

June 21, 2004

EA-03-172

Mr. Mark B. Bezilla  
Vice President-Nuclear, Davis-Besse  
FirstEnergy Nuclear Operating Company  
Davis-Besse Nuclear Power Station  
5501 North State Route 2  
Oak Harbor, OH 43449-9760

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION  
NRC INTEGRATED INSPECTION REPORT 05000346/2004007

Dear Mr. Bezilla:

On May 22, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Davis-Besse Nuclear Power Station. The enclosed inspection report documents the inspection findings which were discussed on May 20, 2004, with you 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.

For the entire inspection period, the Davis-Besse Nuclear Power Station was under the Inspection Manual Chapter (IMC) 0350 Process. The Davis-Besse Oversight Panel assessed inspection findings and other performance data to determine the required level and focus of followup inspection activities and any other appropriate regulatory actions. Even though the Reactor Oversight Process had been suspended at the Davis-Besse Nuclear Power Station, it was used as guidance for inspection activities and to assess findings. Based on the results of this inspection, no findings of significance were identified.

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Sincerely,

**/RA by Christine A. Lipa Acting for/**

John A. Grobe, Chairman  
Davis-Besse Oversight Panel

Docket No. 50-346  
License No. NPF-3

Enclosure: Inspection Report 05000346/2004007  
w/Attachment: Supplemental Information

cc w/encl: The Honorable Dennis Kucinich  
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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-346

License No: NPF-3

Report No: 05000346/2004007

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Davis-Besse Nuclear Power Station

Location: 5501 North State Route 2  
Oak Harbor, OH 43449-9760

Dates: April 1, 2004, through May 22, 2004

Inspectors: S. Thomas, Senior Resident Inspector  
J. Rutkowski, Resident Inspector  
M. Salter-Williams, Resident Inspector  
D. Passehl, Project Engineer  
J. Jacobson, Senior Inspector  
R. Daley, Senior Reactor Engineer  
T. Ploski, Senior Emergency Preparedness Inspector  
J. House, Senior Radiation Specialist  
D. Nelson, Radiation Specialist

Observers: R. Baker, Reactor Engineer

Approved by: C. A. Lipa, Chief  
Branch 4  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000346/2004007; 4/1/2004 - 5/22/2004; Davis-Besse Nuclear Power Station; Routine Integrated Inspection Report.

This report covers a 7 week period of resident inspection. The inspection was conducted by Region III inspectors and resident inspectors. No findings of significance were identified. 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. Inspector-Identified and Self-Revealing Findings**

No findings of significance were identified.

**B. Licensee Identified Findings**

None.

## REPORT DETAILS

### Summary of Plant Status

At the beginning of the inspection period, the plant was at approximately 80 percent power. The plant reached approximately 100 percent power on April 4, 2004. A down power was initiated on April 5, 2004, to establish the appropriate plant conditions to facilitate work on a 4160 volt breaker. Power was restored to 100 percent by the morning of April 6, 2004. On April 7, 2004, the loss of circulating water pump 1 forced the operators to reduce power to approximately 97 percent. After a three circulating water pump lineup was established, the plant was returned to approximately 100 percent power. During the time period that circulating water pump 1 was out of service, several small power reductions (approximately 1 to 5 percent power), of short duration, were required to maintain condenser pressure within the required band. Circulating water pump 1 was restored to service on May 19, 2004, and plant operated at approximately 100 percent power for the remainder of the inspection period.

For the entire inspection period, the Davis-Besse Nuclear Power Station was under the IMC 0350 Process. As part of this Process, augmented resident inspection continued during the plant restart and return to power operations. The status of those inspections was included as part of this inspection report.

### **1. REACTOR SAFETY**

#### **Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness**

#### 1R04 Equipment Alignment (71111.04Q)

##### a. Inspection Scope

The inspectors verified equipment alignment to identify any discrepancies that impacted the function of system components. The inspectors also verified that the licensee had properly identified and resolved any equipment alignment problems that would cause initiating events or impact the availability and functional capability of the mitigating system. Documentation reviewed as part of this inspection included reviewing plant procedures, drawings, and the Updated Safety Analysis Report (USAR), to determine the correct system lineup. Additionally, the inspectors evaluated outstanding maintenance work requests on the system and any deficiencies that would affect the ability of the system to perform its function. A majority of the inspectors' time was spent performing a walkdown inspection of the system. Key aspects of the walkdown inspection included verifying that:

- valves were correctly positioned and did not exhibit leakage that would impact their function;
- electrical power was available as required;
- major system components were correctly labeled, lubricated, cooled, and ventilated;

- hangers and supports were correctly installed and functional;
- essential support systems were operational;
- ancillary equipment or debris did not interfere with system performance; and
- valves were locked as required by the licensee's locked valve program.

During the walkdown, the inspectors also evaluated the material condition of the equipment to verify that there were no significant conditions not already in the licensee's corrective action system. The following three samples were selected:

- Emergency Diesel Generator 2;
- Emergency Diesel Generator 1; and
- Emergency Diesel Generator 1 and 2 Starting Air System.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection inspections focused on the availability, accessibility, and condition of fire fighting equipment, the control of transient combustibles, and the condition and operating status of installed fire barriers. The inspectors selected fire areas for inspection based on their overall contribution to internal fire risk, as documented in the Individual Plant Examination of External Events, their potential to impact equipment which could initiate a plant transient, or their impact on the plant's ability to respond to a security event. Inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use, that fire detectors and sprinklers were unobstructed, that transient material loading was within the analyzed limits, and that fire doors, dampers, and penetration seals appeared to be in satisfactory condition.

The following six areas were inspected:

- Fire Area J - emergency diesel generator 2 room;
- Fire Area II - main generator seal oil room;
- Fire Area R - auxiliary shutdown panel and switchgear room;
- Fire Area HH - control room emergency ventilation equipment room;
- Main transformer area; and
- Fire Area K - emergency diesel generator 1 room.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Review of Equipment Issues

a. Inspection Scope

The inspectors verified the licensee's appropriate handling of performance issues associated with structures, systems, and components that are important to plant safety. This inspection consisted of evaluating the following specific activities:

- licensee's work practices;
- problem solving and issue resolution;
- the licensee's ability to appropriately trend performance and track unavailability;
- the system or activities had been assigned the proper safety significance classification; and
- the goals and corrective actions for the system were appropriate.

The inspectors also verified that the licensee was appropriately tracking reliability and/or unavailability for the systems. The inspectors selected the following one sample:

- multiple tripping of the thermal overloads for the emergency diesel generator fuel oil transfer pump 1.

b. Findings

No findings of significance were identified.

.2 Review of Preventive Maintenance Deferrals

- a. The inspectors reviewed the governing documents for the licensee's preventive maintenance program including reviewing the program requirements for compatibility with and support of performance goals for structures, systems, and components that are important to plant safety. The inspection included an independent review of recent condition reports generated for deferrals of preventive maintenance activities or non-compliance with preventive maintenance program requirements. Additionally the inspectors evaluated the results of a licensee review of the scope of the program which included an assessment of the magnitude of the program and resources needed and resources available for completion of the program.

b. Findings

No findings of significance were identified.



1R13 Maintenance Risk Assessment and Emergent Work Evaluation (71111.13)

.1 Failure of Breaker ABDD2 to Open When Required

a. Inspection Scope

On April 5, 2004, at approximately 10:00 p.m., with the reactor power at approximately 80 percent, the licensee entered red risk condition. This was required to facilitate the removal of breaker ABDD2 which had failed to open, subsequent to receiving an valid open signal. At about 11:24 p.m., the licensee de-energized bus D2. After removing the ABDD2 from its cubicle, the licensee re-energized the D2 bus approximately one hour later and exited the red risk condition

The red risk condition was the result of losing the station blackout diesel generator and the motor driven feedwater pump, due to the de-energization of the D2 bus. Also, since the D2 bus supplies power to a condensate pump and a heater drain pump, de-energizing the D2 bus required reducing power to approximately 80 percent.

The resident staff attended the down power brief, the work planning briefs, and schedule briefings provided to licensee senior personnel. The residents also observed work activities in the field and observed operator performance while maneuvering the plant to establish the plant configuration which supported de-energizing the D2 bus. Additionally, the residents reviewed licensee procedures which provided instructions for the voluntary entry into a red risk condition and alternate electric bus lineups, for compliance with Technical Specification (TS) requirements.

b. Findings

No findings of significance were identified.

.2 Integrated Control System Relay Board Replacement

a. Inspection Scope

On April 16, 2004, the licensee's control room staff observed that the Unit Load Demand module of the Integrated Control System was not responding to operator inputs and that actual load demand was increasing slowly at approximately 4 megawatts per hour. The increase did not result in a power level in excess of authorized limits. The licensee initiated a problem solving team and eventually replaced a relay card that corrected the problem. The inspectors reviewed the development of the problem solving plan, the licensee's cause determination, and the control room operators' response to the event.

b. Findings

No findings of significance were identified.

.3 Unexpected Trip of Breakers HAAE4 and HA08

a. Inspection Scope

On April 7, 2004, at approximately 3:06 p.m., breaker HAAE4 [13.8 KV feeder breaker to transformer AE4 and transformer AE6] and breaker HA08 [13.8 KV supply breaker for circulating water pump 1] tripped. As a result of the breaker trips, several non-vital electric loads and circulating water pump 1 were lost.

The inspectors evaluated the licensee's actions to identify and isolate faulted equipment, restore power to E4 and E6 buses, and to assess the overall risk impact of losing major electrical loads on continued plant operation. As a result of the troubleshooting efforts, the licensee identified that phase to ground faults existed on the load side of both breakers. The inspectors also reviewed the proposed schedules for the replacement of the motor for the circulating water pump and the cable replacement for the 13.8KV feed to the AE4 transformer.

b. Findings

No findings of significance were identified

.4 Lift of Circulating Water Pump Motor

a. Inspection Scope

On April 15, 2004, the licensee moved the motor for circulating water pump 1, which weighted approximately 60,000 pounds, from its plant location to a truck for shipment to an offsite repair facility. The move involved lifting the motor with an installed crane and moving it over the other three operating circulating water pumps, motors, and associated piping. The inspectors attended the briefing for the activity and reviewed the motor lift plan for the purpose of assessing licensee preparations to minimize the probability of an occurrence that would cause damage to the remaining equipment sufficient to cause a plant transient due to a perturbation in circulating water flow to the main condenser. The inspectors observed the performance of the actual lift to verify compliance with the precautions and procedures that had been briefed.

b. Findings

No findings of significance were identified

.5 Entry into Orange Risk during Replacement of Breaker BE 1157

a. Inspection Scope

On May 18, 2004, the licensee voluntarily entered an evaluated orange risk condition for approximately 2 hours to replace breaker BE 1157 [power to DH7B [borated water storage tank supply valve to train 1 ECCS components]] with a new breaker. The inspectors reviewed the licensee's activities to minimize the time in the orange risk

condition, the licensee's compliance to their risk control procedures, and the licensee's decisions on compensatory measures. The inspectors attended pre-job briefings for the evolution and watched the performance of the activity.

b. Findings

No findings of significance were identified

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors selected condition reports which discussed potential operability issues for risk significant components or systems. These condition reports and applicable licensee operability evaluations were reviewed to determine whether the operability of the components or systems was justified. The inspectors compared the operability and design criteria in the appropriate sections of the TSs and USAR to the licensee's evaluations of the issues to verify that the components or systems were operable. Where compensatory measures were necessary to maintain operability, the inspectors verified that the measures were in place, would work as intended, and were properly controlled.

The three issues evaluated were:

- OE-04-011 [auxiliary feedwater pump 2 outboard bearing metal temperature trending upward];
- OE-04-0013 [containment hydrogen analyzer sample pump failure during performance of DB-PF-04153]; and
- OE-04-0014 [failure of the containment normal range radiation monitor sample pump and the containment accident range radiation monitor sample pump to operate as expected during the performance of DB-PF-04153].

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed a post-maintenance testing activity to ensure that the testing adequately verified system operability and functional capability with consideration of the actual maintenance performed. The inspectors used the appropriate sections of the TSs and the USAR, as well as the documents listed at the end of this report, to evaluate the scope of the maintenance and verify that the work control documents required sufficient post-maintenance testing to adequately demonstrate that the maintenance was successful and that operability was restored. The inspectors observed and evaluated test activities associated with the following one sample:

- Replacement of breaker BE 1157 [power to DH7B [borated water storage tank supply valve to train 1 ECCS components]]

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed the surveillance test and/or evaluated test data to verify that the equipment tested met TSs, USAR, and licensee procedural requirements, and also demonstrated that the equipment was capable of performing its intended safety functions. The inspectors used the documents listed at the end of this report to verify that the test met the TS frequency requirements; that the test was conducted in accordance with the procedures, including establishing the proper plant conditions and prerequisites; that the test acceptance criteria were met; and that the results of the test were properly reviewed and recorded. The following two samples were evaluated:

- DB-SS-04151 [Main Turbine Control Valve Test] and DB-SS-04152 [Main Turbine Combined Intermediate Valve Test]; and
- DB-SP-03357 [RCS Water Inventory Balance].

b. Findings

No findings of significance were identified

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspector reviewed Revision 23 of the Davis-Besse Nuclear Power Station Emergency Plan to determine if changes identified in this revision reduced the Plan's effectiveness, pending on-site inspection of the implementation of these changes.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

On May 20, 2004, the licensee conducted a site emergency preparedness drill for training purposes. The drill was intended to activate and test all on site emergency response facilities with minimal offsite agency participation. The inspectors reviewed licensee performance at the simulated control room, the Technical Support Center, and

the Emergency Operations Facility. The inspectors reviewed if the drill was of appropriate scope to have evolutions included in performance indicator statistics. After the drill the inspectors compared observed weaknesses and deficiencies to weaknesses and deficiencies identified by the licensee.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety**

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Review of Licensee Performance Indicators for the Occupational Exposure Cornerstone

a. Inspection Scope

The inspectors discussed Reactor Oversight Process (ROP) Performance Indicator occurrences with the radiation protection staff and reviewed data from the licensee's corrective action program to determine if there were any Performance Indicator occurrences in the occupational exposure cornerstone that had not been reviewed. There were none. This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Plant Walkdowns and Radiation Work Permit Reviews

a. Inspection Scope

The inspectors identified radiologically significant work areas within radiation areas, high radiation areas (HRA) and airborne areas in the plant. A work package, which included associated licensee controls and surveys of one area, was reviewed to determine if radiological controls including surveys, postings and barricades were acceptable.

Radiologically significant work areas were walked down and surveyed (using an NRC survey meter) to verify that the prescribed radiation work permit, procedures, and engineering controls were in place, that licensee surveys and postings were complete and accurate, and that air samplers were properly located.

The inspectors reviewed licensee's records to determine if there were airborne radioactivity areas in the plant with a potential for individual worker internal exposures of >50 millirem committed effective dose equivalent. Barrier integrity and engineering controls performance, such as high efficiency particulate filtration ventilation system operation, were evaluated. Work areas having a history of, or the potential for, airborne

transuranics were evaluated to verify that the licensee had considered the potential for transuranic isotopes and provided appropriate worker protection. This review represented one sample.

The adequacy of the licensee's internal dose assessment process for internal exposures > 50 millirem committed effective dose equivalent was assessed to verify that affected personnel were properly monitored utilizing calibrated equipment and that the data was analyzed and internal exposures were properly assessed in accordance with licensee procedures. This review represented one sample.

The inspectors reviewed the licensee's physical and programmatic controls for highly activated and/or contaminated materials (non-fuel) stored within the spent fuel pool. This review represented one sample.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

Corrective action reports related to access controls and any available high radiation area radiological incidents (those incidents not covered by ROP Performance Indicators, identified by the licensee, in high radiation areas <1Rem/hr) were reviewed. Staff members were interviewed and corrective action documents were reviewed to verify that follow-up activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk based on the following:

- Initial problem identification, characterization, and tracking;
- Disposition of operability/reportability issues;
- Evaluation of safety significance/risk and priority for resolution;
- Identification of repetitive problems;
- Identification of contributing causes;
- Identification and implementation of effective corrective actions;
- Resolution of Non-Cited Violations (NCVs) tracked in the corrective action system; and
- Implementation/consideration of risk significant operational experience feedback.

This review represented one sample.

The inspectors evaluated the licensee's process for problem identification, characterization, prioritization, and verified that problems were entered into the corrective action program and resolved. For repetitive deficiencies and/or significant individual deficiencies identified in the problem identification and resolution process, the inspectors verified that the licensee's self-assessment activities also identified and addressed these deficiencies. This review represented one sample.

The inspectors discussed performance indicators with the radiation protection staff and reviewed data from the licensee's corrective action program to determine if there were any performance indicators for the occupational exposure cornerstone that had not been reviewed. There were none. This review represented one sample.

b. Findings

No findings of significance were identified.

.4 High Risk Significant, High Dose Rate HRA and VHRA Controls

a. Inspection Scope

The inspectors reviewed the licensee's ROP Performance Indicators for high risk, high dose rate and HRAs, and for all very high radiation areas to verify that workers were adequately protected from radiological overexposure. Discussions were held with the radiation protection manager concerning high dose rate/high radiation area and very high radiation area controls and procedures, including procedural changes that had occurred since the last inspection. This was done to verify that any procedure modifications did not substantially reduce the effectiveness and level of worker protection. This review represented one sample.

During plant walkdowns, the posting and locking of entrances to high dose rate HRAs, and very high radiation areas were reviewed for adequacy. This review represented one sample.

b. Findings

No findings of significance were identified

**Cornerstone: Public Radiation Safety**

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

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the most current Radiological Effluent Release Report and current effluent release data to verify that the program was implemented as described in the Radiological Environmental TSs/Offsite Dose Calculation Manual (RETS/ODCM) and the USAR. The effluent report was also evaluated to determine if there were any significant changes to the ODCM or to the radioactive waste system design and operation. The inspectors verified that any changes to the ODCM were technically justified, documented, and made in accordance with Regulatory Guide 1.109 and NUREG-0133. Modifications (if any) made to the radioactive waste system design and operation were evaluated to determine if these alterations changed the dose

consequence to the public. The inspectors also verified that technical and/or 10 CFR 50.59 reviews were performed when required, and determined whether radioactive liquid and gaseous effluent radiation monitor set point calculation methodology had changed since completion of the modifications. The inspectors evaluated the effluent report for any anomalous results and verified that any such results were adequately resolved.

The RETS/ODCM and USAR were reviewed to identify the effluent radiation monitoring systems and associated flow measurement devices. Licensee records including condition reports (CR), self-assessments, audits, and Licensee Event Reports (LERs) were reviewed to determine if there were any radiological effluent performance indicator occurrences or any unanticipated offsite releases of radioactive material for follow-up. The USAR description of all radioactive waste systems was reviewed. This review represented one sample.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection

a. Inspection Scope

The inspectors walked down the major components of the gaseous and liquid release systems, including radiation and flow monitors, demineralizers, filters, tanks, and vessels. This was done to observe current system configuration with respect to the description in the USAR, ongoing activities, and equipment material condition. This review represented one sample.

The inspectors reviewed system diagrams and observed accessible parts of the radioactive liquid waste processing and release systems to verify that appropriate treatment equipment was used and that radioactive liquid waste was processed in accordance with procedural requirements. Liquid effluent release packages including projected doses to the public were reviewed to ensure that regulatory effluent release limits were not exceeded. The inspectors walked down accessible portions of the radioactive gaseous effluent processing and release systems and observed the collection and analysis of a gaseous effluent sample to verify that appropriate treatment equipment was used and that the radioactive gaseous effluent was processed and released in accordance with RETS/ODCM requirements. Radioactive gaseous effluent release data including the projected doses to members of the public was evaluated to ensure that regulatory effluent release limits were not exceeded. This review represented one sample.

The inspectors reviewed records of abnormal releases or releases made with inoperable effluent radiation monitors. The licensee's actions for these types of releases were evaluated to verify that adequate compensatory sampling and analyses were performed, and to ensure that an adequate defense-in-depth was maintained against an unmonitored, unanticipated release of radioactive material to the environment. This



included projected radiological doses to members of the public. This review represented one sample.

The inspectors reviewed the licensee's technical justifications for changes made to the ODCM as well as to the liquid or gaseous radioactive waste system design, procedures, or operation including effluent monitoring and release controls since the last inspection. This was done to determine whether the changes affected the licensee's ability to maintain effluents As Low As Is Reasonably Achievable (ALARA) and whether changes made to monitoring instrumentation resulted in a non-representative monitoring of effluents. The inspectors also reviewed the licensee's offsite dose calculations and evaluated any significant changes in dose values reported in the annual report from those values reported the previous year. This included a review of the verification of the offsite dose calculation software. This review represented one sample.

The inspectors reviewed a selection of monthly, quarterly, and annual dose calculations to ensure that the licensee properly calculated the offsite dose from radiological effluent releases and to determine if any annual RETS/ODCM (i.e., Appendix I to 10 CFR Part 50 values) were exceeded. This review represented one sample.

The inspectors reviewed air cleaning system surveillance test results to ensure that the system was operating within the licensee's acceptance criteria. The inspectors reviewed surveillance test results the licensee used to determine the stack and vent flow rates. The inspectors verified that the flow rates were consistent with RETS/ODCM values. This review represented one sample.

The inspectors reviewed records of instrument calibrations performed since the last inspection for each point of discharge effluent radiation monitor and flow measurement device. Any completed system modifications and the current effluent radiation monitor alarm set point values were reviewed for agreement with RETS/ODCM requirements. The inspectors also reviewed calibration records of radiation measurement (i.e., counting room) instrumentation associated with effluent monitoring and release activities. Quality control data and corrective actions for the radiation measurement instruments were evaluated to verify that the instrumentation was operating under statistical control and that any problems observed were addressed in a timely manner. This review represented one sample.

The inspectors reviewed the results of the interlaboratory comparison program to verify the quality of radioactive effluent sample analyses performed by the licensee. The inspectors reviewed the licensee's quality control evaluation of the interlaboratory comparison test results and associated corrective actions for any deficiencies identified, including biases in the sample analysis results, and any potential effect that this might have had on calculated projected doses to members of the public. In addition, the inspectors reviewed the results from the licensee's quality assurance audits to determine whether the licensee met the requirements of the RETS/ODCM. This review represented one sample.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the licensee's self assessments, audits, Licensee Event Reports, and Special Reports related to the radioactive effluent treatment and monitoring program since the last inspection to determine if identified problems were entered into the corrective action program for resolution. The inspectors also verified that the licensee's self-assessment program identified and addressed repetitive deficiencies or significant individual deficiencies that were identified in problem identification and resolution.

The inspectors also reviewed corrective action reports from the radioactive effluent treatment and monitoring program, interviewed staff and reviewed documents to determine if the following activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk:

- Initial problem identification, characterization, and tracking;
- Disposition of operability/reportability issues;
- Evaluation of safety significance/risk and priority for resolution;
- Identification of repetitive problems;
- Identification of contributing causes;
- Identification and implementation of effective corrective actions;
- Resolution of NCVs tracked in the corrective action system; and
- Implementation/consideration of risk significant operational experience feedback.

This review represented one sample.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

The inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action system at the appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed.

b. Findings

No findings of significance were identified.

.2 Failure of Breaker ABDD2 to Open (CR 04-02511 and 04-02522)

a. Inspection Scope

The inspectors reviewed CR 04-02511 [Failure of ABDD2 to Open] and CR 04-02522 [Breaker A2000Q03 Failed DB-OP-01000 Testing] to verify that the licensee's identification of the problems were complete, accurate, and timely, and that the consideration of extent of condition review, generic implications, common cause, and previous occurrences was adequate.

b. Observations and Findings

Introduction

The failure of breaker ABDD2 to open on demand on April 5, 2004, affected the normal offsite power lineup for the plant. Additionally, the mechanical binding of the breaker which prevented the breaker from opening caused the subsequent failure of a relay in the 125 Volt direct current (Vdc) control power circuitry for the breaker. Because of the complex electrical lineup relied upon by the licensee to ensure the availability of offsite sources, and because of the compound failures involved, the inspectors selected this issue for an annual sample review of the licensee's problem identification and resolution program.

Effectiveness of Problem Identification

The inspectors reviewed the licensee's timeline of events. On April 5, 2004, in order to perform preventive maintenance on the ABDD2 breaker, the licensee attempted to transfer the 4.16 kilovolts (kV) D1 and D2 busses from Bus Tie Transformer BD to Bus Tie Transformer AC. Because of an electrical interlock between the AACD1 and the ABDD2 breakers, the closure of the AACD1 breaker should have resulted in opening of the ABDD2 breaker; however, when the AACD1 breaker closed, the ABDD2 did not open as expected. This adverse condition was documented in CR 04-02511. After investigation of the ABDD2 breaker, the licensee decided to replace the breaker with a spare. When the licensee attempted to close the new breaker, this breaker failed to close. This adverse condition was documented in CR 04-02522. After investigation of this failure to close condition, the licensee determined that a failed closed relay contact in the 125 Vdc control circuitry for the breaker was causing power to be supplied to the trip coil for the breaker. Therefore, when the breaker was closed by the operator, the energized trip coil was causing the breaker to automatically trip, thereby, preventing closure. After replacement of this damaged relay and contact, the licensee was able to return the breaker to service.

The reason for the breaker failure appeared to be mechanical binding; however, at the time that the inspectors were reviewing this issue, the root cause had not yet been identified.

Failure of the 125 Vdc relay and contact (the 52X Timing Relay) was determined to have occurred, because the relay contact was not rated for the “break” current that it encountered after the ABDD2 breaker failed to open. Under normal operating conditions, the opening of the AACD1 breaker causes the energization of the 52X relay which closes a contact to provide 125 Vdc power to the trip coil for the ABDD2 breaker. This results in the opening of the ABDD2 breaker. When the ABDD2 relay opens, an auxiliary contact internal to the breaker opens interrupting power to the breaker’s trip coil. On April 5, 2004, mechanical binding caused the ABDD2 breaker to fail to open. As a result, the internal auxiliary contact that normally interrupts power to the breaker trip coil also did not open. Since the 52X relay is time delayed to open, it’s associated contact attempted to open and thus “break” the current to the breaker trip coil. However, the contact for the relay was not rated for the “break” current that it encountered causing the contact to fuse shut. Because power was never interrupted to the trip coil, the trip coil for the breaker burned to an open state. Since the 52X relay was fused shut, when the mechanically bound breaker was replaced by the spare breaker, this breaker could not be closed, since 125 Vdc power was present to immediately energize the breaker trip coil.

Because of the failure of the 52X relay in the 125 VDC control circuitry for breaker ABDD2, the licensee initiated two corrective actions in CR 04-02511. The corrective actions were the following:

- Issue an engineering change request for a design enhancement action to eliminate the possibility of the 52X Timing Relay contacts being welded together if this type of failure occurs in the future.
- An extent of condition to see if any other trip circuits use this type of logic in which the logic relay contacts need to be protected.

While these items were both listed as future action items in CR 04-02511, the licensee viewed the actions as enhancements. Although these corrective actions for the 125 Vdc relay failures appear to be adequate, the inspectors did not agree that they were only design enhancements. Mechanical binding of breakers should not cause a failure of the 125 Vdc control power. The misapplication of underrated contacts for relays in the 52X application also has the potential for causing future grounding and/or short circuiting of the 125 Vdc system as well as increasing the possibility of future electrical fires. However, since the corrective actions, if properly implemented, should address this concern, and because the circuitry had no safety related function, the inspectors concluded their review of this issue.

#### Unresolved Item

While evaluating issues related to CRs 04-02511 and 04-02522, the inspectors reviewed the electrical configurations of the plant prior to the restoration of breaker ABDD2 to

normal operating status. Before returning breaker ABDD2 to service, both divisions of the electrical plant's loads were being supplied by Bus Tie Transformer AC. During this period, the licensee did not enter Limiting Condition for Operation (LCO) 3.8.1.1, "A.C. Sources," because it was believed that both offsite sources were available. For this to be true, a single failure on the electrical system should only cause the loss of a single offsite source. However, the inspectors noted that there were certain failure scenarios (a fault causing the HACC breaker to open, for example) that were reliant on the 13.8 kV fast transfer of the Bus Tie Transformers (AC and BD) to ensure that a single offsite source would still be available. However, LCO 3.8.1.1 does not address the operability of this fast transfer capability. Additionally, the inspectors observed that there was no surveillance requirement in LCO 3.8.1.1 to ensure that the fast transfer capability for the 13.8 kV Bus Tie Transformers was OPERABLE. This appeared to indicate that the LCO did not recognize this fast transfer as an analyzed and approved method for ensuring operability of an offsite source.

Surveillance Requirement (SR) 4.8.1.1.1.b requires that offsite sources be "demonstrated OPERABLE at least once each REFUELING INTERVAL during shutdown by transferring (manually and automatically) unit power supply to each of the offsite circuits." SR 4.8.1.1.1.b appears to address the transfer from the station auxiliary transformer to the startup transformers, but it does not appear to test the automatic transfer capability between the two startup transformers. However, in October 2003, the licensee included wording in a change to the TS Bases (License Amendment Request 03-0003) that interpreted SR 3.8.1.1.1.b to include the testing of the startup transformer fast transfer function. The new TS Bases wording stated, "Surveillance Requirement 4.8.1.1.1.b is performed at least once each REFUELING INTERVAL during shutdown by demonstrating the capability of transferring (both manually from the control room and automatically) each 13.8 kV bus power supply from the unit auxiliary transformer to each offsite circuit, and from each offsite circuit to the other offsite circuit." The inspectors noted that this change altered the intent and scope of SR 4.8.1.1.1.b, which only tests the transfer from the station auxiliary transformer to the other offsite sources. This appears to be contrary to the requirements contained in TS Section 6.17, "TS Bases Control Program," which states, in part, that the licensee may make changes to the Bases without prior NRC approval provided the changes do not require a change in the TS incorporated in the license. The inspectors noted that the inclusion of the startup transformer fast transfer into SR 4.8.1.1.1.b added this feature as a basis for operability for LCO 3.8.1.1 and therefore potentially changed the TSs.

Since, depending upon the plant electrical lineup, the fast transfer of the Startup Transformers and the Bus Tie Transformers was being credited by the licensee for operability of offsite sources, the inspectors questioned whether LCO 3.8.1.1 should contain requirements that test these features. This would be consistent with the requirement in SR 4.8.1.1.1.b. Additionally, the inspectors questioned if the incorporation of the testing of the Startup Transformer fast transfer function into SR 4.8.1.1.1.b by changing the TS Bases was a violation of TS Section 6.17, "TS Bases Control Program." However, these issues requires further review by both the NRC and the licensee prior to final resolution. Consequently, this will be considered an unresolved item (URI 0500346/2004007-01) pending further review.

#### 4OA3 Event Followup (71153)

##### .1 ABBD2 Breaker Issue

On April 5, 2004, a maintenance activity to remove breaker ABDD2 from its cubicle for normal preventive maintenance was attempted. Since this activity resulted in an electric plant configuration in which both essential 4 KV busses were supplied via one 13.8 KV source, the licensee entered a yellow risk condition and entered the appropriate TS action statement.

During the conduct of the electric plant realignment, breaker ABDD2 failed to open. This caused the licensee to back out of their planned maintenance activity and develop a plan to address the failure of the breaker to operate. This plan included a down power to approximately 80 percent and de-energizing bus D2. De-energizing bus D2 resulted in the entry into a red risk condition.

On April 5, 2004, at approximately 2000, the licensee conducted a brief for reducing power. At about 2200, with the reactor power at approximately 80 percent, the licensee briefed the activity that would place them in a red risk condition. At about 2324, the licensee de-energized bus D2. After removing the breaker, the licensee re-energized the D2 bus at approximately 0023 and exited the red risk condition

This issue is further discussed in Section 4OA2 of this report. There were no items of significance identified by the inspectors.

##### .2 Loss of Bus E4, E6, and Circulating Water Pump 1

On April 7, 2004, at approximately 1506, breaker HAAE4 [13.8 KV feeder breaker to transformer AE4 and transformer AE6] and breaker HA08 [13.8 KV supply breaker for circulating water pump 1] tripped. As a result of the breaker trips, several non-vital electric loads and circulating water pump 1 were lost. As a direct result of losing the circulating water pump, condenser vacuum started to decrease. Inspectors observed that the operators took the appropriate actions to lower plant power until vacuum stabilized and was restored to an acceptable pressure. During this plant transient, the operators exercised abnormal operating procedures for loss of condenser vacuum, loss of circulating water pump, rapid plant shutdown; and loss of alternating current (AC) power. The plant was stabilized with reactor power at 97 percent and electrical output down approximately 30 MW.

The inspectors evaluated the licensee's initial response to the transient, subsequent actions to identify the cause of the of the breaker trips, and corrective actions. No items of significance were identified by the inspectors.

##### .3 (Closed) LER 05000346/2002-009-01: Degradation of the High Pressure Injection Thermal Sleeves

LER 05000346/2002-009-00, "Degradation of the High Pressure Injection Thermal Sleeves," was previously evaluated and closed by inspectors in Inspection Report

05000346/2003010(DRS). No violations of regulatory requirements or findings of significance were observed.

On March 26, 2004, the licensee submitted Revision 01 to this LER. The purpose of this revision was to update the results of the licensee's root cause evaluation and to update their commitments which addressed this issue. These commitments included: revising the Augmented Inservice Inspection Program to include ultrasonic and radiographic testing of the 2-1 and 2-2 high pressure injection thermal sleeves during the 14<sup>th</sup> refueling outage; revising the Augmented Inservice Inspection Program to include an augmented VT-1 visual examination of the HPI/MU (High Pressure Injection/Makeup) thermal sleeve once every other refueling outage [commencing with RFO 15]; and to complete an engineering change request to determine the long-term action for thermal sleeve crack initiation.

The inspectors reviewed the licensee's corrective actions and determined them to be acceptable. This item is closed.

.4 (Closed) LER 05000346/2004-001-00: Violation of Steam and Feedwater Rupture Control System TS

On January 6, 2004, while in Mode 3, the licensee performed a Channel Functional Test of Steam Feedwater Rupture Control System Channel 4 Steam Generator Differential Pressure Switch for Steam Generator 2, per the appropriate maintenance procedure. As required, the pressure switch was isolated for the performance of the test and an entry noting the removal from service was made in the Unit Log. Technical Specifications required that action be taken within 1 hour to place the inoperable channel in a tripped condition or return the pressure switch to service. After taking the pressure switch out of service, the technicians performing the test determined that leaking isolation valves precluded them from performing the functional test. The technicians left the pressure switch isolated and initiated discussions with work planning and operation department personnel on how to proceed with the activity. Although it was communicated to the technicians performing the test that the pressure switch be placed back in service, the time frame for action was not made clear. For approximately 2 hours and 24 minutes, the pressure switch was isolated and would not perform its function and the associated instrument channel was not placed into a tripped condition, as required by TSs.

Inspectors initially evaluated this issue in NRC Inspection Report 05000346/2004002. A discussion of the issue and a Non-Cited Violation of TSs (NCV 05000346/2004002-04), having very low safety significance, was documented in that report. The inspectors have reviewed the corrective actions taken by the licensee to prevent recurrence of this issue and determined them to be acceptable. This item is closed.

.5 (Closed) Violation (VIO) 05000346/2004005-01: Potential Inability for HPI Pumps to Perform Safety Related Function

The NRC's Final Significance Determination (WHITE) for this violation is documented in NRC Inspection Report 05000346/2004005 which was issued on March 5, 2004. This issue is also discussed in NRC Inspection Report 05000346/2004002 under closure of LER 05000346/2003-002-01. The licensee responded to the Notice of Violation on April 5, 2004, and described the reason for the violation and corrective actions taken. Full compliance with the requirements of 10 CFR 50, Appendix B, Criterion III, "Design Control" was achieved on December 5, 2003, with completion of extensive modifications of the HPI pumps. The NRC's evaluation of the modifications was documented in Inspection Report 05000346/2004002. This violation is considered closed.

.6 Response to Tornado Watch

On May 17, 2004, the National Weather Service issued a tornado warning for Ottawa County. The plant staff entered their off normal occurrence procedure for the off-site sighting of a tornado. Required activities included starting the emergency diesel generators and notifying personnel. The watch lasted approximately 1 hour. The inspectors reviewed the licensee response as directed by their procedures and the adequacy of those responses. No items of significance were identified by the inspectors.

.7 Emergency Plan Siren Issues

On May 7, 2004, the licensee made an 8 hour non-emergency report to the NRC (Event 40734), in accordance with the requirements of 10CFR50.72(b)(3)(xiii), after determining that the Ottawa County Sheriff Dispatcher had lost the capability to activate the emergency planning sirens from the sheriff's dispatch control station. This deficiency was discovered during the monthly test of the sirens. The licensee determined that the loss of this capability had existed since approximately April 5, 2004, but that the capability to activate the sirens from the licensee's emergency operations facility was always available. Once identified, the deficiency was promptly corrected. The licensee documented the discrepancy in a condition report (CR 04-03213).

On May 8, 2004, the licensee made a 4 hour non-emergency report to the NRC (Event 40736), in accordance with the requirements of 10CFR50.72(b)(2)(xi), after ten sirens in Ohio's Salem Township sounded unexpectedly for a period of 3 minutes. No test or other activation was scheduled during that time. The licensee's investigation concluded that the most likely cause was due to a workman in the sheriff's office unintentionally activating the sirens. The licensee documented the event in a condition report (CR 04-03215).

The licensee's review concluded that the two events were not related. The inspectors evaluated the licensee's initial response to each of these events and noted no items of significance.



#### 4OA5 Other Activities (93812)

Following restart, the 0350 Panel authorized the use of Inspection Procedure 93812 to facilitate the documentation of issues not specifically covered by existing procedures, but that are important to the evaluation of the licensee's performance. This inspection procedure remains in effect as part of the integrated resident inspection report until a time to be determined by the Davis-Besse Oversight Panel.

##### .1 Completion of the Startup and Power Ascension Inspection

At the beginning of this inspection period, reactor power was approximately 80 percent. Restart and power ascension inspection team members continued to evaluate control room activities, conduct of pre-evolution briefs, shift turnovers, and general communications, management decision making, support department performance, and general material condition and housekeeping, during the first 4 days of April. The inspection activities were conducted in accordance with the inspection plan, "Initial Criticality and Power Ascension Team Inspection," dated February 26, 2004. The overall goal of this inspection plan was to verify the Davis-Besse Operations department's ability to conduct a safe startup and power ascension to 100 percent reactor power.

All but 4 of the 27 days which comprised this inspection occurred in March and therefore are documented in Inspection Report 05000346/2004006. That report provided a detailed accounting of observations and conclusions. No observations from the Team inspection, documented during this inspection period, changed the conclusion that the overall performance of the licensee was adequate to support continued operation of the facility. The inspection was completed on April 4, 2004.

##### .2 Employee Meetings

On May 12, 2004, the inspectors attended a Site Town Hall Meeting chaired by plant radiological protection manager. Topics covered included the upcoming NRC Oversight Panel's monthly public meeting, results from a recent INPO (Institute of Nuclear Power Operations) two week assessment, and other site activities. The inspector observed the discussion and participation by the approximate 35 plant employees who attended the meeting.

#### 4OA6 Meetings

##### .1 Exit Meeting

The inspectors presented the inspection results to Mr. Mark Bezilla, and other members of licensee management on May 20, 2004. The licensee acknowledged the findings presented. No proprietary information was identified.

.2 Interim Exit Meetings

Interim exit meetings were conducted for:

- Emergency Preparedness inspection with Mr. B. Cope on April 9, 2004.
- Access Control to Radiologically Significant Areas and the Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems inspections with Mr. B. Allen on April 22, 2004.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee Personnel

B. Allen, Plant Manager  
M. Bezilla, Site Vice President  
G. Dunn, Manager, Regulatory Affairs  
J. Grabnar, Manager, Design Engineering  
L. Harder, Radiation Protection Manager  
D. Kline, Manager, Security  
W. Mugge, Manager, Work Week Management  
L. Myers, Chief Operating Officer, FENOC  
K. Ostrowski, Manager, Plant Operations  
J. Powers, Director, Nuclear Engineering  
M. Ross, Director Support Services (Acting)  
M. Stevens, Director, Maintenance  
B. Cope, Senior Emergency Preparedness Specialist

### LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened

|                     |     |   |
|---------------------|-----|---|
| 05000346/2004007-01 | URI | Startup and Bus Tie Transformer Fast Transfer Capability Not Reflected in Surveillance Requirements |
|---------------------|-----|---|

#### Closed

|                      |     |  |
|----------------------|-----|--|
| 05000346/2002-009-01 | LER | Degradation of the High Pressure Injection Thermal Sleeves           |
| 05000346/2004-001-00 | LER | Violation of Steam and Feedwater Rupture Control System TS           |
| 05000346/2004005-01  | VIO | Potential Inability for HPI Pumps to Perform Safety Related Function |

## LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather that selected portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless stated in the body of the inspection report.

### 1R04 Equipment Alignment

DB-OP-06316; Diesel Generator Operating Procedure; Revision 13

### 1R05 Fire Protection

Davis-Besse Nuclear Power Station Fire Hazard Analysis Report

Drawing A-223F; Fire Protection General Floor Plan El. 585'-0"; Revision 16

### 1R12 Maintenance Effectiveness

CR 04-02780; Emergency Diesel Generator 1 Fuel Oil Transfer Pump Overload Problems

CR 03-06966; Degraded Insulation Resistance of MP195-1

CR 04-0091; Preventive Maintenance Program Backlog Management

Problem Solving Plan; Emergency Diesel Generator 1 Fuel Oil Transfer Pump Tripping on Thermal Overload (CR 04-2780)

Work Order (WO) 200092249; BE1298 Overload Trip, CR 04-02780

DB-OP-06273; Diesel Oil Transfer; Revision 08

Davis-Besse Maintenance Rule Program Manual; Revision 12

Davis-Besse System Health Report; 4<sup>th</sup> Quarter; dated February 20, 2004

Preventative Maintenance Completion Problem Solving Decision Making Report

NOP-ER-1001; Continuous Equipment Performance Improvement; Revision 00

NOP-WM-3001; Preventive Maintenance Program; Revision 02

### 1R13 Maintenance Risk and Emergent Work

CR 04-02741; Unexpected Response from the ICS Unit Load Demand

CR 04-02741; Unexpected Response from the ICS Unit Load Demand

Problem Solving Plan; ICS Unit Load Demand Ramps Up Slowly After Coming Out of Track; April 16, 2004

Circulating Water Pump Motor - Lift Plan; Revision 01

1R15 Operability Evaluations

OE-04-0013; Containment Hydrogen Analyzer Sample Pump Failure During Performance of DB-PF-04153

OE-04-00014; Failure of the Containment Normal Range Radiation Monitor Sample Pump and the Containment Accident Range Radiation Monitor Sample Pump to Operate as Expected During the Performance of DB-PF-04153

Problem Solving Plan; Containment H2 Analyzer/RE4597BA and RE4597BB Sample Pump Failure During Performance of DB-PF-04153, Secondary Containment Leak Rate Test

DB-OP-02000; RPS, SFAS, SFRCS, or SG Tube Rupture; Revision 07

DB-CH-06000; Post Accident Sampling System Operation and Analysis; Revision 08

DB-OP-06502; Containment Hydrogen Dilution and Hydrogen Purge System; Revision 02

C-NSA-060.05-010; Addendum 2; Containment Analysis; Revision 03

CR 04-03011; P273-3 and P273-4 Tripped on Overload at 38 PSIG During DB-PF-04153 Test

CR 04-02576; AFPT 2 Outboard Bearing Metal Temp Rising During Testing

CR 04-03055; Timing for H2 Analyzer Sampling May Conflict with DB-OP-2000

CR 04-03019; P267-1, Did Not Start When Required Per Attachment 3 of DB-PF-04153, Secondary Containment Leak Test

1R19 Post-Maintenance Testing

WO 200031697; DB-BE1157, Borated Water Storage Tank Outlet Line 1

Operations Evolution Order for Stroking DH7B; dated May 18, 2004

1R22 Surveillance Testing

DB-SS-04151; Main Turbine Control Valve Test; Revision 05

DB-SS-04152; Main Turbine Combined Intermediate Valve Test; Revision 05

Program Manual for Reactor Coolant System Integrated Leakage Program; Revision 01

DB-SP-03357; RCS Water Inventory Balance; Revision 05

1EP4 Emergency Action Level and Emergency Plan Changes

Davis-Besse Nuclear Power Station Emergency Plan; Revision 23

1EP6 Emergency Preparedness Drill Evaluation

Davis-Besse Emergency Preparedness Integrated Drill Manual, Thursday, May 20, 2004; Revision 00

2OS1 Access Control to Radiologically Significant Areas

Radiation Work Permit 2004-5546; Job Package: Inspect/Repair Seal Welds; Revision 1

Radiation Work Permit 2004-1011; Sluice Spent Resin from Spent Resin Storage Tank to HIC, Package and Ship; Revision 1

DBF 2004-0735; Field Observation Card

DP-HP-01109; High Radiation Area Access Control; Revision 16

DP-HP-01152; Performance of High Exposure Work; Revision 0

DP-HP-04033; Spent Fuel Pool Radiological Material Inventory; Revision 0

Spent Fuel Pool ICA Map for SNA Accountability; dated March 3, 2003

Spent Fuel Pool Tri Nuke Filter Locations; dated August 12, 2003

Spent Fuel Pool Cleanout Plan; dated April 20, 2004

Dose Evaluation for weeks of February 16, 2004, to April 5, 2004

CR 04-01981; There Were No Completed Performance Indicator Data Input Sheets

CR 04-02718; An Employee Did Not Complete the Exit Whole Body Count

CR 03-10471; Unknown Reason for Dose Rate Alarm

CR 03-10566; MG Unexplained High Rate Alarm in the Turbine Building

CR 04-02263; I&C Employee Found Inattentive to Duties

CR 04-02834; Spent Fuel Pool Inventory Not in Compliance with DB-HP-04033; dated April 21, 2004

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

Annual Radiological Environmental Operating Report; dated 2002

CR 03-01783; Miscellaneous Radwaste Processing Issues

CR 03-02737; Analytical Results from Vendor in Error

CR 03-05530; Contaminated Sample Container

CR 04-01308; RFA-Debris Evaluation for WO 200083826

CR 04-02817; Unacceptable Material Condition of Radiation Monitors in Plant

CR 04-01933; Surveillance Tests in Grace for Week of March 8, 2004

CR 04-03004; Grace Period Entered for Surveillance Test

CR 04-03006; Potential Concern with Routinely Entering T/S Grace Period

Nuclear Quality Assessment; ODCM-Effluents, REMP, T/S; dated January 9, 2003

Nuclear Quality Assessment; Chemistry Corrective Action Effectiveness; dated April 1, 2003

Nuclear Quality Assessment; Chemistry Water Management Controls; dated August 14, 2003

DB-OP-03011; Radioactive Liquid Batch Release; dated January 15, 2003

DB-OP-03011; Radioactive Liquid Batch Release; dated November 21, 2003

DB-OP-03012; Radioactive Gaseous Batch Release; dated September 22, 2003

DB-OP-03012; Radioactive Gaseous Batch Release; dated October 7, 2003

DB-CH-04042; RETSCOPE (Liquid) ODCM Validation; Revision 2

DB-CH-04041; RETSCOPE (Gas) ODCM Validation; Revision 3

Offsite Dose Calculation Manual; Revision 18

Interlaboratory Comparison Data, 3<sup>rd</sup> Quarters of 2001, 2002, 2003

Germanium Detector 1 Efficiency Calibrations; dated September 1-19, 2003

Germanium Detector 2 Efficiency Calibrations; dated September 24, 2003

Alpha/Beta Counter SAC-4 Calibration; dated December 9, 2003

Liquid Scintillation Counter Quarterly Efficiency Determination; dated February 12, 2004

MDA Verifications for Germanium Detectors 1 and 2; dated September 1 and 23, 2003

DB-MI-03401; DB-RE1770A Radiation Monitor Calibration; dated August 4, 2003

DB-MI-03401; DB-RE1770B Radiation Monitor Calibration; dated September 23, 2003

DB-MI-03401; RE4686 Radiation Monitor Calibration; dated January 7, 2004

DB-MI-04559; RE8433 Radiation Monitor Calibration; dated February 24, 2003

DB-MI-04559; RE8432 Radiation Monitor Calibration; dated February 28, 2004

DB-MI-03401; RE1878A Radiation Monitor Calibration; dated October 8, 2003

DB-MI-03401; RE1878B Radiation Monitor Calibration; dated December 1, 2003

DB-MI-03401; RE1822A Radiation Monitor Calibration; dated June 13, 2003

DB-MI-04503; RE5052A Radiation Monitor Calibration; dated March 28, 2004

DB-MI-04514; RE5052B Radiation Monitor Calibration; dated March 28, 2004

DB-MI-03415; RE5052C Radiation Monitor Calibration; dated March 28, 2004

DB-MI-03413; RE4598AA Radiation Monitor Calibration; dated October 9, 2002

DB-MI-03413; RE4598BA Radiation Monitor Calibration; dated June 6, 2003

69D-ISF1700B; Flow Monitor Calibration; dated July 8, 2003

69D-ISF1700A; Flow Monitor Calibration; dated September 19, 2002

71C-ISF1887B; Flow Monitor Calibration; dated July 26, 2003

32C-ISF5090; Flow Monitor Calibration; dated August 22, 2002

32C-ISF5090A; Flow Monitor Calibration; dated August 23, 2002

DB-SS-04045; HEPA Filter and Charcoal Absorber Test; dated January 21, 2002

DB-SS-04044; Lab Hood Exhaust Filter Refueling Test; dated January 5, 2002



DB-SS-03253; EVS Train 2 Refueling Interval or Special Test; dated January 10, 2002

DB-SS-03252; EVS Train 1 Refueling Interval or Special Test; dated November 8, 2002

DB-HP-03001; Liquid and Gaseous Radioactive Dose Commitment; dated January through December 2003

#### 4OA2 Identification and Resolution of Problems

CR 02-08185; De-energized Motor and Cable Testing

CR 02-08312; SHRR - Potential Inadequate Surveillance Testing - Transfer to Offsite Power

CR 04-02511; Failure of ABDD2 to Open

CR 04-02522; Breaker A2000Q03 Failed DB-OP-01000 Testing

CR 04-02552; ABDD2 Failure to Trip - Application of LCO 3.8.2.1

Drawing E-1, SH. 1; AC Electrical System One-Line Diagram; Revision 22

Drawing E-2, SH. 1; 25 kV and 13.8 kV Metering and Relaying One Line Diagram

DB-DF-03-0205; Repetitive Maintenance Deferral Form for Breaker A2000N01 in Cubicle ABDD2; dated April 14, 2003

DB-DF-04-0251; Repetitive Maintenance Deferral Form for Breaker A2000N01 in Cubicle ABDD2; dated February 11, 2004

CCN 01-0208; Manufacturer Shop Order No. 25Y670ZB1-1 System Technology Incorporated, Overhaul Procedure for Westinghouse DHP Circuit Breakers, Breaker ABDD2; dated March 20, 2000

DB-ME-09104; 13.8kV and 4.16 kV Westinghouse DHP Breakers; Revision 02

DB-ME-09104; 13.8kV and 4.16 kV Westinghouse DHP Breakers; Revision 04

NOP-ER-3001; Problem Solving and Decision Making Process; Revision 0

RAD 03-01585; Revise Electrical Power System Bases; dated August 12, 2003

RAD 03-01949; Change to TS Electrical Bases; dated September 29, 2003

RAD 04-00206; Auxiliary Transformer Feedback; dated February 4, 2004  
SER; Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment No. 203 to Facility Operating License No. NPF-3; dated December 8, 1995

WO 99-007323-001; Receipt Inspection, Overhaul Circuit Breaker ABDD2; dated March 25, 2000

WO 200091356; During Troubleshooting Plan for Order 200091331 It Was Found that the 52X/AACD1 RELAY Requires Replacement; dated April 6, 2004

4OA3 Event Followup

CR 04-00181; Missed TS Action Statement

CR 02-09739; 2-2 HPI Thermal Sleeve

CR 02-09928; 2-1 HPI Thermal Sleeve

RA-EP-02810; Emergency Plan Off Normal Occurrence Procedure - Tornado; Revision 03

CR 04-03213; Loss of Control of System to Activate EPZ Sirens

CR 04-03215; Siren-Salem Township Sirens Activated

4OA5 Other Activities

Problem Solving Plan; Unexpected Rod Movement with ICS Reactor Control Scheme Stations in Manual; Revision 0, Revision 1, and Revision 2

CR 04-02453; Undesired Rod Motion with Reactor Diamond and Reactor Demand in Manual

CR 04-02319; Startup Feedwater Valve Demand Spikes During Hand to Auto Transfer

CR 04-01443; HAAE4 Failure to Close

CR 04-02575; Breakers HA08 and HAE4 Tripped

Problem Solving Plan; Circuit Breakers HAAE4 and HA08 Tripped Open at Approximately the Same Time at 15:06 on 4/7/04.

## LIST OF ACRONYMS USED

|       |   |
|-------|---|
| AC    | Alternating Current                               |
| ADAMS | Agencywide Documents Access and Management System |
| AFP   | Auxiliary Feedwater Pump                          |
| ALARA | As Low As Is Reasonably Achievable                |
| CFR   | Code of Federal Regulations                       |
| CR    | Condition Report                                  |
| FENOC | FirstEnergy Nuclear Operating Company             |
| HPI   | High Pressure Injection                           |
| HRA   | High Radiation Area                               |
| IMC   | Inspection Manual Chapter                         |
| INPO  | Institute of Nuclear Power Operations             |
| IR    | Inspection Report                                 |
| kV    | Kilovolts   |
| LCO   | Limiting Condition for Operation                  |
| LER   | Licensee Event Report                             |
| MU    | Makeup  |
| NCV   | Non-Cited Violation                               |
| NRC   | United States Nuclear Regulatory Commission       |
| ODCM  | Offsite Dose Calculation Manual                   |
| PARS  | Publicly Available Records                        |
| RCS   | Reactor Coolant System                            |
| RETS  | Radiological Environmental TSs                    |
| RFO   | Refueling Outage                                  |
| SR    | Surveillance Requirement                          |
| TS    | Technical Specifications                          |
| URI   | Unresolved Item                                   |
| USAR  | Updated Safety Analysis Report                    |
| VHRA  | Very High Radiation Area                          |
| Vdc   | Volt Direct Current                               |
| VIO   | Violation   |
| WO    | Work Order  |