

December 5, 2000

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

SUBJECT: BEAVER VALLEY GENERATING STATION - NRC INSPECTION REPORT  
05000334/2000-011; 05000412/2000-011

Dear Mr. Myers:

On November 11, 2000, the NRC completed an inspection at your Beaver Valley Units 1 & 2. The enclosed report documents the inspection findings which were discussed on November 17, 2000, with you and members of your staff.

This 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. There were no findings identified during this inspection.

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Sincerely,

*/RA/*

John F. Rogge, Chief  
Projects Branch 7  
Division of Reactor Projects

Docket Nos.: 05000334, 05000412  
License Nos: DPR-66, NPF-73

Enclosures:  
Inspection Report 05000334/2000-011; 05000412/2000-011

Mr. L. W. Myers

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REGION I

Docket Nos. 05000334, 05000412  
License Nos. DPR-66, NPF-73

Report Nos. 05000334/2000-011, 05000412/2000-011

Licensee: FirstEnergy Nuclear Operating Company

Facility: Beaver Valley Power Station, Units 1 and 2

Location: Post Office Box 4  
Shippingport, PA 15077

Dates: October 1, 2000 through November 11, 2000

Inspectors: D. Kern, Senior Resident Inspector  
G. Dentel, Resident Inspector  
G. Wertz, Resident Inspector  
M. Modes, Senior Reactor Inspector  
J. McFadden, Health Physicist  
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Approved by: J. Rogge, Chief  
Projects Branch 7  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000334-00-011, IR 05000412-00-011, on 10/01-11/11/2000; FirstEnergy Nuclear Operating Company; Beaver Valley Power Station, Units 1 & 2. Radiation protection, inservice inspection, and resident inspection report.

The inspection was conducted by resident inspectors, a regional health physics inspector, and a regional reactor inspector. In addition, an in-office review was conducted by an emergency preparedness inspector. No significant findings or violations were identified.

### A. Inspector Identified Findings

No findings of significance were identified.

### B. Licensee-Identified Findings

A violation of very low safety significance identified by the licensee has been reviewed by the inspector. Corrective actions taken or planned by the licensee were reasonable. This violation is listed in Section 4OA7 of this report.

## Report Details

**SUMMARY OF PLANT STATUS:** Unit 1 operated at 100 percent power for the entire inspection period. Unit 2 began this inspection period in cold shutdown (Mode 5) as part of the refueling outage number eight (2R8). Unit 2 reactor startup was performed on October 24, 2000, and the turbine was synchronized to the off-site power grid on October 25, marking the end of a 32 day refueling outage. Full power was achieved on November 5, after completion of various reactor protection system instrument calibrations.

### 1. **REACTOR SAFETY**

Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R05 Fire Protection

##### a. Inspection Scope

The inspectors reviewed the fire protection analyses for both units and identified the following risk significant areas:

- Units 1 and 2 intake structure
- Unit 1 cable spreading room (Area CS-1)
- Unit 1 component cooling water pump area (Area PA-1E)
- Unit 2 reactor containment building (Area RC-1) during the 2R8 refueling outage.

The inspectors performed in-plant walkdowns of the above listed areas. Fire Area RC-1 was inspected on three separate occasions due to the high volume of work activity inside the Unit 2 containment including welding and movement of transient combustibles. Specific fire protection conditions examined included control of transient combustibles, material condition of fire protection equipment, and the adequacy of any fire impairments and compensatory measures. Minor deficiencies were reported to the station fire protection engineer who initiated appropriate corrective actions.

In addition, the inspectors evaluated the degraded conditions of the motor driven fire pump and the engine driven fire pump during the review of the intake structure. The material condition deficiency (a pin hole leak) on the motor driven fire pump relief valve did not impact the operability of the pump and was properly evaluated. A leak on a cooling hose for the engine driven fire pump was identified promptly during a post maintenance test. The leak resulted from the maintenance performed in the vicinity of the hose and extended the unavailability of the engine driven fire pump.

##### b. Issues and Findings

No findings of significance were identified.

## 1R06 Flood Protection Measures

### a. Inspection Scope

The inspectors performed walkdowns of the Unit 2 control building at the 705 and 735 feet elevations. The inspectors examined a sample of flood seals and evaluated service water wall thinning issues that could contribute to internal flooding. The inspectors reviewed the Updated Final Safety Report, the Individual Plant Examination, and Individual Plant Examination of External Events to evaluate the design basis and risk significance for internal and external floods. The inspectors compared their inspection results with the most recently completed Beaver Valley Test (BVT), 2BVT-1.33.07, "Flood Seals Visual Inspection," Rev. 1.

### b. Issues and Findings

No findings of significance were identified.

## 1R07 Heat Sink Performance

### a. Inspection Scope

The inspectors reviewed the condition of the Unit 2 recirculation spray heat exchangers. These heat exchangers provide the long term emergency core cooling function. The inspectors interviewed system engineers concerning the inspection program, examined the results of visual inspections conducted using system and performance engineering administrative procedure (SPEAP) 2.4, "River/Service Water System Control and Monitoring Program," Rev. 1, and reviewed the results of eddy current testing of the heat exchanger tubes.

### b. Issues and Findings

No findings of significance were identified.

## 1R08 Inservice Inspection Activities

### a. Inspection Scope

The inspectors reviewed the American Society of Mechanical Engineers' (ASME) Section XI, Appendix VIII, qualified ultrasonic testing (UT) Procedure UT-321, "Ultrasonic Examination of Austenite Pipe Welds," Rev. 2. The inspectors also reviewed the following ultrasonic examinations: UT Report UT-00-067, Weld 2 RHS-6-12A, UT Report UT-00-068, Weld 2RHS-6-12, UT Report UT-00-069, and Weld 2 RHS-6-12. The inspectors verified that the inspections were performed in conformance with the requirements of ASME Section XI, 1989 Edition without Addenda, and any indications found were dispositioned in conformance with those requirements.

The inspectors reviewed the following documents related to management, inspection, and response to degradation in Beaver Valley's Steam Generators:

- Use of Appendix H, Qualified Techniques at Beaver Valley Unit 1 Spring 2000 Steam Generator Inspection
- Beaver Valley 2R8 Condition Monitoring Report and Preliminary Operational Assessment
- Unit 1 Outage 13, Year 2000 - 90 Day Report
- Appendix IV, "Steam Generator Eddy Current Examinations"
- Unit 2 Procedure ISI E1-8, "Steam Generator Examination Guidelines" dated 9/25/00
- Preliminary Unit 2 Site Specific Noise Requirements Related to Tube Integrity
- Condition Report (CR) 00-1343, "Projected Accident Induced Leakage at EOC 14 Exceeds Permissible Limits"

The inspectors reviewed Unit 2 'B' Steam Generator, tube R10C46 circumferential eddy current indication ultimately chosen by the licensee for in-situ pressure testing. This was conservatively chosen even though it did not meet the stated in-situ pressure testing selection criteria requiring testing. The inspectors reviewed 'B' Steam Generator, tube R1C5 eddy current data containing indications of offset or paired dents. These indications are caused by the manufacturer inserting the tube too far into the tube sheet and then withdrawing the tube, causing dents of the intra-dose and extra-dose of the tube. These were conservatively called axial cracks and plugged. The inspectors reviewed eddy current data from 'A' Steam Generator, tube R38C54, containing a nonquantifiable bobbin coil indication that was not confirmed by rotating pancake coil but plugged anyway. The inspectors reviewed the disposition of these indications.

The inspectors reviewed condition reports (CRs) to verify the licensee identified inservice inspection (ISI) problems at an appropriate threshold and entered them in the corrective action program. The inspectors verified the appropriateness of the corrective actions for the following CRs:

- Unit 1 CR 00-1177, "Unacceptable Liquid Penetrant Examination Indication."  
  
The liquid penetrant indication was discovered March 16, 2000, on the seal water injection line weld to RC-P-1B at the main flange. The inspectors verified the 1" long indication was properly dispositioned by buffing followed by a confirming liquid penetrant examination.
- Unit 2 CR 00-3033, "Wall Thinning of Line 20-SWS-006-042-3 'B' Header Supply to Control Room Chiller."  
  
This service water to the room chiller ultrasonic test revealed piping with a thickness 0.003" above minimum wall. The inspectors reviewed the actions taken as a consequence of this indication of wall thinning. The actions included sample expansion, increase in frequency of inspection, evaluation of state-of-the-art thickness equipment, design minimum wall thickness calculation for the remainder of the service water line, isolation of the room chiller, and repair of the chiller.



- Unit 2 CR 99-0626, “Radiographic Examination - Unsatisfactory Weld for 2RSS-001-F-07-C, CR 00-3367, “Authorized Nuclear Inservice Inspector Hold Point By-passed,” and CR 00-0961, “Pinhole Leak on SWS Piping.”

The inspectors also reviewed the Basis for Continued Operation 2-00-01 associated with the pinhole leak.

b. Issues and Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors evaluated Maintenance Rule (MR) implementation for the issues listed below. Specific attributes reviewed included MR scoping, characterization of failed structures, systems, and components (SSCs), MR risk categorization of SSCs, SSC performance criteria or goals, and appropriateness of corrective actions. The following issues were evaluated:

- On September 30, the Unit 2 Safety Injection System (SIS) containment isolation check valve SIS-42 failed its forward flow test. The valve is required to hold up to 1.2 pounds per square inch differential (psid) pressure in the forward direction in accordance with technical specification (TS) 4.6.3.1.2.e. The cause of the forward flow leakage was due to a combination of the valve disc sealing material becoming deformed in the seated (closed) position due to the SIS accumulator backpressure and manually cycling the valve in accordance with test procedure, 2BVT 1.47.3, “Containment Isolation Check Valves Test,” Rev. 5. Cycling the valve caused the valve disc to become slightly mispositioned relative to the valve seat. This condition and cause analysis were accurately captured in CR 00-3396. Engineers determined the valve had been operable throughout the previous operating interval, since the failure mode was due to cycling the valve during testing. Interim repairs to the valve disk were completed during 2R8 to support valve operability during the upcoming operating interval. Long term corrective actions were scheduled for the next refueling outage.
- Repetitive maintenance work performed on the Unit 2 residual heat release valve, 2SVS-HCV104, was reviewed by the inspectors to determine the effect on maintenance rule unavailability. The valve was removed from service for preventive maintenance on September 14, and for corrective maintenance on September 15 and 19 and October 10. The maintenance problems were documented in CRs 00-3089, 00-3113, 00-3126, 00-3609, and 00-3776. The residual heat release system unavailability was unaffected by the maintenance because redundant atmospheric release valves were available for each steam generator.
- The MR category (a)(1) Unit 1 120 VAC distribution system and specifically the vital bus inverter #3 was reviewed to evaluate the past corrective action and to

understand the reasons for the failed goals in February 1999 and September 2000. The inspectors concluded that corrective actions were taken to prevent recurrence and have reduced the unavailability of the inverter. However, the corrective actions were ineffective in preventing additional inverter fuse failures. Revised corrective actions and goals were under development to address the latest fuse failure in September and were being tracked under CR 00-3104.

b. Issues and Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions

a. Inspection Scope

The inspectors reviewed operator performance during the following non-routine plant evolutions:

The inspectors reviewed reactor protection system (RPS) calibration data collected at 94 percent power following plant startup from the refueling outage using 2MSP-6.79-I, "Operational Alignment of Process Instrumentation," Rev. 5. Technicians identified that the loop 2 delta temperature (delta-T) input to the over pressure delta temperature (OPDT) and over temperature delta temperature (OTDT) RPS functions was non-conservative relative to its full power design basis limit. Operators declared loop 2 of OPDT and OTDT inoperable and implemented appropriate actions required by TS while the loop was recalibrated. Technicians subsequently identified that the loop 1 delta-T input was outside of the design tolerance in the conservative direction. Consequently, the loop 1 OPDT and OTDT RPS instrumentation remained operable, but the likelihood of an inadvertent reactor trip was increased due to a reduced operating margin below the trip setpoint.

Human performance errors during RPS calibrations were previously documented in NRC IR Nos. 05000334(412)/2000-005 and 006. The inspectors closely monitored delta-T instrument recalibration, and operator actions to maintain operating margin to the reduced OPDT and OTDT setpoints to verify the maintenance was safely performed. Successive data collection at higher power levels was performed and delta-T loop calibrations were successfully performed. All three delta-T channels were restored to their required accuracy. The nonconservative RPS delta-T channel was documented in CR 00-3890.

b. Issues and 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 limiting condition for operation implications were properly addressed.

- All Unit 2 bases for continued operation (BCO) and temporary modifications that remained following the refueling outage were reviewed. The inspectors verified that the collective impact of the issues did not result in inoperable equipment or increase the probability of equipment failure.
- The inspectors noted that the Unit 2 Residual Heat Removal (RHR) system temperature indicators, used to monitor reactor coolant system (RCS) temperature while in Modes 4-6, were inaccurate. The temperature recorders indicated that the RHR heat exchanger was actually heating up the RCS instead of providing the cooling function required by TS. Operators demonstrated inattentiveness by not identifying these anomalous indications. Additionally, a human performance error inadvertently isolated RCS pressure transmitter 2RCS-PT402, which made one channel of the RCS over pressure protection system inoperable (for 16 hours) as Unit 2 was repressurized following refueling. In both cases, operability evaluations were made in a timely manner following identification of the degraded conditions. Corrective actions to restore operability were appropriate.

b. Issues and Findings

No findings of significance were identified.

1R16 Operator Work-Arounds

a. Inspection Scope

The inspectors reviewed the Unit 2 operator work-around list focusing on their cumulative effect on plant operators. Of the sixteen work-arounds, five of the more significant issues were completed and resolved during 2R8. These included improvements to the cooling tower flow (condenser temperature), repairs to the main and bypass feedwater regulating valves, and replacement of the auxiliary feedwater check valves. None of the remaining work-arounds required operators to take compensatory actions during abnormal or emergency operations. The remaining operator work-arounds had very little safety significance or cumulative impact to the operators.

b. Issues and Findings

No findings of significance were identified.

#### 1R17 Permanent Plant Modifications

##### a. Inspection Scope

The inspectors reviewed Design Change Package (DCP) 2236, "Replacement of BVPS-2 Emergency Diesel Generator (EDG) Governor System." The inspectors observed pre-outage installation activities to ensure that the operability of the EDG's was not adversely impacted. The inspectors observed the outage installation of the new governors and associated control components as well as other outage related maintenance on the EDG's. The inspectors reviewed the post-modification testing plan and witnessed a portion of the testing.

##### b. Issues and 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.

- 1OST 30.3, "Reactor Plant River Water Pump 1B Test," Rev. 23 was completed following intake bay cleaning and corrective actions to prevent debris and silt from fouling the river water pump and motor cooling lines. The inspectors observed the test and interviewed the system engineer to determine the effectiveness of the corrective actions and the PMT.
- Unit 2 technical evaluation report (TER) 12776, "Cage and Actuator for the Feedwater Regulating Valves," Rev. 0 and DCP 2341, "Bypass Feedwater Regulating Valve Control Improvements," Rev. 0, were implemented during 2R08 to modify the feedwater control system. Various post modification testing was performed including 2OST-1.10, "Cold Shutdown Valve Exercise Test," Rev. 17; 2BVT-10.24.2, "Steam Generator Bypass Level Control Testing," Rev. 1; and the DCP 2341 Test Plan.
- Unit 2 DCP 2171, "Feedwater Isolation Valve Actuator Upgrade," Rev. 0, removed historically troublesome solenoid valves from the valve closure nitrogen supply system. Post modification testing included various visual inspections and low nitrogen pressure alarm verifications. Additional maintenance was performed on feedwater isolation valve 2FWS-HYV157A, using work order 00-007773, to repair leaks to the nitrogen accumulator subsystem following the

actuator modification. The inspectors observed a portion of the maintenance and verified the adequacy of the post-maintenance testing.

- 2BVT 1.39.02, "Station Battery [BAT 2-2] Service Test," Rev. 3, was performed as a load test following replacement of the 2-2 125 volt station battery.
- 2BVT 1.39.08, "Station Battery [BAT 2-3] Performance Discharge Test," Rev. 2, was performed as a load test following replacement of two individual cells on the 2-3 125 volt station battery.

b. Issues and Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope

The inspectors observed selected reactor shutdown, refueling, outage maintenance, and reactor startup 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 and license conditions. 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:

- 2RP-3.16 "Refueling Procedure Core Unload," Rev. 1
- 2RP-3.23 "Refueling Procedure Core Reload," Rev. 1
- 2OST-36.3 "Emergency Diesel Generator [2EGS\*EG2-1] Automatic Test," Rev. 14
- 2OST-36.4 "Emergency Diesel Generator [2EGS\*EG2-2] Automatic Test," Rev. 14
- 2OM-20.4.H "Draining the Refueling Cavity to the RWST," Rev. 11
- 2OM-50.4.D "Reactor Startup from Mode 3 to Mode 2," Rev. 36
- 2RST-2.1 "Initial Approach to Criticality after Refueling," Rev. 4
- 2OM-52.4.A "Increasing Power from 5% Reactor Power and Turbine on Turning Gear to Full Load Operation," Rev. 42

Additionally, the inspectors reviewed the station's commitments to NRC Generic Letter 88-17, "Loss of Decay Heat Removal," contained in the following procedures: 1) 2OST-6.11, "Prerequisites for Entering A Reduced RCS Inventory or Midloop Condition," Rev. 1; 2) 2OM-6.4.U, "Draining the RCS to Reduced Inventory or Midloop Condition", Rev. 8, and; 3) 2OM-6.4.V, "Reduced RCS Inventory Operation Checklist," Rev. 1. The inspectors observed the 2R08 RCS draindown and verified that the reduced RCS inventory level as defined in GL 88-17 was not reached.

b. Issues and Findings

No findings of significance were identified.

#### 1R22 Surveillance Testing

##### a. Inspection Scope

The inspectors observed and reviewed the following Operational Surveillance Tests (OSTs) and BVTs concentrating on verification of the adequacy of the test to demonstrate the operability of the required system or component safety function.

- 2BVT 1.13.5 “Recirculation Spray Pump Test,” Rev. 8
- 2OST2.24.4A “Steam Driven Auxiliary Feed Pump [2FWE\*P22] Full Flow Test,” Rev. 1
- 2OST-11.14B “High Head Safety Injection Full Flow Test,” Rev. 9

##### b. Issues and Findings

No findings of significance were identified.

#### EP4 Emergency Plan Reviews

##### a. Inspection Scope

The inspectors reviewed licensee submitted changes (Revision 13) for Sections 5 and 8 of the emergency plan to determine if the changes decreased the effectiveness of the plan.

##### b. Issues and Findings

No findings of significance were identified.

## 2. **RADIATION SAFETY**

Cornerstone: Occupational Radiation Safety

#### OS1 Access Control to Radiologically Significant Areas

##### a. Inspection Scope

The inspectors toured all elevations of the reactor building containment (RBC) on October 16, 17, and 18, and toured several areas in the primary auxiliary building (PAB) and in the fuel handling building (FHB) on October 16. The inspectors reviewed the posting and labeling of radiation levels, contamination levels, and radioactive material, and the barricading of contaminated and high radiation areas (HRAs). The inspectors observed the activities of radiation workers and of the radiological control technicians in support of the active outage radiation work permit (RWP) activities, including work activities on RWP 200-8030, “Reactor Disassembly/Reassembly,” RWP 200-8034

“Reactor Cavity Decontamination,” and on various other RWPs involving the removal of equipment, tools, and materials from containment.

In this area, the inspection also included a review of Procedure RP 8.1, “Radiological Work Permit,” Rev. 14 of the RWP-generation process, and of the process for determination and change of the dose and dose-rate alarm set points. The inspectors evaluated the eight RWPs listed in Section 2OS2 for adequacy of content. The inspectors observed activities at the main and contractor radiologically controlled area (RCA) control points to verify compliance with requirements for RCA entry and exit, wearing of record dosimetry, and issuance and use of alarming radiation dosimeters (ARDs). On October 17, the inspectors observed a pre-job ALARA briefing for radiation workers prior to their work activities on top of the reactor head assembly. The inspectors attended the outage coordination meeting on the evening of October 16.

The inspectors reviewed the personnel exposure records for the individuals with the highest year-2000 total-effective-dose equivalent, committed-effective-dose equivalent, deep-dose equivalent, committed-dose equivalent, lens-dose equivalent, shallow-dose equivalent to the skin or to any extremity, embryo/fetus-dose equivalent (due to the occupational exposure of a declared pregnant woman), and the dose due to a discrete radioactive particle. The inspectors noted that the site’s certification as a National Voluntary Laboratory Accreditation Program (NVLAP)-Accredited Ionizing Radiation Dosimetry Processing Facility was effective through September 30, 2001. The inspectors examined the exposure tracking report dated October 17, 2000, which contained RWP total person-rem, person-hours, and average dose rates (actual and budgeted). The review also included occupational radiation exposure reports by department and craft, and the ARD-dose-alarm reports for the current outage.

The inspection reviewed fifteen (15) CRs that addressed worker and/or radiation protection technician performance errors or radiological protection concerns (00-3156, 00-3251, 00-3292, 00-3302, 00-3324, 00-3363, 00-3423, 00-3426, 00-3487, 00-3491, 00-3507, 00-3540, 00-3547, 00-3554, and 00-3568), occurring between September 20, 2000, and October 7, 2000. The review included an evaluation of the associated cause evaluations and corrective actions. The review was against criteria contained in Title 10 of the Code of Federal Regulations (CFR) Parts 20.1201 (Occupational dose limits for adults), 20.1204 (Determination of internal exposure), 20.1208 (Dose equivalent to an embryo/fetus), Subpart F (Surveys and monitoring), 20.1601 (Control of access to high radiation areas), Subpart H (Respiratory protection and controls to restrict internal exposures in restricted areas), and 20.1902 (Posting requirements) and against the site Technical Specification 6.12 (High Radiation Area) and site procedures (cited above in this section).

b. Issues and Findings

No findings of significance were identified.

2OS2 ALARA Planning and Control

a. Inspection Scope

The inspection included the following activities to determine the effectiveness of ALARA (As Low As Reasonably Achievable) planning and control.

The inspectors reviewed Procedure RP 8.1 for its inclusion of ALARA provisions. The inspectors evaluated the following eight (8) RWP packages for the adequacy of the contained records. The types of records included RWP requests, preliminary ALARA reviews, ALARA reviews, RWPs, radiological surveys, alpha monitoring requirements for certain work evolutions, pre-job briefing evaluation calculations, respiratory protection ALARA worksheets, ALARA pre-job briefing records, ALARA ongoing job reviews, ALARA post-job briefings, ALARA post-job reviews, and airborne exposure logs.

- RWP 200- 8022 In-service inspections - all RBC
- RWP 200- 8030 Reactor disassembly/reassembly
- RWP 200- 8033 Remove/install RBC fuel transfer canal blank flange
- RWP 200- 8034 Reactor cavity decontamination
- RWP 200- 8038 Steam generator secondary side sludge lancing
- RWP 200- 8039 Install/remove steam generator primary side maintenance equipment
- RWP 200- 8040 Steam generator primary side maintenance platform support
- RWP 200- 8044 Repair various valves - all RBC

The review was against criteria contained in 10 CFR 20.1101 (Radiation protection programs), 20.1701 (Use of process or other engineering controls), and in site procedures (cited above in this section).

b. Issues and Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification

.1 Occupation Exposure Control Effectiveness

a. Inspection Scope

The inspectors selectively examined records used by the licensee to identify occurrences involving high radiation areas, very high radiation areas, and unplanned personnel exposures for the time period from June 16, 2000, to October 19, 2000, against the applicable criteria specified in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Rev. 0, to verify that all conditions that met the NEI 99-02 criteria were recognized and identified as Performance Indicators (PIs). The reviewed records included corrective action program records (Condition Reports) and radiologically controlled area (RCA) access control alarm reports. This examination, in conjunction with the review documented in previous inspection reports (NRC IR Nos. 05000334(412)/2000-005), did not find any problems with the PI accuracy or completeness and thus verified this performance indicator.



b. Issues and Findings

No findings of significance were identified.

.2 Safety System Functional Failures

a. Inspection Scope

The inspectors reviewed the Unit 1 and Unit 2 performance indicators for safety system functional failures to determine whether the NRC approved guidance, provided in NEI 99-02, was properly implemented. Verification included review of the data collected, PI definitions, data reporting elements, calculational methods, definition of terms, and use of clarifying notes. The inspectors verified accuracy of the reported data, through reviews of Licensee Event Reports submitted during the period November 1999 through October 2000.

b. Issues and Findings

No findings of significance were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

The inspectors presented the inspection results to Mr. Lew Myers and other members of licensee management following the conclusion of the inspection on November 17, 2000. The licensee acknowledged the findings presented.

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

4OA7 Licensee-Identified Violations

The following finding of very low safety significance was identified by the licensee and is 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 (NCV).

NCV Tracking Number

NCV 05000334(412)/2000-011-02

Requirement Licensee Failed to Meet

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.

**POINTS OF CONTACT**Licensee:

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**ITEMS OPENED, CLOSED AND DISCUSSED**Opened/Closed

05000334(412)/2000-011-01	NCV	Failure to Adhere to Radiation Work Permit Procedures for a High Radiation Area - Violation of Technical Specification 6.11 (Section 4OA7)
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**LIST OF ACRONYMS**

2R8	Refueling Outage Number Eight
ALARA	As Low As Reasonably Achievable
ARD	Alarming Radiation Dosimeter
ASME	American Society of Mechanical Engineers
BCO	Basis for Continued Operation
BVT	Beaver Valley Test
CFR	Code of Federal Regulations
CPB	Condensate Polishing Building
CR	Condition Report
DCP	Design Change Package
Delta-T	Delta Temperature
EDG	Emergency Diesel Generator
FENOC	FirstEnergy Nuclear Operating Company
FHB	Fuel Handling Building
HIC	High Integrity Container
HP	Health Physics
HRA	High Radiation Area
ISI	Inservice Inspection
LHRA	Locked High Radiation Area
MR	Maintenance Rule
MSP	Maintenance Surveillance Procedure
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
OPDT	Over Pressure Delta Temperature
OTDT	Over Temperature Delta Temperature
OST	Operational Surveillance Test
PAB	Primary Auxiliary Building
PARS	Publicly Available Records
PI	Performance Indicator
PMT	Post-Maintenance Test
psid	Pounds per Square Inch Differential
RBC	Reactor Building Containment
RCA	Radiologically Controlled Area
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RP	Radiation Protection
RPS	Reactor Protection System
RWP	Radiation Work Permit
SIS	Safety Injection System
SPEAP	System and Performance Engineering Administrative Procedure
SSC	Structures, Systems, and Components
SWS	Service Water System
TER	Technical Evaluation Report
TS	Technical Specification
UT	Ultrasonic Testing

## ATTACHMENT 1

# NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

### Reactor Safety

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness

### Radiation Safety

- Occupational
- Public

### Safeguards

- Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.