U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-456/90027(DRP)

Docket No. 50-456 License No. NPF-72

Licensee: Commonwealth Edison Company
Opus West III
1400 Opus Place
Downers Grove, IL 60515

Facility Name: Braidwood Station, Unit 1

Inspection At: Braidwood Site, Braidwood, Illinois

Inspection Conducted: December 11, 1990

Inspectors: S. G. Du Pont

Approved By: B. Burgess, Chief
Reactor Projects Section 1B

12/19/90
Date

Meeting Summary

Meeting December 11, 1990 (Report No. 50-456/90027(DRP)
Matters Discussed: The following examples of apparent violations were discussed: (1) failure to meet administrative responsibilities and requirements of various administrative and surveillance procedures; (2) failure to implement corrective actions associated with the March 18, 1990, Unit 2 loss of reactor coolant event to prevent recurrence of the October 4, 1990, Unit 1 loss of reactor coolant event.

DETAILS

1. Enforcement Conference Attendees

Commonwealth Edison Company (CECo)

a. Corporate

M. J. Wallace, Vice President, PWR Operations
T. Kovach, Nuclear Licensing Manager
R. Bax, Station Manager - Quad Cities
J. Swales, Assistant Superintendent of Operations - Quad Cities

b. Braidwood Station

K. L. Kofron, Station Manager
G. E. Groth, Production Superintendent
D. E. O'Brien, Technical Superintendent
G. R. Masters, Assistant Superintendent - Operations
R. J. Legner, Services Director
A. Checca, Nuclear Licensing Administrator
R. D. Kyrouac, Nuclear Quality Assurance Supervisor
D. E. Cooper, Technical Staff Supervisor
D. J. Miller, Regulatory Assurance Supervisor

c. Westinghouse Company

W. J. Feimster

d. Sidley and Austin

S. L. Trubatch, Esq., Legal Counsel for Commonwealth Edison Company

Other members of corporate and site personnel were also present during the enforcement conference.

U.S. Nuclear Regulatory Commission (NRC)

a. Nuclear Reactor Regulations (NRR

J. Zwolinski, Assistant Director, Region III Reactors
J. Hannan, Director, Directorate III-3
S. Sands, Project Manager - Braidwood

b. Region III

C. Paperiello, Deputy Regional Administrator
W. Forney, Deputy Director, Division Reactor Projects
W. Shafer, Branch Chief, Projects Branch 1
C. Pederson, Director, Enforcement
S. Du Pont, Acting Senior Resident Inspector, Braidwood
W. Kropp, Senior Resident Inspector, Byron
R. Kopriva, Resident Inspector, Braidwood

The above individuals attended the enforcement meeting at the Braidwood Station on December 11, 1990.

2. Enforcement Conference

The NRC met with the licensee on December 11, 1990, to discuss the details of the violations identified in Inspection Report 50-456/90023(DRP). The violations addressed the failure of the licensee to implement administrative responsibilities and requirements contained in various administrative and surveillance procedures prior to and during performance of surveillances on the Unit 1 Residual Heat Removal system on October 3 through 4, 1990. The violations also addressed the failure of the licensee to implement corrective actions associated with a previous March 18, 1990, Unit 2 loss of reactor coolant event to prevent recurrence on October 4, 1990. The attendees of this enforcement conference are denoted in Paragraph 1 of this report.

The purposes of the conference were: (1) to discuss the apparent violations, the significance, cause, and the licensee's corrective actions; (2) to determine whether there were any mitigating circumstances; and (3) to obtain other information which would help determine the appropriate enforcement action.

The NRC representatives described the apparent violations and those deficiencies contributing to the apparent violations. The licensee presented information which is included as an attachment to this report.

3. CECo Positions

During the enforcement conference on December 11, 1990, the licensee's senior corporate and station management presented their position on the violations. The licensee agreed that the administrative procedures for ensuring appropriate communications and awareness of plant status were not effectively implemented as documented by the first violation. The licensee also stated that the lack of adherence to administrative

procedures is unacceptable. The licensee agreed with the Augmented Inspection Team's finding of the October 4, 1990, Unit 1 loss of reactor coolant event regarding the lack of a Heightened Level of Awareness (HLA) briefing, and that if it had been applied, (corrective actions associated with the March 18, 1990, Unit 2 loss of reactor coolant event), the event may not have occurred. However, the licensee did not state agreement or disagreement with the second violation which pertained to the failure to implement the corrective actions associated with the March 18, 1990 event.

The licensee stated that their overview of the October 4, 1990, Unit 1 loss of reactor coolant event had minimal operational safety significance and that personnel safety was minimally challenged. Although the NRC agreed that the consequence of the October 4, 1990, loss of reactor coolant event had minimal operational or personnel safety significance, the NRC disagrees with the licensee's position in that the event had a high potential for significant challenges to the safety of personnel and operational safety. The root causes of the event provided generic risk that, under several different conditions, could result in significant operational challenges associated with the safety-related systems and finally to the safety of the reactor. These root causes coupled with the physical location of the personnel within the plant could also result in significant challenges to personnel safety. The licensee, in part, recognized the potential of the event to challenge operational safety by stating that their in depth review of the event was to ensure that the corrective actions necessary to reduce the potential have been identified, and the conclusions presented were not meant to excuse the occurrence of the incident or to minimize it's importance.

In addition, the licensee stated that the operating shift supervision's awareness during the surveillance activities on the Residual Heat Removal system on October 4, 1990, was at the expected level because they were aware that valves were being cycled for the leak rate surveillance, although the administrative oversight of all ongoing work, such as the valve timing, was inadequate. The NRC is in agreement that the oversight of all ongoing work was inadequate, but is not in agreement that the operating shift supervisor's awareness was at the expected level. The violation demonstrated that the then expected level of oversight was inadequate to ensure proper control of operational and surveillance activities. The violation clearly demonstrated that supervision had not implemented administrative responsibilities to provide adequate shift turnover, activity briefings or require adequate communications between the individuals involved with surveillance actions. The lack of attention toward administrative requirements pertaining to overview, both by shift supervision and by plant management was not at the expected level.

4. Licensee Corrective Actions

The licensee presented their long and short term corrective actions on December 11, 1990. The details of these corrective actions are contained within the Attachment. Their corrective actions, in summary, pertained mainly on efforts to improve the expectations of performance of personnel in communications, supervision of activities, maintaining acceptable awareness of system status and evolutions, and awareness of responsibilities toward administrative and license requirements. During the discussions on December 11, 1990, the NRC was not assured that these corrective actions addressed management's involvement in ensuring these expectations. Subsequent to the enforcement meeting, plant management discussed their involvement in assuring that expectations of personnel performance was implemented with the Acting Senior Resident Inspector. Although these discussions did not provide detailed actions on management's part, they did provide several points of information that were not presented adequately on December 11, 1990. The licensee recognized that, in the past, the Operating Engineers were not adequately assimilated into the operations department line organization with clearly identified supervisory responsibilities and expectations. Additionally, the expectations of performance and adherence to assigned responsibilities had not been enforced by plant management. The licensee determined that these conditions are not acceptable and is planning to address these weaknesses.

5. Summary

In general, the licensee is in agreement with the NRC on the details of the violations through statements of either full agreement or lack of statements providing disagreement. The NRC was in disagreement with the licensee's position on the expected level of awareness by the operating shift supervision and the potential significance of the event to both operational and personnel safety, in that the licensee's position addressed the events' consequences (the NRC is in agreement on the consequence) and not the potential significance of the events' root causes.

Attachment:
Copy of CECo Presentation

Attachment

BRAIDWOOD STATION

OCTOBER 4, 1990 - LOSS OF INVENTORY EVENT

ENFORCEMENT CONFERENCE

DECEMBER 11, 1990

DECEMBER 11, 1990

BRAIDWOOD ENFORCEMENT CONFERENCE

OCTOBER 4, 1990 - LOSS OF INVENTORY EVENT

AGENDA

INTRODUCTION	MIKE WALLACE VICE PRESIDENT - PWR OPERATIONS
CHRONOLOGY OF EVENTS AND SAFETY SIGNIFICANCE	DOUG COOPER TECHNICAL STAFF SUPERVISOR
CECO INVESTIGATION OF EVENT	DAVE MILLER REGULATORY ASSURANCE SUPERVISOR
CONCLUSIONS AND CORRECTIVE ACTIONS	GREG MASTERS ASSISTANT SUPT. OPERATIONS
STATION OVERVIEW	KURT KOFRON STATION MANAGER
OVERALL CONCLUSIONS	MIKE WALLACE

INTRODUCTION

NRC ISSUES

FAILURE TO IMPLEMENT EXISTING ADMINISTRATIVE CONTROLS DURING THE CONDUCT OF SURVEILLANCES

FAILURE TO IMPLEMENT CORRECTIVE ACTIONS ASSOCIATED WITH A PREVIOUS EVENT INVOLVING LOSS OF REACTOR COOLANT

CECo RESPONSES

WE AGREE THE ADMINISTRATIVE PROCEDURES FOR ENSURING APPROPRIATE COMMUNICATIONS AND AWARENESS OF PLANT STATUS WERE NOT EFFECTIVELY IMPLEMENTED

LACK OF ADHERENCE TO ADMINISTRATIVE PROCEDURES IS UNACCEPTABLE

- EXTENSIVE CORRECTIVE ACTIONS WILL ENHANCE ALL INDIVIDUALS' UNDERSTANDING OF MANAGEMENT'S EXPECTATIONS FOR PROCEDURAL ADHERENCE

INTRODUCTION (CONT'D)

WE AGREE WITH THE AIT FINDING THAT HAD THE HEIGHTENED LEVEL OF AWARENESS (HLA) BRIEFING BEEN CONDUCTED THIS EVENT MAY NOT HAVE OCCURRED:

- THE HLA PROGRAM HAS ENHANCED OPERATIONAL PERFORMANCE SINCE ITS IMPLEMENTATION AND WAS USED SUCCESSFULLY BY THE AFTERNOON SHIFT CREW

- THIS EVENT SHOWED THE NEED TO CLARIFY THE APPLICABILITY OF THE HLA PROGRAM: MANAGEMENT EXPECTATIONS FOR HLA ARE BEING EMPHASIZED TO ALL PERSONNEL, AND THE THRESHOLD FOR EVOLUTIONS WHICH REQUIRE HLA ARE BEING BETTER DEFINED.

THIS PRESENTATION FOCUSES ON THE APPARENT VIOLATIONS AS DESCRIBED IN THE INSPECTION REPORT.

WE HAVE CORRELATED THE AIT REPORT CONCERNS WITH THE INSPECTION REPORT (IR) ISSUES AND OUR CORRECTIVE ACTIONS ADDRESS BOTH THE IR AND AIT ISSUES.

WE HAVE REVIEWED THE EVENTS IN DEPTH TO ENSURE THAT THE CORRECTIVE ACTIONS NECESSARY HAVE BEEN IDENTIFIED, AND THE CONCLUSIONS PRESENTED ARE NOT MEANT TO EXCUSE THE OCCURRENCE OF THE INCIDENT OR TO MINIMIZE IT'S IMPORTANCE.

INTRODUCTION (CONT'D)

WHILE WE RECOGNIZE THE SIGNIFICANCE OF THIS EVENT WE REMAIN CONFIDENT THAT BRAIDWOOD WILL CONTINUE TO MAINTAIN ITS OVERALL GOOD PERFORMANCE IN THE OPEPATION'S AREA AND IN THE INITIATIVES TAKEN AT BRAIDWOOD WILL CONTINUE TO IMPROVE PERFORMANCE.

CHRONOLOGY OF EVENTS

INITIAL CONDITIONS

MODE 5 - COLD SHUTDOWN

RCS TEMPERATURE 180°F

RCS PRESSURE 360 psig

EVENT DESCRIPTION

OCTOBER 3, 1990

DAYSHIFT (A.M.) - TECHNICAL STAFF PERSONNEL INFORMED THAT UNIT 1 WOULD REMAIN IN MODE 5 GREATER THAN 72 HOURS.

- TECHNICAL SPECIFICATION REQUIRES PERFORMANCE OF ENTIRE RCS ISOLATION VALVE LEAKAGE SURVEILLANCE (BwVS 4.6.2.2-1).
- ASME INSERVICE INSPECTION PROGRAM REQUIRED VALVE STROKE TESTING.
- RESIDUAL HEAT REMOVAL (RH) PORTIONS OF BwVS 4.6.2.2-1 WERE SCHEDULED TO OCCUR OVER A TWO DAY PERIOD (10/3 & 10/4).

CHRONOLOGY OF EVENTS (CONT'D)

OCTOBER 3, 1990 (CON'T)

DAYSHIFT (P.M.) - SCHEDULE CHANGED TO ACCOMODATE AUXILIARY FEEDWATER (AF) MODIFICATION TESTING ON THE FOLLOWING DAY

- BwVS 4.6.2.2-1 BECAME CRITICAL PATH REQUIRING CONTINUOUS TESTING.

- FOLLOWED USUAL STATION PRACTICE OF TAKING THE OPPORTUNITY TO CONDUCT REQUIRED ASME TESTING IN CONJUNCTION WITH SCHEDULED SURVEILLANCES BY SELECTING THREE (3) VALVE STROKE TESTS. NO ADDITIONAL SYSTEM OPERATIONS WERE NECESSARY FOR COMPLETION OF THESE VALVE TESTS. THE ADDITION OF TIMING VALVES ALREADY BEING MANIPULATED WAS NOT SEEN AS UNDULY COMPLICATING THE ONGOING LEAK RATE SURVEILLANCE.

- TECHNICAL STAFF ENGINEERS (TSE'S) PREPLANNED THEIR ACTIVITIES TO COMPLETE THE SURVEILLANCES.

  - ESTABLISHED TWO TESTING TEAMS. TEAM 1 TO BEGIN THE TEST, AND TEAM 2 RELIEVING AT 2300 HOURS.

TECHNICAL STAFF TESTING TEAM

4 TECHNICAL STAFF ENGINEERS (TSE'S)

2 TSE'S IN CONTROL ROOM. ONE TSE WAS A FORMER NUCLEAR STATION OPERATOR (LICENSED REACTOR OPERATOR), WHO FUNCTIONALLY ASSUMED THE ROLE OF TEAM LEADER.

2 TSE'S PERFORMING IN PLANT DUTIES OF LEAK QUANTIFICATION AND DIRECTION OF EQUIPMENT ATTENDANT (EA) TO PERFORM NECESSARY VALVE MANIPULATIONS.

ONE OF THE TSE'S IN THE PLANT WAS A TRAINEE AND PRESENT AS AN OBSERVER ONLY.

CHRONOLOGY OF EVENTS SUMMARY (CONT'D)

OCTOBER 3, 1990 (CON'T)

- 1430 - STATION CONTROL ROOM ENGINEER (SCRE) REVIEWED SURVEILLANCE WITH TSE AND AUTHORIZED TSE TO PERFORM BwVS 4.6.2.2-1.

- 1500 - AFTERNOON SHIFT OPERATING CREW ASSUMED CONTROL OF PLANT OPERATIONS.

- 1515 - SCRE AUTHORIZED THE ADDITIONAL ASME VALVE STROKE SURVEILLANCES AND DISCUSSED THEM WITH THE NSO'S. APPROPRIATE BRIEFINGS WERE HELD BECAUSE THE TEST WAS BEGINNING ON THIS SHIFT AND THE CREW KNEW THAT VALVE MANIPULATIONS WOULD BE REQUIRED DURING THE SURVEILLANCE.

- 1600 TO 1800 - TESTS WERE SUCCESSFULLY COMPLETED FOR THE TRAIN A OF RH. ONE OPPORTUNITY TO TIME A VALVE STROKE WAS MISSED AND THAT VALVE STROKE WAS REPEATED SUCCESSFULLY.

- 1954 - AN HLA BRIEFING WAS CONDUCTED, AND THE TRAIN A OF RH WAS PLACED IN RECIRC.

- 2000 - TSE'S CONTINUED SURVEILLANCE TESTING.

- 2130 - TSE'S CANCELLED RELIEF CREW BECAUSE THEY BELIEVED SURVEILLANCE TESTING WOULD BE COMPLETED BY MIDNIGHT.

- 2247 - TRAIN A OF RH PLACED IN SERVICE.

- 2258 - TRAIN B OF RH WAS SECURED.

CHRONOLOGY OF EVENTS (CONT'D)

OCTOBER 3, 1990 (CON'T)

- 2300 - MIDNIGHT SHIFT OPERATING CREW ASSUMED CONTROL OF PLANT OPERATIONS. THE TSE TEAM LEADER DISCUSSED SURVEILLANCES WITH MIDNIGHT SCRE.

- 2315 - PERFORMANCE OF BwVS 4.6.2.2-1 WAS DISCUSSED AT THE SHIFT BRIEFING. THE SE REVIEWED BwVS 4.6.2.2-1 AND CONSIDERED ADDITIONAL BRIEFINGS UNNECESSARY BECAUSE:

  - THE RH SYSTEM WAS ALREADY PLACED IN THE TEST CONFIGURATION
  - ONLY VALVE STROKES ON THE ISOLATED TRAIN WERE SCHEDULED

- 2315 - LEAKAGE CHECKS ON B TRAIN RH SUCTION VALVES STARTED.

OCTOBER 4, 1990

- 0117 - TSE'S IN CONTROL ROOM DIRECTED OPERATING EQUIPMENT ATTENDANT (EA) THROUGH THE IN-PLANT TSE'S TO CLOSE THE VENT VALVE.

- 0118 - VENT VALVE WAS NOT VERIFIED CLOSED. TSE REQUESTED EXTRA NSO TO OPEN 1RH8702B.

- 0119 - EXTRA NSO OPENED 1RH8702B. LOCALLY EA JUST STARTED TO CLOSE 3/4" VENT VALVE. TYGON HOSE ATTACHED TO 3/4" VENT LINE SPLIT.

CHRONOLOGY OF EVENTS (CONT'D)

OCTOBER 4, 1990(CONT'D)

- 0119 - CONTROL ROOM WAS NOTIFIED, UNIT NSO CLOSED BOTH 1RH8702B and A.

- 0123 - 1RH8702B REACHED FULL CLOSED AND THE EVENT WAS TERMINATED.

- 0520 - THE EVENT WAS REVIEWED AND DETERMINED TO NOT BE REPORTABLE. HOWEVER, THE NRC OPERATIONS CENTER AND THE NRC SENIOR RESIDENT INSPECTOR WERE NOTIFIED ONCE THE SHIFT ACTIVITIES WERE ESSENTIALLY CONCLUDED.

SAFETY SIGNIFICANCE

PERSONNEL SAFETY WAS MINIMALLY CHALLENGED

- THREE INDIVIDUALS RECEIVED EXTERNAL CONTAMINATION ≤ 10K DPM
- ONE INDIVIDUAL RECEIVED A SMALL SECOND DEGREE BURN TO ARM
- ALL INDIVIDUALS SUCCESSFULLY DECONTAMINATED ON SITE

OPERATIONAL SAFETY SIGNIFICANCE WAS MINIMAL

- RCS INVENTORY LOSS WAS SMALL AND CONTROLLABLE
- APPROXIMATELY 600 GALLONS OF RCS INVENTORY WAS LOST. PRESSURIZER LEVEL CHANGE WAS LESS THAN 5%.
- RCS PRESSURE AND TEMPERATURE REMAINED CONSTANT, MAINTAINING RCS SUBCOOLING.
- THERE WAS NO CHALLENGE TO THE PLANT THAT COULD NOT BE COMPENSATED. THE LEAK RATE NEVER EXCEEDED THE CAPACITY OF THE AVAILABLE CHARGING PUMP. IN ADDITION, THE LEAKAGE PATHWAY WAS ISOLABLE BY TWO REMOTELY OPERATED MOTOR OPERATED VALVES.
- THE SPRAYED AREA WAS INSPECTED BY TECH STAFF AND ENGINEERING PERSONNEL FOR EFFECT ON ADJACENT EQUIPMENT. NO EQUIPMENT DAMAGE WAS IDENTIFIED. THE AREA WAS SUCCESSFULLY DECONTAMINATED.

SAFETY SIGNIFICANCE (CONT'D)

THE EVENT WAS NOT AN INTERSYSTEM LOSS OF COOLANT ACCIDENT (ISLOCA)

- THE LEAKAGE PATHWAY WAS ISOLABLE AT ALL TIMES BY TWO MOTOR OPERATED VALVES.
- MODE 5 RCS PRESSURE IS SUBSTANTIALLY BELOW THE FULL OPERATING VALUE
- CECO IS CONCERNED ABOUT THE EVENT'S POTENTIAL AS A PRECURSOR TO THE ISLOCA. CORRECTIVE ACTIONS WILL BE DISCUSSED LATER

CECo INVESTIGATION OF EVENT

- FORMED CECo INVESTIGATION TEAM ON OCTOBER 4, 1990 WHICH INCLUDED:
  - STATION REPRESENTATIVES FROM REGULATORY ASSURANCE AND TECHNICAL STAFF, EACH WITH EXTENSIVE OPERATING EXPERIENCE.
  - CORPORATE REPRESENTATIVES FROM NUCLEAR SAFETY, NUCLEAR OPERATIONS AND PERFORMANCE ASSESSMENT.
- UTILIZED INPO APPROVED HUMAN PERFORMANCE ENHANCEMENT SYSTEM (HPES) METHOD TO INVESTIGATE THE EVENT.
- THE TEAM ANALYZED THE SEQUENCE OF EVENTS AND INTERVIEWED ALL INDIVIDUALS INVOLVED WITH THE EVENT.
- THE TEAM REVIEW FOCUSED ON HOW EACH CAUSAL FACTOR ALONE CONTRIBUTED TO THE EVENT.
  - ROOT AND CONTRIBUTING CAUSES OF THE EVENT WERE IDENTIFIED.
  - ADDITIONAL WEAKNESSES WITH THE PERFORMANCE OF THE OPERATING CREW WERE IDENTIFIED. A FURTHER EVALUATION OF THE IMPLICATIONS OF THESE WEAKNESSES WAS DEFERRED UNTIL THEY COULD BE CONSIDERED BY THE EVENT FREQUENCY REDUCTION COMMITTEE (EFRC).

CECo INVESTIGATION OF EVENT (CONT'D)

- BEFORE THE REGULARLY SCHEDULED EFRC MEETING, STATION DISCUSSIONS WITH THE BRAIDWOOD SENIOR RESIDENT INSPECTOR REINFORCED THE NEED FOR A COLLECTIVE REVIEW OF THE WEAKNESSES AND THEIR IMPLICATIONS.

- THE EFRC FOCUSED ON THE BROADER IMPLICATIONS OF THE IDENTIFIED WEAKNESSES.

- EFRC REACHED ADDITIONAL CONCLUSIONS AND DEVELOPED ADDITIONAL MORE COMPREHENSIVE CORRECTIVE ACTIONS.

IMPLEMENTATION OF EXISTING ADMINISTRATIVE CONTROLS FOR CONDUCTING SHIFT RELIEF AND TURNOVERS

CECo CONCLUSIONS:

MANAGEMENT'S EXPECTATIONS FOR SHIFT RELIEF, TURNOVER, AND OTHER COMMUNICATIONS WERE NOT MET IN THAT CERTAIN COMMUNICATIONS WERE NEITHER EFFECTIVE NOR DOCUMENTED. SHIFT TURNOVER CHECKLISTS AND LOGS WERE NOT SUFFICIENTLY DETAILED AND VERBAL COMMUNICATIONS IN THE OPERATING STAFF WERE DEFICIENT.

CORRECTIVE ACTIONS:

- MANAGEMENT PROCESS FOR COMMUNICATING EXPECTATIONS AND STRENGTHENING THE CONDUCT OF OPERATIONS WILL BE ENHANCED:

  - OPERATIONS MANAGEMENT WILL PROVIDE AWARENESS OF EXPECTATIONS DELINEATED IN APPLICABLE ADMINISTRATIVE PROCEDURES THROUGH PERIODIC TAILGATES.

  - SHIFT ENGINEERS WILL PERFORM PEER AUDITS OF OTHER CREW'S PERFORMANCE.

  - OPERATING ENGINEERS WILL EVALUATE CREW PERFORMANCE WITH RESPECT TO MANAGEMENT EXPECTATIONS.

  - ASSESSING AUDIT AND EVALUATION RESULTS AND PROVIDING FEEDBACK TO THE SHIFT ENGINEERS AND CREWS ON THEIR PERFORMANCE.

THIS PROGRAM WILL BE IMPLEMENTED BY JANUARY 31, 1991.

IMPLEMENTATION OF EXISTING ADMINISTRATIVE CONTROLS FOR CONDUCTING SHIFT RELIEF AND TURNOVERS (CONT'D)

CORRECTIVE ACTIONS (CONT'D):

- COPIES OF THE POTENTIALLY SIGNIFICANT EVENT REPORT, AIT REPORT, AND CECO INVESTIGATION REPORT WERE ISSUED TO THE SHIFT ENGINEERS.

- DURING THE NORMAL MONDAY AFTERNOON CREW MEETINGS SINCE THIS EVENT, THE ASSISTANT SUPERINTENDENT OF OPERATIONS (ASO) DISCUSSED THIS EVENT, AS WELL AS SOME OF THE RELATED ISSUES FROM OTHER STATION EVENTS (THREE CREW MEETINGS HAVE BEEN HELD TO DATE).

- ON 11-5-90, THE ASO MET WITH OPERATING SHIFT SUPERVISION TO REVIEW THE CONCERNS IN THE AIT REPORT INCLUDING COMMUNICATIONS, TURNOVERS, AWARENESS OF PLANNED SURVEILLANCES, ALLOWING THE TSE TO DIRECT FIELD OPERATIONS ETC. THE NEED FOR IMPROVEMENT IN THESE AREAS WAS DISCUSSED AS WELL AS THE PLANNED ACTIVITIES TO ADDRESS THESE CONCERNS.

IMPLEMENTATION OF EXISTING ADMINISTRATIVE CONTROLS WITH RESPECT TO FOLLOWING SURVEILLANCE PROCEDURES

CECo CONCLUSION:

INADEQUATE CONTROL OF TECHNICAL STAFF WORKING HOURS RESULTED IN A FATIGUED TECH STAFF ENGINEER WHO MISSED A STEP IN THE SURVEILLANCE PROCEDURE.

CORRECTIVE ACTIONS:

- THE CORPORATE OVERTIME POLICY WAS CONSERVATIVELY EXTENDED TO ALL STATION PERSONNEL ON OCTOBER 4, 1990 PENDING A REVIEW OF OVERTIME PRACTICES AT THE STATION.

- A CORPORATE REVIEW OF THE NUCLEAR DIVISION OVERTIME POLICY IS BEING CONDUCTED AND WILL BE COMPLETED BY JANUARY 1, 1991.

IMPLEMENTATION OF EXISTING ADMINISTRATIVE CONTROLS WITH RESPECT TO REMAINING COGNIZANT OF SYSTEM STATUS

CECo CONCLUSIONS:

- THE EXTRA NSO DID NOT MAINTAIN THE EXPECTED LEVEL OF AWARENESS OF RH SYSTEM STATUS DURING THIS EVENT.
    - THE EXTRA NSO ALLOWED THE TSE TO DIRECT VALVE MANIPULATIONS WITHOUT CONFIRMING SYSTEM STATUS.
    - THIS FAILURE WAS DUE TO IMPROPER NSO RELIANCE ON THE TSE, WHO WAS QUALIFIED TO PERFOPM THIS SURVEILLANCE AND WAS A FORMER NSO.
- THE UNIT NSO DISCUSSED THE SURVEILLANCES AND THE SHARED RESPONSIBILITIES WITH THE EXTRA NSO, AND WAS AWARE OF RH SYSTEM STATUS. HOWEVER, THE UNIT NSO DID NOT PERIODICALLY ENSURE THE EXPECTED LEVEL OF ATTENTION WAS BEING GIVEN TO THE ONGOING ACTIVITY BY ACTIVELY QUERYING THE EXTRA NSO OR OTHERWISE ASSURING THAT THE EXTRA NSO WAS ADEQUATELY DISCHARGING HIS ASSIGNED DUTIES.
- THE SE, SF, AND SCRE, AS PART OF THEIR ADMINISTRATIVE OVERSIGHT OF ONGOING WORK, SHOULD HAVE BEEN AWARE THAT THE COLLECTION OF VALVE TIMING DATA WAS PLANNED FOR THEIR SHIFT.

IMPLEMENTATION OF EXISTING ADMINISTRATIVE CONTROLS WITH RESPECT TO REMAINING COGNIZANT OF SYSTEM STATUS (CONT'D)

CECo CONCLUSION (CONT'D):

- HOWEVER, BECAUSE THE COLLECTION OF THAT DATA, DID NOT REQUIRE ANY ADDITIONAL MANIPULATIONS OF RH SYSTEM VALVES AT ANY TIME IT WAS NOT CONSIDERED AN ELEMENT OF SYSTEM STATUS.

THEREFORE SHIFT SUPERVISION HAD THE EXPECTED LEVEL OF AWARENESS OF RH SYSTEM STATUS BECAUSE THEY WERE AWARE THAT RH VALVES WERE BEING CYCLED FOR THE LEAK RATE SURVEILLANCE.

IMPLEMENTATION OF EXISTING ADMINISTRATIVE CONTROLS WITH RESPECT TO REMAINING COGNIZANT OF SYSTEM STATUS (CONT'D)

CORRECTIVE ACTIONS:

- THE EXTRA NSO HAS BEEN COUNSELLED ON NON-DELEGABLE RESPONSIBILITIES FOR BEING CONTINUOUSLY ALERT TO PLANT/SYSTEM STATUS.

- THE UNIT NSO HAS BEEN COUNSELLED ON RESPONSIBILITIES WITH RESPECT TO OVERALL UNIT CONTROL, DIRECTION, AND SUPERVISION.

- AN OVERVIEW OF MANAGEMENT'S EXPECTATIONS ON APPROPRIATE LEVELS OF AWARENESS IS BEING COMMUNICATED TO EACH OPERATING SHIFT. THIS WILL BE COMPLETED BY DECEMBER 31, 1990.

- THE EXPECTATIONS DELINEATED ON BwAP 300-1, "CONDUCT OF OPERATIONS" AND BwAP 2207-1, "FORCED OUTAGE PLANNING", ARE BEING INCLUDED IN THE MANAGEMENT PROCESS FOR STRENGTHENING OPERATIONS WHICH WAS DISCUSSED PREVIOUSLY. THIS WILL BE COMPLETED BY JANUARY 31, 1991.

IMPLEMENTATION OF EXISTING ADMINISTRATIVE CONTROLS FOR CONTROLLING SURVEILLANCE ACTIVITIES

CECo CONCLUSIONS:

IT WAS INAPPROPRIATE FOR THE EXTRA NSO TO ALLOW THE TSE'S IN THE CONTROL ROOM TO DIRECT THE MANIPULATION OF SYSTEM COMPONENTS IN THE PLANT DURING THE PERFORMANCE OF THE SURVEILLANCES.

CORRECTIVE ACTIONS:

- ISSUED OPERATING ORDER ON OCTOBER 15, 1990, REQUIRING NSO'S TO DIRECT FIELD OPERATIONS DURING ACTIVITIES CONDUCTED FROM THE CONTROL ROOM.

- PROCEDURE BwAP 390-1, "OPERATING DEPARTMENT SURVEILLANCE PROGRAM" IS BEING REVISED TO DELINEATE MANAGEMENT'S EXPECTATIONS OF THE OPERATING CREW DURING SURVEILLANCE ACTIVITIES. THIS WILL BE COMPLETED BY MARCH 31, 1991.

- THE REVISED PROCEDURE REQUIREMENTS WILL BE COMMUNICATED TO NECESSARY PERSONNEL THROUGH THE NORMAL REVISION PROCESS.

IMPLEMENTATION OF EXISTING ADMINISTRATIVE CONTROLS FOR CONTROLLING SURVEILLANCE ACTIVITIES (CONT'D)

CECo CONCLUSION:

THE INFORMAL ROLE OF TSE AS TEST DIRECTOR LED TO INEFFECTIVE COMMUNICATIONS AND COORDINATION OF THE SURVEILLANCE ACTIVITIES.

CORRECTIVE ACTIONS:

A TEST DIRECTOR WILL BE APPOINTED FOR EACH SURVEILLANCE.

- A TECHNICAL STAFF MEMO WAS ISSUED ON OCTOBER 6, 1990 PROVIDING SPECIFIC GUIDANCE FOR PERFORMING TECHNICAL STAFF SURVEILLANCES.

- THIS TECHNICAL STAFF MEMO WILL BE PROCEDURALIZED AND EXPANDED TO APPLY TO ALL DEPARTMENTS BY THE END OF THE FIRST QUARTER OF 1991.

IMPLEMENTATION OF EXISTING ADMINISTRATIVE CONTROLS FOR CONTROLLING SURVEILLANCE ACTIVITIES (CONT'D)

CECo CONCLUSION

ALTHOUGH THE TWO SURVEILLANCES WERE COMPATIBLE AND COULD BE PERFORMED CONCURRENTLY, ADDITIONAL COORDINATION SHOULD HAVE BEEN APPLIED.

CORRECTIVE ACTIONS

- A TECHNICAL STAFF GUIDANCE MEMO WAS ISSUED ON OCTOBER 6, 1990 PROVIDING SPECIFIC INSTRUCTIONS FOR COORDINATING CONCURRENT SURVEILLANCES.

- THIS MEMO WILL BE PROCEDURALIZED AND EXPANDED TO APPLY TO ALL DEPARTMENTS BY THE END OF THE FIRST QUARTER OF 1991.

- THE OPERATING SHIFT ADVISOR (OSA) WILL ASSIST THE SCRE IN SUPERVISING SURVEILLANCE ACTIVITIES CONDUCTED FROM THE CONTROL ROOM. THIS WILL BE IMPLEMENTED JANUARY 7, 1991.

IMPLEMENTATION OF CORRECTIVE ACTIONS FROM PREVIOUS EVENT

CECo CONCLUSIONS

WE AGREE THAT HAD AN HLA BRIEFING BEEN CONDUCTED, THIS EVENT MAY NOT HAVE OCCURRED. HOWEVER, OPERATION MANAGEMENT'S EXPECTATION AT THE TIME WAS THAT AN HLA BRIEFING WAS NOT REQUIRED FOR THE RH LEAKAGE SURVEILLANCE.

CORRECTIVE ACTION

- THE HLA THRESHOLD FOR RH SYSTEM ACTIVITIES HAS BEEN CLARIFIED.
  - INDUSTRY LOSS OF REACTOR COOLANT EVENTS INVOLVING RH ARE BEING REVIEWED FOR LESSONS LEARNED. THIS WILL BE COMPLETED BY JANUARY 31, 1991.
- A REVIEW OF OTHER SYSTEM EVOLUTIONS IS BEING PERFORMED TO DETERMINE IF OTHER HLA THRESHOLD CHANGES ARE NECESSARY. THIS WILL BE COMPLETED BY FEBRUARY 28, 1991.
- SHIFT TURNOVER PROCEDURE IS BEING REVISED TO INCLUDE A MEANS FOR DOCUMENTING HLA ACTIVITIES IN PROGRESS OR PENDING. THIS WILL BE COMPLETED BY JANUARY 31, 1991.
- ALL PRE-JOB BRIEFING REQUIREMENTS ARE BEING CONSOLIDATED INTO ONE PROCEDURE FOR EASE OF USE. THIS WILL BE COMPLETED BY JUNE 30, 1991.

OTHER AIT IDENTIFIED ISSUES

CONCERN

PRECURSOR TO ISLOCA

CECo CONCLUSION

WE AGREE WITH THE AIT CONCLUSION THAT THIS WAS NOT AN ISLOCA. CECO SHARES THE NRC'S CONCERN THAT MULTIPLE SURVEILLANCES ON A SYSTEM WITH A HIGH/LOW PRESSURE INTERFACE, COUPLED WITH THE LOSS OF SHIFT PERSONNEL AWARENESS OF THESE ACTIVITIES WAS A PRECURSOR TO ISLOCA.

CORRECTIVE ACTIONS

THE AGGREGATE OF THE CORRECTIVE ACTIONS ALREADY DISCUSSED HAS ADDRESSED THE CONDUCT OF MULTIPLE SURVEILLANCES ON SYSTEMS WITH A HIGH/LOW PRESSURE INTERFACE, COUPLED WITH THE LOSS OF SHIFT PERSONNEL AWARENESS OF THESE ACTIVITIES.

STATION OVERVIEW

- ALTHOUGH THE SAFETY SIGNIFICANCE OF THIS EVENT WAS MINIMAL, WE RECOGNIZE THAT THE IMPLICATIONS OF THE WEAKNESSES IDENTIFIED NEED TO BE SERIOUSLY ADDRESSED TO ENSURE CONTINUED SAFE PLANT OPERATIONS.

  - WE ARE PROCEEDING WITH OUR MANAGEMENT PROCESS FOR STRENGTHENING OPERATIONS BY:

    - REINFORCING OUR EXPECTATIONS.

    - EVALUATING PERFORMANCE WITH EMPHASIS ON CONTROL ROOM ACTIVITIES.

    - PROVIDING FEEDBACK.

  - PART OF THE MANAGEMENT PROCESS INCLUDES STRENGTHENING THE SUPERVISORY PRESENCE BY ENHANCING THE OSA POSITION

  - THE REVIEWS OF THE ADMINISTRATIVE PROCEDURES AND POLICIES, AND THE ASSOCIATED REVISIONS SHOULD ENSURE CLEAR LINES OF RESPONSIBILITY AND COMMUNICATION.

  - WE WILL CONTINUE TO EMPHASIZE THE SIGNIFICANCE OF INDIVIDUAL TASKS AND THE NEED FOR STRICT ADHERENCE TO PROCEDURES

STATION OVERVIEW

- BRAIDWOOD'S OVERALL PERFORMANCE IN THE AREAS OF OPERATIONS AND TECHNICAL SUPPORT HAS BEEN GENERALLY GOOD AS REFLECTED IN OUR SALP EVALUATIONS AND OUR OWN INTERNAL ASSESSMENTS

- WHEN THIS EVENT OCCURRED, WE PROMPTLY NOTIFIED THE NRC SENIOR RESIDENT INSPECTOR AND THE NRC OPERATIONS CENTER.

- THE CORRECTIVE ACTIONS TO ADDRESS THE ROOT AND CONTRIBUTING CAUSES IDENTIFIED DURING THE EVENT INVESTIGATION WERE PROMPT FOR THE DETAILED ISSUES AS EVIDENCED BY THE ISSUANCE OF THE TECHNICAL STAFF MEMO'S AND THE APPLICATION OF THE OVERTIME POLICY TO ALL STATION PERSONNEL.

- OUR ACTIONS TO ADDRESS THE REMAINDER OF THE CONCERNS FROM THIS EVENT HAVE BEEN DEVELOPED USING A COMPREHENSIVE APPROACH AND ARE BEING IMPLEMENTED IN A TIMELY FASHION, AND WILL BE COMPLETED DURING EARLY 1991.

CORPORATE OVERVIEW

SUMMARY

COMMONWEALTH EDISON IS TAKING COMPREHENSIVE ACTIONS AT BRAIDWOOD STATION TO ADDRESS THE WEAKNESSES IDENTIFIED DURING THIS EVENT.

CECO ALSO RECOGNIZES THAT THERE ARE SOME CORPORATE IMPLICATIONS FOR SPECIFIC ISSUES SUCH AS:

- CONTROL ROOM COMMUNICATIONS/LICENSED RESPONSIBILITIES
- PROCEDURE ADHERENCE
- OVERTIME CONTROL

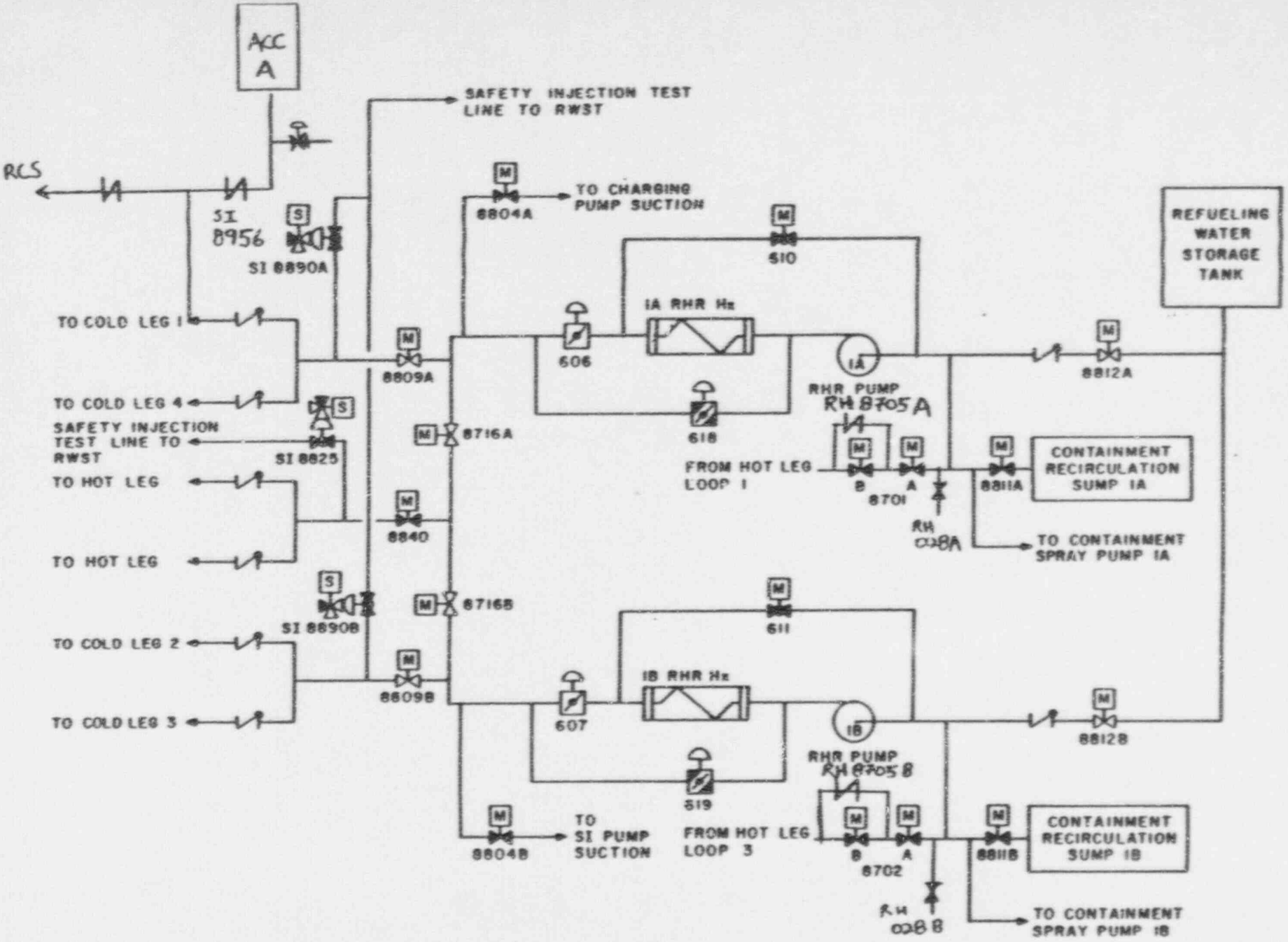
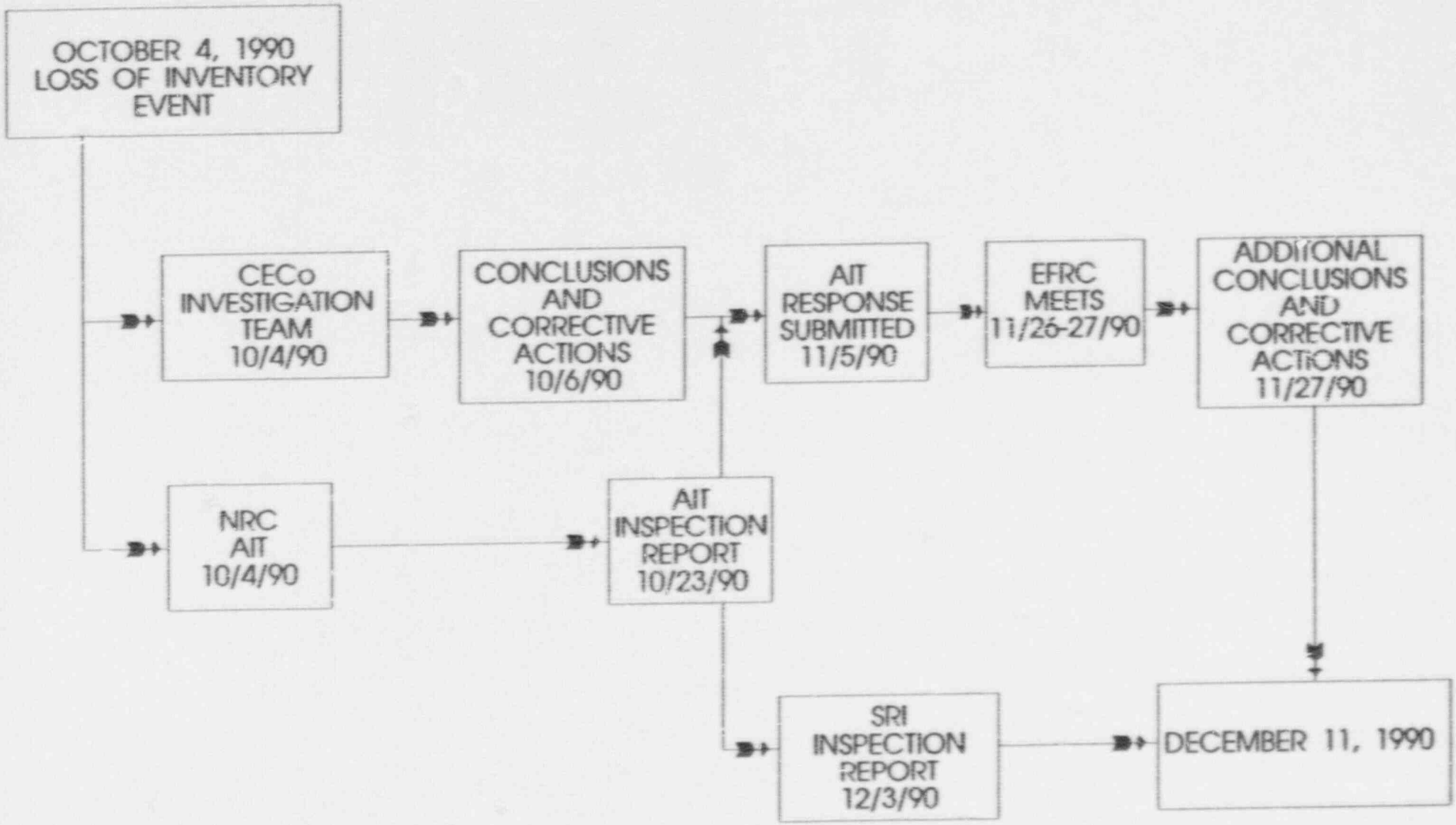


FIGURE 58-5 (REV. 1)
RESIDUAL HEAT REMOVAL SYSTEM FLOW PATHS
(INJECTION FLOW PATH)


OCTOBER 4, 1990
LOSS OF INVENTORY
EVENT
CECo
INVESTIGATION
TEAM
10/4/90
CONCLUSIONS
AND
CORRECTIVE
ACTIONS
10/6/90
AIT
RESPONSE
SUBMITTED
11/5/90
EFRC
MEETS
11/26-27/90
ADDITIONAL
CONCLUSIONS
AND
CORRECTIVE
ACTIONS
11/27/90
NRC
AIT
10/4/90
AIT
INSPECTION
REPORT
10/23/90
SRI
INSPECTION
REPORT
12/3/90
DECEMBER 11, 1990