIP PADDLE HAD JAMMED AGAINST THE ARMATURE PREVENTING THE ARMATURE'S MOVEMENT.
- o THE RANCHO SECO FAILURE TO TRIP ALSO RESULTED FROM MECHANICAL BINDING.
- o IN BOTH UVTAs THE SMALL CIRCULAR DISK AT THE END OF EACH ARMATURE WAS FOUND TO HAVE BEEN IMPROPERLY INSTALLED.
- o PRIOR ACTUATIONS HAVE CAUSED AREAS OF UNUSUAL WEAR BETWEEN THE DISK AND THE TRIP PADDLE WHICH, IN TURN, FACILITATED MECHANICAL BINDING, RESULTING IN FAILURE OF THE UVTAs.
- o DURING BOTH INCIDENTS THE SHUNT TRIP ATTACHMENT OPERATED PROPERLY.
- o BREAKERS AT BOTH UNITS WERE REPLACED.
- o THE TMI LICENSEE IS EXAMINING THE FAULTY BREAKER FOR ROOT CAUSE DETERMINATION. THE RANCHO SECO LICENSEE IS RETURNING THE FAULTY BREAKER TO GE FOR INSPECTION.
- o THE UVTA ON GE TYPE AK 2 BREAKERS HAS BEEN THE SUBJECT OF THREE IE BULLETINS (IEB NOS. 79-09, 83-04, AND 83-08) AND FOUR IE NOTICES (IE IN 83-18, IE-76, 84-29, AND 85-58 (SUPPLEMENT)).

CONTACT: N. FIELDS

REFERENCE: MORNING REPORT 03/17/88, PRELIMINARY NOTIFICATION 03/24/88
(PNO-V-88-23)

FOLLOWUP

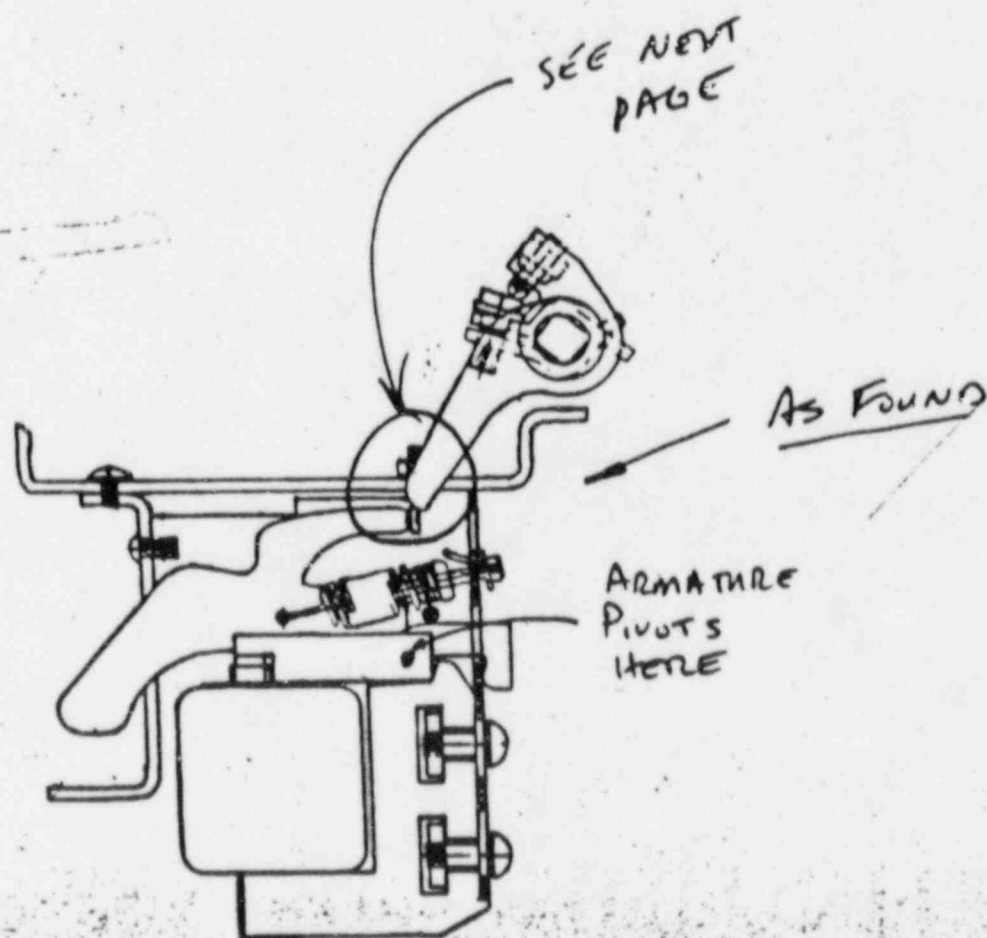
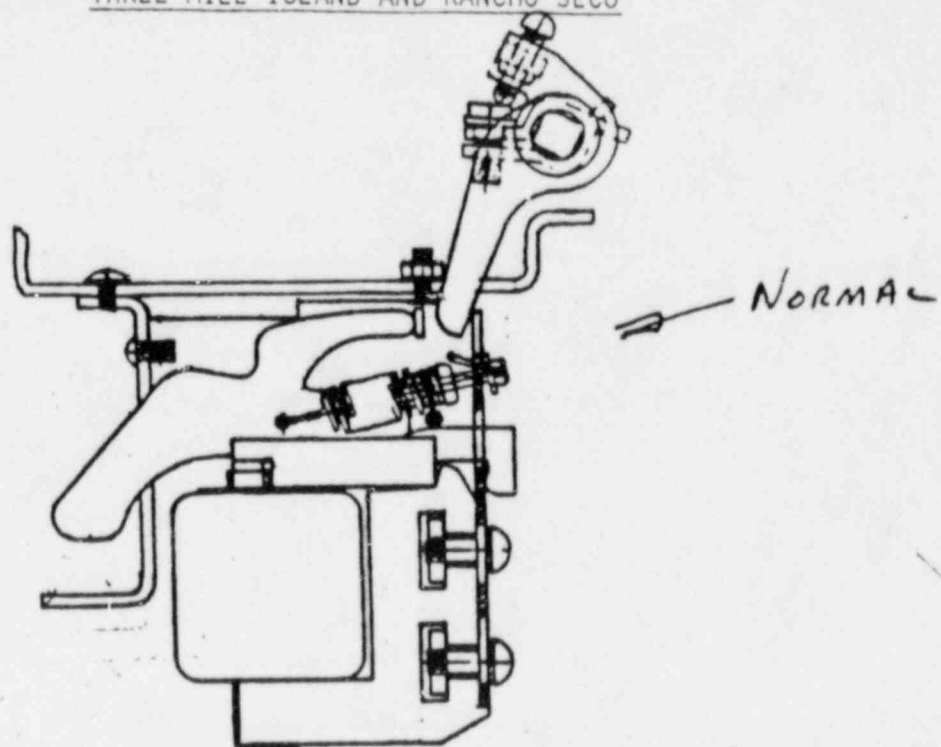
- o LICENSEES AND REGIONS ARE CONTINUING INVESTIGATION OF THE EVENTS.
- o VENDOR BRANCH TO FOLLOW GENERIC ASPECTS OF UVTA ON GE BREAKERS.
- o ADDITIONAL GENERIC COMMUNICATION UNDER CONSIDERATION.



THREE MILE ISLAND AND RANCHO SECO

Figure 1. Undervoltage Trip Device, Coil Energized Position

THREE MILE ISLAND AND RANCHO SECO



INDIAN POINT UNIT 2
REFUELING WATER STORAGE TANK LEAKAGE TO RIVER
MARCH 28, 1988

PROBLEM

8400 GALLONS OF WATER LEAKED FROM REFUELING WATER STORAGE TANK INTO THE HUDSON RIVER.

SIGNIFICANCE

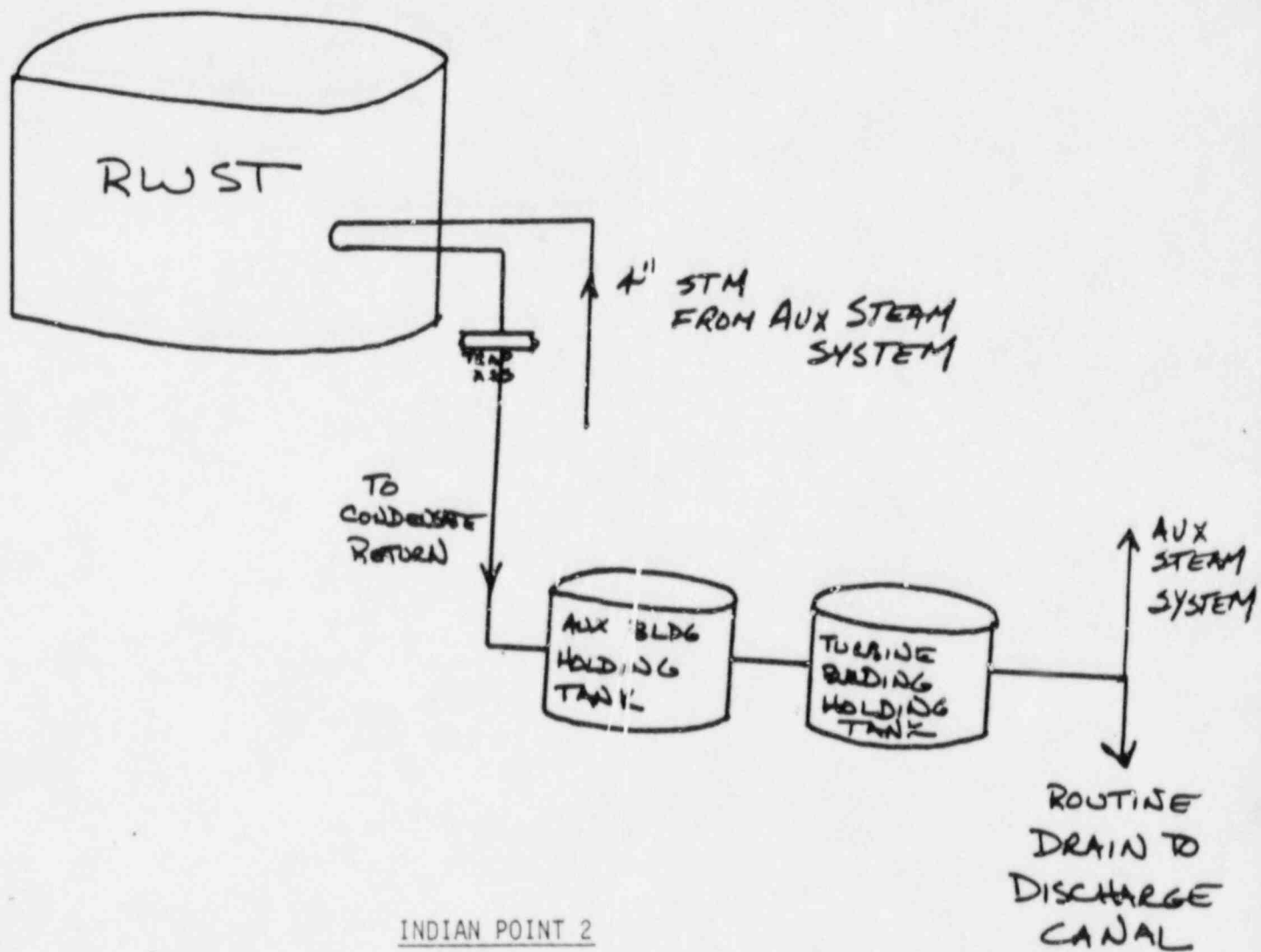
THE WATER WAS CONTAMINATED, WITH APPROXIMATELY 0.03 CI OF Co_{58} AND Co_{60} (0.1% MPC) OF CONTAMINATION BEING RELEASED.

DISCUSSION

- ° ON WEDNESDAY, MARCH 23, 1988 OPERATORS TOPPED OFF THE RWST TANK (395,000 GALLON CAPACITY). (TECH SPEC VALUE: 345,000)
- ° ON FRIDAY, MARCH 25, 1988 THE NIGHT SHIFT OPERATORS DETERMINED THEY HAD A RWST LEAK WHEN THE TANK NEEDED TOPPING OFF AGAIN.
- ° A 1.5 GPM LEAK OF RWST WATER INTO THE STEAM HEATING COIL CONDENSATE RETURN LINE RESULTED IN THE LOSS OF RWST INVENTORY OVER A 90 HOUR PERIOD. THE LEAK WAS ISOLATED AT 3:00 AM ON SATURDAY.
- ° A HOLDING TANK IS LOCATED IN THE AUXILIARY BUILDING WHICH FEEDS A HOLDING TANK FOR ALL NON-NUCLEAR CONDENSATE RETURN LOCATED IN THE TURBINE BUILDING.
- ° STEAM IS SUPPLIED TO THE RWST HEATING COILS FROM THE NON-NUCLEAR STEAM HEATING SYSTEM (NSS) BOILER WITH MOST OF THE CONDENSATE RETURNED TO THE NSS BOILER AND THE EXCESS BEING DELIVERED TO A CANAL RETURN TO THE HUDSON RIVER.
- ° LAST CYCLE THEY ALSO HAD A HOLE WHICH WAS REPAIRED DURING THE LAST OUTAGE.
- ° THE AUXILIARY BUILDING TANK IS INSTRUMENTED WITH RADIATION MONITORS, HOWEVER THESE MONITORS ARE NOT REQUIRED TO BE OPERABLE BY TECHNICAL SPECIFICATIONS.
- ° THE LICENSEE HAS BEEN MONITORING THE AUXILIARY TANK CONTAMINATION LEVELS ON A WEEKLY BASIS BECAUSE THE RADIATION MONITORS WERE INOPERABLE. THE LAST SAMPLE WAS TAKEN ON TUESDAY DURING THE DAY SHIFT. BULLETIN 80-10 RESPONSE APPEARS TO BE ADEQUATE.
- ° THIS EVENT WAS REPORTED ON NATIONAL TELEVISION.

CONTACT: C. SCHULTEN

REFERENCE: ERN-11870, MORNING REPORT 03/28/88



INDIAN POINT 2

SIMPLIFIED FLOW PATH
AUXILIARY STEAM SYSTEM

MARCH 29, 1988
STATUS REPORT ON LONGTERM FOLLOWUPS ASSIGNED

ORGANIZATION	BOOKLOG OVERVIEW (LAPSED TIME IN MONTHS)				MONTHLY ACTIVITIES	
	LONGTERM FOLLOWUPS GREATER THAN 6 MO.	LONGTERM FOLLOWUPS 3 TO 6 MO.	LONGTERM FOLLOWUPS LESS THAN 3 MO.	ACTIONS ADDED MARCH 1988	ACTIONS COMPLETED MARCH 1988	
AEED	0	0	1	0	0	0
EA8	0	0	2	0	0	0
EMTB	0	1	0	1	0	0
HLFB	0	1	0	1	0	0
ICSB	1	2	0	0	0	0
QDCB	0	0	0	0	0	1
QTSB	0	1	0	0	0	0
PD2-2	1	0	0	0	0	0
PD2-3	1	0	0	0	0	0
PD3-2	0	1	0	0	0	0
PD5	0	2	0	0	0	0
RHII	0	0	1	0	0	0
RYIB	1	2	1	1	1	1
SELB	1	4	2	0	0	0
SICB	0	0	0	1	0	0
SP1B	2	1	0	0	0	1
SPXB	1	1	2	1	0	0
TOTAL	8	16	9	5	3	3

NOTE: An event assigned for longterm followup may have been assigned to multiple branches and a single TAC may have been assigned to similar events at multiple plants, i.e., TAC #67344 was assigned to HFAB and SICB for events at Beaver Valley 2, Calvert Cliffs 2, and Rancho Seco 1.

SUGGESTED LONGTERM FOLLOWUP

DATE OF PLANT NAME AND UNIT SIGNIFICANT INITIAL FOLLOWUP ASSIGNMENT EVENT	SUGGESTED RESOLUTION	SUGGEST TRANSFER TO:	EXPECTED COMPLETION DATE
01/28/88 BEAVER VALLEY 2 .F. FIRE IN THE ANNUNCIATOR BAY. SIMILAR INCIDENTS ENH11359 (CALVERT CLIFFS 2) AND RANCHO SECO. (ENH11455). PREPARE INFORMATION NOTICE ON FIRES IN ANNUNCIATOR CABINETS.	HFAB SHOULD ADDRESS (1) SAFETY SIGNIFICANCE OF LACK OF EMERGENCY OPERATING PROCEDURES FOR IMPROPER ANNUNCIATION & (2) SUGGEST OPTIONS TO CORRECT SHORTCOMINGS AT BEAVER VALLEY, CALVERT CLIFFS & SECO & OTHER PLANTS AS HFAB DETERMINE ANY GENERIC APPLICABILITY. SICB SHOULD (1) REVIEW PLANT SPECIFIC MODIFICATIONS MADE BY THE LICENSEE'S FOR RANCHO SECO, BEAVER VALLEY 2 & CALVERT CLIFFS 2, (2) UPDATE INFO. NOTICE IN 88-05 (02/12/88) WHICH DESCRIBES THE ANNUNCIATOR FIRES AT THE THREE REACTOR SITES, AND (3) ASSESS ANY GENERIC IMPLICATIONS OF THE ANNUNCIATOR CABINET FIRES.	NRH/HFAB & SICB	/ /
02/01/88 CALVERT CLIFFS 2 .F. ELECTRICAL FIRE IN THE CONTROL PANEL IN CABLE SPREADING ROOM THAT SUPPLIES POWER TO THE CONTROL ROOM ANNUNCIATORS. PREPARE INFORMATION NOTICE ON FIRES IN ANNUNCIATOR CABINETS.	HFAB SHOULD ADDRESS (1) SAFETY SIGNIFICANCE OF THE LACK OF EMERGENCY OPERATING PROCEDURES FOR IMPROPER ANNUNCIATION AND (2) SUGGEST OPTIONS TO CORRECT SHORTCOMINGS AT CALVERT CLIFFS & OTHER PLANTS AS HFAB DETERMINES ANY GENERIC APPLICABILITY. SICB SHOULD (1) REVIEW PLANT SPECIFIC MODIFICATIONS MADE BY THE LICENSEE'S FOR RANCHO SECO, BEAVER VALLEY 2, CALVERT CLIFFS 2, (2) UPDATE IN 88-05 (02/12/88), WHICH DESCRIBES THE ANNUNCIATOR FIRES AT THE THREE REACTOR SITES, AND (3) ASSESS ANY GENERIC IMPLICATIONS OF THE ANNUNCIATOR CABINET FIRES.	NRH/HFAB & SICB	/ /
02/08/88 RANCHO SECO 1 .F. WHAT WAS THE CAUSE OF FIRE IN ANNUNCIATOR BAY? IS THERE ANYTHING IN COMMON WITH BEAVER VALLEY AND CALVERT CLIFFS ANNUNCIATOR FIRES? ENH11357 (BEAVER VALLEY 2) AND ENH11359 (CALVERT CLIFFS 2) HAD FIRES IN ANNUNCIATORS. PREPARE INFORMATION NOTICE ON FIRES IN ANNUNCIATOR CABINETS.	HFAB SHOULD REVIEW (1) SAFETY SIGNIFICANCE OF LACK OF EMERGENCY OPERATING PROCEDURES FOR IMPROPER ANNUNCIATION AND (2) SUGGEST OPTIONS TO CORRECT SHORTCOMINGS AT BEAVER VALLEY, CALVERT CLIFFS, & SECO & OTHER PLANTS AS HFAB DETERMINE ANY GENERIC IMPLICATIONS OF THE ANNUNCIATOR CABINET FIRES. SICB SHOULD (1) REVIEW PLANT SPECIFIC MODIFICATIONS MADE BY LICENSEE'S FOR RANCHO SECO, BEAVER VALLEY 2 AND CALVERT CLIFFS 2, (2) UPDATE IN 88-05 (02/12/88) WHICH DESCRIBES THE ANNUNCIATOR	NRH/HFAB & SICB	/ /

REACTOR SCRAM SUMMARY
WEEK ENDING 03/27/88

1. PLANT SPECIFIC DATA

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE	COMPLI- CATIONS	YTD ABOVE 133	YTD BELOW 133	YTD TOTAL
03/21/88	NINE MILE POINT	2	98	A	PERSONNEL	NO	1	0	1
03/21/88	HATCH	2	18	M	UNKNOWN	NO	1	1	2
03/22/88	YANKEE ROWE	1	100	A	UNKNOWN	NO	1	0	1
03/22/88	HADDAM NECK	1	0	A	EQUIPMENT	NO	0	2	2
03/22/88	MOSELIFE	1	100	A	EQUIPMENT	NO	2	0	2
03/26/88	YANKEE ROWE	1	89	A	EQUIPMENT	NO	2	0	2
03/27/88	SLARRY	2	100	M	EQUIPMENT	NO	1	0	1
03/28/88	SAINT LUCIE	1	100	A	EQUIPMENT	YES	1	0	1

SUMMARY OF COMPLICATIONS

SITE	UNIT	COMPLICATIONS
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SAINT LUCIE	1 B	SIDE STEAM DUMP VALVES DID NOT OPEN.
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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 109 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.

COMPARISON OF WEEKLY STATISTICS WITH QUARTERLY AVERAGES

SCRAMS FOR WEEK ENDING
03/27/88

SCRAM CAUSE	POWER	NUMBER OF SCRAMS(%)	1988 WEEKLY AVERAGE YTD	1987 WEEKLY AVERAGE	1986 WEEKLY AVERAGE	1985 WEEKLY AVERAGE
** POWER >15%						
EQUIP. RELATED	<15%	4	2.8	3.2	2.1	1.1
PERS. RELATED	<15%	1	1.0	1.3	1.8	0.0
OTHER	<15%	2	0.7	1.2	0.1	0.0
** Subtotal **		7	4.5	5.4	4.0	1.1
** POWER <15%						
EQUIP. RELATED	<15%	1	0.9	1.2	1.4	1.7
PERS. RELATED	<15%	0	0.5	0.6	0.8	0.9
OTHER	<15%	0	0.3	0.3	0.2	0.2
** Subtotal **		1	1.7	2.1	2.4	2.8
*** Total ***		8	6.2	7.5	6.4	3.9

MANUAL VS AUTO SCRAMS

TYPE	NUMBER OF SCRAMS	1988 WEEKLY AVERAGE YTD	1987 WEEKLY AVERAGE	1986 WEEKLY AVERAGE	1985 WEEKLY AVERAGE
MANUAL SCRAMS	2	1.2	1.4	1.0	1.0
AUTOM/TIC SCRAMS	6	5.0	6.0	5.4	2.9