October 13, 2000

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

SUBJECT: BEAVER VALLEY POWER STATION, UNIT 2
NRC INSPECTION REPORT 05000412/2000-013

Dear Mr. Myers:

During the period from September 11 to 14, 2000, the NRC performed a supplemental inspection at the Beaver Valley 2 reactor facility. The purpose of the inspection was to review FirstEnergy Nuclear Operating Company's (FENOC) evaluation and corrective actions associated with the macro biological fouling (biofouling). Biofouling problems affected the service water system (SWS) supply to the heat exchangers for both emergency diesel generators (EDG) in July 1999. The NRC issued two Severity Level III Notices of Violation (NOV) in a letter dated October 21, 1999, based on performance issues involving the failure to implement corrective actions to prevent biofouling of the SWS, despite prior opportunities to do so, and the failure to provide adequate procedural acceptance criteria for chemical treatment of the service water system.

This NRC inspection determined that your staff's evaluations of the biofouling problems were adequate to identify the causes of the biofouling problems and appropriately broad in scope to identify the extent of the problems. The NRC further determined that your completed corrective actions address the causes identified in your evaluations. Based on the adequacy of your evaluations and corrective actions the macro biological fouling issue has been closed.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures 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 Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Sincerely,

/RA/

David C. Lew
Performance Evaluation Branch, Chief
Division of Reactor Safety

Docket No: 05000412
License No. NPF-73

Enclosure: Inspection Report 05000412/2000-013

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REGION I

Docket No:	05000412
License No:	NPF-73
Report No:	05000412/2000-013
Licensee:	FirstEnergy Nuclear Operating Company
Facility:	Beaver Valley Power Station, Unit 2
Location:	Post Office Box 4 Shippingport, PA 15077
Dates:	September 11 - 14, 2000
Inspector:	Gregory Cranston, Reactor Inspector
Approved by:	David C. Lew, Chief Performance Evaluation Branch, Chief Division of Reactor Safety

SUMMARY OF FINDINGS

Beaver Valley Power Station, Unit 2
NRC Inspection Report 05000412/2000-013

This supplemental inspection was performed by the NRC to assess the licensee's evaluation and corrective actions associated with the macro biological fouling (biofouling). Biofouling problems affected the service water system (SWS) supply to the heat exchangers for both emergency diesel generators (EDG) in July 1999. On July 16, 1999, the licensee identified that biofouling of the safety-related SWS had occurred in the heat exchanger for the EDG 2-2, which had the potential for a common mode failure of both EDGs if the chemical treatment procedure had been followed, as planned.

Although the biofouling problems occurred before implementation of the NRC's new reactor oversight process, the NRC followed up this issue with a supplemental inspection because the issue was considered to have been of low to moderate risk. This supplemental inspection was in lieu of a regional initiative inspection that would have been conducted under the previous inspection oversight process. The supplemental inspection was performed in accordance with Inspection Procedure 95001.

Cornerstone: Mitigating Systems

- The licensee's evaluations and corrective actions associated with the biofouling problems were adequate to identify the causes and to determine the extent of the problem. The licensee's evaluations identified the primary root causes to be:

  1. Ineffective programs to address biofouling due to Zebra mussels,
  2. Inadequate procedures for the removal of clams and mussels,
  3. Inadequate inspections and monitoring of the SWS, including the intake bays, and
  4. Inadequate procedures regarding biocide injection methods, injection frequencies, and monitoring of the SWS before and after the injection of biocides.

  The licensee identified a contributing root causes to be less than adequate design analysis regarding expected and acceptable SWS flow rates and actual heat rejection from the EDGs to detect biofouling. The licensee adequately identified corrective actions to address each root and contributing cause.

- The licensee's root cause analysis did not address the human performance issues, which were one of the root or contributing causes of the biofouling event. However, the licensee is taking appropriate corrective actions in the human performance area which envelope the human performance issues associated with the biofouling event. These actions include a Case Study done in July 2000, which described several significant events (including the biofouling event) and their fundamental causes, that was placed on the licensee's local area network (LAN) and also presented to licensee personnel from a lessons learned perspective. Also, a Human Performance Coordinator position was established earlier this year to better focus on human performance issues.

- The licensee has evaluations in progress to measure the effectiveness of their corrective actions to prevent recurrence. The licensee has made appropriate procedure and program changes, including enforcing proper implementation, to measure the effectiveness of their corrective actions to prevent recurrence.

Report Details

01 Inspection Scope

This supplemental inspection was performed by the NRC to assess the licensee's evaluation and corrective actions, which the licensee, FirstEnergy Nuclear Operating Company (FENOC), completed in response to the macro biological fouling (biofouling) problems that were identified in July 1999. Though the inspection focused on Unit 2, Unit 1 programs and procedures were also evaluated. The biofouling event affected the service water system (SWS) supply to the heat exchangers for both emergency diesel generators (EDG). On July 14, 1999, the licensee identified that biofouling of the safety-related SWS had occurred in the heat exchanger for the EDG 2-2. This event had the potential for a common mode failure of both EDGs if the chemical treatment procedure had been followed, as planned.

The licensee submitted Licensee Event Report (LER) 2-99-007 to report the forced shutdown due to an inoperable EDG 2-2, which resulted from a significant reduction of service water flow through the EDG heat exchanger due to biofouling. Technical Specification (TS) 3.8.1.1 Action Statement was entered, which required that the EDG be restored to operable status within 72 hours. While returning EDG 2-2 to service, after removing the macro biofouling, the EDG experienced a voltage regulator failure. Trouble shooting the voltage regulator problem extended the time the EDG was in the Action Statement to the point where a reactor shutdown was required. The unit reached cold shutdown on July 18, 1999. The licensee performed an engineering analysis to determine the ability of both EDG 2-1 and 2-2 to perform their design function during the period of July 7, 1999, when the biocide was injected, through July 18, 1999, when the biofouling was removed and the EDGs returned to service. The analysis concluded that, should a design basis accident have occurred during the period from July 7 through July 18, the EDG design heat load would have been removed and that the EDGs would have met their loading requirements. Had the EDGs been called upon to perform their intended safety function, the SWS flow through each train of EDG heat exchanger was calculated to be at least 760 gpm. Beaver Valley Power Station engineering analysis 10080-N-771-0 shows acceptable EDG performance with a service water flow of 760 gpm through the EDG heat exchangers, for the peak Ohio River water temperature (82^{o}F) experienced during the time frame of concern. Thus, the licensee determined that the EDGs would have been able to perform their safety functions if automatically actuated during July 7 - 18, 1999.

02 Evaluation of Inspection Requirements

02.01 Problem Identification

a. Determine that the evaluation identifies who (i.e., licensee, self revealing, or NRC), and under what conditions the issue was identified.

The licensee's evaluation described in appropriate detail the circumstances and personnel involved in identifying the degraded SWS flow rate through the EDG heat exchanger. On July 7, 1999, a bulk biocide chemical addition was made to both trains of the Unit 2 SWS. During this evolution the chemistry technician did not contact the control room to obtain component in service information (although required by procedure to do so), and incorrectly assumed which heat exchangers were in service. On July 14, 1999, during a post-maintenance surveillance test (2OST-36.2) to verify the operability of an EDG air start solenoid valve, the SWS flow rate through the EDG heat exchanger was observed by the licensee to degrade from its first observed flow rate of 1,500 gpm to 1,070 gpm. The indicated flow then remained stable with temperature readings that did not challenge operation of the EDG. Acceptable EDG SWS operation is typically measured by maintaining an acceptable temperature in the EDG. No specific acceptance criteria was available in any EDG surveillance test for minimum required SWS flow rate. Because the SWS flow through the EDG was below the in-service testing acceptance criteria of 1,170 gpm, EDG 2-2 was declared inoperable on July 14, 1999.

b. Determine that the evaluation documents how long the issue existed and prior opportunities for identification.

The inspector determined that the licensee, based on their Root Cause Analysis (July 1999) for the event and in their letter to the NRC, "Reply to Apparent Violations," L-99-151, dated October 7, 1999, regarding NRC Special Inspection Report 50-412/99-07, documented that the potential for degraded SWS flow rate through the EDG heat exchanger, including a common mode failure, existed since 1995 when the licensee recognized the potential for the plant to be affected by Zebra mussels, at which time a Zebra Mussel Working Group was formed.

The Zebra Mussel Working Group completed a Zebra Mussel Control Plan (ZMCP) at the same time the first Zebra mussel was identified at the intake structure in October 1995. The 1995 ZMCP included cleaning the SWS intake bays, routine biocide treatments, and bulk biocide treatments. The proposed routine biocide treatments consisted of short duration applications (two hours), performed several times per week, to prevent immature mussels from attaching and growing within the piping system. The bulk treatments were intended to kill any attached mussels before they grew large enough to affect SWS system components. The plan also identified the optimum river water temperatures for Zebra mussel growth. However, the Working Group did not establish requirements for the scheduling or frequency of the bulk treatments, nor did the plan contain any measures to assess or validate the effectiveness of the treatments. The licensee failed to perform these treatments consistently and frequently enough to be effective.

Zebra mussels were subsequently observed (1995 - 1998) during cleaning of the intake structure bays and a rise in the Ohio River population had been identified in 1998. A sharp increase in Zebra mussel density at the SWS intake bays was identified by the licensee during silt checks performed per Procedure 1/2OST1.30.19 in March 1998, and was documented in Condition Report (CR) 98-0451, "Significant Increase in Zebra Mussel Activity," dated March 9, 1998. The Zebra Mussel Working Group was convened to re-assess the 1995 recommendations. The 1995 recommendations were

not changed. In October 1998, the population of mussels at the intake structure again increased. However, this information was not reviewed by station engineering personnel. Silt checks performed in January, March, and July 1999, also documented the presence of increasing numbers of Zebra mussels in both the common intake structure and the alternate intake structure. Again, this information was not reviewed by station engineering personnel.

c. Determine that the evaluation documents the plant specific risk consequences and compliance concerns associated with the issue.

The inspector determined the licensee, based on their letter to the NRC, "Reply to Apparent Violations," L-99-151, dated October 7, 1999, regarding NRC Special Inspection Report 50-412/99-07, adequately documented the plant specific risk consequences and compliance concerns associated with the biofouling issue. The licensee determined that the ZMCP, as implemented, was ineffective to keep live mussels from entering the plant SWS and from living long enough to grow to a size that could restrict flow through the EDG heat exchangers when dislodged after injection of biocide into the SWS headers. All potentially affected systems cooled by the SWS were inspected by the licensee to ensure any significant biofouling was detected and removed. Only the EDGs were impacted.

As stated in L-99-151, the licensee performed an engineering analysis (10080-N771-0) and concluded that, should a design basis accident have occurred during the period from July 7 -18, 1999, the EDG design heat load would have been removed and that the EDGs would have met their loading requirements. It was determined that had the EDGs been called upon to perform their intended safety function, they would have been capable of performing their safety functions throughout the period of degraded performance caused by the biofouling (i.e., operable but degraded). Therefore, there were no compliance concerns. Additionally, the licensee determined that the daily core damage probability for operating without any Unit 2 EDGs available was 8E-7 events. Thus, the daily risk associated with the non-availability of both Unit 2 EDGs would be classified below the Beaver Valley (BV) plant threshold for risk significance. The inspector reviewed the licensee’s assumptions and conclusions and found them to be acceptable.

The inspector determined the licensee’s corrective actions adequately addressed previously identified compliance issues.

02.02 Root Cause and Extent of Condition Evaluation

a. Determine that the problem was evaluated using a systematic method to identify root causes and contributing causes.

The inspector determined the licensee evaluated the biofouling event and associated degraded SWS flow rate through the EDG heat exchangers using a systematic method called “TapRoot” to identify root causes and contributing causes. The inspector determined that this method of investigation uses an Events and Casual Factors analysis to identify the sequence of events and a barrier analysis to identify root causes.

In CR 99-1761, the licensee applied the TapRoot method to systematically evaluate the biofouling event and associated degraded SWS flow rate through the EDG heat exchangers. This evaluation identified programmatic deficiencies with programs, procedures, and design analysis as they related to preventing biofouling.

The licensee determined that the ZMCP, as implemented, was ineffective to keep live mussels from entering the plant SWS and from living long enough to grow to a size that could restrict flow through the EDG heat exchangers when dislodged after injection of biocide into the SWS headers.

The licensee determined that the procedures were inadequate in that they did not require removal of all clams and mussels from the bays during cleaning, did not provide acceptance criteria for cleaning, and did not require the SWS inspector to notify system engineering of the results of the inspections. Also, procedure 2OM-30.4.M did not require monitoring of the condition of the EDG heat exchangers following biocide injection.

The licensee determined that design analysis was less than adequate, since the flow value used as a limit in procedures 2OST-36.1 and 36.2 are not correlated with system header pressures to reflect higher flows during normal operation, and are not correlated to the actual heat rejection from the EDG. Also, although the EDG heat exchangers are susceptible to clogging, no positive means (strainer, bypass, etc.) has been provided to protect the heat exchangers from river debris, mussels, or clams.

The inspector verified that the root cause analysis was performed in accordance with the licensees procedures. The analysis included Event & Casual Factor charts, detailed time lines and a chronology of events.

b. Determine that the root cause evaluation was conducted to a level of detail commensurate with the significance of the problem.

The inspector determined the licensee’s evaluations of the biofouling event and associated degraded SWS flow rate through the EDG heat exchangers was thorough and identified the primary root causes to be less than adequate biofouling procedures and an ineffective biofouling program. Additionally, the licensee identified that a contributing root cause was less than adequate design analyses regarding detecting and preventing biofouling. These root causes were identified in the licensee’s evaluations, the LER 99-007-00, for the event, and listed in the licensee’s NOV response (L-99-151) dated October 6, 1999.

The inspector did observe that the root causes and contributing causes did not address the human performance issues. However, the inspector found that the licensee was taking appropriate corrective actions in the human performance area which enveloped

the human performance issues associated with the biofouling event. These actions included a Case Study done in July 2000, which described several significant events (including the biofouling event) and their fundamental causes. The Case Study was placed on the licensee's LAN and also presented to licensee personnel from a lessons learned perspective. Also, a Human Performance Coordinator position was established earlier this year to better focus on human performance issues. The inspector discussed this issue regarding including human performance issue in the root cause analysis with the licensee for consideration in future root cause analyses.

c. Determine that the root cause evaluation included a consideration of prior occurrences of the problem and knowledge of prior operating experience.

The inspector determined that the licensee included a consideration of prior occurrences and knowledge of prior operating experience in their Root Cause Analysis (July 1999) for the event. The licensee documented that the potential for degraded SWS flow rate through the EDG heat exchanger, including a common mode failure, existed since 1995 when the licensee recognized the potential for the plant to be affected by Zebra mussels, at which time a Zebra Mussel Working Group was formed.

Zebra mussels were subsequently observed (1995 - 1998) during cleaning of the Intake Structure bays and a rise in the Ohio river mussel population had been identified in 1998. A sharp increase in Zebra mussel density at the SWS intake bays was identified by the licensee during silt checks performed per procedure 1/2OST1.30.19 in March 1998. This occurrence was considered in the root cause analysis and was documented in CR 98-0451, "Significant Increase in Zebra Mussel Activity." Silt checks performed in January, March and July 1999, also documented the presence of increasing numbers of Zebra mussels in both the common intake structure and the alternate intake structure. Again, these occurrences were considered in the root cause analysis.

The inspector found that the licensee's root cause analysis included a time line and a chronology of events, from late 1995 through July 1999, which identified relevant prior occurrences, missed opportunities, which indicated that the licensee had knowledge of prior operating experience and incorporated that knowledge into the root cause analysis.

d. Determine that the root cause evaluation included consideration of potential common causes and extent of condition of the problem.

The NRC previously determined that the licensee did not initially consider the potential for common causes and extent of condition in their immediate corrective action. This was identified and discussed in NRC Special Inspection Report 50-412/99-07, a special team inspection at Unit 2 to review the biofouling problems which affected the SWS to both EDGs. However, the inspector found that the licensee did include consideration of potential common causes and extent of condition of the problem in their July 1999, Root Cause Analysis for the event.

The inspector also found that the licensee included consideration of potential common causes and extent of condition of the problem in CR 99-1761, in the associated Reportability Determination, and in their letter to the NRC, "Response to Apparent Violations in NRC Special Inspection 50-412/99-07." The licensee acknowledged that

the potential for degraded SWS flow rate through the EDG heat exchanger, including a common mode failure, existed since 1995 when the licensee recognized the potential for the plant to be affected by Zebra mussels.

02.03 Corrective Actions

a. Determine that appropriate corrective actions are specified for each root/contributing cause or that there is an evaluation that no actions are necessary.

The inspector determined that appropriate near and long term corrective actions were specified and completed for each root cause identified in the licensee's root cause evaluation, except for completion of training on Macro Biological Fouling which was completed on September 19, 2000. The corrective actions were included in the licensee's CR 99-1761, in their October 1999 letter to the NRC, "Response to Apparent Violations in NRC special Inspection 50-412/99-07," and in their LER 99-007-00, dated August 19, 1999.

The licensee took corrective action to make the applicable programs effective. The "BV-2 Asiatic Clam Chemical Treatment Program," 2OM-30.4.M, was revised to clarify equipment not treated, to treat Trains A and B separately (to preclude a common mode failure), to ensure critical flow paths are adequately flushed and monitored, and to ensure the required frequency for treatments is specified. The System and Performance Engineering Department (SPED) reviewed the Beaver Valley Mussel Control Plan and concluded that the ZMCP is effective if implemented properly by existing procedures. However, per SPED recommendations, the plan was converted to a Program in March 2000, for both Zebra mussels and Asiatic clams, updated to current BV control methods, and incorporated into the BV administrative procedures.

The licensee took corrective action to revise and make the applicable procedures adequate. These included:

1. Operations Surveillance Test 1/2OST-30.19, "Main and Alternate Intake Structure Silt Check," revised to include the requirement for removal of biofouling from the intake bays and to provide a means to notify system engineering of the results,

2. Operations Surveillance Test 2OST-36.1 and 36.2, "Emergency Diesel Generator [2EGS*EG2-1and 2-2, respectively] Monthly Test," Unit 2, Revision 25, September 24, 1999, revised to include flow pressure curves for SWS flow acceptance,

3. Chemistry Manual procedure C.M. 2-3.79C, Chapter 3, Sampling and Testing, "Service Water System," revised to include sampling at the safeguard air conditioning units during periodic, short duration biocide treatments, and

4. Chemistry Manual procedure C.M. 9.17, Chapter 9, Conduct of Operations, "Closed Loop and River Water Systems Monitoring Program," revised to enhance acceptance criteria for sampling, frequency and dose requirements.

The licensee determined that corrective action to improve design adequacy was not required based on a review by SPED. SPED determined that the improvements in procedures to implement the ZMCP were adequate to preclude fouling of the EDG heat exchangers in the future.

b. Determine that the corrective actions have been prioritized with consideration of the risk significance and regulatory compliance.

The inspector determined the licensee's corrective actions were prioritized considering risk significance and regulatory requirements. Upon discovery of the degraded SWS flow rate through the EDG heat exchanger the licensee took immediate corrective actions to meet applicable TS requirements by entering TS 3.8.1.1 Action Statement. Near term the licensee completed inspections of the EDG 2-1 and 2-2 heat exchangers which revealed an accumulation of biofouling. SWS flows through other Unit 2 plant system heat exchangers were verified to be acceptable which verified that the only heat exchangers challenged by the Zebra mussel infestation were the Unit 2 EDG heat exchangers. All biofouling was removed as discovered.

c. Determine that a schedule has been established for implementing and completing the corrective actions.

The inspector determined that the licensee established a schedule for completing their corrective actions. At the time of the inspection, all corrective actions had been completed except for completion of training on Macro Biological Fouling which was completed on September 19, 2000.

d. Determine that quantitative or qualitative measures of success have been developed for determining the effectiveness of the corrective actions to prevent recurrence.

The inspector determined that the licensee has made appropriate procedure and program changes, including enforcing proper implementation of the procedures and program, to measure the effectiveness of their corrective actions to prevent recurrence. These actions are described below and were identified in the licensee's CR 99-1761.

Procedures 2OM-30.4.M and 2BVT 1.30.3 were changed to ensure that chemical treatment for biofouling of SWS Trains A and B is done separately to preclude a common mode loss of SWS flow, to ensure all critical flow paths are adequately flushed and monitored for the treatment's effect on heat exchanger performance, and to provide heat exchanger flow and differential pressure acceptance criteria. To ensure no blockage occurs as a result of the bulk biocide treatments, flow and differential pressure readings are now obtained prior to and following the injections of the biocide chemicals. Operations Surveillance Test procedures 2OST 36.1 and 36.2 were revised to include a flow pressure curve for SWS flow acceptance. Operations Surveillance Test 1/2OST-30.19 was revised to include the requirement for removal of biofouling from the intake bays (quarterly bay cleaning). The Chemistry Manual procedures were revised to require daily injection of chlorine/biocide (2 hours/day) and sampling of biocide as well as requiring bulk dose biocide treatments three times per year. The optimum frequency and time frame to perform the biocide treatment for biofouling was determined and incorporated into chemical treatment procedure 2OM-30.4.M. The bulk treatments are

designed to provide a 100% mortality rate prior to the mussels attaining a size that could plug any tube. The daily biocide treatments are reported in the Daily Status Report.

4. OTHER ACTIVITIES (OA)

4OA4 Other

.1 (Closed) VIO, item number 01013-99212:

Violation associated with failure to implement corrective actions for biofouling. Based on the adequacy of the licensee's evaluations and corrective actions this item has been closed.

.2 (Closed) VIO, item number 01023-99212:

Violation associated with inadequate procedures for SWS chemical treatment. Based on the adequacy of the licensee's evaluations and corrective actions this item has been closed.

PARTIAL LIST OF PERSONS CONTACTED

Larry Freeland	Manager, Corrective Actions
Gary Shildt	Supervisor, Primary System Engineering
John Humphries	Contractor System Engineer, Service Water System
Dave Orndorf	System Engineer, Service Water System
Dan Mickinac	Licensing Engineer
Joe Venzon	Manager, Chemistry Department

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

None

Closed

1. Item 01013-99212: Violation associated with failure to implement corrective actions for biofouling.

2. Item 01023-99212: Violation associated with inadequate procedures for SWS chemical treatment.

PARTIAL LIST OF DOCUMENTS REVIEWED

CR 99-1716	Diesel Generator #1 Declared Out Of Service Due to Degraded Service Water Flow
CR 99-2816	Chemical Injection Points Into Service Water Headers in Valve Pits
CR 99-1939	Zebra Mussel Concentration in Main and Alternate Intake
CR 99-1846	Ineffective Zebra Mussel/Asiatic Clam Control Program
CR 98-0451	Significant Increase in Zebra Mussel Activity
CR 98-1153	Corrosion/Silt Inhibitor and Biocide Supply
Duquesne Letter	(Now FENOC) L-99-151, Beaver Valley Power Station, Unit No. 1 and No. 2, Special Inspection Report 50-412/99-07, “Reply to Apparent Violations,” dated October 7, 1999.
FENOC Case Study	Unit 2 Service Water System Degraded Flow and 4kV Bus Loss.
LER-99-007-00	“Forced Shutdown Due to Inoperable Emergency Diesel Generator," dated August 19, 1999.
Engineering Evaluation	SCARES #6061, EDG SWS Flow, Rev. 2, 7/25/1999
Engineering Analysis	Beaver Valley Power Station engineering analysis 10080-N-771-0, Minimum Acceptable SWS Flow Required for Acceptable EDG Performance.

Technical Report	Technical Evaluation Report 12,771, "Emergency Diesel Generator Required Service Water Flow Curve for [procedure] 2OST-36.1 & 2."
C.M. 2-3.79	Beaver Valley Power Station, Unit 2, C.M. 2-3.79C, "Service Water System," from the BVPS-1/BVPS-2 Chemistry Manual, Chapter 3, Sampling and Testing, Unit 2.
C.M. 9.17	Beaver Valley Power Station, Unit 2, C.M. 9.17, "Closed Loop and River water Systems Monitoring Program," from the BVPS-1/BVPS-2 Chemistry Manual, Chapter 9, Conduct of Operations.
1/2 OST-30.19	"Main and Alternate Intake Structure Silt Check and Bay Cleaning," Unit 1/2, Revision 7, August 23, 1999.
2OST-36.2	"Emergency Diesel Generator [2EGS*EG2-2] Monthly Test," Unit 2, Revision 25, September 24, 1999.
2OST-36.1	"Emergency Diesel Generator [2EGS*EG2-1] Monthly Test," Unit 2, Revision 25, September 24, 1999.
2OM-30.4.M	"BV-2 Asiatic Clam and Zebra Mussel Chemical Treatment Program," Unit 2, Revision 9, August 27, 1999.
2BVT 1.30.3	“Service Water Heat Exchanger Performance Program,” September 10, 1999.

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
BV	Beaver Valley
CFR	Code of Federal Regulations
CR	Condition Report
EDG	Emergency Diesel Generators
FENOC	FirstEnergy Nuclear Operating Company
LAN	Local Area Network
LER	Licensee Event Report
NOV	Notice of Violation
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
SPED	System and Performance Engineering Department
SWS	Service Water System
TS	Technical Specifications
ZMCP	Zebra Mussel Control Plan