

February 26, 2002

Mr. L. W. Myers
Senior Vice President
Post Office Box 4
FirstEnergy Nuclear Operating Company
Shippingport, Pennsylvania 15077

SUBJECT: BEAVER VALLEY POWER STATION - NRC INSPECTION REPORT
50-334/01-12, 50-412/01-12

Dear Mr. Myers:

On February 9, 2002, the NRC completed an inspection at your Beaver Valley Units 1 & 2. The enclosed report documents the inspection findings which were discussed with you and members of your staff on February 15, 2002.

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.

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Sincerely,

/RA/

John F. Rogge, Chief
Projects Branch No. 7
Division of Reactor Projects

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

Enclosure: Inspection Report 50-334/01-12; 50-412/01-12
Attachment: Supplemental Information

Mr. L. W. Meyers

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cc w/encl: L. W. Pearce, Plant General Manager
F. von Ahn, Director, Plant Engineering
R. Donnellon, Director, Maintenance
M. Pearson, Director, Services and Projects
J. Lash, Director, Personnel Development
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Mr. L. W. Meyers

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| OFFICE | RI/DRP | | RI/DRP | | | | | | |
| NAME | Kern/JFR f/ | | Rogge/JFR | | | | | | |
| DATE | 02/26/02 | | 02/26/02 | | | | | | |

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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. 50-334/01-12; 50-412/01-12

Licensee: FirstEnergy Nuclear Operating Company

Facility: Beaver Valley Power Station, Units 1 and 2

Location: Post Office Box 4
Shippingport, PA 15077

Dates: December 30, 2001 - February 9, 2002

Inspectors: D. Kern, Senior Resident Inspector
D. Silk, Senior Emergency Preparedness Inspector

Approved by: J. Rogge, Chief, Projects Branch 7
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000334-01-12, IR 05000412-01-12, on 12/30/2001-02/09/2002; FirstEnergy Nuclear Operating Company; Beaver Valley Power Station; Units 1 & 2. Resident Inspector Report.

The inspection was conducted by a resident inspector and a regional emergency preparedness specialist inspector. No findings were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.

A. Inspector Identified Findings

No findings of significance were identified.

B. Licensee Identified Violations

None.

Report Details

SUMMARY OF PLANT STATUS: Unit 1 began this inspection period at 100 percent power. On January 31, the heater drain receiver tank level control valve (LCV-1SD-106B) failed in an almost fully closed position. This caused a partial loss of feedwater. Operators responded promptly and were able to manually reopen the valve to mitigate the plant transient. An unplanned power reduction to 70 percent power was performed to facilitate repairs. The unit resumed full power operation on February 1.

Unit 2 began this inspection period at 100 percent power. On February 4, operators shut down the unit and began the ninth refueling outage (2R9). Major activities planned include refueling, 100 percent steam generator tube inspections, and various plant modifications.

1. **REACTOR SAFETY**

Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity

1R05 Fire Protection

a. Inspection Scope

The inspectors reviewed the Unit 1 Updated Fire Protection Appendix 'R' Review, Rev. 16 and the Unit 2 Fire Protection Safe Shutdown Report, Addendum 18 and identified the following risk significant areas:

- Unit 1 Control Room (Fire Area CR-1)
- Unit 1 Cable Spreading Room (Fire Area CS-1)
- Unit 1 Primary Auxiliary Building 735' Elevation (Fire Area PA-1E)
- Unit 2 Control Room (Fire Area CB-3)
- Unit 2 Normal Switchgear Room (Fire Area SB-4)

The inspectors reviewed the fire protection conditions of the above listed areas in accordance with the criteria delineated in Nuclear Power Division Administrative Procedure (NPDAP) 3.5, "Fire Protection," Rev. 15. Control of transient combustibles, material condition of fire protection equipment, and the adequacy of any fire protection impairments and compensatory measures were included in these plant specific reviews.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the scheduling and control of maintenance activities in order to evaluate the effect on plant risk. This review was against criteria contained in Administrative Procedure ½-AM-1800, "Shutdown Safety," Rev. 0; NPDAP 7.12, "Non-outage Planning, Scheduling, and Risk Assessment," Rev. 11; NPDAP 8.30, "Maintenance Rule Program," Rev. 6; and Conduct of Operations Procedure 1/2OM-48.1.I, "Technical Specification Compliance," Rev. 9. The inspectors reviewed the

routine planned maintenance, restoration actions, and/or emergent work for the following equipment removed from service:

- On January 11, 2001, station personnel performed Unit 2 Operating Surveillance Test (OST)-30.13B, "Train 'B' Service Water System Full Flow Test," Rev. 12. This was the first time this test was performed with the reactor in Mode 1 (power operation) and involved planned entry into several technical specification (TS) limiting conditions for operation (LCO). System restoration following the activity included closure of the recirculating spray (RS) heat exchanger discharge header cross connect valve (2SWS-82). This configuration had the potential to make both RS trains inoperable. A reportability evaluation was in progress at the close of the inspection period (Condition Report [CR] 02-0350).
- On January 3, technicians performed troubleshooting and corrective maintenance for the 2-3 vital bus inverter which had unexpectedly transferred to its alternate power supply. This degraded material condition placed the plant in a 24-hour TS (LCO), requiring prompt resolution. Technicians identified a failed capacitor in the 25 volt power supply for the inverter and performed repairs promptly.
- Emergent repair of Unit 2 standby service water pump 2SWE-P21A.
- Planned maintenance of Unit 2 auxiliary feedwater throttle valve 2FWE-HCV100F
- Planned maintenance on the '2A-2A2' four kilovolt (kV) bus, during 2R9, required isolation of the Unit 1 emergency diesel generator cross-tie power connection from Unit 2. This reduced the number of available 4kV power supplies to the minimum required by TS. This maintenance was originally scheduled coincident with core off-load. This was the highest risk plant configuration planned during the Unit 2 refueling outage. Risk analysts and plant management reevaluated the schedule and established controls to ensure the 4kV cross-tie was available during the entire core off-load activity. This coordination of activities reduced plant risk during shut down.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions

a. Inspection Scope

The inspectors reviewed human performance during the following Nonroutine plant evolution, to verify procedures were properly implemented and to determine whether personnel performance caused unnecessary plant risk or challenges to reactor safety.

- On January 31, the Unit 1 heater drain receiver tank discharge valve (LCV-1SD-106B) failed at an almost fully closed position. This valve normally modulates at

an almost fully open position to provide 30 percent of total feedwater flow to the steam generators (SG). In response to the valve closure, SG levels decreased below the program band and feedwater pump suction pressure decreased to near the feedwater pump trip set point. Operators successfully responded to this partial loss of feedwater from 100 percent power. Manual control of LCV-1SD-106D was restored and reactor power was reduced in a controlled manner to support permanent repairs. Operator actions included response to numerous plant alarms using the following procedures:

- 1OM-23B.4.AAB, "Heater Drain Receiver Level Hi-Lo," Rev. 9
- 1OM-24.4.AAM, "Steam Generator Feed Pump Suction Pressure Low," Rev. 1
- 1OM-22.4.AAE, "Condensate Pump Discharge Pressure Low," Rev. 2

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed operability evaluations in order to determine that proper operability justifications were performed for the following items. In addition, where a component was determined to be inoperable, the inspectors verified the TS LCO implications were properly addressed.

- During 2OST-30.13B, service water (SW) flow to the 'B' high head safety injection (HHSI) pump lube oil cooler (20.0 gallons per minute), was below the minimum value specified in operator logs. Basis for continued operation (BCO) 2-02-001, "2CHS-E25B SWS Low Flow," Rev. 0, was written to evaluate current and past 'B' HHSI pump operability with the degraded SW flow. The BCO concluded that the pump remained operable, and the BCO remains in effect until March 15, 2002 (CR 02-0289).
- During 2OST-30.13B, SW flow to the 'B' train of RS ('B' and 'D' RS heat exchangers) was less than the TS required 11,000 gallons per minute. Station personnel found that corrosion scale from within the RS piping had come loose during the full flow test and partially fouled the 'B' RS heat exchanger (2RSS*E21B). Causal assessment of the heat exchanger fouling continued at the close of this inspection period. Engineers determined that the peak SW temperature (80 degrees F) since the last time 2OST-30.13B was successfully performed, was less than the design SW temperature limit (89 degrees F). Engineers concluded that due in large part to this temperature margin, the 'B' RS train remained operable (CRs 02-0277 and 02-0354).
- On October 31, 2001, Unit 2 steam generator lo-lo level reactor trip comparator 2FWS*LSK486A was found out of tolerance and not meeting its TS acceptance criteria during the performance of surveillance 2MSP-24.06-I, "Loop 2 Narrow Range S/G Water Level Channel III Test," Rev. The inspectors reviewed the

operability evaluation for the comparator and the reportability requirements in accordance with 10 Code of Federal Regulations (CFR) 50.72 and 10 CFR 50.73.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed and/or observed several post-maintenance tests (PMTs) to ensure: 1) the PMT was appropriate for the scope of the maintenance work completed; 2) the acceptance criteria were clear and demonstrated operability of the component; and 3) the PMT was performed in accordance with procedures. The following PMTs were observed:

- 2OST-30.13B performed following corrective maintenance to clean corrosion debris from the Unit 2 'B' RS heat exchanger.
- 2OST-30.1A, "Standby Service Water Pump (2SWE-P21A) Test," Rev. 15 and 2OM-30.4.I, "Standby Service Water System Shutdown," Rev. 4 performed following corrective maintenance to replace a cracked shaft and resolve degraded seal water flow on the 'A' standby service water pump.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope

The Unit 2, ninth refueling outage began on February 4, 2001. The inspectors observed selected reactor shutdown, refueling, and outage maintenance activities to determine whether shutdown safety functions (e.g. reactor decay heat removal, reactivity control, electrical power availability, reactor coolant inventory, spent fuel cooling, and containment integrity) were properly maintained as required by technical specifications, license conditions, and Administrative Procedure 1/2-AM-1800, "Shutdown Safety," Rev. 0. Specific performance attributes evaluated, included configuration management, communications, instrumentation accuracy, and identification and resolution of problems. The inspectors closely evaluated configuration and inventory control during periods of reduced reactor coolant system inventory due to the associated increase in shutdown risk. Specific activities evaluated included:

- "2R9 Pre-Outage Shutdown Safety Review," Rev. 0
- 2OM-6.4.I, "Draining the Reactor Coolant System for Refueling," Rev. 16
- 2OM-51.4.M, "Station Shutdown-Mode 5 Activities," Rev. 1

- 2OST-36.3, "Emergency Diesel Generator [2EGS*EG2-1] Automatic Test," Rev. 16
- 2OST-36.4, "Emergency Diesel Generator [2EGS*EG2-2] Automatic Test," Rev. 16

Additionally, the inspectors reviewed the station's commitments to NRC Generic Letter 88-17, "Loss of Decay Heat Removal." The inspectors observed the 2R9 reactor coolant system (RCS) draindown and verified that the reduced RCS inventory level as defined in Generic Letter 88-17 was not reached.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed and reviewed the following OSTs, concentrating on verification of the adequacy of the test to demonstrate the operability of the required system or component safety function. Specific activities evaluated included:

- 2OST-30.13A, "Train 'A' SW System Full Flow Test," Rev. 13
- 2OST-36.4, "Emergency Diesel Generator [2EGS*EG2-2] Automatic Test," Rev. 16

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness (EP)

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

The inspector conducted an in-office review of licensee submitted changes for the emergency plan-related documents listed below to determine if the changes decreased the effectiveness of the plan. A thorough review was conducted of documents related to the risk significant planning standards (RSPS), such as classifications, notifications and protective action recommendations. A cursory review was conducted for non-RSPS documents. The submitted and reviewed documents (Plan and Implementing Procedures) included:

Plan, Section 4, "Emergency Conditions," Rev. 14

Plan, Section 8, "Maintaining Emergency Preparedness," Rev. 16

Plan, "Appendix G, References," Rev. 5

Emergency Preparedness Plan/Implementing Procedure (EPP/IP)-1a, "Recognition and Classification of Emergency Conditions," Rev. 1

EPP/IP-1b, "Recognition and Classification of Emergency Conditions," Rev. 1

EPP/IP I-2, "Unusual Event," Rev. 17

EPP/IP 1.1, "Notifications," Rev. 28

EPP/IP 1.4, "Technical Support Center Activation, Operation and Deactivation," Rev. 16
EPP/IP 3.2, "Site Assembly and Personal Accountability," Rev. 10
EPP/IP 9.1, "Emergency Public Information Emergency Response Organization Controlling Procedure," Rev. 11
EPP/IP 9.3, "Activation, Operation and Deactivation of the Emergency Public Information Organization Emergency Operations Facility," Rev. 4
EPP/IP 9.4, "Activation, Operation and Deactivation of the Joint Public Information Center," Rev. 6
EPP/IP 9.5, "Activation, Operation and Deactivation of the Penn Power Customer Account Services Department," Rev. 6

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

Unplanned Scrams and Scrams with Loss of Normal Heat Sink

a. Inspection Scope

The inspectors reviewed the performance indicators for unplanned scrams per 7000 critical hours and scrams with loss of normal heat sink for Unit 1 and Unit 2. The inspectors verified accuracy of the reported data through reviews of Licensee Event Reports and additional records. The inspectors reviewed one year of data for unplanned scrams and three years of data for scrams with loss of normal heat sink.

b. Findings

No findings of significance were identified.

4OA5 Other: Follow-up of Unresolved Open Items

Licensee Strike Contingency Plans

a. Inspection Scope

The labor agreement between FirstEnergy Nuclear Operating Company (FENOC) and the union representing operators, maintenance personnel, clerks, chemists, health physics personnel, and storekeepers expired on September 30, 2001. The inspectors conducted interviews, reviewed licensee contingency plans and procedures, and performed facility walkdowns to evaluate the adequacy of strike contingency plans. Specific focus areas included staffing levels, qualifications, security and safeguards measures, site access, emergency preparedness, equipment reliability, and equipment maintenance and testing requirements. The inspectors and NRC management maintained periodic contact with FENOC management and union representatives. The inspectors periodically, independently verified site readiness to implement the specified contingency plans in the event of a strike or work stoppage. Documents reviewed included:

- FENOC - Beaver Valley, Emergency Operating Plan dated September 2001
- BVPS Physical Security Plan
- BVPS Emergency Preparedness Plan
- NRC Regulatory Guide 5.54, "Standard Format and Content of Safeguards Contingency Plans for Nuclear Power Plants," March 1978

On February 6, 2002, union personnel approved a new contract, which will remain in effect through September 30, 2005.

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. Robert Saunders, Mr. Lew Myers, and other members of licensee management following the conclusion of the inspection on February 15, 2002. The licensee acknowledged the findings presented.

The licensee did not indicate that any of the information presented at the exit meeting was proprietary.

ATTACHMENT**SUPPLEMENTAL INFORMATION****KEY POINTS OF CONTACT**Licensee:

| | |
|--------------|--|
| R. Donnellon | Director, Maintenance |
| L. Freeland | Manager, Nuclear Regulatory Affairs & Corrective Actions |
| J. Lash | Director, Personnel Development |
| L. Myers | Senior Vice President, FENOC |
| L. Pearce | Plant General Manager |
| M. Pearson | Director, Services and Projects |
| F. von Ahn | Director, Plant Engineering |

LIST OF ACRONYMS USED

| | |
|--------|--|
| 2R9 | Unit 2 Ninth Refueling Outage |
| ADAMS | Agency Document Access and Management System |
| BCO | Basis for Continued Operation |
| BVPS | Beaver Valley Power Station |
| CFR | Code of Federal Regulations |
| CR | Condition Report |
| EP | Emergency Preparedness |
| EPP/IP | Emergency Preparedness Plan Implementing Procedure |
| FENOC | FirstEnergy Nuclear Operating Company |
| HHSI | High Head Safety Injection |
| kV | Kilovolt |
| LCO | Limiting Condition for Operation |
| NPDAP | Nuclear Power Division Administrative Procedure |
| NRC | Nuclear Regulatory Commission |
| OST | Operating Surveillance Test |
| PARS | Publicly Available Records |
| PMT | Post Maintenance Test |
| RCS | Reactor Coolant System |
| RS | Recirculating Spray |
| RSPS | Risk significant Planning Standard |
| SDP | Significance Determination Process |
| SG | Steam Generator |
| SW | Service Water |
| TS | Technical Specification |