November 9, 2005

Mr. William Pearce
Site Vice President, Beaver Valley Power Station
FirstEnergy Nuclear Operating Company
Post Office Box 4
Shippingport, Pennsylvania 15077

SUBJECT: BEAVER VALLEY POWER STATION - NRC INTEGRATED INSPECTION REPORT 05000334/2005007 AND 05000412/2005007

Dear Mr. Pearce:

On September 30, 2005, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Beaver Valley Power Station Units 1 and 2. The enclosed integrated inspection report documents the inspection findings, which were discussed on October 21, 2005, with your Director of Site Operations, James Lash, and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, the NRC has identified four issues that were evaluated under the risk significance determination process as having very low safety significance (Green). Three of the findings involved violations of NRC regulations, however, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating these three findings as non-cited violations (NCVs), consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any of the findings in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Beaver Valley.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosures, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

We appreciate your cooperation. Please contact me at 610-337-5200 if you have any questions regarding this letter.

Sincerely,

/RA/

Ronald R. Bellamy, Ph.D., Chief
Reactor Projects Branch 7
Division of Reactor Projects

Docket Nos.: 50-334, 50-412
License Nos: DPR-66, NPF-73

Enclosures: Inspection Report 05000334/2005007; 05000412/2005007
w/Attachment: Supplemental Information

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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.	50-334, 50-412
License Nos.	DPR-66, NPF-73
Report Nos.	05000334/2005007 and 05000412/2005007
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Beaver Valley Power Station, Units 1 and 2
Location:	Post Office Box 4 Shippingport, PA 15077
Dates:	July 1, 2005 - September 30, 2005
Inspectors:	P. Cataldo, Senior Resident Inspector L. Cheung, Senior Reactor Inspector T. Moslak, Health Physicist D. Silk, Senior Emergency Preparedness Inspector G. Smith, Resident Inspector
Approved by:	R. Bellamy, Ph.D., Chief Reactor Projects Branch 7 Division of Reactor Projects

CONTENTS

SUMMARY OF FINDINGS

IR 05000334/2005-007, IR 05000412/2005-007; 07/01/2005 - 09/30/2005; Beaver Valley Power Station, Units 1 & 2; Maintenance Rule Implementation; Personnel Performance During Non-routine Plant Evolutions; Operability Evaluations.

The report covered a 3-month period of inspection by resident inspectors, regional reactor inspectors, and a regional health physics inspector. Three Green non-cited violations (NCVs) and one Green finding were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a self-revealing non-cited violation (NCV) of License Condition 2.C.1, because reactor power exceeded the licensed maximum power level of 2689 (100 percent) megawatts thermal. The transient was caused by an inadequate procedure that resulted in the unexpected opening of a feedwater train bypass valve, and an overpower excursion to approximately 105 percent power for four minutes.

  This finding is more than minor because it affected an attribute and the objective of the initiating events cornerstone in that it caused a transient that upset plant stability and therefore could be viewed as a precursor to a significant event. Without operator action, this inadvertent valve opening could have resulted in a reactor trip. This finding is of very low safety significance since although it did contribute to the likelihood of a reactor trip, it did not contribute to the likelihood of unavailable mitigating system components. FENOC initiated a root cause investigation, identified deficiencies in the procedure and work order, and have identified actions in the corrective action program to prevent this event from recurring. A contributing cause to this finding is related to the resources subcategory of the human performance cross-cutting area because the resources aspect includes items that support performance such as complete and accurate procedures. (Section 1R14)

Cornerstone: Mitigating Systems

- Green. The inspectors identified an NCV of 10CFR50.65(a)(2), which involved the failure to demonstrate that the performance of turbine-driven auxiliary feedwater (TDAFW) steam admission solenoid valves was being effectively controlled through adequate maintenance. Four separate solenoid coil failures occurred in 2005, but were considered individual component failures and thus

not system functional failures. FENOC formed a root cause team following the fourth valve failure to provide an in-depth review of the recurrent failures.

This finding is more than minor because it involves the reliability of a mitigating systems component. A failure of two valves in the same train would have caused a start of the TDAFW pump and the injection of relatively cold water to the steam generators followed by a subsequent cooldown of the reactor coolant system. This scenario would also affect the containment isolation function of the affected steam line since both valves are considered containment isolation valves This finding is of very low safety significance since it did not result in a loss of system function as described in Generic Letter 91-18. FENOC has entered this issue into the corrective action program, and plan to re-evaluate the effectiveness of the administrative procedures utilized to implement the maintenance rule. Additionally, FENOC is evaluating the solenoid coil deficiencies, performed an extent of condition review, and have appropriate corrective actions identified within the corrective action program to resolve the multiple failures that have occurred. A contributing cause to this finding is related to the evaluation subcategory of the problem identification and resolution cross-cutting area because the licensee failed to perform a 10CFR50.65(a)(1) evaluation to validate that effective maintenance was being performed on the affected valves. (Section 1R12)

C Green. The inspectors identified a self-revealing finding because an overhead crane contacted an incoming 345 kilovolt feeder to the Beaver Valley Power Station (BVPS) switchyard. The incoming line was isolated automatically by protective relaying and the subsequent electrical transient caused a loss of the running service air compressor on Unit 2. Operators quickly discovered the lowering instrument air pressure and took actions to restore header pressure by starting the backup condensate polisher compressor.

This finding is more than minor because it affected an attribute and the objective of the initiating events cornerstone in that it caused a transient that upset plant stability and therefore could be viewed as a precursor to a significant event. This event could have resulted in a loss of instrument air and a subsequent reactor trip. This finding is of very low safety significance since although it did contribute to the likelihood of a reactor trip, it did not contribute to the likelihood of unavailable mitigating system components. FENOC performed a root cause and instituted appropriate interim corrective actions in the area of crane movements and heavy loads. Additionally, FENOC has identified a contributing cause for the unexpected trip of the running station air compressor and have actions within the corrective action program to mitigate this action from recurring. A contributing cause to this finding is related to the personnel subcategory of the human performance cross-cutting area because of a lack of attention to detail while moving a crane near overhead power lines. (Section 1R14)

C Green. The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Actions,” for inadequate and untimely corrective actions

regarding a degraded (corroded) service water piping support that existed for approximately nine years.

This finding is more than minor because if the corroded pipe support was left uncorrected, it would become a more significant safety concern in that the service water piping would not maintain structural integrity during a seismic event due to the corroded and inoperable pipe support, and result in a large service water leak that could impact safety-related equipment that require service water for cooling. This finding was considered to be of low safety significance because the pipe support was determined to be degraded by approximately 20 percent, but capable of performing its intended function. The licensee will update the design basis calculation to address the wall loss from corrosion, and has cleaned and painted the affected area to ensure further degradation does not occur. Additionally, system walkdown effectiveness was being evaluated due to the longstanding nature of this degradation. A contributing cause to this finding is related to the corrective action subcategory of the problem identification and resolution cross-cutting area, because the licensee failed to correct a long-standing degradation that existed in a pipe support for the safety-related service water system. (Section 1R15)

B. Licensee Identified Violations

None.

REPORT DETAILS

Summary of Plant Status:

Unit 1 operated at essentially 100 percent power throughout the inspection period. However, a secondary transient occurred on September 12, 2005, which resulted in reactor power briefly exceeding 100 percent. (Section 1R14).

Unit 2 operated at essentially 100 percent power throughout the period with the exception of several short term power reductions (<10 percent) due to degraded secondary plant conditions caused by hot and humid ambient conditions.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01 - 1 sample)

a. Inspection Scope

The inspectors performed a review and walkdown of FENOC's high wind procedure, 1/2OM-53C.4A.75.1, "Acts of Nature - Tornado," Rev. 9, due to heavy thunder storms that occurred during the months of August and September. The inspectors evaluated the compensatory methods and verified that operator actions would maintain the operational readiness of essential systems. This adverse weather review included a site walkdown, and effects on maintenance rule structures, systems, and components (SSC) due to plant modifications, procedure changes and operator workarounds.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignments (71111.04 - 3 samples)

a. Inspection Scope

Partial System Walkdowns

The inspectors performed three partial system walkdowns during this inspection period. The inspectors evaluated the operability of the selected train or system when the redundant train or system was inoperable or unavailable, by verifying correct valve positions and breaker alignments in accordance with the applicable procedures, and consistent with applicable chapters of the Updated Final Safety Analysis Report (UFSAR). Documents reviewed are listed in the Attachment.

- On July 20, 2005, the inspectors evaluated the Unit 2 No. 1 Emergency Diesel Generator (EDG) while the No. 2 EDG was out-of-service for installation of special test equipment to be used in surveillance testing.

- On August 2, 2005, the Unit 2 'A' Service Water (SW) pump tripped due to a motor fault. The inspectors evaluated and performed a walkdown of the Unit 2 'B' train SW while the 'A' train was out-of-service.

- On September 22, 2005, the inspectors evaluated the Unit 2 'A' train of the High Head Safety Injection System (HHSI) while the 'B' HHSI train was out-of-service during an uncoupled run of the 'B' HHSI pump.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05 - 9 samples)

a. Inspection Scope

Fire Area Walkdowns. The inspectors reviewed the "Unit 1 Updated Fire Protection Appendix R Review Report", Revision 26, and the "Unit 2 Fire Protection Safe Shutdown Report", Addendum 27, and selected the following nine risk significant areas for inspection and compliance against the applicable regulatory requirements:

- Unit 1 Cable Tunnel (Fire Area CV-3)
- Unit 1 Emergency Switchgear Room No. 1 (Fire Area ES-1)
- Unit 1 Emergency Switchgear Room No. 2 (Fire Area ES-2)
- Unit 2 Auxiliary Boiler Area (Fire Area SOB-1)
- Unit 2 Cable Vault and Rod Control (Rod Control Area Only) (Fire Area CV-3)
- Unit 2 Cable Vault and Rod Control (Relay Room) (Fire Area CV-6)
- Unit 2 Main Steam Valve Area (Fire Area MS-1)
- Unit 2 Orange Emergency Switchgear Room (Fire Area SB-1)
- Unit 2 Purple Emergency Switchgear Room (Fire Area SB-2)

The inspectors reviewed the fire areas listed above to verify compliance with criteria delineated in Administrative Procedure 1/2-ADM-1900, "Fire Protection," Rev. 8. This review evaluated FENOCs control of transient combustibles and ignition sources, material condition of passive fire protection features (fire barriers, penetrations/fire seals, structural steel fire proofing) and equipment (fire detection and suppression), the adequacy of compensatory measures for any existing fire protection impairments, and the adequacy of fire protection surveillances and other procedures, as applicable (listed in the Attachment).

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11 - 1 sample)

a. Inspection Scope

The inspectors observed Unit 2 licensed operator requalification training in the plant-reference simulator on August 1, 2005. The inspectors observed licensed operator performance relative to the following activities: effective communications, implementation of normal, abnormal and emergency operating procedures, command and control, technical specification compliance, and emergency plan implementation. The inspectors observed simulator fidelity and verified that major, in-plant configurations or changes were appropriately reflected in the simulator. The inspectors evaluated the staff evaluators during the training and verified that deficiencies in operator performance were properly identified, and that conditions adverse to quality were appropriately entered into the licensee's corrective action program for resolution.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12 - 2 samples)

a. Inspection Scope

The inspectors evaluated Maintenance Rule (MR) implementation for the two issues listed below. The evaluation considered compliance against the criteria contained in 10 CFR 50.65, and other attributes set forth in NUMARC 93-01, “Industry Guidelines For Monitoring The Effectiveness Of The Maintenance At Nuclear Power Plants,” such as MR scoping, failure characterizations of SSCs, SSC performance criteria or goals, and appropriateness of corrective actions. The inspectors also evaluated MR performance against 1/2-ADM-2114, “Maintenance Rule Program Administration,” Revision 0, and MR system basis documents.

- Repetitive failures of Unit 2 turbine-driven auxiliary feedwater (TDAFW) pump steam admission valves (CR 05-00204, 05-01770, 05-04938, and 05-06105)

- Repetitive failures of Motor Control Center Breaker MCCB-MCC-1-E-14-1D, alternate supply breaker for 480V Vital Bus #2 and #4.

b. Findings

Failure to Demonstrate Effective Maintenance on the Unit 2 TDAFW Steam Admission Valves

Introduction. A Green, NRC-identified NCV was identified for failure to demonstrate that the performance of the TDAFW steam admission valves was being effectively controlled through adequate maintenance. Specifically, four separate failures that occurred in

2005 were not considered functional failures under administrative guidelines, and therefore, never fully evaluated against the much broader MR requirements.

Description. On four occasions, a TDAFW pump, solenoid-operated steam admission valve, failed to the open position. These valves are maintained in a normal system alignment (NSA) of closed, and either fail open on a loss of power, or open based on the output of the solid state protection system to start the TDAFW pump. Since a valve in series with 2MSS-SOV105A and C, was NSA closed during these failures, a transient involving an inadvertent start of the TDAFW pump was averted. A summary of the failures is listed below:

Summary of Solenoid valve failures at Unit 2 in 2005

Date	Failure	Cause	Actions
1/7/05	2MSS-SOV105C	Coil failure - considered age-related	Troubleshooting on coil; no failure analysis.
3/16/05	2MSS-SOV105A	Coil failure - conductive and convective heat-induced failure	Failure analysis performed.
7/14/05	2MSS-SOV105C	Coil failure - poor crimp connection insulation	Failure analysis performed.
9/1/05	2MSS-SOV105A	Coil failure - poor crimp connection insulation	Failure analysis performed; root cause team formed to address coil failures.

In all cases, the valve failures were evaluated and not considered to be maintenance preventable functional failures based on administrative procedures covering MR implementation. The evaluation was consistent with technical specifications (TS) and license requirements manual (LRM), in that individual valve failures were considered and allowed for continued operation due to series redundancy, e.g., credit for the valve in series that remained in the closed direction. FENOC also did not consider these particular individual component failures to affect the overall system function, i.e. TDAFW pump operation, and thus maintenance was considered effective. The inspectors noted that these valves have safety-related functions in both the open and closed positions. The opening feature functions to operate the TDAFW when demanded to provide a heat removal function, while the closing feature functions to provide a containment isolation function. Additionally, during the inspection, the inspectors noted that a number of the coil failures in 2005 were related to previous coil failures from 1995 and 1999, in that the coils shared similar lot numbers and purchase orders that would indicate a common mode failure perspective.

Analysis. This issue involved a performance deficiency, in that the licensee did not demonstrate that the performance of the solenoid-operated steam admission valves was

being effectively controlled through appropriate preventive maintenance, and that these valves were capable of performing their intended function as a maintenance rule-scoped component. This issue is considered more than minor because it adversely affected the equipment performance attribute of the mitigating system cornerstone. Additionally, the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences was adversely impacted. Since the issue was considered more than minor, the inspectors performed a Phase 1 analysis in accordance with Manual Chapter 0609, "Significance Determination Process." The inspectors concluded that the finding affected the mitigating systems cornerstone due to a degradation of the secondary system short term core heat removal function. However, since the finding did not affect the seismic, flooding, and severe weather response, and was determined not to involve a design deficiency resulting in a loss of function per Generic Letter 91-18, the finding was determined to be of very low safety significance (Green).

A contributing cause to this finding is related to the evaluation subcategory of the problem identification and resolution cross-cutting area because the licensee failed to perform an adequate evaluation to validate that effective maintenance was being performed on the solenoid valves, consistent with 10CFR50.65(a)(2).

Enforcement. 10CFR 50.65 (a)(2) requires, in part, that monitoring as specified in 10CFR 50.65 (a)(1) is not required where it has been demonstrated that the performance or condition of a SSC is being effectively controlled through the performance of appropriate preventative maintenance, such that the SSC remains capable of performing its intended function. Contrary to the above, the licensee failed to demonstrate that the performance of the TDAFW steam admission valves was being effectively controlled through the performance of appropriate maintenance. Because this deficiency was of very low safety significance and has been entered into the corrective action program as CR 05-06105, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy.
(NCV 05000412/2005007-01, Failure to Demonstrate Effective Maintenance on the Unit 2 TDAFW Steam Admission Valves)

1R13 Maintenance Risk Assessment and Emergent Work Control (71111.13 - 7 samples)

a. Inspection Scope

The inspectors reviewed the risk assessments for seven planned or emergent work activities that involved individual or weekly activities. The inspectors reviewed the work schedules, evaluated the associated impacts on overall plant risk, and evaluated risk management actions, as applicable. This review was conducted using the criteria contained in 10CFR50.65(a)(4); Procedure 1/2-ADM-2033, "Risk Management Program," Rev. 3; Procedure NOP-WM-2001, "Work Management Process," Rev. 4; Procedure 1/2-ADM-0804, "On-Line Work Management and Risk Assessment," Rev. 4; Procedure 1/2-ADM-2114, "Maintenance Rule Program Administrative Procedure,"

Rev. 2; and Conduct of Operations Procedure 1/2OM-48.1.I, "Technical Specification Compliance," Rev. 18.

- Planned Unit 1 yellow risk on July 21, 2005, due to solid state protection system (SSPS) testing.
- Unit 1 and Unit 2 weekly maintenance risk summary for the week of July 25, 2005.
- Planned Unit 2 yellow risk on August 18, 2005, due to SSPS testing.
- Planned Unit 1 yellow risk on August 23, 2005, due to Battery Breaker 1-1 replacement activities.
- Planned yellow risk on September 22, 2005, due to the performance of an uncoupled run of the Unit 2 'B' charging pump motor.
- Planned Unit 2 yellow risk on September 29, 2005, due to breaker preventive maintenance on 138 kilovolt (KV) switchyard circuit breaker, OCB-92. This breaker provides the dedicated offsite power to the 'A' emergency electrical buses.
- Planned Unit 2 yellow risk on September 30, 2005, due to relay testing associated with the 'A' train offsite power transformer.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions (71111.14 - 2 samples)

a. Inspection Scope

The inspectors reviewed human performance during the following two events. The inspectors evaluated whether operator response was appropriate according to applicable normal, abnormal or emergency operating procedures. The inspectors verified compliance with applicable TS, and reviewed operating logs, control room parameter trends and graphs, sequence of events reports, and other control room data, as applicable. Documents reviewed are listed in the Attachment.

- On July 11, 2005, the running Unit 2 station air compressor tripped offline due to an electrical power transient caused by an overhead crane contacting an incoming 345 KV electrical power line to the Beaver Valley switchyard. The inspectors noted that the impact of the transient was mitigated by the timely diagnosis and response of the control room operators in the restoration of station and instrument air system pressures.

- On September 12, 2005, Unit 1 experienced a secondary plant-initiated transient that resulted in a power excursion above the operating license power level. The inspectors reviewed appropriate operator and plant response information, and evaluated these responses regarding their consistency with plant procedures and expected response given the equipment-related event flow.

b. Findings

.1 Switchyard Transient Caused by Crane That Damaged 345 kV Transmission Line

Introduction. A Green, self-revealing finding was identified for a crane that caused a fault in an offsite power circuit. This fault resulted in a momentary electrical transient that led to a loss of the running station air compressor and a brief loss of instrument air pressure.

Description. On July 11, 2005, an overhead crane contacted and severed the static line associated with the 345 KV Mansfield No. 1 line, and caused minor damage to one of three phases associated with this 345 KV line. Protective relaying deenergized the affected line via the opening of the associated switchyard circuit breakers. The resultant electrical transient tripped the Unit 2 station air compressor and caused a loss of sample flow to various radiation monitors on both units. The crane that initiated the transient was being used for the movement of large concrete forms related to construction of the Unit 1 old steam generator storage building. Due to inadequate oversight during the movement, the extended boom of the crane was not appropriately monitored and controlled during lateral movement, and consequently made contact with the overhead 345 kV power line. FENOC initiated a root cause investigation to identify root and contributing causes, and to establish corrective actions to prevent recurrence. These corrective actions include improved oversight of contractor activities in the area of crane movement near overhead power lines.

Analysis. This issue involved a performance deficiency, in that an unsafe load path existed due to inadequate oversight that resulted in the extended boom of a crane making contact with the Mansfield No. 1 345 KV power line. This issue is considered more than minor because it adversely affected the equipment performance attribute of the mitigating system cornerstone. Specifically, the reliability of the station and instrument air system was affected due to the loss of the running station air compressor, and the subsequent unexpected loss in system pressure. Since the issue was more than minor, the inspectors performed a Phase 1 analysis in accordance with Manual Chapter 0609, “Significance Determination Process.” Since a loss of the instrument air system could potentially affect both the initiating events cornerstone (reactor/turbine trip), and the mitigating systems cornerstone (risk significant valves and containment barriers), a Phase 2 analysis was required. However, Footnote 15 of the “Risk Informed Notebook for Beaver Valley Unit 2,” Rev. 1., states that “findings associated with station air compressors or containment instrument air compressors are Green.” Thus this finding was determined to be of very low safety significance (Green).

A contributing cause to this finding is related to the personnel subcategory of the human performance cross-cutting area because of lack of attention to detail and oversight while moving a crane near overhead power lines.

Enforcement. No violation of regulatory requirements occurred. The inspectors determined that the finding did not represent a noncompliance of NRC requirements because it occurred on non-safety-related plant equipment.
(FIN 05000412/2005007-02, Switchyard Transient Caused by Crane That Damaged 345 kV Transmission Line.)

.2 Overpower Event Caused by Inadvertant Opening of a Feedwater Heater Bypass Valve

Introduction. A Green, self-revealing NCV was identified, in that an inadequate procedure resulted in the unexpected opening of a Unit 1 feedwater train bypass valve, and an overpower excursion to approximately 105 percent power.

Description. On September 12, 2005, during the replacement of modules associated with the Unit 1 steam dump control system, a valve in the condensate system, TV-CN-100, "Heater Train Bypass Valve," opened unexpectedly. As a result, a portion of condensate water bypassed low pressure feedwater heaters that led to a momentary cooldown and subsequent overpower condition. Control room operators mitigated the event in accordance with procedures, and after power peaked at approximately 105 percent, and system design that ultimately closed the bypass valve after a four minute time delay, reactor power was stabilized at approximately 93 percent.

The inspectors noted that the steam dump module replacement was coordinated via the concurrent use of Work Order (WO) task steps and procedure, 1CAL-6-T408D, "Calibration of Steam Dump Control System T-RC408D," Rev. 1. Also, a precaution regarding the prevention of the spurious opening of the bypass valve at power by deactivation was discussed, (1) a clearance for this valve was pre-approved and ready for installation, and (2) the calibration procedure required the placement of a test tag clearance on TV-CN-100 prior to performing any calibration on the load rejection portion of the steam dump circuit. However, the WO instructions did not effectively coordinate the replacement of the modules, and resulted in the inappropriate removal of a lead/lag module associated with the load rejection function of the steam dump control circuit, and unexpectedly opened TV-CN-100. FENOC initiated a root cause investigation to identify root and contributing causes to resolve the issue and prevent recurrence. These corrective actions included procedure revisions to ensure proper coordination of work details existed between procedures and associated WOs.

Analysis. This issue involved a performance deficiency in that less than adequate instructions were provided during the replacement of steam dump modules. This issue is considered more than minor in that it affected the initiating events cornerstone attribute of procedure adequacy, and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability. Since the issue was more than minor, the inspectors performed a Phase 1 analysis in accordance with Manual Chapter

0609, Appendix A, “Significance Determination Process at Power.” Under the Phase 1 analysis, the inspectors concluded that the finding affected the initiating events cornerstone as a transient initiator contributor. However, since the finding did not contribute to increasing the likelihood of a reactor trip, as well as a loss of the mitigating system component and/or functions, the finding was determined to be of very low safety significance (Green).

A contributing cause to this finding is related to the resources subcategory of the human performance cross-cutting area, because the licensee failed to ensure that the procedures associated with maintenance performed on the steam dump control circuit were complete and accurate.

Enforcement. Section 2.C.1 of the Unit 1 facility license authorizes FENOC to operate the facility at a steady state reactor core power level of 2689 megawatts thermal. Contrary to the above, Unit 1 operated at a momentary peak power of approximately 105 percent (2823 megawatts thermal), due to a failure in the secondary plant. While brief transients below 102 percent power are considered minor excursions if the eight-hour steady state power level does not exceed 100 percent, power excursions in excess of 102 percent are considered more than minor and considered a violation of the facility license. Because this deficiency was of very low safety significance and has been entered into the corrective action program as CR 05-06327, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000334/2005007-03, Overpower Event Caused by Inadvertent Opening of a Feedwater Heater Bypass Valve**.)

1R15 Operability Evaluations (71111.15 - 5 samples)

a. Inspection Scope

The inspectors reviewed the following five conditions to determine whether proper operability determinations (OD), Basis For Continued Operations (BCO), or other assessments were performed. In addition, where applicable, the inspectors verified that TS limiting conditions for operation (LCO) requirements were properly addressed. Documents reviewed are listed in the Attachment.

- The inspectors reviewed an engineering evaluation associated with 2FWE-HCV100B, “Unit 2 Auxiliary Feed Water Pump Throttle Valve,” as documented in CR 05-05182, regarding the continued cycling of the Kerry hydraulic actuator motor. The inspectors assessed the adequacy and acceptability of FENOC's conclusion in the assessment. The cycling was corrected by performing an auto calibration of the valve under WO 200162319.

- The inspectors reviewed an OD associated with a pin hole leak in the fire protection discharge header piping, as documented in CR 05-05214. The OD documented a structural calculation which concluded that the integrity of the line was confirmed due to the available reinforcement area being greater than the

required reinforcement area The inspectors assessed the adequacy and acceptability of FENOC's conclusion in the OD that the fire protection line would continue to perform its required function.

C The inspectors reviewed Unit 2 BCO 2-05-001, Rev.1, "Pressurizer Overfill On Inadvertent Safety Injection," and detailed in CR-05-04186. During a licensing amendment review, FENOC identified that the pressurizer power-operated relief valve and safety relief valve downstream piping was not analyzed to handle the loads and stresses resulting from an inadvertent safety injection. The inspectors evaluated the adequacy and acceptability of FENOCs conclusion that the piping could handle the loads and stresses from an inadvertent safety injection and remain intact to perform its required function. The inspectors also reviewed the UFSAR, and calculations that were performed to provide the basis for operability.

C The inspectors evaluated the adequacy and acceptability of an operability assessment detailed in CR-05-06229, which described FENOC's evaluation of an NRC-identified degraded pipe support for service water piping in the Unit 2 auxiliary building. This evaluation included a computer-based loading analysis, PC-Preps, which utilized inputs from the design basis calculation of record.

• The inspectors reviewed the acceptability and adequacy of FENOC's assessment of a 2-3 gallon per minute pinhole leak in the Unit 1 river water piping downstream of valve MOV-1RW-103C. The inspectors reviewed the subsequent localized flaw evaluation that utilized ultrasonic testing (UT) of the area around the leak, which included additional areas on other segments of river water piping near similar valves. The inspectors also reviewed the structural integrity evaluation that was performed to assist in the operability evaluation. The inspectors also evaluated FENOC's temporary repair, and the second pit that developed after the weld repair was performed for the first leak.

b. Findings

Degraded Service Water System Pipe Support

Introduction. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," for inadequate and untimely corrective actions regarding a degraded (corroded) service water piping support that existed for approximately nine years.

Description. On September 7, 2005, during a tour of the Unit 2 auxiliary building, the inspectors identified corroded welds and what appeared to be associated metal loss on a pipe support, 2-SWS-PSR032, located on the service water system. FENOC detailed this issue in condition report (CR) CR-05-06229, and initiated an engineering evaluation and an assessment of operability of the pipe support, and in turn, the service water system. During the investigation, FENOC determined that the corrosion had existed on this pipe support based on details contained in a 1996 Problem Report (PR), PR 2-96-171. This PR detailed the existence of the corrosion, and based on the

documentation, FENOC had planned to initiate repairs through painting of the affected portions of the support and baseplates. However, based on existing documentation from the archives, this action was never completed, and based on the condition of the identified support regarding the extent of the corrosion, had gone unevaluated and unrepaired for approximately nine years.

FENOC performed an engineering analysis that supported an operability assessment regarding the capability of the pipe support being able to perform its required functions. FENOC concluded that metal loss due to corrosion had reduced the available pipe support metal thickness that would be needed to perform its required function under all loading conditions by approximately 20 percent. FENOC initiated corrective actions to ensure the design loading calculations were updated to reflect the current condition of the pipe support. Additionally, the inspectors noted that FENOC had appropriately cleaned the affected areas, obtained accurate measurements and confirmed calculation input parameters, and successfully repainted the pipe support and baseplate sections that were degraded.

Analysis. This issue involved a performance deficiency, in that the licensee failed to adequately evaluate a degraded (corroded) service water system pipe support, and also did not effect appropriate corrective actions in a timely manner for a condition adverse to quality, for approximately nine years. This issue is considered more than minor because if the corroded pipe support was left uncorrected, it would become a more significant safety concern in that the service water piping would not maintain structural integrity during a seismic event, and result in a large service water leak that could impact safety-related equipment that require service water for cooling. This finding was considered to be of low safety significance because the pipe support was determined to be degraded by approximately 20 percent, but capable of performing its intended function. Since the issue was considered more than minor, the inspectors performed a Phase 1 analysis in accordance with Manual Chapter 0609, “Significance Determination Process.” The inspectors concluded that the finding affected the mitigating systems cornerstone due to a degradation of the initial injection and long-term heat removal function. However, since the finding did not affect the seismic, flooding, and severe weather response, and was determined not to involve a design deficiency resulting in a loss of function per Generic Letter 91-18, the finding was determined to be of very low safety significance (Green).

A contributing cause to this finding is related to the corrective action subcategory of the problem identification and resolution cross-cutting area because the licensee failed to correct a long-standing degradation that existed in a pipe support for the safety-related service water system

Enforcement. 10CFR 50, Appendix B, Criterion XVI, “Corrective Action,” requires, in part, that conditions adverse to quality are promptly identified and corrected. Contrary to the above, the licensee failed to adequately implement timely or effective corrective actions for a corroded service water pipe support that existed for approximately nine years. Because this deficiency was of very low safety significance and has been entered into the corrective action program as CR 05-06229, this violation is being

treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000412/2005007-04, Degraded Service Water System Pipe Support.)**

1R19 Post-Maintenance Testing (71111.19 - 5 samples)

a. Inspection Scope

The inspectors reviewed and/or observed five post-maintenance tests (PMTs) to ensure: 1) the PMT was appropriate for the scope of the maintenance work completed, e.g., that any affected safety function is appropriately tested; 2) the acceptance criteria were clear and demonstrated operability of the component; 3) the PMT was performed in accordance with applicable procedures to ensure critical testing parameters are appropriately controlled and tested, as appropriate, e.g., calibrated test equipment, lockout/tagout boundaries are effective and controlled appropriately; and 4) adverse conditions that are identified are appropriately captured in the corrective action program. The following PMTs were observed:

- 2OST-7.6, “Centrifugal Charging Pump [2CHS*P21C],” Rev. 26, performed on June 21, 2005, following the performance of planned preventative maintenance under WO 200094228.

- Unit 1 Battery Breaker 1-1 Replacement Cycle Test performed under WO 200106334 on August 23, 2005.

- 2OST-24.4, “Steam Driven Auxiliary Feed Pump [2FWE*P22],” Rev. 56, performed on September 12, following the replacement of a failed solenoid coil on 2MSS*SOV105A, “Auxiliary Feed Pump Steam Supply Isolation Valve” under WO 200168242.

- 2OST-47.3F, “Containment Penetration and ASME Section XI Valve Test - Work Week 1,” Rev. 3, performed on September 16, 2005, following a packing adjustment of 2SSR*AOV102A2, “Primary Coolant Cold Leg Sample Outside Containment Isolation Valve,” under WO 200168680.

- 1OST-24.4, “Steam Turbine Driven Auxiliary Feed Pump [1FWE-P-2],” Rev. 30, performed on September 27, following the performance of planned preventative maintenance on the Unit 1 steam driven auxiliary feed water pump governor and overspeed trip mechanisms under WO 200115568.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 5 samples)

a. Inspection Scope

The inspectors observed and/or reviewed the following five operational surveillance tests (OSTs). This review included a Reactor Coolant System (RCS) leak rate surveillance, an in-service test, and a containment isolation valve surveillance. The inspectors verified that the equipment or systems were capable of performing their intended safety functions and to ensure compliance with related TSs, UFSAR, and procedural requirements:

- 1 and 2OST-6.2A, Rev. 11, "Unit 1 and Unit 2 Computer Generated RCS Water Inventory Balance (Leak Rate Surveillance)"
- 2OST-11.2, Rev. 23, "Low Head Safety Injection Pump [2SIS*P21B] Test (In-Service Test)"
- 2OST-47.3C, Rev. 11, "Containment Penetration and ASME Section XI Valve Test - Work Week 7 (Containment Isolation Valve Surveillance)"
- C 1/2-ADM-1107, Rev. 1, "Alert Notification System (Sirens) Maintenance and Testing"
- C 2MSP-1.05-I, Iss/Rev. 4-25, "Solid State Protection System Train B Bi-Monthly Test"

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23 - 2 samples)

a. Inspection Scope

The inspectors selected two temporary modifications (TM) for review based on the relative risk significance of the associated equipment, namely, vital electrical power and containment temperature, which are both captured in TS. The TMs and associated 10 CFR 50.59 screenings were reviewed against the system design and licensing basis documentation contained within the UFSAR and the TS to ensure system operability was not affected by the scope of the modifications. The inspectors verified the TM was implemented in accordance with Administrative (ADM) Procedure, 1/2-ADM-2028, "Temporary Modifications," Rev. 3. The inspectors also verified that applicable configuration control attributes were controlled and updated, including items such as drawings, operating procedures and test results.

- Unit 2 TM, 2-05-013, Rev. 0, "Temporary Modification of BV2 Containment Air Recirculation Fan, 2HVR-FN201A Vibration Monitoring Instrumentation." This TM defeated the alarm and trip functions associated with the Unit 2 'A' Containment Air Recirculation (CAR) fan outboard bearing accelerometer due to a faulty probe.

- Unit 2 TM, 2-05-014, Rev. 0, "UPS-VITBS2-3 Lifted Lead in the Alternate Source Regulating Transformer Section." This TM implemented the documentation and acceptance of a lifted lead to one of several metal oxide varistors (MOV) located in the bypass regulating transformer circuit of the 2-3 vital inverter. This TM was implemented to recover from a failure of the 2-3 inverter on September 5, 2005, and documented in CR 05-06165.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 - 1 sample)

a. Inspection Scope

The inspectors observed an emergency plan event training evolution conducted at the Unit 2 plant-reference simulator on August 1, 2005, and evaluated emergency procedure implementation, event classification, and the associated evolution critique. The event scenario involved simulated plant conditions which warranted declaration of an Alert event classification, which the licensee credited toward the NRC Emergency Preparedness Drill/Exercise Performance (DEP) Indicators. The inspectors verified the DEP indicator was properly evaluated consistent with Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Rev. 2. The inspectors observed the training critique to determine whether the licensee critically evaluated drill performance to identify deficiencies and weaknesses, and that these issues were appropriately resolved.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01 - 13 samples)

a. Inspection Scope

During August 8 - 12, 2005, the inspector conducted the following activities to verify the licensee was properly maintaining the gaseous and liquid effluent processing systems to ensure that radiological releases were properly mitigated, monitored, and evaluated with respect to public exposure. Implementation of these controls was reviewed against the criteria contained in 10 CFR Parts 20 and 50, relevant TSs, and the licensee's procedures.

- The inspector reviewed the 2004 Annual Radiological Effluent Release Report to verify that the effluents program was implemented as required by the Radiological Effluent Technical Specifications (RETS) and the Offsite Dose Calculation Manual (ODCM).

- The inspector walked down the major components of the Unit 1 and 2 gaseous and liquid release systems, with the system engineer, to verify that the system configuration complied with the UFSAR, and to evaluate equipment material condition.

- The inspector reviewed the effluent subsystems procedure (2-HPP-4.02.021, Rev. 1) and observed technicians collecting weekly particulate and iodine samples and taking a noble gas grab sample from the following effluent radiation monitors:

  - 2RMQ-RQI301, Decontamination Building Exhaust
  - 2RMQ-RQI303, Waste Gas Storage Vault Ventilation
  - 2HVS-RQI101, Supplementary Leak Collection & Release System (SLCRS-Unfiltered)
  - 2HVL-RQI112, Condensate Polishing Building Exhaust
  - 2HVS-RQI109, Wide Range Gas Monitor (SLCRS-Filtered)

- The inspector reviewed the latest Unit 1 and Unit 2 liquid and gaseous effluent monitor quarterly channel functional test results to verify that associated pumps/ isolation valves and fans/isolation dampers, were operable. OSTs reviewed were 1OST-43.9, Rev 18 for Unit 1; and 2OST-43.3, Rev. 16 and 2OST 43.9, Rev. 18 for Unit 2. The inspector evaluated the current effluent radiation monitor set-point for agreement with the RETS/ODCM requirements.

- The inspector observed the preparation of a liquid discharge permit (RWDA-L-5047) for discharging a Steam Generator Drain Tank (1LW-TK-7B) to verify that the radioactive liquid waste was processed, doses were projected and the effluent released in accordance with the procedural requirements of 1/2-HPP-3.06.005.

- The inspector reviewed monthly dose projections for liquid and gaseous effluents performed during the past 12 months to verify that the effluent was processed and released in accordance with RETS/ODCM requirements.

- On August 12, 2005, the inspector reviewed the licensee's response to identifying that the liquid effluent monitor (RM-1LW-104) failed low during a batch discharge of 1LW-TK-7B. The inspector confirmed that the discharge was terminated, compensatory sampling and radiological analysis were conducted, and subsequent doses were projected.

- The inspector reviewed changes made to the ODCM during the past two years to determine if the changes affected the licensee's ability to maintain effluent doses As Low As Reasonably Achievable (ALARA). This review included the installation of a preconditioning filter on the liquid waste discharge system to remove colloidal materials causing elevated background readings on the liquid discharge monitor RM-1LW-104. The licensee's technical justification for installing this temporary modification and the specific ODCM changes were reviewed.

- The inspector reviewed monthly, quarterly, and annual dose calculations for calendar years 2004 and 2005 to ensure that the licensee properly calculated the offsite dose from effluent releases and to determine if any performance indicator (i.e., Appendix I to 10 CFR 50) was exceeded.

- The inspector reviewed the air cleaning system test surveillance results for the High Efficiency Particulate Absolute (HEPA) and charcoal filtration systems installed in Units 1 and 2 and discussed the testing with the respective systems engineer. The inspector confirmed that the air flow rates were consistent with the RETS/ODCM values.

- The inspector reviewed the calibration records and quality control records for counting room instrumentation (detectors Nos. 3 and 6) associated with characterizing effluent samples.

- The inspector reviewed the results of the licensee's inter-laboratory comparison program to verify the quality of effluent sample analysis performed by the licensee.

- The inspector reviewed the Validation and Verification results of the radiological effluent software (i.e., LIQDIS and GASDIS), used for the generation of discharge permits, to ensure the software currently in use provides accurate dose calculations.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151- 2 Samples)

.1 Occupational Exposure Control Effectiveness (1 sample)

a. Inspection Scope

The inspector reviewed implementation of the licensee's Occupational Exposure Control Effectiveness Performance Indicator (PI) Program. Specifically, the inspector reviewed condition reports, and associated documents, for occurrences involving locked high radiation areas, very high radiation areas, and unplanned exposures against the criteria specified in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline", Revision 2, to verify that all occurrences that met the NEI criteria were identified and reported as PIs.

b. Findings

No findings of significance were identified.

.2 RETS/ODCM Radiological Effluent Occurrences (1 sample)

a. Inspection Scope

The inspector reviewed relevant effluent release reports for the period January 1, 2004 through June 30, 2005, for issues related to the public radiation safety PI, which measures radiological effluent release occurrences that exceed 1.5 mrem/qtr whole body or 5.0 mrem/qtr organ dose for liquid effluents; 5mrads/qtr gamma air dose, 10 mrad/qtr beta air dose, and 7.5 mrads/qtr for organ dose for gaseous effluents.

The inspector reviewed the following documents to ensure the licensee met all requirements of the PI from the first quarter 2004 to the second quarter 2005:

- monthly projected dose assessment results due to radioactive liquid and gaseous effluent releases;
- quarterly projected dose assessment results due to radioactive liquid and gaseous effluent releases; and

C dose assessment procedures.

b. Findings

No findings of significance were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

a. Inspection Scope

The inspector reviewed seven Condition Reports, a Nuclear Oversight Second Quarter 2005 Assessment Report, eight Nuclear Oversight Field Observation Reports, and evaluated FENOCs threshold for identifying, evaluating, and resolving problems during implementation of the RETS/ODCM. This review was conducted against the criteria contained in 10 CFR Parts 20 and 50, TSs, and the licensee's procedures.

b. Findings

No findings of significance were identified.

.2 Selected Issue Follow-up Inspection - Recurrent Failure of Vital Bus Alternate Power Supply Breaker, Condition Reports CR 03-03936 and CR 04-08529

a. Inspection Scope

On March 25, 2003, during a refueling outage, and prior to the performance of a manual transfer of vital bus 1-2 power source to the alternate power supply, breaker 1D on emergency Motor Control Center (MCC) 1-E14 was verified to be in the closed position by the technicians (about half an hour prior to the transfer). However, because power was not available at the alternate supply voltage regulator, it resulted in a loss of power to vital bus 1-2 for about 40 seconds. This issue was documented in CR 03-03936.

On October 3, 2004, also during a refueling outage, and prior to the performance of a manual transfer of the alternate power source to vital bus 1-4, the same breaker was verified to be in the closed position about two hours earlier, and again, power was not available at the voltage regulator, as documented in CR 04-08529.

The inspectors reviewed the corrective actions taken by the licensee for these two CRs to determine their adequacy and timeliness. The inspectors also interviewed station personnel, reviewed station procedures affected by the two events, and conducted plant walkdowns.

b. Findings

No findings of significance were identified. However, the inspectors found that the corrective actions taken by the licensee for the breaker malfunctions were inadequate for the March 2003 event, and untimely to prevent recurrence of the subsequent event that occurred in October 2004.

The March 25, 2003, event also involved the technicians' failure to follow station procedures, because one of the two indicating lights was not observed to be illuminated as required by procedure prior to the transfer of the vital bus power source to the alternate source. The inspector noted that most of the corrective actions implemented by the licensee involved procedure enhancements, and also included procedure adherence training for the personnel involved with this event. Also, regarding the 1D breaker deficiency, the inspectors noted that upon review of WO 03-004990, corrective actions included operation of the breaker handle 10 times without a repeat of the failure mode, and testing the over-current trip range of the breaker. Subsequently, FENOC returned the breaker to service during the 2003 refueling outage, without actually determining the root or contributing causes of the failure of the breaker to supply power when the breaker was in the closed position.

Following the October 2004 event, the licensee operated the breaker handle 10 times and on two occasions, successfully repeated the failure mechanism. However, the inspectors noted that the breaker was returned to service following the 2004 event during the 2004 refueling outage, without identifying and correcting the defective breaker mechanism, primarily because there were no spare breakers suitable for this application. The licensee also stated that there were no additional manual operations expected of breaker 1D aside from those normally expected during an outage. The licensee has currently planned to replace breaker 1D during the next refueling outage.

According to Section 8.5.4 of the Unit 1 UFSAR, the vital bus alternate power supply was a credited source for the vital buses. Breaker 1D on emergency MCC 1-E14 fed 480V ac power to the alternate power supply voltage regulator which serves both vital buses 1-2 and 1-4. This issue (inadequate and untimely corrective actions) was evaluated by the inspectors and determined not to be more than minor because the breaker malfunctions only occurred during refueling outages, when vital buses 1-2 and 1-4 were not required to perform critical functions. The failure to comply with 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," constitutes a violation of minor significance that is not subject to enforcement action in accordance with the NRC's enforcement policy.

.3 Inspection Module Problem Identification and Resolution (PI&R) Review

a. Inspection Scope

The inspectors reviewed various CRs associated with the inspection activities captured in each inspection module of this report. During this review, the inspectors assessed the fundamental ability of the licensee to identify adverse conditions, and verified the licensee had entered these issues into the corrective action program for resolution. Where applicable, CRs reviewed during the inspection are documented under each

module, or under Section 40A2; however, for reviews that entailed large number of CRs, these are more appropriately documented in the Attachment.

b. Findings

No findings of significance were identified.

.4 Daily Condition Report Review

a. Inspection Scope

As required by Inspection Procedure 71152, “Identification and Resolution of Problems,” and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee’s corrective action program. This review was accomplished by reviewing each condition report, attending daily screening meetings, and accessing the licensee’s computerized corrective action program database.

b. Findings

No findings of significance were identified.

.5 Cross-References to PI&R Findings Documented Elsewhere

Section 1R12 describes a finding for not ensuring adequate maintenance was being performed on the Unit 2 TDAFW steam admission valves. This finding exhibited problem identification and resolution cross cutting aspects because the licensee failed to adequately evaluate the maintenance rule aspects of various valve failures within the corrective action program.

Section 1R15 describes an NRC-identified finding regarding a degraded service water system piping support that existed for nine years without resolution. This finding exhibited problem identification and resolution cross cutting aspects because the licensee failed to adequately evaluate the operability aspects of, and make repairs to a corroded, safety-related pipe support.

4OA4 Cross Cutting Aspects of Findings

Section 1R14 describes a finding for a plant overpower event. This finding exhibited human performance cross cutting aspects because the licensee failed to ensure that complete and accurate procedures were in place while performing maintenance on the steam dump control circuit.

Section 1R14 describes a finding for a loss of the Unit 2 instrument air compressor due to an electrical fault in the switchyard. This finding exhibited human performance cross cutting aspects because the crane activities caused contact with an overhead power line due to a lack of attention to detail.

Enclosure

4OA6 Meetings, including Exit

On October 21, 2005, the resident inspectors presented the inspection results to Mr. James Lash and other members of the staff, who acknowledged the findings. The inspectors confirmed that while proprietary information was provided during the inspection period, all documents have been handled in accordance with established agency policy to preclude unauthorized disclosure.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

R. Boyle	Staff Nuclear Engineer
P. Dearborn	Staff Nuclear Engineer
D. Gratta	Senior Nuclear Engineer
A. Hartner	Shift Manager
B. Paul	Senior Nuclear Specialist
P. Pauvlinch	Rapid Response Supervisor
K. Schweikart	Staff Nuclear Engineer
B. Sepelak	Supervisor, Regulatory Compliance
J. Witter	Shift Manager

NRC Personnel:

W. Schmidt	Senior Reactor Analyst
C. Cahill	Senior Reactor Analyst
Z.B. Fu	Senior Reactor Engineer
P. Kaufman	Senior Reactor Inspector

LIST OF ITEMS, OPENED, CLOSED, AND DISCUSSED

Open/Closed

05000412/2005007-01	NCV	Failure to Demonstrate Effective Maintenance on the Unit 2 TDAFW Steam Admission Valves. (Section 1R12)
05000412/2005007-02	FIN	Switchyard Transient Caused by Crane That Damaged 345 kV Transmission Line. (Section 1R14)
05000334/2005007-03	NCV	Overpower Event Caused by Inadvertent Opening of a Feedwater Heater Bypass Valve. (Section 1R14)
05000412/2005007-04	NCV	Degraded Service Water System Pipe Support. (Section 1R15)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Drawings

10080-RM-411-2, "Low/High Head Safety Injection," Rev. 12
10080-RM-407-1A, "Chemical & Volume Control Sh. 1," Rev. 14
10080-RM-436-1, "Diesel Fuel Oil," Rev. 5
10080-RM-436-2, "Diesel Air Intake, Exhaust, & Vacuum," Rev. 3
10080-RM-436-3, "Diesel Starting Air," Rev. 12
10080-RM-436-4A, "Diesel Cooling Water," Rev. 9
10080-RM-436-5A, "Diesel Generator Lube Oil," Rev. 6
10080-RM-430-1, "Service Water Supply & Distribution," Rev. 29

Procedures

2OM-7.3.B.1, "Valve List - 2CHS," Rev. 18
2OM-7.3.C, "Power Supply and Control Switch List," Rev. 14
2OM-30.3.B.1, "Valve List - 2SWS," Rev. 36
2OM-30.3.C, "Power Supply and Control Switch List," Rev. 15
2OM-36.3.B.1, "Valve List - 2EDG," Rev. 7
2OM-36.3.B.2, "Valve List - 2EGA," Rev. 12
2OM-36.3.B.3, "Valve List - 2EGF," Rev. 9
2OM-36.3.B.4, "Valve List - 2EGO," Rev. 9
2OM-36.3.B.5, "Valve List - 2EGS," Rev. 10
2OM-36.3.C.8, "Power Supply and Control Switch List - Diesel Generator 2-1," Rev. 14

Section 1R05: Fire Protection

1BVT-1.33.5, Rev. 6, "Fire-Rated Assemblies Visual Inspection"
2BVT-1.33.5, Rev. 8, "Fire-Rated Assemblies Visual Inspection"

Section 1R14: Personnel Performance During Non-Routine Plant Evolutions

2OM-53C.4.2.34.1, "Loss of Station Instrument Air."

Section 1R15: Operability Evaluations

Condition Report 05-04414. Through wall leak on "B" River Water Header Piping
Condition Report 05-04425. Second through wall leak discovered on WR -19
Basis for Continued Operation 1-05-001 for CRs 05-04414 and 05-04425.
Operations log for 6/17-18/2005 for River Water pipe notes.
UT report BOP-UT-05-088 for CR 05-04414
UT report BOP-UT-05-087 for CR 05-04425

Evaluation - 24" River Water Piping with Leak Adjacent to MOV-1RW-103C and wall thinning adjacent to MOV-1RW-103A, attachment to CA-05-04414-01.
Drawing No. 12241-BZ-19B-23A-2, for Pipe Support 2-SWS-PSR032
BVPS Engineering Standards Manual, ES-N-011, "Design Criteria Document For Pipe Stress, Pipe Supports, Duct Supports Tubing, And Tubing Supports," Revision 0, Addendum 1.

Section 4OA2: Identification and Resolution of Problems

Procedures

1OM-38.4.C	Uninterruptible Power Supply Shutdown, Revision 6
1OM-38.3.D	UPS Trouble Log, Revision 7
1OM-38.2.A	Unit 1 Operation Manual, Precautions and Limitations
1OM-38.5.B.3	120 Vac Distribution and Lighting, Revision 5
1OM-38.4.AAA	Vital Bus 1 Trouble, Revision 5
1OM-365.4.AL	Clearing and Returning to Service, Emergency 4kV Bus 1DF, Revision 1
1OM-53C.4.1.38.1B	Loss of Vital Bus II, Revision 0
1OM-53C.4.1.38.1D	Loss of Vital Bus IV, Revision 1

Engineering Change Requests

05-0322	Correction of BV1 Electrical Drawings

Procurement Specification

10080-DES-0523	BVPS 1 & 2 600V Replacement Thermal-Magnetic MCCBs, Revision 0

Drawings

8700-RE-1Z	Vital Bus and DC One Line Diagram, Revision 26
8700-RE-1AR	480V One Line Diagram, Sheet 18, Revision 7
8700-RE-11U	Wiring Diagram, Vital Bus #2 Static Switch and Inverter, Revision 4

Condition Reports

CR 03-03936 CR 04-08529 CR-05620

Work Orders

03-004990	480V Supply to Vital Bus Alternate Supply TRF-1P15

LIST OF ACRONYMS

ADM	Administrative
ALARA	As Low As Reasonably Achievable
BCO	Basis For Continued Operations
BVPS	Beaver Valley Power Station
CFR	Code of Federal Regulations
CR	Condition Report
dc	Direct Current
DEP	Drill/Exercise Performance
EDG	Emergency Diesel Generator
FENOC	First Energy Nuclear Operating Company
HEPA	High Efficiency Particulate Absolute
HHSI	High Head Safety Injection System
KV	Kilovolt
LCO	Limiting Condition of Operation
LRM	License Requirements Manual
MCC	Motor Control Center
MR	Maintenance Rule
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NSA	Normal System Alignment
OD	Operability Determination
ODCM	Off-Site Dose Calculation Manual
OST	Operations Surveillance Test
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PMT	Post-Maintenance Test
PR	Problem Report
RCS	Reactor Coolant System
RETS	Radiological Environmental Technical Specifications
SSC	Structures, Systems, and Components
SSPS	Solid State Protection System
SW	Service Water
TDAFW	Turbine Drive Auxiliary Feed Water
TM	Temporary Modification
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
UPS	Uninterruptible Power Supply
UT	Ultrasonic Testing
V	Volt
WO	Work Order