

Beaver Valley 2

Initiating Events

Significance:  Dec 29, 2001

Identified By: NRC

Item Type: FIN Finding

INEFFECTIVE CORRECTIVE ACTIONS FOR UNIT 2 LOSS OF INSTRUMENT AIR (LOIA) FAIL TO PRECLUDE TWO UNIT 2 LOIA EVENTS

The inspectors determined that corrective actions to a June 22, 2001, Unit 1 loss of instrument air (LOIA) reactor trip were not effectively implemented. Consequently, failure to identify and perform manufacturer recommended preventive maintenance tasks for the 'B' station air compressor (2SAS-C21B) loading/throttle mechanism was the direct cause of two subsequent Unit 2 LOIA events (November and December 2001). The safety significance of this finding was very low (Green) because the performance deficiency did not cause any accident mitigation equipment or functions to be unavailable.

Inspection Report# : [2001010\(pdf\)](#)

Mitigating Systems

Significance:  Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

POOR MAINTENANCE (HUMAN PERFORMANCE) CAUSES EXCESSIVE CORROSION AND 'B' RECIRCULATION SPRAY HEAT EXCHANGER DEGRADATION

The inspectors identified a Non-Cited Violation of Technical Specification 6.8.1 for failure to perform maintenance on the safety-related 'B' recirculation spray (RS) heat exchanger (HX) in accordance with written procedures or instructions. Maintenance personnel human performance was deficient in that 'B' RS HX endbell closure bolts were not properly tightened in accordance with work instructions. This led to excessive corrosion, which subsequently degraded service water flow and performance capability of the 'B' RS HX. The finding was of very low significance because the degraded 'B' RS train did not represent an actual loss of safety function for actual plant conditions which existed during the period of concern.

Inspection Report# : [2002006\(pdf\)](#)

Significance:  Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

HUMAN ERROR WHEN CONNECTING TEST EQUIPMENT FOR SURVEILLANCE TEST MAKES 2-2 EMERGENCY DIESEL GENERATOR INOPERABLE

The inspectors identified a Non-Cited Violation of 10CFR 50, Appendix 'B', Criterion XI, "Test Control," for failure to properly use test equipment during the performance of a surveillance test on safety-related equipment. An operator incorrectly connected test equipment to safety injection relay K604B, located in the 2-2 emergency diesel generator (EDG) output breaker cubicle. This human error caused an electrical arc and potentially damaged the terminal block and relays. Improper use of test equipment resulted in the 2-2 EDG being declared inoperable for approximately 36 hours for associated corrective maintenance. The finding was of very low significance because the 2-1 EDG remained operable during the relay replacement and the 2-2 EDG was returned to an operable condition within the 72-hour

Technical Specification allowed outage time.

Inspection Report# : [2002006\(pdf\)](#)

Significance:  Sep 20, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

DESIGN CONTROL - FAILURE TO PROPERLY IMPLEMENT AND TEST A PLANT MODIFICATION

The licensee failed to use drawings that reflected the as-installed piping elevations while implementing a design change to install a high point vent in the recirculation spray/low head safety injection to HHSI cross-over piping. As a result, the vent was installed at an elevation that was not the high point. The modification package also failed to adequately test the installed vent and, therefore, did not identify the ineffective venting configuration. This issue was considered to be of very low safety significance (Green) based on a Phase 1 evaluation of the At-Power Reactor Safety Significance Determination Process (SDP) because the design deficiency did not result in a loss of safety system function. The finding was determined to be a non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, Design Control.

Inspection Report# : [2002012\(pdf\)](#)

Significance:  Sep 20, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

DESIGN CONTROL - FAILURE TO ESTABLISH SUITABLE ACCEPTANCE LIMITS FOR GAS VOID

The licensee failed to assure that appropriate quality standards were specified for the high head safety injection (HHSI) system. Engineers assumed an upper limit of 30% void fraction in their 1997 design calculation for gas entrained fluid entering the suction of the HHSI charging pumps, and this limit was based on the point at which gas entrained in liquid transitions from homogeneous to slug flow. However, this limit was non-conservative and exceeded the pump service vendor limits. This issue was considered to be of very low significance (Green) based on a Phase 1 evaluation of the At-Power Reactor Safety Significance Determination Process (SDP) because the gas void found in the piping would not have resulted in a void fraction at the pump suction exceeding the limits recommended by the pump service vendor. Therefore, there was not a loss of the safety system function. The finding was determined to be a non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, Design Control.

Inspection Report# : [2002012\(pdf\)](#)

Significance:  Aug 29, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

UNIT 2 SERVICE WATER VALVE PIT FLOOD PROTECTION BARRIER NOT MAINTAINED DURING DESIGN MODIFICATION

The inspectors identified a missing piping penetration flood seal between redundant Unit 2 service water valve pit compartments. The seal had been removed during an in-progress piping modification without the licensee implementing appropriate compensatory measures while Unit 2 was operating. During the time that the flood seal was removed a passive failure of service water piping in either service water valve pit would have flooded both compartments. The issue was considered to be of very low safety significance (Green) based on a Phase 3 evaluation of the SDP because in the event of a pipe rupture, the missing service water flood seal would not have resulted in an initiating event and the recirculation spray system, which would have been lost due to the flooding of both of the compartments in the service water valve pit, would only have been needed if another initiating event occurred following the pipe rupture. In addition, the likelihood of a pipe rupture combined with an initiating event during the limited exposure period was very small. The issue was determined to be a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control.

Inspection Report# : [2002011\(pdf\)](#)

Significance:  Aug 29, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

RECIRCULATION SPRAY RADIATION MONITOR COOLER FLOWS NOT ACCOUNTED FOR IN SERVICE WATER HYDRAULIC CALCULATION

The inspectors identified that the Unit 2 service water system hydraulic model in calculation 10080-N-726 failed to include the service water branch flows to four recirculation spray (RS) radiation monitor sample coolers. This design deficiency was considered to be of very low safety significance (Green) based on service water piping flow measurements obtained during previous refueling outages in lines of similar size which indicated no impedance in service water flows. Phase 1 of the SDP screened this finding to (Green) because the failure to include the service water piping branch flows into the hydraulic model calculation would not have resulted in a loss of safety function. This design deficiency was determined to be a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control.

Inspection Report# : [2002011\(pdf\)](#)

Significance:  Jun 29, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROMPTLY CORRECT A CONDITION ADVERSE TO QUALITY ON THE UNIT 2 TURBINE DRIVE AUXILIARY FEEDWATER PUMP

The inspectors identified a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for failure to promptly correct a condition adverse to quality on the Unit 2 turbine driven auxiliary feedwater (TD AFW) pump. In October 2001, inspectors determined that a Unit 1 TD AFW pump critical operational parameter (turbine bearing oil reservoir level) was not properly controlled. This condition could result in inadequate oil lubrication to the turbine bearing and an increase in plant risk due to eventual unavailability of the Auxiliary feedwater pump. The condition was applicable to both Unit 1 and Unit 2. Corrective actions were relatively simple and were promptly implemented for Unit 1. The inspectors identified that Unit 2 corrective actions performed to date were inaccurate and the remaining corrective actions were not scheduled for completion until December 2002. This finding was of very low significance because the Auxiliary feedwater pump oil level was found to be adequate and the pump was not inoperable.

Inspection Report# : [2002005\(pdf\)](#)

Significance:  Mar 30, 2002

Identified By: NRC

Item Type: FIN Finding

HUMAN PERFORMANCE ERRORS DURING EQUIPMENT CLEARANCE MADE BOTH UNIT 2 DIESEL GENERATORS INOPERABLE DURING REFUELING

The inspectors determined that human performance errors during preparation and posting of an equipment clearance on the 2-1EDG caused both Unit 2 EDGs to be inoperable for 4 days during refueling and reactor cavity draindown. Several human performance and process barriers broke down, leading to the 2-1 EDG inadvertently being made inoperable. Four separate people were involved with authorizing the wrong clearance tag, an operator posted the clearance tag without heeding caution postings for the safe shutdown train, and the 2-2 EDG clearance holder (job supervisor) walkdown failed to identify the error prior to beginning work. The inspectors also noted that this was the third equipment clearance error which increased plant risk during the last 6 months. Earlier examples included Unit 2 reactor vessel overfill during the refueling outage (9/01) and Unit 1 loss of instrument air reactor trip (12/01). The safety significance of this event was very low (Green) because alternate power supplies remained available and contingency procedures existed to reestablish containment and refill the reactor vessel upon a loss of power. Enforcement action remained under review pending issuance of the forthcoming licensee event report.

Inspection Report# : [2002002\(pdf\)](#)

Significance:  Sep 29, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CORRECTIVE ACTION FOR MISPERFORMANCE OF SAFETY-RELATED PROCEDURES

The inspectors identified a Non-Cited Violation of 10 CFR 50 Appendix B, Criterion XVI "Corrective Action," for failure to implement effective corrective measures to preclude repeated misperformance of safety-related procedures including Unit 1 Operating Surveillance Test (OST)-36.2, "Diesel Generator No. 2 Monthly Test," Rev. 32. This problem reflected ineffective problem resolution and human performance deficiencies. Operator fatigue was a contributing factor to the degraded human performance. The finding was of very low safety significance because the emergency diesel generator procedure performance errors did not represent an actual loss of safety function.

Inspection Report# : [2001008\(pdf\)](#)

Significance:  Aug 11, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY IMPLEMENT A MAINTENANCE PROCEDURE RESULTED IN ADDITIONAL UNAVAILABILITY OF THE UNIT 2 'C' HHSI PUMP

The inspectors identified a Non-Cited Violation for failure to properly implement a maintenance procedure which resulted in additional unavailability of the Unit 2 'C' High Head Safety Injection pump. Poor communications during the maintenance crew turnover and insufficient attention to detail when annotating the procedure resulted in the outboard seal leaking when the pump was returned to service on June 30. On July 4, the pump was subsequently removed from service for repair which resulted in an additional 54 hours of pump unavailability. The finding was of very low safety significance because both trains of High Head Safety Injection remained operable.

Inspection Report# : [2001007\(pdf\)](#)

Significance:  Jul 27, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO EVALUATE TEST FAILURES ASSOCIATED WITH TWO MOLDED CASE CIRCUIT BREAKERS TO PREVENT RECURRENCE

A Non-Cited Violation of 10 CFR 50 Appendix B, Criterion XVI was identified for failure to assure the cause of safety related molded-case circuit breaker (MCCB) test failures was identified and corrective actions taken to preclude recurrence. Two safety-related MCCBs, which had been removed from service several years ago, failed during recent testing. However, the licensee did not initiate a condition report to assure the cause would be identified and appropriate corrective actions would be taken. The MCCB test failures are significant because many MCCBs in safety-related applications were installed during initial plant construction and have not been subject to a periodic testing program. The issue affects the mitigating systems cornerstone because the problem could affect the operability and availability of mitigating systems. However, because the two breakers that failed the test acceptance criteria had already been removed from safety-related applications and were currently spares, there was no actual loss of safety function. For the MCCBs that were in service, the licensee's evaluation determined them to be operable. Consequently the finding is considered to be of very low safety significance (Green). Because the finding is of very low safety significance and is being addressed with the licensee's corrective action process, this finding is being treated as a Non-Cited Violation, consistent with Section VI.A.1 of the NRC Enforcement Policy.

Inspection Report# : [2001011\(pdf\)](#)

Significance:  Jun 30, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INCOMPLETE EVALUATION AND RESOLUTION OF DEGRADED MAIN STEAM ISOLATION VALVE CLOSURE STROKE TIME

The inspectors identified a Non-Cited Violation of 10 CFR 50 Appendix B, Criterion XVI, for failure to implement appropriate corrective actions to address a degraded Unit 2 main steam isolation valve closure stroke time. This finding represented incomplete problem identification and resolution. Corrective action measures did not determine the cause of degraded main steam isolation valve (MSIV) closure stroke time sufficiently to preclude repetition and verify continued operability. Controls were not established to verify air actuator pressure would be maintained at a value necessary to support continued 2MSS-AOV-101C operability. Additionally, the root cause evaluation did not fully evaluate whether the longstanding failure to perform vendor recommended preventive maintenance would require reducing the air actuator pressure band, required to support MSIV operability. The finding was of very low safety significance because the degraded valve did not represent an actual loss of safety function at time of identification. Additionally, all other systems relied upon to mitigate a main steam line break remained operable.

Inspection Report# : [2001006\(pdf\)](#)

Significance:  Jun 30, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

ON-LINE MAINTENANCE RISK IMPACT NOT EVALUATED PRIOR TO SPENT FUEL POOL PURIFICATION SYSTEM MAINTENANCE

The inspectors identified a Non-Cited Violation of 10 CFR 50.65(a)(4), for failure to properly assess the associated change in plant risk, prior to removing the Spent Fuel Pool Cooling and Purification system from service. The resulting system configuration isolated the boric acid blender makeup capability to the refueling water storage tank. This finding was of very low safety significance because the additional time the system was out of service was small (8 hours).

Inspection Report# : [2001006\(pdf\)](#)

Significance:  Mar 31, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO ESTABLISH THE COMPENSATORY MEASURES FOR AN INOPERABLE FIRE DOOR IN THE UNIT 2 EMERGENCY SWITCH GEAR

The inspectors identified a Non-Cited Violation for failure to establish compensatory measures for an inoperable fire door barrier between the Unit 2 emergency switchgear rooms. This finding was of very low safety significance because the likelihood of a fire progressing through the door was considered very low. Therefore, one complete train of safety equipment was likely to remain available to mitigate the accident. Failure to establish measures for an inoperable fire barrier door was a Non-Cited Violation of Technical Specification 6.8.1, consistent with Section VI.A of the Enforcement Policy, issued on May 1, 2000.

Inspection Report# : [2001002\(pdf\)](#)

Significance: N/A Mar 31, 2001

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO FOLLOW PLANT SHUTDOWN PROCEDURE CAUSES AUTOMATIC FEEDWATER ISOLATION

Technical Specification 6.8.1 requires written procedures covering the activities recommended in Appendix 'A' of Regulatory Guide 1.33, Revision 2, February 1978. Station Operating Procedure 2OM-51.4.L, "Station Shutdown from 40 percent Power to Mode 5," Rev. 0, specified steam generator (SG) level be maintained within the alarm setpoint control bands. Contrary to the above, operators maintained SG levels approximately 10 percent above the alarm setpoint control bands during plant shutdown on September 23, 2000. A subsequent inappropriate rate of increase of steam dump pressure resulted in a steam generator swell and automatic feedwater isolation due to high SG level. Reference Condition Report 00-3203. Failure to properly implement the plant shutdown procedure was a Non-Cited Violation of Technical Specification 6.8.1, consistent with Section VI.A of the Enforcement Policy, issued on May 1, 2000.

Inspection Report# : [2001002\(pdf\)](#)

Significance:  Sep 15, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO IMPLEMENT TIMELY AND EFFECTIVE CORRECTIVE ACTIONS FOR DEGRADED COMPONENTS (RWST LEVEL TRANSMITTERS) WHICH HAD SAFETY SIGNIFICANCE.

A Non-cited Violation of 10 CFR 50, Appendix B, Criterion XVI, was identified associated with the failure to implement timely and effective corrective actions for degraded components which had safety significance. Specifically, FENOC had not determined the cause of three Unit 1 level transmitter failures that occurred after the transmitters were replaced in 1998. A Part 21 notification associated with the same model series transmitters had not been recognized or evaluated prior to the actual installation of the components, and an evaluation of extent of condition and potential generic failure modes had not been performed. The team determined that this represented inadequate corrective actions. The risk associated with the failure of the refueling water storage tank (RWST) level transmitters had been determined to be very low safety significance, based on the results of the phase 3 analyses.

Inspection Report# : [2000009\(pdf\)](#)

Significance: N/A Sep 15, 2000

Identified By: NRC

Item Type: FIN Finding

NRC SUPPLEMENTAL INSPECTION TO ASSESS LICENSEE EVALUATION AND CORRECTIVE ACTIONS TO UNIT 2 SERVICE WATER BIOFOULING EVENT

This supplemental inspection was performed by the NRC to assess the licensee's evaluation and corrective actions associated with the macro biological fouling (biofouling). Biofouling problems affected the service water system (SWS) supply to the heat exchangers for both emergency diesel generators (EDG) in July 1999. On July 16, 1999, the licensee identified that biofouling of the safety-related SWS had occurred in the heat exchanger for the EDG 2-2, which had the potential for a common mode failure of both EDGs if the chemical treatment procedure had been followed, as planned. Although the biofouling problems occurred before implementation of the NRC's new reactor oversight process, the NRC followed up this issue with a supplemental inspection because the issue was considered to have been of low to moderate risk. This supplemental inspection was in lieu of a regional initiative inspection that would have been conducted under the previous inspection oversight process. The supplemental inspection was performed in accordance with Inspection Procedure 95001. The licensee's evaluations and corrective actions associated with the biofouling problems were adequate to identify the causes and to determine the extent of the problem. The licensee's evaluations identified the primary root causes to be: 1) Ineffective programs to address biofouling due to Zebra mussels, 2) Inadequate procedures for the removal of clams and mussels, 3) Inadequate inspections and monitoring of the SWS, including the intake bays, and 4) Inadequate procedures regarding biocide injection methods, injection frequencies, and monitoring of the SWS before and after the injection of biocides. The licensee identified a contributing root causes to be less than adequate design analysis regarding expected and acceptable SWS flow rates and actual heat rejection from the EDGs to detect biofouling. The licensee adequately identified corrective actions to address each root and contributing cause. The licensee's root cause analysis did not address the human performance issues, which were one of the root or contributing causes of the biofouling event. However, the licensee is taking appropriate corrective actions in the human performance area which envelope the human performance issues associated with the biofouling event. These actions include a Case Study done in July 2000, which described several significant events (including the biofouling event) and their fundamental causes, that was placed on the licensee's local area network (LAN) and also presented to licensee personnel from a lessons learned perspective. Also, a Human Performance Coordinator position was established earlier this year to better focus on human performance issues. The licensee has evaluations in progress to measure the effectiveness of their corrective actions to prevent recurrence. The licensee has made appropriate procedure and program changes, including enforcing proper implementation, to measure the effectiveness of their corrective actions to prevent recurrence.

Inspection Report# : [2000013\(pdf\)](#)

Significance:  Aug 12, 2000

Identified By: NRC

Item Type: FIN Finding

SAFETY RELATED EQUIPMENT WAS TAKEN OUT OF SERVICE FOR MAINTENANCE THAT DID NOT NEED TO BE PERFORMED, WHICH UNNECESSARILY INCREASED SAFETY SYSTEM UNAVAILABILITY.

Safety related equipment was taken out of service for maintenance that did not need to be performed, which unnecessarily increased safety system unavailability. Preventive maintenance was incorrectly scheduled for an emergency diesel generator (EDG) 2 years ahead of its periodic due date. Poor work coordination further extended the duration of the outage. On two occasions poor communications between operating crews resulted in safety related heat exchangers being unnecessarily disassembled to investigate increased differential pressure. No fouling was found. In both cases, the change in differential pressure was the direct result of configuration changes made by the operating crews. The finding was determined to have very low safety significance, because redundant mitigating equipment was available during the periods these components were out of service for maintenance. No violations of NRC requirements were identified.

Inspection Report# : [2000006\(pdf\)](#)

Significance: N/A Jun 30, 2000

Identified By: NRC

Item Type: FIN Finding

NRC SUPPLEMENTAL INSPECTION TO ASSESS LICENSEE EVALUATION AND CORRECTIVE ACTIONS TO UNIT 1 SERVICE WATER WATER HAMMER EVENT

This supplemental inspection was performed by the NRC to assess the licensee's evaluation of the Service Water System (SWS) vacuum break check valve 2SWS-488 failure to open and subsequent water hammer condition that occurred on November 9, 1999. On November 21, 1999 the licensee identified the water hammer had occurred after investigating the discovery of a deformed SWS metal expansion joint. In NRC inspection Nos. 50-334 & 50-412/1999-010 and 2000-001, the NRC identified an apparent violation involving the licensee's failure to promptly identify and correct conditions adverse to quality that resulted in the vacuum break check valve failure to open and a water hammer condition. On April 13, 2000, the NRC held a pre-decisional enforcement conference in the Region 1 office with the licensee to discuss the apparent violation. The NRC subsequently issued a Severity Level III Notice of Violation (NOV) in letter dated May 3, 2000. The NRC received FirstEnergy Nuclear Operating Company's (FENOC's) reply to the NOV in letter dated June 2, 2000, in which FENOC identified the causes and corrective actions taken in response to prevent recurrence. Although the failed vacuum break check valve and subsequent water hammer condition occurred before implementation of the NRC's new reactor oversight process (ROP), the NRC followed up this issue with a supplemental inspection under the new ROP. This supplemental inspection was in lieu of a regional initiative inspection that would have been conducted under the previous inspection oversight process. The supplemental inspection was performed in accordance with Inspection Procedure 95001. Cornerstone: Mitigating Systems - The licensee's evaluations of the failed vacuum break check valve (VBCV) were adequate to identify the causes and appropriately broad in scope to determine the extent of the problems. The licensee's evaluations identified the primary root cause to be less than adequate implementation of the preventive maintenance program. The licensee identified contributing root causes to be previous inadequate corrective actions to address VBCV deficiencies and personnel failure to understand the significance of previously identified VBCV deficiencies. The licensee adequately identified corrective actions to address each root cause. - The licensee has evaluations planned or in progress to measure the effectiveness of their corrective actions to prevent recurrence. The results of the licensee's periodic monitoring of a corrective action regarding preventive maintenance (PM) task deferrals beyond their limit date indicates that licensee corrective actions have been effective in ensuring preventive maintenance tasks are completed or evaluated before their limit date is reached. However, the results of the licensee's periodic monitoring of a corrective action regarding management approval of PM task deferrals entering their grace period (25% of interval) identified that approximately thirty-four of forty-four PM tasks in the grace period in June 2000 had not received the level of management approval required by the program.

Inspection Report# : [2000008\(pdf\)](#)

Significance:  May 13, 2000

Identified By: NRC

Item Type: FIN Finding

POOR COMMUNICATION AND UNDERSTANDING OF OPERATIONAL LIMITS RESULTED IN DEGRADED SERVICE WATER FLOW TO THE UNIT 2 "A" HIGH HEAD SAFETY INJECTION PUMP

Poor communication and understanding of operational limits resulted in degraded service water flow to the Unit 2 "A" high head safety injection pump lube oil cooler not being evaluated nor entered into the corrective action program in a timely manner. This finding was determined to have very low risk significance because a subsequent evaluation demonstrated that the pump remained operable.

Inspection Report# : [2000004\(pdf\)](#)

Barrier Integrity

Significance:  Dec 30, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE CORRECTIVE ACTIONS FOLLOWING UNIT 2 UNUSUAL EVENT DUE TO EXCESSIVE UNIDENTIFIED REACTOR COOLANT SYSTEM LEAKAGE

The inspectors identified a Non-Cited Violation for inadequate corrective actions during packing gland eyebolt replacement for four valves (including 2RCS-557B, the valve that was the cause of the Unit 2 Unusual Event for excessive reactor coolant system (RCS) leakage on December 11, 2000. Mechanics failed to properly consolidate valve packing following corrective maintenance and unknowingly damaged valve packing on all four valves. Station personnel did not fully understand the effects of their corrective maintenance, the design of the valve packing configuration, or properly address the cause for post-maintenance packing leakage prior to restarting the unit on December 15. Consequently, 2RCS-557B valve packing failed and initiated a 5 gallons per minute identified RCS coolant leak. The event revealed knowledge, work instruction, and work practice deficiencies associated with the station's valve packing program implementation. The finding was of very low significance because the event did not create an open pathway in the physical integrity of the reactor containment barrier or adversely affect the ability to control containment pressure. Failure to adequately perform corrective maintenance to resolve excessive packing leakage from 2RCS-557B following the December 11, 2000, Unusual Event was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, Correction Actions, consistent with Section VI.A of the Enforcement Policy, issued May 1, 2000 (65 FR 25368).

Inspection Report# : [2000012\(pdf\)](#)

Significance:  Aug 12, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

ORIGINAL DESIGN REQUIREMENTS OF THE SUPPLEMENTAL LEAK COLLECTION AND RELEASE SYSTEM AUXILIARY BUILDING VENTILATION WERE NOT INCORPORATED INTO PLANT DESIGN.

Original design requirements of the supplemental leak collection and release system (primary auxiliary building ventilation) were not incorporated into plant procedures. Specifically, the system is a manual system and emergency operating procedures did not have requirements to verify the ventilation fan was operating. The system provides two safety functions: 1) filter leakage from engineered safety feature equipment, and 2) provide cooling to safety related motors. The finding was determined to have very low safety significance. Engineers determined the loss of cooling to safety related motors would not affect the ability of these motors to function during the initial accident mitigation stages and operators would have sufficient time to correct the problem prior to equipment failure. Failure to incorporate design requirements into procedures was a non-cited violation of 10 CFR 50 Appendix B Criterion III, consistent with Section VI.A of the Enforcement Policy, issued on May 1, 2000.

Inspection Report# : [2000006\(pdf\)](#)

Emergency Preparedness



Significance: Mar 15, 2002

Identified By: NRC

Item Type: VIO Violation

FAILURE TO ADEQUATELY TEST OR MAINTAIN THE SIRENS FOR PERSONAL HOME ALERTING DEVICES TO MEET THE ORIGINAL DESIGN BASIS OF THE ALERT NOTIFICATION SYSTEM.

The personal home alerting devices (PHADs), which are part of the alert and notification system (ANS), had not been adequately tested or maintained to ensure that the design function of alerting essentially 100 percent of the public could be met. This was a violation of 10 CFR 50.47(b)(5) for not ensuring adequate means to provide early notification to the public. This finding was of substantial safety significance because portions of the emergency planning zone would not be adequately covered by the ANS to alert the public of a radiological emergency at the Beaver Valley Power Station. After considering the information developed during the inspection and the information the licensee provided at the conference, the NRC concluded that the inspection finding is more appropriately characterized as White, an issue with low to moderate safety significance, which may require additional NRC inspections, as was issued by EA letter 02-041 dated June 24, 2002.

Inspection Report# : [2002003\(pdf\)](#)

Significance: N/A Mar 15, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

DECREASED THE EFFECTIVENESS OF THE E-PLAN WITHOUT PRIOR NRC APPROVAL BY DESIGNATING THE PERSONAL HOME ALERTING DEVICE AS SUPPLEMENTAL

The licensee changed its emergency plan such that the personal home alerting devices were no longer considered a part of the siren notification system but were considered a supplemental part of the alert notification system. This change was determined to be a decrease in the effectiveness of the emergency plan. Decreases in the effectiveness of an emergency plan must receive NRC review and approval prior to implementation. The licensee entered this issue into its corrective action program (Condition Report 02-02195) and will change the emergency plan back to the original wording. The implementation of a change which decreased the effectiveness of the emergency plan is being treated as a non-cited violation consistent with Section VI.A of the Enforcement Policy, issued on May 1, 2000 (65 FR 25388).

Inspection Report# : [2002003\(pdf\)](#)

Significance: N/A Mar 15, 2002

Identified By: NRC

Item Type: FIN Finding

INADEQUATE CORRECTIVE ACTION TO RESOLVE PERSONAL HOME ALERTING DEVICE MAINTENANCE AND TESTING DEFICIENCIES

The inspectors identified an issue related to the adequacy of corrective actions regarding the PHADs. In a 1998 audit, the licensee had identified that there was no procedure to formalize PHAD maintenance and testing. In a subsequent audit, it was determined that the 1998 audit finding had been closed without addressing the issue. The licensee then developed a procedure to address the initial issue, however, the audit and corrective actions were narrowly focused on adequacy of documentation of PHAD testing but did not consider overall PHAD operability.

Inspection Report# : [2002003\(pdf\)](#)



Significance: Jun 29, 2000

Identified By: Licensee

Item Type: FIN Finding

EMERGENCY RESPONSE ORGANIZATION DID NOT SUCCESSFULLY IMPLEMENT RISK SIGNIFICANT PLANNING STANDARD 10 CFR 50.47(b)(9) FOR RADIOLOGICAL ASSESSMENT

During the June 27, 2000, exercise, the emergency response organization did not successfully implement risk significant planning standard 10 CFR 50.47(b)(9) for radiological assessment. That resulted in delaying the protective action recommendation upgrade when the simulated radiological release began. Specifically, dose assessment

personnel were using data from an incorrect radiation monitor channel and incorrect units of measurement. A controller had to provide the dose assessment staff with the correct data. Dose assessment staff incorrectly used that data also, and controllers had to provide correct dose projections in order to preserve the scenario timeline. With the correct projections, the correct PAR upgrade was made. The licensee identified and addressed this issue during the June 29, 2000, critique and entered it into their corrective action program. This failure to implement a planning standard was during an exercise, not an actual event, and, therefore, it is not a violation of NRC requirements. Also, this issue was evaluated by the NRC using the Emergency SPD. It was determined to be a safety issue of very low significance because the licensee identified the failure during an exercise.

Inspection Report# : [2000007\(pdf\)](#)

Occupational Radiation Safety

Significance: N/A Dec 30, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO CONTROL LOCKED HIGH RADIATION AREA DOOR

Technical Specification 6.11 requires that procedures shall be prepared consistently with 10 CFR Part 20 and shall be adhered to for all operations involving personnel radiation exposure. Radiological Procedure 8.3, Radiation Barrier Key Control, Rev. 3 requires that doors, posted as Locked High Radiation Areas (LHRAs), be closed and locked. Contrary to the above, on December 13, 2000, a radiation technician, while performing the required high radiation area barrier checks, found a Unit 2 LHRA door at the base of the stairwell behind containment elevator (R-92-2) closed, but not locked. The area was surveyed, and no accessible areas had dose rates which exceeded 1,000 millirem per hour at 30 centimeters. The highest dose rate in the area was 900 millirem per hour on contact. This event was entered in to the licensee's corrective action system as CR 00-43267. The finding identified by the licensee was of very low significance and a violation of NRC requirements which met the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a Non-Cited Violation.

Inspection Report# : [2000012\(pdf\)](#)

Significance: N/A Nov 11, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO ADHERE TO RADIATION WORK PERMIT PROCEDURES FOR HIGH RADIATION AREA; VIOLATION OF TECHNICAL SPECIFICATION 6.11

Technical Specification 6.12.1 requires that an entrance to a high radiation area (HRA) shall be controlled by requiring issuance of a Radiological Work Permit (RWP). Technical Specification 6.11 requires that procedures, including RWPs, shall be adhered to for all operations involving personnel radiation exposure. RWP 200-8033, "Transfer Canal Inspection," addressed work in a HRA and required that health physics (HP) technicians survey any object found in the transfer canal prior to handling by a worker. Contrary to the above, on September 27, 2000, a refueling worker picked up and handled a foreign object found on the floor of the transfer canal prior to being surveyed by HP. Reference Condition Report 00-3302.

Inspection Report# : [2000011\(pdf\)](#)

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: N/A Jul 27, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS (PROGRAM ASSESSMENT)

The licensee's performance in the area of problem identification and resolution was acceptable. The licensee was appropriately identifying problems and entering them into their corrective action process. Condition reports (CRs) received an adequate level of review, and when a root cause analysis was performed, the evaluations were generally thorough and adequate. Notwithstanding, the team identified that the licensee did not evaluate molded case circuit breaker test failures in sufficient detail to identify the causes of the problem and, therefore, did not provide for corrective actions to prevent recurrence. The team also identified an instance where an evaluation of a recirculation spray system flow sensing line refill interval was not technically well supported. The licensee's corrective actions were adequate to correct the identified problem and prevent recurrence. Current trends indicate a large increase in the backlog of open condition reports and corresponding corrective actions. This increase is primarily the result of the licensee's lowering of the threshold for initiating CRs.

Inspection Report# : [2001011\(pdf\)](#)

Significance: N/A Sep 15, 2000

Identified By: NRC

Item Type: FIN Finding

IMPLEMENTATION OF THE CORRECTIVE ACTION PROGRAM WAS ACCEPTABLE AT THE BEAVER VALLEY POWER STATION.

The team concluded that implementation of the corrective action program was acceptable at the Beaver Valley Station. In general, problems are identified and corrective actions implemented adequately for risk significant problems. The team identified a number of instances of ineffective and untimely implementation of corrective actions to properly resolve identified deficiencies. In addition, some root cause analyses were found to be narrowly focused. The team determined that FENOC's recently completed assessment of the corrective action program by the Quality Services section was thorough and critical. Based on interviews and review of issues contained in the Ombudsman program, individuals working at the Beaver Valley Station felt free to identify safety issues without fear of retaliation.

Inspection Report# : [2000009\(pdf\)](#)

Significance: N/A Aug 12, 2000

Identified By: NRC

Item Type: FIN Finding

CONDITION REPORTS WERE NOT INITIATED, CAUSES WERE INCORRECTLY OR INCOMPLETELY EVALUATED, OR INCORRECT PRIORITIES ASSIGNED TO RESOLVE PROBLEMS.

Cross-cutting Issues: Problem Identification and Resolution. On several occasions station personnel either did not initiate condition reports for conditions adverse to quality, incorrectly or incompletely evaluated the causes, or assigned incorrect priorities to resolve problems. Condition reports were not written for electro hydraulic control system post-maintenance testing deficiencies and unnecessary emergency diesel generator unavailability until after being identified by the inspectors. Evaluation of nuclear instrument N42 miscalibration did not address double verification errors or questioning of unexpected equipment response. Evaluation of nuclear instrument N44 miscalibration mischaracterized the cause as drift and assigned no further action when further investigation was warranted. Additionally, a recent Independent Safety Evaluation Group assessment of NRC Performance Indicator Process implementation did not identify several readily apparent process or reporting errors, which were later identified by the NRC inspectors.

Inspection Report# : [2000006\(pdf\)](#)

Significance: N/A Jul 01, 2000

Identified By: NRC

Item Type: FIN Finding

PROBLEM ASSESSMENT DID NOT PROPERLY EVALUATE POTENTIAL RISK SIGNIFICANCE AND IMPLEMENT TIMELY EFFECTIVE CORRECTIVE ACTIONS

Cross-cutting Issues: Problem Identification and Resolution On two occasions, problem assessments did not properly

evaluate potential risk significance and implement timely effective corrective actions. Although these deficiencies were not the root or contributing causes to the actual events, they represent adverse performance which limited the licensee's ability to identify and correct adverse safety conditions. Specifically, 1) station personnel did not recognize the potential risk significance of the degraded "A" auxiliary river water pump seal and did not correct the condition in a timely manner; and 2) the safety significance assessment for a reactor protection system (RPS) miscalibration event was also deficient, in that engineers incorrectly concluded that protective functions of the instrument channel were not affected. Additionally, corrective actions for the RPS miscalibration event did not preclude two repeat miscalibration occurrences.

Inspection Report# : [2000005\(pdf\)](#)

Last modified : December 02, 2002