

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-456/90023

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: November 19-23, 1990

Inspector: S. G. Du Pont

Approved By: *W.D. Shafer, Jr.*
J. M. Hinds, Chief
Reactor Projects Section 1A

12-3-90
Date

Inspection Summary

Inspection from November 19-23, 1990 (Report No. 50-456/90023(DRP))

Areas Inspected: Special safety inspection by the resident inspector of activities documented in the NRC Augmented Inspection Team Report No. 50-456/90020(DRP) associated with the October 4, 1990, Unit 1 loss of coolant and contamination of personnel event and the licensee's implementation of corrective actions associated with the Unit 2 March 18, 1990 loss of reactor coolant event.

Results: Of the two areas inspected, two apparent violations were identified. The first apparent violation consists of multiple examples of the licensee's failure to implement existing administrative controls, as follows:

- . The operating personnel and supervision failed to conduct adequate shift relief and turnover associated with the October 4, 1990 loss of reactor coolant event. (Paragraph 2.a).
- . The operating shifts and the Technical Staff Engineer failed to follow surveillance procedures. (Paragraph 2.b).

- . The operating personnel and supervision failed to remain cognizant of the status of Unit 1 Residual Heat Removal system prior to the October 4, 1990 loss of reactor coolant event. (Paragraph 2.c).
- . The operating personnel and supervision failed to adequately control surveillance activities. (Paragraph 2.d).

The second apparent violation was that the licensee had failed to implement corrective actions associated with the March 18, 1990 loss of reactor coolant event to correct communication weaknesses and lack of attention to administrative responsibilities of operating personnel and supervision which resulted in the repetitive loss of reactor coolant on October 4, 1990. (Paragraph 3).

While the safety significance of this event was minimal, the act of conducting multiple surveillances on a system with a high/low pressure interface, coupled with the loss of shift personnel awareness of these activities, is considered a precursor to an Intersystem Loss of Coolant Accident. The October 4, 1990 event and the March 18, 1990 event caused the reactor coolant system to be challenged unnecessarily.

DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

- +*K. L. Kofron, Station Manager
- + D. E. O'Brien, Technical Superintendent
- +*G. E. Groth, Production Superintendent
- *A. Checca, Nuclear Licensing Administrator
- + G. R. Masters, Assistant Superintendent - Operations
- M. E. Lohman, Braidwood Project Manager, PWR Projects Department
- *R. J. Legner, Services Director
- L. Guthrie, Assistant Superintendent - Maintenance
- P. Smith, Operating Engineer
- +*R. Yungk, Operating Engineer
- W. B. McCue, Operating Engineer
- R. D. Kyrouac, Nuclear Quality Program Superintendent
- +*D. J. Miller, Regulatory Assurance Supervisor
- + D. E. Cooper, Technical Staff Supervisor
- A. D'Antonio, Quality Control Supervisor
- R. L. Byers, Assistant Superintendent - Work Planning and Startup
- L. W. Raney, Nuclear Safety Supervisor
- C. Vanderheyden, Training Supervisor
- P. Maher, Assistant Technical Staff Supervisor
- *E. W. Carroll, Regulatory Assurance
- J. Smith, Master, Electrical Maintenance
- *S. D. Notter, Nuclear Quality Program Engineer
- *D. M. Kapinus, Station Reactor Engineer
- *J. R. Petro, Chemistry Supervisor
- + L. O. Kim, Nuclear Quality Program Engineer
- + P. K. Weiger, Nuclear Quality Program Engineer

*Denotes those attending the exit interview conducted on November 20, 1990.

+Denotes those attending the exit interview conducted on November 29, 1990.

2. Review of Unit 1 October 4, 1990 Loss of Reactor Coolant and Personnel Contamination Event (40500)

The inspector reviewed the NRC Augmented Inspection Team (AIT) Inspection Report No. 50-456/90020(DRP) and the licensee's response, dated November 5, 1990, to the Confirmatory Action Letter (CAL), dated October 4, 1990, addressing the October 4, 1990 Unit 1 loss of reactor coolant and contamination of personnel event. Based upon this review, several of the actions taken by the licensee prior to the event are in apparent violation of several procedures controlling conduct of operations, surveillance, shift turnover and relief activities.

a. Performance of Surveillances BwVS 4.6.2.2-1 and 0.5-2.RH.2-1

On October 4, 1990, two Technical Staff Engineers (TSEs) and the extra Nuclear Station Operator (NSO) were performing the surveillances BwVS 4.6.2.2-1, Reactor Coolant System Pressure Isolation Valve Leakage and BwVS 0.5-2.RH.2-1, Residual Heat Removal Valve Stroke Tests, on the Unit 1 Train B Residual Heat Removal (RHR) system components. The intention of the TSEs were to follow the steps of BwVS 4.6.2.2-1 without deviation and only collect data by timing the valves when the manipulation of the valve was directed in BwVS 4.6.2.2-1. These manipulations were directed by the TSEs and performed by the extra NSO.

One of the TSEs directed the RHR vent valve RH028B to be closed locally from within the plant. RH028B is a manually operated valve. Prior to closing and establishing that RH028B was closed the other TSE directed the extra NSO to open the RHR suction isolation valve RH8702B for valve stroke timing. Opening RH8702B prior to closing RH028B was not in accordance with surveillance procedure BwVS 4.6.2.2-1 and resulted in the loss of reactor coolant through the open vent valve and contamination of personnel. The action of the TSE, directing the extra NSO to open RH8702B out of sequence is also considered to be a violation by failing to follow the appropriate procedure (50-456/90023-01a(DRP)).

b. Operating Shift Turnover and Relief

The shift turnover and relief process for the Operating Shift is governed by administrative procedure BwAP 335-1, Revision 8, dated September 27, 1990. On October 3, 1990, as documented in Inspection Report No. 50-456/90020 and the licensee's response to the CAL, several surveillance tests were commenced on Shift 3 and continued through Shift 1. These included BwVS 4.6.2.2-1, Reactor Coolant System Pressure Isolation Valve Leakage Surveillance, and BwVS 0.5-2.RH.2-1, Residual Heat Removal Valve Stroke Test. During the turnover between the off-going Shift 3 and on-coming Shift 1, surveillance BwVS 4.6.2.2-1 was discussed at both the Shift Engineer (SE) and Station Control Room Engineer (SCRE) reliefs. Shift 3 personnel stated that they had discussed BwVS 0.5-2.RH.2-1 (Valve Stroke Test) as other additional BwVSs or valve strokes; however, Shift 1 stated that the valve stroke surveillance had not been discussed. Both shifts agreed that they had addressed the performance of BwVS 4.6.2.2-1.

During the relief between the off-going and on-coming Unit 1 Nuclear Station Operators (NSOs), BwVS 4.6.2.2-1 was also addressed. In addition, the Unit 1 operating logs did not contain any entries addressing the in progress performance of BwVS 0.5-2.RH.2-1.

Administrative procedure BwAP 335-1, Section C.3.i, requires that the relief will take place when the off-going and on-coming SEs are both satisfied that a proper turnover has been given and that proper continuity of supervision is assured. In both cases, this administrative requirement was not invoked by the on-coming SE by accepting the relief without querying the off-going SE on the specifics of "some additional BwVSs," and the off-going SE by not providing a proper status of the in progress activities pertaining to the plant. Additionally, BwAP 335-1 requires the on-coming SE, as soon as possible after the shift relief, to visually inspect the control room panels, review the operating logs and brief the shift personnel as to the scope of the shift activities. It was also not apparent that the on-coming SE acquired the status of the in progress surveillance via the tour of the control room.

Administrative procedure BwAP 335-1, Section C.4.i, also requires the same relief process of the on-coming and off-going SCREs. As in the case of the relief between SEs, the on-coming SCRE failed to query the off-going SCRE on the specifics of "doing some valve strokes." It was apparent that the on-coming SCRE also failed to acquire the status of in progress surveillances during the required control room tour, log review, and inspection of panels.

The inspector also found that the on-coming and off-going Shift Supervisors failed to conduct a proper relief to ensure proper continuity of supervision between the Shift Supervisors. It should be noted that the Shift Supervisors, although Senior Reactor Operator licensed, are not considered to be in-line supervision between the SCRE and Unit NSOs in the control room during performance of surveillances, but are in-line supervision of activities within the plant. The failure of the Shift Supervisors to conduct a proper relief by omitting the valve stroke tests is not in accordance with administrative procedure BwAP 335-1, Section C.5.j.

In addition to requirements for conducting proper reliefs, administrative procedure BwAP 335-1 requires the off-going SE, SCRE, and Shift Supervisors to document in the in-progress section of the turnover sheets (BwAP 335-1T1, 1T2, and 1T3 respectively) surveillances in progress at the time of turnover. The review of these turnover sheets for October 3, 1990, by both the NRC AIT and the licensee's investigation team revealed that, in all cases, the turnover sheets were mute on the in-progress status of the valve stroke surveillance (BwVS 0.5-2.RH.2-1). Since the surveillance had commenced and completed the Train A portions of the Residual Heat Removal system during Shift 3 and the Train B portions were in progress at the time of turnover to Shift 1, the omissions in the turnover sheets are considered to be not in accordance with administrative procedure BwAP 335-1, Sections C.3.d (off-going SE), C.4.d (off-going SCRE) and C.5.e (off-going Shift Supervisor).

The above examples are indicative of an inadequate conduct of shift turnover and relief on the parts of both the off-going and on-coming Shift Engineers, Station Control Room Engineers, Shift Supervisors, and Nuclear Station Operators on October 3, 1990, that contributed to the loss of reactor coolant and contamination of personnel event documented in the NRC Augmented Inspection Team Report No. 50-456/90020. Inadequate shift turnover and relief is considered to be a violation of administrative procedure BwAP 335-1, Operating Shift Turnover and Relief, (50-456/90023-01b(DRP)).

c. Conduct of Operations

Conduct of operations and routine evaluations pertaining to the Operations Department is governed by administrative procedure BwAP 300-1, Conduct of Operations, Revision 3, dated April 10, 1989. The inspector reviewed the findings of the NRC Augmented Inspection Team (AIT) documented in Report No. 50-456/90020, and the licensee's investigation team response on November 5, 1990, to the Confirmatory Action Letter of October 4, 1990. The inspector determined that the actions of several licensed individuals prior to the October 4, 1990 loss of reactor coolant and contamination of personnel were not in accordance with administrative requirements and responsibilities contained within BwAP 300-1.

Administrative procedure BwAP 300-1, Section C.2.n.(11) requires that operation of mechanisms and apparatus other than controls that may indirectly affect the power level or reactivity of a reactor shall only be accomplished with the knowledge and consent of the appropriate on-shift licensed operator. The intent of this requirement is to enable the appropriate on-shift licensed operator, the unit Nuclear Station Operator (NSO), to meet the requirements of 10 CFR 55, which requires that controls (apparatus and mechanisms the manipulation of which directly affects the reactivity or power level of the reactor) are to be manipulated only by the licensed operator and the requirement that licensed operators are to be present at the controls and aware of the plant status at all times.

On October 4, 1990, an extra NSO was assigned to manipulate mechanisms and apparatus (motor operated valves) on the Unit 1 Residual Heat Removal (RHR) system for performance of an RHR leak test (BwVS 4.6.2.2-1) and several valve stroke tests (including BwVS 0.5-2.RH.2-1). Throughout this evaluation, the assigned Unit 1 NSO remained responsible for the operation of Unit 1 and as such, the appropriate on-shift licensed operator. The assignment of the extra NSO to perform the manipulations associated with the surveillance was to assist the unit NSO by allowing the unit NSO to maintain responsibilities for plant status as the appropriate on-shift licensed operator on Unit 1. During the performance of the surveillances, the extra NSO maintained only minimal communications with the appropriate on-shift licensed operator, as determined by the licensee's investigation team. The extra NSO believed that the requirements for awareness of the plant status at all times was met by performing the surveillances step-by-step in accordance with the applicable surveillance procedures. However, at no time was it established by the NRC AIT or the licensee's investigation that the extra NSO was following the procedure step-by-step, but that the Technical Staff Engineers (TSEs) in the control room were directing the manipulations. Additionally, the extra NSO did not maintain cognizant of the status of the RHR system, since the extra NSO was unaware of the steps of the surveillance procedures. The extra NSO also failed to inform the appropriate on-shift licensed operator of important system status such as restoring the RHR Train B by opening the RHR suction isolation valve RH8702B. These actions are considered to be not in accordance with administrative procedure BWAP 300-1 in that the manipulation of the isolation valve was not accomplished with the knowledge and consent of the appropriate on-shift licensed operator.

The unit NSO, the appropriate on-shift licensed operator responsible for Unit 1 operation, failed to maintain awareness of the Unit 1 status by not requiring status of the RHR system from the extra NSO or by querying the TSEs and extra NSO on system status and affects associated with the surveillances. This is also not in accordance with administrative procedure BWAP 300-1.

Administrative procedure BWAP 300-1, Section C.3.n(3), requires that the individual who is to perform the activity, such as manipulations associated with surveillances, is responsible to adequately review the applicable procedures, to fully understand the required actions, and to be cognizant of all limitations, precautions and requirements associated with the activity. As previously stated, the extra NSO assigned to manipulate the RHR system for performance of the surveillance did not remain cognizant of the limitations and actions of the applicable surveillance procedure BwVS 4.6.2.2-1 by opening

the RHR suction isolation valve RH8702B out of sequence without verifying the vent valve RH028B closed. This resulted in a direct path of reactor coolant through the open vent valve and contamination of personnel. Although the extra NSO was directed by a Technical Staff Engineer to open RH2807B, the responsibility to adequately review the surveillance procedure, understand the actions associated with the surveillance, and remain cognizant of the surveillance's limitations was never removed from the extra NSO or was delegation of that responsibility allowed. These actions on the part of the extra NSO are considered to be not in accordance with administrative procedure BwAP 300-1.

Administrative procedure BwAP 300-1, Section C.2.n.(2), requires that briefings shall be conducted by the Shift Engineer (SE) or designee, for individuals involved in an evaluation that is to be performed, such as surveillances being coordinated between two or more departments. The detail of this briefing is dependent upon the degree of complexity, routineness, logistics, or number of people involved. On October 4, 1990, non-routine surveillances were being conducted on the RHR system involving four Technical Staff Engineers, the extra Nuclear Station Operator, and an operations equipment attendant. Neither the on-coming SE or designee (Station Control Room Engineer) conducted briefings with the individuals involved with surveillances BwVS 4.6.2.2-1 and BwVS 0.5-2.RH.2-1 on the evaluations to a detail indicating what communications and actions were required beyond stating only that BwVS 4.6.2.2-1 was a priority. The failure on the part of the SE and designee to conduct an adequate briefing on the surveillance is not in accordance with administrative procedure BwAP 300-1. In addition to the SE and the SCRE not conducting a briefing with the individuals involved with the surveillances, both failed to maintain awareness of the Unit 1 plant status throughout the performance of the surveillance.

Administrative procedure BwAP 300-1, Section C.3.n.(4), requires that evaluations involving many individuals, especially from two or more departments, such as the RHR surveillances coordinated between Technical Staff and Operation Departments on October 3 and 4, 1990, may require a large formal briefing or preplanning sessions. If the evaluation is complex and involves close coordination, the briefing session shall be coordinated by the Operating Engineer (OE) or designee. These briefings should include a review of the appropriate section of the procedure, examination of each individual's specific involvement and responsibility, discussions of expected results or performance, review of limitations, action to be taken if contingencies arise, and ensure that the interface and required communications are understood. The OE assigned to Unit 1 did not invoke this administrative requirement on October 3, 1990, for performance of the surveillance (BwVS 4.6.2.2-1) on the Residual Heat Removal (RHR) system by requiring the Shift Engineer (OE's designee) to conduct a formal briefing or preplanning session through direct communications or by entries into the OE's night orders. Although the OE had coordinated obtaining operating shift

personnel to support the performance of the RHR surveillance, neither the OE nor the Shift Engineer evaluated the performance of the surveillance against the administrative requirement contained within BwAP 300-1.

The above examples on the part of the Operating Engineer, Shift Engineer, Station Control Room Engineer, Unit Nuclear Station Operator and the extra Nuclear Station Operator are considered also to be a violation of administrative procedures, in that the operating shift and supervision failed to follow the requirements of BwAP 300-1 prior to and during the performance of surveillances on the Unit 1 Residual Heat Removal system (50-456/90023-01c, d, e and f(DRP)).

d. Conduct of Surveillances

Administrative procedure BwAP 390-1, Operating Department Surveillance Program, Revision 3, is used to govern both the Operating Department's surveillance program and to control all surveillance activities within the control room and the plant.

Administrative procedure BwAP 390-1, Section E.3, requires that the Station Control Room Engineer (SCRE) shall assign surveillances to the appropriate Nuclear Station Operator (NSO). At this time the SCRE should inform the NSO of any special scheduling requirements, effect on total plant operations, limiting conditions, or any other significant information concerning the performance of a surveillance.

The surveillances on the Unit 1 Residual Heat Removal (RHR) system (BwVS 4.6.2.2-1 and BwVS 0.5-2.RH.2-1) had commenced during Shift 3 on October 3, 1990, and continued into the on-coming Shift 1. Because the surveillances were in progress, the SCRE assigned an extra NSO to perform the manipulations of the RHR system components associated with the surveillances but did not brief the extra NSO of any significant information concerning the performance of the surveillance including the potential effect on plant operations. Although the off-going extra NSO who was performing the manipulations during Shift 3 and the Technical Staff Engineers conducting the surveillances briefed the on-coming extra NSO of the activities associated with surveillance BwVS 4.6.2.2-1 and that valve stroke timing will also be done, this did not remove the responsibility of the SCRE in association with BwAP 390-1. This is considered not to be in accordance with administrative procedure BwAP 390-1 in that the extra NSO was not informed by the SCRE of the potential effects on plant operations, such as the potential for a loss of reactor coolant if the isolation valve RH2807B was open out of sequence.

Administrative procedure BwAP 390-1, Section E.4, requires that the Unit NSO shall ensure that the surveillance is performed in accordance with the appropriate station procedures. The basis for this administrative requirement is that the unit NSO is the appropriate licensed operator at the controls and is required to remain cognizant of the status of the unit. To accomplish this, adherence to approved procedures is essential to the assurance that the plant is not operated outside known limits or in a condition that would prevent mitigation of a plant upset condition. The unit NSO failed to meet this administrative requirement on October 4, 1990, by not remaining cognizant of the surveillance activities to ensure procedure adherence which resulted in a loss of reactor coolant and contamination of personnel event. These actions are not in accordance with administrative procedure BwAP 390-1.

Administrative procedure BwAP 390-1, Section E.5, requires the Station Control Room Engineer (SCRE) approving a surveillance for performance to make appropriate notes in the comment section of the Data Package Cover Sheet (BwAP 1400-9T1) if any surveillance is being performed that is not listed on the current schedule. The comments shall address the reason for a non-scheduled surveillance being performed. On October 3, 1990, during operating Shift 3, several valve stroke surveillances (including BwVS 0.5-2.RH.2-1, RHR Valve Stroke Test) were requested for approval by the Technical Staff Department. Although none of the valve stroke tests were listed on the current schedule, the SCRE reviewed and approved the surveillances for performance without documenting the reason for performing the surveillances. This is not in accordance with the requirements of BwAP 390-1.

The above examples on the part of the Station Control Room Engineers and the Unit 1 Nuclear Station Operator are also considered to be a violation of administrative procedures, in that inadequate controls of surveillance activities existed prior to and during performance of surveillances on the Unit 1 Residual Heat Removal System on October 3 and 4, 1990 (50-456/90023-01g, h and i(DRP)).

e. Summary

The significance of the above apparent violation is the numerous examples where operating personnel and supervision failed to satisfy various administrative requirements associated with conduct of surveillances and operations, including shift turnover and relief, on October 3 and 4, 1990, associated with and prior to the Unit 1 loss of reactor coolant and contamination of personnel event. These examples are indicative of a significant lack of attention and in some cases a lack of knowledge on the part of the licensed operating personnel and supervision towards administrative requirements.

In addition, the reduced awareness on the part of the Unit 1 Nuclear Station Operator, the failure to remain cognizant of the surveillance activities on the part of the extra Nuclear Station Operator and the general lack of attention by the Shift Engineer and Station Control Room Engineer to query their reliefs and obtain a complete status of the unit are indicative of a lack of attention toward their license responsibilities.

3. Review of Licensee's Corrective Actions Associated with the March 18, 1990 Loss of Reactor Coolant Event (40500)

The NRC Augmented Inspection Team (AIT) documented a comparison of the Unit 2 March 18, 1990 loss of reactor coolant event (Inspection Report 50-457/90012) and determined that, as in the case of the October 4, 1990 event, a lack of communication existed between operating shift personnel and supervision. In specific, the Station Control room (SCRE) and the unit Nuclear Station Operator (NSO) during performance of non-routine procedures.

The licensee also compared the March 18, 1990 and October 4, 1990 loss of reactor coolant events to determine if an adverse trend in communications between NSOs and supervision (SCRE and Shift Engineers) had developed at Braidwood Station. The licensee's evaluation concluded that the communication deficiencies that were significant contributing factors to the March 18 event were not evident in the October 4 loss of reactor coolant event. The bases for the licensee's conclusion was that the unit NSO associated with the March 18 event had independently transitioned from one non-routine procedure to another when it was not the intent of operating supervision (SCRE) to proceed beyond the first procedure. The licensee's evaluation of the October 4 event stated that the extra NSO perceived from the start that the surveillance activities had full approval of the SCRE to complete two surveillances that were already in progress from a previous shift. The licensee's evaluation also recognized that this perception was based upon a communication link that contained a former NSO (the Technical Staff Engineer) and that even had the SCRE communicated directly with either the unit or extra NSOs, the SCRE would have approved the performance of the surveillance.

The inspector found disagreement with the licensee's conclusion based upon the comparison of the two events (March 18 and October 4, 1990) in that the SCRE, Shift Engineer (SE), extra NSO and unit NSO had administrative responsibilities associated with both the conduct of operations and surveillances that were not met during both events. These responsibilities included communication of plant status between the extra and unit NSOs, maintaining awareness of plant status by the unit NSO, SCRE and SE, communicating scope of the surveillance activities to the NSOs by the SCRE, assuring procedural compliance of the surveillances by the unit NSO and communicating activities through the shift briefing by

the SE. All of these were similar to the communication weakness between the SCRE and NSO experienced during the March 18, 1990 event, but involved all aspects of the operating shift, both personnel and supervision, during the October 4, 1990 event.

The licensee implemented corrective actions associated with the March 18, 1990 event by issuing Special Operating Order No. SO-ST-0039, Heightened Level of Awareness (HLA) of Control Room Activities. The special operating order prescribed the minimum acceptable communications that would occur prior to any non-routine or infrequent activity or event performed by control room personnel. The SE and SCRE were responsible for implementing the requirements contained within HLA. Appendix A of the special operating order listed those activities that required application of HLA and includes operations involving manipulation of system isolations between high and low pressure systems and any evolution involving the Residual Heat Removal train, such as recircing, placing in shutdown cooling, swapping train to train or filling or draining the reactor cavity. The special operating order also specified that the Appendix A list was not all inclusive and can be modified or added to as necessary by either the SCRE or SE.

The leak test, surveillance BwVS 4.6.2.2-1, on the Residual Heat Removal (RHR) system was an infrequent evolution manipulating the isolation valves between the high and low pressure portions associated with the RHR system. As such, the requirements of the special operating order was applicable to the activities on October 4, 1990. These requirements stated, that a minimum of two NSOs must discuss the event in detail, there must be a clear understanding of all actions and expected results among those involved in the discussion, the discussions will include all actions that will be taken during the event or evolution and as the event (evolution) is ongoing, a continuous review or awareness must be maintained ensuring expected results are observed in response to actions taken.

As previously stated, the inspector found that the operating personnel and supervision failed to achieve any of these requirements prior to the October 4, 1990 event during Operating Shift 1. However, the inspector and the licensee's investigation did determine that HLA was invoked during the previous shift (Shift 3) on October 3, 1990. During the previous shift, the surveillances also required the swapping of RHR trains in shutdown cooling, an additional requirement of HLA. However, the SE and SCRE on Shift 1, also determined by the licensee's investigation, failed to implement the March 18, 1990 event corrective actions by not invoking the requirements for HLA communications per the special operating order. Both the NRC AIT and the licensee's investigation team determined that the requirements of the special operating order was applicable to the activities on October 4, 1990, which resulted in a loss of reactor coolant and personnel contamination.

The AIT also concluded that the implementation of the special operating order would have prevented the loss of reactor coolant event. The licensee's evaluation concluded that increased discussions (communications) was considered a viable means for minimizing loss of awareness events such as the October 4, 1990 loss of reactor coolant.

The above failure to implement the corrective actions of the March 18, 1990 event on October 4, 1990 by not invoking the requirements for enhanced communications per the special operating order by the operating personnel and supervision is a violation of 10 CFR 50, Appendix B, Criteria XVI, by not assuring that the corrective actions associated with significant conditions adverse to quality, such as a loss of reactor coolant event, are taken to preclude repetition (50-456/90023-02(DRP)).

4. Exit Interview

The inspectors met with the licensee representatives denoted in Paragraph 1 during the inspection period and at the conclusion of the inspection on November 23, 1990. The inspectors summarized the scope and results of the inspection and discussed the likely content of this inspection report. The licensee acknowledged the information and did not indicate that any of the information disclosed during the inspection could be considered proprietary in nature.