February 4, 2004

Mr. Lew W. Myers
Chief Operating Officer
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 SPECIAL INSPECTION - RESTART READINESS ASSESSMENT TEAM
INSPECTION REPORT NO. 05000346/2003011 (DRP)

Dear Mr. Myers:

On December 19, 2003, the U.S. Nuclear Regulatory Commission (NRC) completed a Restart Readiness Assessment Team Inspection at your Davis-Besse Nuclear Power Station. The enclosed inspection report documents the inspection findings which were discussed with you and other members of your staff. The purpose of the inspection was to evaluate the readiness of plant hardware, plant staff, and management programs to support a safe restart and continued operation of Davis-Besse Nuclear Power Station. The team focused on those processes and programs which could affect safe reactor startup, and included the areas of operations, maintenance, surveillance testing, engineering and quality assurance activities in the area of operations.

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.

The inspection was performed using an inspection plan that was approved by the Davis-Besse Oversight Panel. This inspection was associated with Restart Checklist Items 5.b, "Systems Readiness for Restart," and 5.c, "Operations Readiness for Restart." Based on the review by the team, the failure of your staff to consistently implement your expectations and standards did not give us reasonable assurance at this time that they were ready to safely operate the Davis-Besse Station at power. Additional inspection on our part is needed to provide that assurance.

Based on the results of this inspection four findings of very low safety significance (Green) were identified in the report. All of the findings were determined to involve violations of NRC requirements. However, because of the very low safety significance of these findings, and because they were entered into your corrective action program, the NRC is treating the issues as Non-Cited Violations (NCVs) consistent with Section VI.A of the NRC Enforcement Policy.

If you contest the Non-Cited Violations in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III, 801 Warrenville Road, Lisle, IL 60532-4351; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington DC 20555-001; and the NRC Resident Inspector at Davis-Besse.

In accordance with 10 CFR Part 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA by Christine Lipa Acting for/

John A. Grobe, Chairman
Davis-Besse Oversight Panel

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

Enclosure: Inspection Report No. 05000346/2003011

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-346
License No:	NPF-3
Report No:	05000346/2003011
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Davis-Besse Nuclear Power Station
Location:	5501 North State Route 2 Oak Harbor, OH 43449-9760
Dates:	December 8 -19, 2003
Inspectors:	R. Skokowski, Senior Resident Inspector, Byron, Team Leader J. Blake, Senior Project Manager, Region II T. Hoeg, Senior Resident Inspector, Grand Gulf D. Passehl, Senior Project Engineer, Region III G. Wilson, Senior Resident Inspector, Duane Arnold J. Zeiler, Senior Resident Inspector, Vogtle J. Rutkowski, Resident Inspector, Davis-Besse
Observers:	S. Eischen, State of Ohio, Emergency Management Agency S. James, State of Ohio, Department of Health
Approved by:	Christine A. Lipa, Chief Branch 4 Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000346/2003011(DRP); FirstEnergy Nuclear Operating Company; on 12/8-19/2003; Davis-Besse Nuclear Power Station. Restart Readiness Assessment Team Inspection.

The report covers a 2-week special inspection by four senior resident inspectors, two senior regional inspectors and a resident inspector. The inspection assessed the readiness of the plant hardware, plant staff, and management programs to support a safe restart and continued safe operation of the Davis-Besse Nuclear Power Station. The inspection focused on a review of the control room operations, field operator tours, equipment status, operational quality assurance and self-assessment, maintenance activities, surveillance testing and engineering and technical support. Four Green findings and associated Non-Cited Violations (NCVs) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector-Identified and Self-Revealed Findings

Cornerstone: N/A

- Green. The team identified a finding of very low safety significance associated with an NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to assure that actions were promptly taken to correct deficiencies for conditions adverse to quality identified in Davis-Besse Operational Readiness Assessment Report No. 2003-0021. The report contained 20 recommended actions; several of which were not adequately captured in the corrective action program. This finding was related to the cross-cutting area of Problem Identification and Resolution.

  The finding was more than minor because the licensee's failure to enter these issues into their corrective action program if left uncorrected, would become a more significant safety concern. This finding was determined to be of very low safety significance by management review because no safety systems were degraded nor was any safety equipment rendered inoperable. This issue was an NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action." (Section 4OA5.A.4.1)

- Green. The team identified a finding of very low safety significance associated with an NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to effectively implement corrective actions following the several operational events from the September 2003 Mode 3 normal operating pressure and temperature test. These events and the corrective actions were described in the Collective Significance Review for Operating Events and Errors Identified in Condition Report 03-08418, in conjunction with the Operations Improvement Implementation Action Plan. The corrective actions were ineffective as evidenced by continued operational performance issues in the areas of pre-job briefs and failure to implement standard and expectations. Specific examples include inadequate AFW full test brief and the lack of operators' awareness

demonstrated during the evolution to draw a pressurizer bubble. This finding was related to the cross-cutting area of Problem Identification and Resolution.

The finding was more than minor because the recurring operational performance issues, if left uncorrected, would become a more significant safety concern. This finding was determined to be of very low safety significance by management review because no safety systems were degraded nor was any safety equipment rendered inoperable. This issue was an NCV of 10 CFR 50 Appendix B Criterion XVI, "Corrective Action." (Section 4OA5.A.4.4)

Cornerstone: Initiating Events

- Green. A finding of very low safety significance was identified through a self-revealing event related to the operators failing to have the proper knowledge of plant equipment lineups in accordance with the Conduct of Operations procedure for the operation of plant equipment in their area. During the performance of the evolution to draw a bubble in the pressurizer, the heaters failed to energize as expected, because the operators were unaware that some of the pressurizer heaters were unavailable for operation due to interlocks not being met and power not being available. The primary cause of this finding was related to the cross-cutting area of Human Performance in that operators were unaware of the status of plant equipment.

  The finding was more than minor since the finding affected the initiating event cornerstone attributes of configuration control for equipment lineups. The on-shift operators were not aware of the plant's equipment lineup for operation of the pressurizer heaters. The finding was determined to be of very low safety significance since additional pressurizer heaters were available and no actual plant impact occurred. An NCV of Technical Specification 6.8.1.a for procedural non-adherence was identified. (Section 4OA5.A.1.9)

Cornerstone: Mitigating Systems

- Green. The team identified a finding of very low safety significance. Specifically, a Non-Cited Violation of Technical Specification 6.8.1.a was identified for multiple examples of personnel failing to document the usage of Measuring and Test Equipment (M&TE) from safety-related surveillance testing. The primary cause of this finding was associated with the cross-cutting area of Human Performance in that M&TE users had failed to properly account for M&TE usage.

  The finding was more than minor because it involved the equipment performance attribute of the Mitigating System cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. If M&TE failed a post-calibration check, traceability lapses in the licensee's M&TE database would make it difficult to identify all instances where the out-of-tolerance M&TE was used since last calibrated in order to evaluate the impact of the condition on components and systems. The finding was determined to be of very low safety significance because no actual out-of-tolerance conditions occurred involving the affected M&TE. (Section 4OA5.B.2.2)

REPORT DETAILS

Summary of Plant Status

The Davis-Besse Station remained shutdown and in Mode 5 during this inspection period. The licensee was completing system readiness activities and returning systems to service following an extended outage in preparation for entering Mode 4.

4. OTHER ACTIVITIES

4OA5 Other Activities (92812)

The purpose of this inspection was to evaluate the readiness of the Davis-Besse's plant hardware, plant staff and management programs to support restart. Based on the team's review, several inconsistencies were observed in the licensee's performance, such that the team concluded that there was not reasonable assurance that the operating staff were ready to make the transition to power operations.

The team observed inconsistencies in the following areas:

- performance of pre-job and pre-test briefings;
- operators' awareness of the status of equipment and plant conditions;
- operators and other licensee staff implementation of management's expectations standards;
- procedure quality and procedure adherence
- problem identification; and
- organization of the work control process.

In addition, the team identified concerns regarding:

- the qualifications of system engineers;
- the traceability of measuring and test equipment; and
- that some corrective actions resulting from operational performance issues in September 2003, that were either not tracked or were ineffective.

The details associated with these issues were described below.

A. OPERATIONS

A.1 Control Room

1. Shift Turnovers

a. Inspection Scope

The team evaluated control room shift turnovers to determine whether performance in this area was sufficient. The team compared the operators' performance to standards

established in the licensee's procedures. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

Shift turnovers were generally thorough. Each oncoming watchstander conducted a detailed control board walkdown, turnover checklist review, and verbal turnover with the off-going watchstander. Pre-turnover crew briefings were generally detailed and included discussions of important planned evolutions and associated plant configurations for the upcoming shift. Each oncoming watchstander stated plant conditions/evolutions affecting his watch station. In addition, during the shift turnovers, the at-the-controls reactor operator was not directly involved with briefing for the oncoming shift. This allowed the at-the-controls operator to stay focused on monitoring control panels and associated plant parameters during the turnover.

The following deficiency was noted:

- On December 14, 2003, the day shift manager was relieved of his watchstanding duties, after having to be corrected at the morning turnover meeting for several inaccuracies including the operability status of two significant plant systems and the overall plant risk.

  The team determined this to be a minor violation of Technical Specification (TS) 6.8.1.a., for failing to follow the procedures associated with Regulatory Guide 1.33, 1978 Section 1.a, "Authorities and Responsibilities for Safe Operation and Shutdown." The specific violation was the failure to follow the procedure for shift turnover as described in Davis-Besse (DB) Operations Procedure (OP) 00000, "Conduct of Operations," Revision 6, Section 6.3 and in DB-OP-00100, "Shift Turnover," Revision 6. In failing to complete a proper turnover as described in the general turnover guidelines, for obtaining the knowledge of evolutions and equipment status the oncoming shift manager was not prepared to direct the operation of the plant. The lack of knowledge of the current plant conditions was evident by the incorrect information given by the shift manager at the morning turnover meeting. The team reviewed this issue against the guidance contained in Appendix B, "Issue Dispositioning Screening," of Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports." In particular, the team compared this issue to the findings identified in Appendix E, "Examples of Minor Issues," of IMC 0612 to determine whether the finding was minor. This issue was considered to be a violation of minor significance and was not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee documented this issue in their corrective action program as Condition Report (CR) 03-10872.

c. Conclusions

Shift turnovers were generally conducted professionally, clearly conveying status changes for important plant equipment, and addressing planned/ongoing evolutions.

One exception was noted when the SM was relieved for not having an adequate understanding of plant conditions.

2. Pre-Evolution/Job Briefings

a. Inspection Scope

The team evaluated pre-evolution and pre-job briefings to determine whether performance in this area was sufficient by looking at the potential challenges and contingency actions. The team compared the performance to standards established in the licensee's procedures. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

Pre-evolution and pre-job briefs were performed using the associated checklist. The evolution and goals were discussed, particularly potential error likely situations and precursors were well covered. Input was solicited from participants and assignments and actions were discussed. However, during several of the observed briefs, initial conditions, precautions and limitations, and critical steps were not always discussed in detail as described in the noted deficiencies below.

The following deficiencies were noted:

- On December 9, 2003, the brief for the start of the No. 2 condensate pump failed to cover all the pertinent precautions and limitations including key set points associated with the evolution, until brought up by the team. The failure to cover key set points had resulted in problems during previous evolutions. On December 11, 2003, the brief for drawing the pressurizer bubble failed to address all known deficiencies affecting the evolution, in particular an out-of-service pressurizer pressure instrument specified by the governing procedure and out-of-service pressurizer heaters and heater controls used during the evolution. On December 15, 2003, the brief for the No. 2 auxiliary feedwater flow test failed to address all the critical steps associated with the test to minimize the potential for water hammer in the feedwater piping, until brought up by the team.

  The team determined these issues to be minor violations of TS 6.8.1.a., for failing to follow the procedures associated with Regulatory Guide 1.33, 1978 Section 1.a, "Authorities and Responsibilities for Safe Operation and Shutdown." The specific violation was the failure to follow the procedure for shift turnover as described in DB-OP-00000, "Conduct of Operations," Revision 6, Section 6.7.6 and in General Procedure (GP) 03, "Conduct of Pre-Job and Post-Job Reviews," Revision 6. In failing to perform a proper pre-job brief as described in the checklist, individuals are not properly prepared to effectively and efficiently perform the evolution. In addition, there were examples where procedure adherence was not maintained. The team reviewed these issues against the

guidance contained in Appendix B, “Issue Dispositioning Screening,” of IMC 0612, “Power Reactor Inspection Reports.” In particular, the team compared these issues to the findings identified in Appendix E, “Examples of Minor Issues,” of IMC 0612. These issues were considered to be violations of minor significance and were not subject to enforcement action in accordance with Section IV of the NRC’s Enforcement Policy. The licensee documented these issues in their corrective action program as CR 03-11033.

Additional details regarding the auxiliary feedwater (AFW) system test pre-job brief issue as well as another pre-test briefing issue are provided in Section 4OA5.B.2.1 of this report.

c. Conclusions

Pre-evolution and pre-job briefs were performed using the checklist, but the briefs did not always cover all the essential and critical information required to perform the task.

3. Shift Manning

a. Inspection Scope

The team evaluated control room shift manning and overtime deviation control to determine whether performance in these areas were adequate. The team compared the control room shift manning and the control of overtime to the TS and to standards established in the licensee’s procedures. The licensee’s documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

Shift manning consistently exceeded the levels required by TS 6.2.2. In addition to the shift manager (SM) (a senior reactor operator (SRO)), a reactor operator (RO), and a non-licensed operator (NLO) required by TS, a Unit Supervisor (US) (an SRO), a second RO (balance of plant RO), shift technical advisor (an SRO) and a field supervisor (an SRO) were assigned to each shift. Typically, an additional RO was staffed in the control room to support testing or system restoration activities. The additional SRO and RO staffing, beyond that required by TS, enabled the shift to support the additional work load associated with plant restart.

The licensee controlled operators’ overtime in accordance with TS 6.2.3 where situations were identified indicating that the overtime process was not followed, the licensee initiated condition reports to address the concern. The team noted that there was one scheduling problem that occurred on December 13, 2003, where there was not enough staff scheduled to cover the scheduled work for night shift. The team noted that TS 6.2.3, regarding facility staff overtime, was properly followed. However, during the review, the team identified a few discrepancies in filling out the overtime deviation form associated with the start date and the licensee wrote CR 03-10706 to resolve the issue.

c. Conclusions

Control room shift staffing and overtime deviation control met TS requirements and were sufficient to support plant evolutions and restart.

4. Control Room Decorum

a. Inspection Scope

The team evaluated ongoing plant operations, log-keeping practices, communications, command and control, and control room decorum to determine whether performance in these areas was adequate. The team compared the operators' performance to standards established in the licensee's procedures. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

The team observed numerous interactions and interfaces between shift management and other personnel during observations in the control room. The team observed that the US was the point of accountability for the plant, displayed command authority over the operators and plant operations within, provided direct oversight of the operators assigned to the unit, and routinely reviewed the TS regarding existing and potential conditions associated with planned evolutions. In addition, the US exhibited direct responsibility for minimizing control room distractions and was cognizant of activities that could distract the attention of the control room operators from their assigned duties.

Three-way communications and peer checks were consistently and effectively used by operations department personnel for all observed orders and directions that involved operation of plant equipment or exchange of critical information related to the plant or plant equipment. Personnel in the control room were alert and performed their assigned duties in a professional manner.

The team reviewed selected control room logs. The logs were reviewed to verify compliance with DB-OP-00005, "Operator Logs and Rounds." The procedure required the logs to contain sufficient detail to allow reconstruction of shift activities. Additionally, the procedure required significant annunciators also be logged. The team performed an assessment to determine whether operational problems were being documented in accordance with the licensee's administrative procedures. In addition, the team verified that the types of information required to be recorded in the control room logs by site administrative procedures, were being recorded.

Work activities were controlled from the work control center, thereby minimizing access and traffic in the control room. In addition, work such as tagouts and system lineups were performed and controlled from the work control center thereby reducing operator collateral duties. Additional assist ROs were observed to routinely perform tasks and surveillances, thus allowing the Unit RO to monitor the unit without distraction. No

activities were observed that could adversely affect the ability of operators to perform their intended safety function.

c. Conclusions

Proper command and control by shift management was observed in the control room. Three-way communication was consistently and effectively used by operations department personnel. Operator logs and rounds were being performed appropriately. Personnel in the control room performed their assigned duties in a professional manner. Main control room access and traffic were minimized by the control of work through the work control center.

5. Procedure Usage and Adherence

a. Inspection Scope

The team evaluated control room operators using procedures, conducted interviews, reviewed selected operating procedures, and reviewed the operating procedure change process. The team compared the operators' performance to the TS and to standards established in the licensee's procedures. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

The team sampled a total of 50 procedures and noted that all were properly controlled with the most current revision available to the operators. Various plant evolutions were observed and, generally, procedure instructions were complete and appropriate for the specified activity. In addition, the procedures were followed as written and if a problem arose the appropriate process was followed to obtain a revision. Activities were usually performed in accordance with DB-OP-00000, "Conduct of Operations," Revision 6 and DB-OP-01003, "Operations Procedure Use Instructions," Revision 2. The team identified that the operating crews were not always performing the end of shift briefings in accordance with the management expectation as described in Davis-Besse Business Practice (DBBP)-OPS-0001, "Conduct for Excellence," Revision 4. The licensee entered this failure to properly adhere to procedures into their corrective action program as CR 03-11033. As described throughout this report various procedural adherence issues were identified by the team.

The following deficiency was noted:

- On December 11, 2003, circulation water pump manipulations occurred in the plant. The conduct of operations procedure required that all starting and stopping of major plant equipment shall be recorded and marked. The marking of the recorders enables major evolutions and transients to be identified for trending purposes and reference points. The recorders were not marked as described and in addition not all ROs were aware of the requirement.

The team determined this to be a minor violation of TS 6.8.1.a., for failing to follow the procedures associated with Regulatory Guide 1.33, 1978 Section 1.a, "Authorities and Responsibilities for Safe Operation and Shutdown." The specific violation was the failure to follow the procedure for chart recorder marking as described in DB-OP-00000, "Conduct of Operations," Revision 6, Section 6.23.1. The failure to perform the required recorder markings was an example where procedure adherence was not maintained. The team reviewed this issue against the guidance contained in Appendix B, "Issue Dispositioning Screening," of IMC 0612, "Power Reactor Inspection Reports," Appendix E. After the review, this issue was considered to be a violation of minor significance and was not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee documented this issue in their corrective action program as CR 03-11033.

c. Conclusions

Adequate controls for operations procedures were in effect, to ensure that the operating crews had accurate and current procedures. Various inadequacies with procedural adherence were identified by the team, especially with the DB-OP-00000, "Conduct of Operations."

6. Control Room Drawings

a. Inspection Scope

The team evaluated drawing controls and the adequacy of selected drawings available to operators in the control room. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

The team noted that adequate procedure guidance existed to ensure control of the plant drawings available to the operating crew and to ensure that the drawings reflected current plant configurations. The team sampled a total of 50 drawings and noted that all were properly controlled with the most current revision available to the operators. In addition, some of the systems with active temporary modifications were included in the sample and the team ensured that the interim changes were included in the system configuration drawing. The team reviewed the selection of drawings available to the operators, which included selected flow, wiring, and logic diagrams, and determined that the selection covered important systems and functions and was adequate.

c. Conclusions

Adequate controls for plant drawings were in effect, to ensure that the operating crews had accurate drawings which reflected the current plant configuration.

7. Operations Training

a. Inspection Scope

The team evaluated operations training for operator response, plant response, and to determine the adequacies of the just-in-time training. In addition, the team evaluated the effectiveness of the required reading program. The team compared the operations training to standards established in the licensee's procedures.

b. Observations and Findings

No findings of significance were identified.

The team's evaluation of operations training was performed through the observation of crew training scenarios, just-in-time training, and interviews with licensed and non-licensed operations staff. The team observed two training scenarios that involved abnormal plant response including a reactor trip and loss of reactor coolant system makeup capability, in which the crew performed all the associated critical tasks. The response of the simulator was appropriate for core characteristics and system response. Some deficiencies were noted by the team for the performance of briefs and subsequent actions during the training scenarios. In addition, the team observed the just-in-time training for the performance of the plant heatup. The operating crew identified various potential problems and procedural enhancements during the training.

The team performed assessments to evaluate operators knowledge of significant system modifications implemented during the extended outage and to verify that the operators have been adequately trained to successfully operate the modified systems. In addition, the team reviewed applicable documents and questioned the operations staff on required reading associated with recent modifications. All ten of the operators questioned were able to discuss the contents of the required reading. The team did question the licensee on the timeliness of completing the required reading for some of the operators. Licensee management stated that the expectations were to read the required reading within the first couple of days back on shift during crew rotation. It was noted by the team that individuals were not completing the reading within that time frame, with one on-shift individual not signing that they had completed the reading for more than twenty days, even though they were on-shift. This also showed that some administrative items were not validated to ensure timely completion within expectations. The licensee entered this into their corrective action program as CR 03-10647.

c. Conclusions

The licensee conducted operator training at an acceptable level to provide operators with the knowledge necessary to properly operate the plant and systems during abnormal plant conditions. The required reading program is maintained and performed at an acceptable level, with some minor discrepancies noted.

8. Control Room Deficiencies and Operator Workarounds

a. Inspection Scope

The team evaluated control room deficiencies and operator workarounds to determine whether performance in these areas were adequate. The team compared the control of control room deficiencies and operator workarounds to standards established in the licensee's procedures. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

An evaluation of control room deficiencies was performed by the team through the review of the open control room deficiencies and open equipment issues list. After reviewing the associated lists, the team noticed discrepancies between the lists and actual plant conditions. Several degraded indicators and annunciators were not included in the deficiency tracking list. After discussions with the licensee, the team was informed that the concerns were already identified within the licensee's program, but the tracking list had not yet been updated to reflect these issues. The licensee initiated actions to update the tracking list. When control room deficiencies were noted, the team verified that the appropriate compensatory measures were in effect. An aggregate evaluation was performed to evaluate the overall impact on the plant and no adverse impact was noted by the team. The team questioned the licensee on the detail of their aggregate deficiency assessment, to ensure that open corrective work orders, temporary modifications, open operability evaluations, and system deficiencies were properly evaluated. Based on questions by the team, the licensee wrote CR 03-10907 to perform an additional aggregate review prior to power operations.

c. Conclusions

Adequate controls for tracking and evaluating control room deficiencies were in effect. The licensee also incorporated the appropriate compensatory measures when necessary due to degraded equipment or indications.

9. Operator Attentiveness to Panel Monitoring, Equipment Status, and Annunciator Response

a. Inspection Scope

The team assessed operator awareness of control board indications, awareness of equipment status, and response to annunciators. The team compared the operators' performance to standards established in the licensee's procedures. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

b.1 General Observations

The team noted that DB-OP-00000, "Conduct of Operations," required operators to be alert and attentive to control board indications and alarms at all times. This requirement ensures that the control room operators were alert for changing critical parameters, alarms, and trends, such that resolution of an abnormal trend could be addressed before plant safety was challenged.

In general, control room operators were attentive to changes in system parameters and alarming conditions. In addition, the operators were generally familiar with equipment status and knowledgeable about abnormal plant configurations. The team evaluated systems to ensure that equipment that was necessary for present plant conditions was operable or the associated technical specification action statement was entered or a contingency plan was in place.

The team interviewed operators about causes for several standing alarms on the control room panels to evaluate the operators' awareness of abnormal conditions. During the team's observations in the control room, numerous annunciators were in the alarmed condition as a result of ongoing maintenance, testing, or equipment being out-of-service. The operators were generally knowledgeable about the causes of the alarms. Some deficiencies were noted by the team; however, for the response to the annunciators and awareness of plant conditions that affected equipment operation. One of the problems associated with annunciator responses was for the failure to read the annunciator response procedure when an unexpected alarm occurred. Additional problems were the failure to properly acknowledge every alarm and to have ROs acknowledge the alarms.

The following deficiencies were noted:

- On December 16, 2003, operators were unaware of the interlock and operation of the containment air coolers service water isolation valves. During the valve testing, the valve reopened unexpectedly due to the associated interlock. The lack of knowledge affected the overall evolution due to the unexpected response. The operators are responsible for being aware of the present plant conditions and to understand the operation of plant equipment in their area.

  The team determined this to be a minor violation of TS 6.8.1.a., for failing to follow the procedures associated with Regulatory Guide 1.33, 1978 Section 1.a, "Authorities and Responsibilities for Safe Operation and Shutdown." The specific violation was the failure to follow the procedure for maintaining a thorough knowledge and understanding of the operation of all systems and equipment in their assigned areas described in DB-OP-00000, "Conduct of Operations," Revision 6, Section 6.2.1. The failure to follow the procedure for maintaining a thorough knowledge and understanding of the operation of all systems and equipment in their assigned areas was an example where procedure adherence was not maintained. The team reviewed this issue against the guidance contained in Appendix B, "Issue Dispositioning Screening," of IMC 0612, "Power

Reactor Inspection Reports," Appendix E. After the review, this issue was considered to be a violation of minor significance and was not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee documented this issue in their corrective action program as CR 03-11033.

- DB-OP-00000, "Conduct of Operations," Revision 6, Section 6.2.2. required that ROs acknowledge the alarms, that every alarm is acknowledged, and that annunciator response procedures were read and followed for all unexpected alarms. On December 8, 2003, operators did not pull out the annunciator response for annunciator 2C on alarm panel 25 as required when an unexpected alarm occurred due to an Ohio Edison 1 Line problem. On December 9, 2003, the shift manager, rather than an RO, acknowledged annunciator 2C on alarm panel 25 for an Ohio Edison 1 Line problem. On December 11, 2003, operators did not pull out the annunciator response for annunciator 2A on alarm panel 14 as required when an unexpected alarm occurred due to a problem with the number one moisture separator reheater. On December 16, 2003, an operator did not properly acknowledge all alarms for annunciator 2C on alarm panel 25 as required. The operator kept his shoulder against annunciator button thereby silencing the audible alarm for the entire panel. Operators' responses as described in the above cases were not in accordance with the licensee's procedure.

  The team determined these issues to be minor violations of TS 6.8.1.a., for failing to follow the procedures associated with Regulatory Guide 1.33, 1978 Section 1.a, "Authorities and Responsibilities for Safe Operation and Shutdown." The specific violations were the failure to follow the procedure for annunciator response as described in DB-OP-00000, "Conduct of Operations," Revision 6, Section 6.2.2. The team reviewed these issues against the guidance contained in Appendix B, "Issue Dispositioning Screening," of IMC 0612, "Power Reactor Inspection Reports," Appendix E. After the review, these issues were considered to be violations of minor significance and were not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee documented these issues in their corrective action program as CR 03-11033.

b.2 Evolution to Draw a Pressurizer Bubble

Introduction: A finding of very low safety significance (Green) and an associated Non-Cited Violation (NCV) of TS 6.8.1.a., related to the failure to follow the procedure for the conduct of operations in accordance with Regulatory Guide 1.33, was identified through a self-revealing event.

Description: On December 11, 2003, the team observed the licensee draw a bubble in the pressurizer in accordance with DB-OP-06003, "Pressurizer Operating Procedure," Revision 9. During the performance of this evolution the operators were unaware of the status of the pressurizer heaters. Step 3.1.12.a of DB-OP-06003 specifies that the operators turn on the heaters. The operators turned the hand switch to energize the heaters but the heaters failed to energize. The reason was that all the interlocks were not obtained due to Channel 1 of the protection system being out of service for

maintenance. In addition, the operators thought that they were adjusting the output of the silicon controlled rectifier (SCR) heaters during the evolution, only to find out later that the SCRs did not have any power. This was because the feeder breaker to the motor control center to the SCR heaters was opened for maintenance; therefore, no power was available. DB-OP-00000, "Conduct of Operations," Revision 6, Section 6.2.1. required operators have a thorough knowledge and understanding of the operation of all systems and equipment in their assigned areas. The failure of the operators to realize that there was no power to several groups of heaters due to associated interlocks and feeder breaker position was not in accordance with the Conduct of Operations Procedure. Since the operators did not have the required knowledge for operating the pressurizer heaters, they did not follow the procedural requirement of the Conduct of Operations. The team determined that although the operators were not aware of the plant conditions necessary to operate the pressurizer heaters; no actual plant impact occurred and additional heaters were available.

Analysis: The team determined that a performance deficiency existed, because operations personnel failed to meet a requirement to maintain a thorough knowledge and understanding of the operation of all systems and equipment in their assigned areas described in DB-OP-00000, "Conduct of Operations," Revision 6, Section 6.2.1. Since there was a performance deficiency, the team reviewed this issue against the guidance contained in Appendix B, "Issue Dispositioning Screening," of IMC 0612, "Power Reactor Inspection Reports." The team compared this performance deficiency to the minor questions contained in Section C, "Minor Questions," to Appendix B of IMC 0612. The team concluded that the issue was more than minor since the finding affected the initiating event cornerstone attributes of configuration control for equipment lineups. The on-shift operators were not aware of the plant's equipment lineup for the pressurizer heaters, since they were not aware that certain pressurizer heaters were not available for plant operation. The finding also affected the cross-cutting area of Human Performance because the operators were unaware of the status of plant equipment.

The team reviewed this finding in accordance with Manual Chapter 0609, "Significance Determination Process (SDP)," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The team determined that the finding affected the Initiating Event Cornerstone; however, the finding did not contribute to the likelihood of a Loss of Coolant Accident (LOCA), did not contribute to the likelihood of a reactor trip or that mitigating functions would be unavailable, and did not increase the likelihood of a fire or flooding. Therefore, the finding was considered to be of very low safety significance (Green).

Enforcement: TS 6.8.1.a. and Regulatory Guide 1.33, 1978 Section 1.a, "Authorities and Responsibilities for Safe Operation and Shutdown," required that activities associated with safe operation and shutdown of the plant be performed in accordance with written procedures or documented instructions appropriate to the circumstances. DB-OP-00000, "Conduct of Operations," Revision 6, Section 6.2.1., required operators to maintain a thorough knowledge and understanding of the operation of all systems and equipment in their assigned areas. Contrary to the above, on December 11, 2003, the reactor operators failed to maintain a thorough knowledge and understanding of the operation of all systems and equipment in their assigned areas. Specifically, during the evolution to draw a pressurizer bubble, the operators did not have thorough knowledge

and understanding of the status of the pressure heaters and pressurizer heater controls, in that the operators attempted to operate the heaters while the heaters and controls were out-of-service. Because this violation was of very low safety significance and because it was entered into the corrective action program, the NRC treated this issue as an NCV (NCV 05000346/2003011-01), in accordance with Section VI.A.1 of the NRC's Enforcement Policy. This issue was entered into the licensee's corrective action program as CR 03-11033.

c. Conclusions

In general, the control room shift personnel were attentive to assigned duties. Although operators usually responded to annunciators and alarms in accordance with applicable standards and procedures, the team observed occasions when annunciator response was not performed in accordance with the licensee's procedure. Operators frequently monitored significant plant parameters associated with the plant. Although operators generally knew the status of plant equipment, the team observed occasions when operators were unaware of the status of plant equipment. However, in all cases the required plant equipment that was necessary for present plant conditions was operable or associated technical specifications was entered or a contingency plan was in place.

10. On-Line Risk Assessment

a. Inspection Scope

The team evaluated the ability for operators to follow procedural guidance and requirements to assess on-line risk for emergent conditions. The licensee's documents reviewed during this inspection were listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

An evaluation of the assessment of online risk due to emergent conditions was performed by the team through the performance risk assessments by shift engineers utilizing Safety Monitor. Safety Monitor was the licensee's online risk assessment tool. The shift engineers were able to successfully evaluate the online risk for various equipment deficiencies in accordance with DBBP-OPS-0003, "On-Line Risk Management Process," Revision 1. In addition the team interviewed the Operations Shift Engineer, and other Operations personnel in the Work Control Center concerning the application of Maintenance Rule online risk considerations during the control and scheduling of work activities with no concerns noted.

On December 9, 2003, due to maintenance activities on the #1 emergency diesel generator (EDG), the licensee was protecting the #2 EDG in accordance with their Procedure EO-10, "Protected Train Room Sign Posting," Revision 3. The procedure required the posting or controlling access to limit plant risk or transients due to simultaneous maintenance, testing or inadvertent equipment manipulations or failures. During a walkdown of the EDG rooms, and the team identified that door 317A to the #2 EDG air receivers was not posted as a protected train. This resulted in the #2 EDG

starting air receiver room not being posted or access controlled when it was the protected train. Subsequently the team determined that Procedure EO-10, was inadequate and did not list Door 317A as required to be posted for conditions when the #2 EDG was protected. The team reviewed the issue against the guidance contained in Appendix B, "Issue Dispositioning Screening," of IMC 0612, "Power Reactor Inspection Reports." In particular, the team compared this issue to the findings identified in Appendix E, "Examples of Minor Issues," of IMC 0612 and determined this to be a minor violation of Technical Specification 6.8.1 and Regulatory Guide 1.33, Section A.3, for the failure of First Energy Nuclear Operating Company (FENOC) to provide an adequate procedure for protected train equipment control during maintenance. The issue was not more than minor because although the #2 EDG starting air receiver room door was not posted as a protected train, the EDG remained operable. This issue was considered to be a violation of minor significance and was not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee documented this issue in their corrective action program as CR 03-10668.

c. Conclusions

Adequate controls for performing online risk assessments for emergent conditions were in effect. The licensee's procedure for protected train room sign posting failed to include actions to post the door to the #2 EDG air receiver rooms when the #2 EDG was protected.

11. Work Identification, Prioritization and Departmental Interfaces

a. Inspection Scope

The team evaluated the ability for the plant staff to identify and prioritize plant deficiencies. In addition, departmental interfaces and support were evaluated for adequacy. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

The team evaluated the identification and prioritization of plant deficiencies through shift turnovers, shift meetings, and the performance of various evolutions. The team observed that there were adequate controls in place for the identification and resolution of emergent issues. During the inspection, various equipment problems occurred, such as problems with the circulating water system and decay heat removal system, that were properly identified, prioritized, and resolved. There were however several instances, where associated planned activities performed or controlled from the work control center, were not communicated to the control room. The operators in the control room were not aware of the associated plant conditions that affected the operation of the pressurizer heaters during the evolution. (See Section 4OA5.A.1.9 of this report for more details.) In addition several problems existed for the testing of the auxiliary feedwater pumps, which affected the performance of the test. (See Section 4OA5.B.2 of this report for more details.) The particular problems were associated with the failure

to perform or communicate the activities that affected the evolutions. For example, there were open work orders associated with surveillance testing, and equipment lineup issues that were not adequately reviewed or communicated prior to completing the activities.

The team observed numerous interactions and interfaces between shift management and other departments during observations in the control room. All the interactions were performed in a professional manner and no problems were noted. In addition, the associated support that was received during the evolutions and activities was adequate.

Additional observations regarding the work control process and performance are provided in Section 4OA5.B.1.1 of this report.

c. Conclusions

Adequate controls for the identification and prioritization of work and deficiencies were in place. In addition, adequate support was provided to operations from maintenance, engineering, and other support groups. However, problems were noted through interactions between the control room and work control, and these problems resulted in a lack of awareness of equipment status by both organizations.

A.2 Field Operator Tours

1. Non-licensed Operators Routine Rounds

a. Inspection Scope

The team assessed NLOs during the performance of routine rounds. This included verifying the status of plant equipment, and the identification by the NLOs of operability, material condition and housing issues. In addition, the team assessed the NLOs performance with respect to shift turnovers, log keeping and communications activities to ensure adequate implementation to support power operations. The team compared the operators' performance to standards established in the licensee's procedures. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

The team accompanied NLOs on rounds of the turbine building and support buildings and two set of rounds of the auxiliary building. The team found the NLOs to be up-to-date on the status of plant equipment and to have a thorough knowledge of plant systems. The team verified that the NLOs completed their rounds and associated logs in accordance with DB-OP-0005, "Operators Logs and Rounds," Revision 14.

During the rounds the NLOs appropriately identified equipment and housekeeping issues, and either took actions to address the concerns or documented them in the licensee's work request process. In addition, the NLOs demonstrated the appropriate

focus on plant safety. For example, during the rounds of the low voltage switchgear room #2, the NLO noticed an abnormal burning-like odor, and thoroughly followed up on the condition. When the source of the odor was not immediately found, the NLO contacted the supervisor to assist in the search, and subsequently the source of the odor was identified to be grinding activities being performed on the turbine deck.

Regarding NLO communications and shift turnovers. The team observed four NLO shift turnovers and found them to be thorough and completed in accordance with DB-OP-00100, "Shift Turnovers," Revision 6. Three-way communications were consistently and effectively used by the NLOs for all observed orders and directions that involved operation of plant equipment or exchange of critical information related to the plant or plant equipment. The NLOs performed their assigned duties in a professional manner.

c. Conclusions

The performance of the NLO's round and associated activities were completed in accordance with the licensee's procedures. NLOs appropriately identified and documented both material condition and housekeeping concerns.

2. Non-licensed Operators' Knowledge of Recently Installed Modifications and Departmental Interfaces

a. Inspection Scope

The team assessed the NLO's knowledge and understanding of modifications installed during the extended shutdown. The team interviewed NLO's regarding the modifications. In addition, the team discussed NLOs training with the licensee's training coordinator, and reviewed selected training records and documents. Additionally, the team assessed the interdepartmental interfaces. This was accomplished based on interviews and observations of day-to-day interactions. The licensee's documents reviewed during this inspection were listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

The team reviewed a list of modifications installed during the extended shutdown, and selected significant modifications to verify that the NLOs were properly trained on the modifications. To understand the licensee's training process for NLOs, the team discussed the process with the associated training coordinator. The team reviewed the training records and verified that either the NLOs were training or the deficiencies were appropriately tracked to ensure training would be completed. The team also interviewed four NLOs to gain insights on the quality of training and their understanding of the modifications installed. No concerns were noted during these interviews.

Regarding the interdepartmental interfaces, based on observations during the NLO rounds and other day-today interactions, the team noted a good working relationship between the organizations. This was evident by the following:

- Engineering Department was observed responding quickly and effectively to Operations Department issues discussed during the morning turnover meetings;

- Radiation Protection Department was observed providing the needed support to the NLOs;

- NLOs were observed providing input to the work control process; and

- NLOs in the field were observed appropriately challenging the maintenance staff particularly regarding work being completed in rooms containing protected equipment.

c. Conclusions

NLO training and knowledge level of recently installed modifications appeared appropriate. Based on observations of day-to-day activities, there appeared to be a good work relationship between operations and other departments.

3. General Plant Conditions

a. Inspection Scope

During tours of the auxiliary, turbine and other support buildings, the team assessed the general plant condition. This included material condition as well as housekeeping conditions. In addition, the team also evaluated the adequacy of radiological controls, lighting, equipment labeling, and vital area access control. The team compared the conditions to standards established in the licensee's procedures. The licensee's documents reviewed during this inspection were listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

During the tours of the auxiliary, turbine and other support buildings, the team considered the material condition of equipment to be adequate, some material condition deficiencies were noted and described in Sections 4OA5.A.3.1 and 4OA5.C.2 of this report. In general, housekeeping was found to be adequate, however, there were some deficiencies noted with the control of ladder storage, and control of portable equipment, these deficiencies were described in detail in Section 4OA5.A.3.1 of this report.

During the team's tours of the facility, no concerns were noted regarding lighting, radiological controls and posting, or equipment labeling. Also, the team interviewed several NLOs to ascertain if there were any locations within the plant that, due to radiation protection conditions or security barriers, their ability to perform their duties would be impeded. In addition, the team toured the plant to determine if there were any radiological concerns or security concerns that would impede the ability of the operators to perform their duties. No concerns were identified.

The team did observe one discrepancy associated with the control of security barriers. On December 10, 2003, during the tour with an NLO, the team observed that a field supervisor past through the low voltage switchgear room #2 door (Door 427), without first contacting security in accordance with the posting on the door. The door was posted to contact security because of a known intermittent problem with the door switch that provides input to the security computer for tracking area access. Individuals were to contact security to ensure that the access information was properly tracked. When the field supervisor was initially challenged regarding the issue, an attempt was made to justify the action and only after additional challenging by the team did the supervisor acknowledge the mistake. Although there was no regulatory concern associated with this issue, the team considered it an example of the supervisor failing to meet the licensee's management expectations for adhering to posting. This issue was included in the licensee CR 03-11033.

c. Conclusions

General material condition of the plant equipment appeared adequate with some minor exceptions noted. Housekeeping appeared adequate with some exceptions noted, particularly in the area of ladder storage. One example of the failure to meet management's expectations was identified regarding a field supervisor's failure to contact security in accordance with a written posting prior to accessing through the low voltage switchgear room #2 door.

A.3 Equipment Status (Configuration Management)

1. Adequacy of System Lineups

a. Inspection Scope

The team reviewed the controlling document for establishing the necessity for system lineups and the documents that established the physical alignment of systems for several systems. With those documents and with plant drawings the team walked down the selected systems and sampled for the correct positioning of components including root valves, transmitters and indicators. During the walkdowns the team made observations on the overall condition of the systems and the rooms in which they were located. These observations included checking equipment labeling and observing the storage of non-system items such as ladders and tools. The licensee's documents reviewed during this inspection were listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

DB-OP-6911, "Pre-Startup Checklist," listed potential valve lineups that could be accomplished prior to mode ascension and had provisions to indicate which valve lineups should be accomplished and the level of verification required for each lineup conducted. On November 24, 2003, licensee operations management decided and indicated in the procedure that essentially all systems should have valve lineups done with independent verification. The procedure had been given to a supervisory individual

for coordination of those lineups but, at the start of team inspection, that individual had yet to accomplish any action on assigning and coordinating those valve lineup activities although other individuals within operations were separately tracking valve lineup status. Consequently, at the start of the inspection, even though ascension to Mode 4 from 5 was to occur within a week, none of the lineups were signed as completed in DB-OP-6911 and a majority of the safety system lineups, as indicated by the other lineup tracking, had not started. At the conclusion of the inspection a significant amount of work remained for completing valve lineups.

The team verified adequacy of existing lineups for the service water system, auxiliary feedwater system, decay heat removal system, and emergency power distribution systems. For portions of those systems that already had lineup verifications started or completed, the team sampled the lineups to verify that the breaker and valve positions were as reported on completed lineup sheets. Additionally for those systems which did not have lineups started or completed, the team verified that the current system configurations were appropriate for the plant conditions and were in conformance with the plant procedures. The team used the system operating procedures and system drawings for identification of required valve and breaker alignments. With the information collected the team walked portions of the systems and verified positions, general maintenance of areas, and condition of the installed systems.

During the inspections, the team noted the following deficiencies:

- On December 10, 2003, while performing a walkdown of the # 1 high pressure injection pump, the team identified a conduit unistrut (1-3600F) that was missing bolts from its base mount to the floor. The team ascertained that this condition was previously identified by the licensee's plant engineering department on November 29, 2003, in notification report 600120983 but no corrective maintenance had been performed. The team also determined that this condition adverse to quality was not entered into the licensee's corrective action program as a condition report. The team reviewed the issue against the guidance contained in Appendix B, "Issue Dispositioning Screening," of IMC 0612, "Power Reactor Inspection Reports," Appendix E, and determined this to be a minor violation of Title 10 of the Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion XVI, "Corrective Actions," for inadequate identification and resolution of a known deficiency. The issue was not more than minor because the high pressure injection pumps were not required to be operable while this condition existed. This issue was considered to be a violation of minor significance and was not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee documented this issue in their corrective action program as CR 03-10726.

- The team, in walking down portions of the service water system, identified a backed off lock nut on the actuator for service water (SW) 1424, Component Cooling Water Heat Exchanger 1 Outlet Temperature Control Valve. The lock nut, which was backed off approximately 3/8 of an inch, locks a spindle which limits the valve's full open position. Two equivalent valves in the same room had the lock nuts appropriately positioned. SW 1424 was a valve whose position was recently checked and independently verified by two different auxiliary

operators. These operators had not noticed the lock nut discrepancy. The licensee initiated CR 03-10793, "Lock Nut for Actuator Open Stop Found Loose on SW1424," to document the mispositioned lock nut and document action to reposition the lock nut prior to mode ascension. While the lock nut did not render the valve inoperable and was not a condition adverse to quality, the team considered it an opportunity missed by the operators to identify a condition that could have been corrected.

- Valve lineup sheets for the Service Water System lists the position of SW 1380, Service Water Strainer 2 Drain, as "Open/Closed" with a note stating that the valve is open if the strainer is running and closed if the strainer is stopped. The lineup sheet showed that the verification and independent verification were completed, but the position of the valve was not indicated. On the same page other valves, which either may be open or closed, had their positions, as they existed at the time of verification, circled. Although the licensee's procedures did not explicitly address the above described situation, based on discussions with the licensee's operations department management, the team ascertained that the expectation was to note the actual position of the valve on the lineup sheet. This was an example of the standards and expectations not being met.

- The team noticed during the system walkdowns several instances of unsecured or improperly secured ladders. The team observed an unrestrained extension ladder lying loose on the concrete below service inlet valves to the component cooling water heat exchangers (SW 31, SW 32, SW 33, SW 35). From the walkdown in Emergency Diesel Generator 1 room, the inspector questioned the method of securing a long extension ladder that had been provided for the operators to take readings at the top of the room for equipment that had been recently modified. The ladder was tied of at the top but was not secured at the bottom which was in close proximity to diesel generator associated piping and valves. Although this was not explicitly prohibited by the licensee's procedure, the team did not consider it to be a good practice. After discussion with the licensee, they initiated a condition report (CR 03-10979) and took action to restrain the lower portion of the ladder. Subsequently CR 03-11029 was written for the licensee to review the requirements for restraint of portable equipment in the plant.

  The team also noted one configuration control issue that occurred during the performance of an AFW surveillance test. This issue was described in detail in Section 4OA5.B.2.1 of this report.

c. Conclusions

Based on the sampling done, the licensee has controls for ensuring the proper alignment of valves and breakers including instrument isolations. Although the team did not identify any components out of position, the licensee found a valve that was incorrectly position during the performance of an AFW surveillance test. In addition, the team noted was a significant amount of work remained in completing valve lineup verifications required for entry into Mode 4. This was partially attributable to the Operations Department's delay in assigning a person to coordinate the lineups. The

team also noted some minor issues regarding problem identification, and procedure adherence, including areas where standards either did not exist or were not rigidly followed.

2. Adequacy of Tagouts

a. Inspection Scope

Licensee Procedure NOP-OP-1001, "Clearance/Tagging Program," provided for a standard clearance program for personnel and equipment safety from potentially hazardous substances or sources of energy. The team reviewed licensee procedures for tagging out equipment and for returning the equipment to service. The team also reviewed a sample of tagouts by checking positioning of components and operator practices in hanging tags. Control room logs were reviewed for documentation of Technical Specification required equipment and for appropriate return to operability testing. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

The Operations Department was responsible for developing, approving, and implementing clearances. Through this process, control room personnel were to be kept informed of all plant configuration changes. The Operations Department utilizes eSOMS, [Shift Operations Management System], computer system to generate and maintain accountability of clearances and tagouts. The system provides for the placement of only one tag for multiple clearances and provides a means of electronically storing standard tagouts. The procedure also provides for verification of component position upon return to service and documentation of that verification.

The team reviewed various clearances as recorded in the computer system. Additionally the team physically verified the clearance points and physical placement of tags for work on Emergency Core Cooling System (ECCS) Room Cooler 5. The team reviewed the clearance for work on Reactor Coolant Pump 1-2 and verified that peer checks were accomplished. The team accompanied personnel in hanging a clearance to work on the power supply for Safety Feature Actuation System (SFAS) Channel 3. During that clearance establishment, the team observed the difficulty operators had in unlocking the SFAS Channel 3 door and that the initial attempts by two different operators to unlock the door were unsuccessful. A third attempt was successful in unlocking the door. The operators stated that the locks or keys were worn. The licensee initiated CR 03-10760, "RRATI - SFAS Channel 3 Key - Opening Cabinet Difficult - Key - Lock May be Worn." Although the worn locks would not have prevented any required actions from being accomplished and was not a condition adverse to quality, the team considered this an example of operations personnel accepting and adapting to degraded equipment.

The licensee maintains its control room logs using a module of the eSOMS system. Logs were sampled during the course of the inspection and did have notations on when

technical specification equipment became inoperable and when it returned to operability. Upon return to service, operability of equipment was verified using written surveillance procedures that were also used for periodic surveillance testing.

c. Conclusions

The licensee has procedures in place and a program to generate and track the status of clearances and tags. The clearances sampled by the team were appropriately generated and placed in the field. Additionally the licensee was recording the operability and inoperability of technical specification required equipment.

3. Control of Temporary Modifications

a. Inspection Scope

The team reviewed procedures, work orders and temporary modification logs. Temporary modification packages were reviewed as well as the procedures controlling those modifications. Work orders were reviewed to determine the need for and the use of temporary configuration control mechanisms, and to verify completion in accordance with the licensee's procedure. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

Procedure NG-EN-00313, "Control of Temporary Modifications," provided the process for controlling temporary modifications and provided the definition of a temporary modification which was a "temporary change to plant equipment which will remain in service with the modification installed that does not conform with approved drawings or other design documents." Open temporary modifications during the course of the inspection included one modification for the demineralizered water purification system and one for removal of the hand wheel on an auxiliary steam valve. During the inspection one temporary modification was installed and then removed.

Temporary Modification 03-0031 provided for a freeze seal to facilitate replacement of decay heat (DH) 1509, DH Pump 2 Emergency Sump Line Relief. The package contained documentation of the reviews required by the controlling procedures including reviews by design engineering, plant engineering and operations. The package included a 10 CFR 50.59 screening review and produced a temporary drawing change notice that showed the difference between the normal configuration and the configuration with the freeze seal in place. Installation times and removal times were noted in the tracking logs.

The licensee controls lifting of wires through procedural controls. During the course of the inspection the licensee was accomplishing electrical testing of modifications made to overload trip circuits of several electrical breakers. The licensee reviewed more than five ongoing or recently completed work orders to verify that the control of lifted leads was being adequately controlled in the ongoing work. The team reviewed work order

(WO) 200062083, which was for implementing a design change, in this case to BF1274, Breaker for SW Pump Strainer Motor MF15-2, invoked use of Procedure DB-PF-05010, "Electrical Circuit Functional Test," for testing of the modification. That procedure required that lifted wires be logged and controlled using ED 8029, "Jumper and Lifted Wire Control Log." The team identified that instead of using the "Jumper and Lifted Wire Control Log," the performer of the test documented the lifting and relanding of the leads in the comment section of DB-PF-05010. Furthermore, the improper lead documentation was reviewed and accepted by the Test Leader. Upon being informed of this deficiency, the licensee initiated CR 03-10927, "BF 1274 Hot Checks." No other examples indicating improper implementation of the "Jumper and Lifted Wire Control Log" were not identified by the team. However, earlier in 2003, the licensee had documented at least three other condition reports associated with the failure to properly document lifted leads.

The team determined that the failure to properly document the lifted leads in accordance with the licensee's procedure was a minor violation of Technical Specification 6.8.1.a regarding procedure adherence. Specifically, safety-related Procedure DB-PF-05010, "Electrical Circuit Functional Test," Revision 05, provided specific direction on how Maintenance personnel should select surveillance and test activities on safety-related equipment. Step 5.1.7 of DB-PF-05010 states "Lifted wires, jumpers and slide-links affected by this procedure shall be logged and controlled using ED 8029, Jumper and Lifted Wire Control Log according to the requirements in Procedure DB-DP-00007." Contrary to this requirement, the technician conducting the testing did not use the log and instead noted the lifting and landing in the "comments" section of the procedure. The team reviewed this issue against the guidance contained in Appendix B, "Issue Dispositioning Screening," and Appendix E, "Examples of Minor Issues," of IMC 0612, "Power Reactor Inspection Reports." This issue did not rise to the level of more than minor significance because the lifting and landing of the leads were documented and the non use of the log did not affect the status of the equipment. This issue was considered to be a violation of minor significance and was not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee documented this issue in their corrective action program (CR 03-10927).

c. Conclusions

The licensee had procedures in place to control temporary modifications and other temporary alterations to the plant. The licensee maintained a very low level of temporary modifications and none of the standing temporary modifications were of any significant nuclear safety concern. The licensee had a program for controlling lifted leads but has had a few instances where the controls were not followed. In instances reviewed by the team, the improper documenting of lifted leads did not cause any equipment malfunctions.

A.4 Operations Quality Assurance and Self-Assessments

1. Review of Operations Department Restart and Power Ascension Plan Assessments

a. Inspection Scope

The team reviewed the licensee's Operations Department assessments, including the Davis-Besse Operational Readiness Assessment Report No. 2003-0021, performed during the seven-day normal operating pressure test in the Fall of 2003. In addition, the team reviewed the Nuclear Quality Assurance Department's plan for assessing the adequacy of the restart process and operations' improvement actions. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

b.1 Review of Davis-Besse Operational Readiness Assessment Report No. 2003-0021

Introduction: The team identified one Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," having very low safety significance regarding the licensee's failure to identify and take corrective actions for conditions adverse to quality.

Description: This report documented an internal assessment by the licensee which primarily focused on control room activities during the seven-day normal operating pressure test conducted in September 2003.

The licensee conducted the Operational Readiness Assessment to evaluate the ability of the people and processes at Davis-Besse to support safe and reliable plant operation. The team determined that the licensee's assessment was comprehensive, and contained many good observations and recommendations. The individuals conducting the assessment included Davis-Besse managers, FirstEnergy Nuclear Operating Company Personnel, and external senior industry executives.

The report contained 20 recommended actions with a statement in the report that "Each recommendation has been verified to be captured in either the Operations Improvement Action Plan, Davis-Besse Operational Improvement Plan (Operating Cycle 14) or the Davis-Besse Corrective Action Process." However, the team identified several recommended actions that were not captured in the corrective action program or any other improvement plans. The following describes the issues and recommended actions that were not captured and the licensee's follow-up actions:

Recommendation 3 - Inconsistencies were observed in the implementation of Procedure NOP-ER-3001, "Problem Solving and Decision Making Process."

- Recommend identifying a process owner/facilitator to help improve consistency of Problem Solving and Decision Making, preferably prior to restart.

- Create a Problem Solving and Decision Making "War Room" at each FENOC station.

- Create a worksheet template within Lotus Notes for the Problem Solving and Decision Making Failure Modes Analysis.

The team identified that there were no traceable corrective actions to the above recommendations. As a result, the licensee initiated CR 03-10893 to track evaluation and implementation of corrective actions for these recommendations.

Recommendation 6 - Performance shortfalls were identified regarding Operations personnel monitoring of plant parameters and trends, and in turn, anticipating the operational impact of these trends.

- Institute expectation that a Responsible System Engineer and a Maintenance Supervisor were scheduled and present to support the startup of major components during the Refueling Outage 13 power ascension.

The team identified that there were no traceable corrective actions to the above recommendation. The licensee indicated that this issue may have been captured in Operations Improvement Action Plan Item 2.3, "Improve Pre-job Briefs," Action E, "Anchor Expectations and Guidance for Major Evolutions." The Action Plan showed the status of Action E as "In Progress." However, the team determined that the licensee had not adequately captured the specific recommended action to schedule a system engineer and maintenance supervisor to support startup. The licensee agreed and captured evaluation and implementation of the specific recommendation in CR 03-10893.

Recommendation 7 - Some differences exist in the standards and expectations of operational pre-job briefs between Davis-Besse, its FirstEnergy Nuclear Operating Company peers, and industry top performers.

- Institute common FENOC standards on operational briefing and expectations.

The team identified that there were no traceable corrective actions to the above recommendation. The licensee indicated that this issue may have been captured in Davis-Besse Operational Improvement Plan (Operating Cycle 14) Operations Improvement Initiative 2.1.d, "Implement common FENOC Operations work process tools." However, the team determined that this broad description did not necessarily capture the specific recommended action. In addition, the completion date for Operations Improvement Initiative 2.1.d was shown as the fourth quarter of 2004. The licensee captured evaluation and implementation of corrective actions for this issue with CR 03-10893.

Recommendation 10 - Opportunities exist to improve the interface between the Plant Engineering Section and Operations

- Plant Engineering Section Manager collaborates with the Operations Manager to establish common expectations of support for operational evolutions.

- Plant Engineering Section Manager provides a short training session/overview for Operations crews on established expectations and also the FENOC Engineering roles and responsibilities.

The team identified that there were no traceable corrective actions to the above recommendation. The licensee indicated that this issue may have been captured in Davis-Besse Operational Improvement Plan (Operating Cycle 14) Operations Improvement Initiative 6.5, "Develop and implement the plan to enhance System Engineering ownership of plant systems in support of Operations." However, the team determined that this broad description did not necessarily capture the specific recommended action. In addition, the completion date for Operations Improvement Initiative 6.5 was shown as the fourth quarter of 2004. The licensee added additional corrective actions for this issue in CR 03-10023.

Recommendation 16 - The organization lacks “bench strength” in certain key positions and technical disciplines (Specifically noted in electrical design based upon observations of a thermal overload issue, SST/ground fault circuit issue, and electrical distribution issue). Station Management was aware of this situation and needs to address this issue going-forward within the Davis-Besse Operational Improvement Plan (Operating Cycle 14).

- The team identified that there were no traceable corrective actions to the above recommendation for the site engineering staff. The licensee did capture this issue for the operations staff in CR 03-04296, "Tracking CR - Operation's Section 2003 Business Plan/Action Plan Assignments." The licensee also captured this item in Davis-Besse Operational Improvement Plan (Operating Cycle 14) Operations Improvement Initiative 2.1.b, "Implement the 5-year staffing plan." The licensee captured evaluation and implementation of corrective actions for the site engineering staff with CR 03-10893.

Analysis: The team determined that the above corrective action program issues were a performance deficiency warranting a significance evaluation. The team concluded that the finding was greater than minor in accordance with IMC 0612, “Power Reactor Inspection reports,” Appendix B, “Issue Disposition Screening,” issued on June 20, 2003. This was because if left uncorrected the issues would become a more significant safety concern.

The team determined that the finding could not be evaluated using the SDP in accordance with IMC 0609, “Significance Determination Process,” because this issue did not directly affect any of the cornerstone attributes in accordance with IMC 0612 Appendix B. Therefore, this finding was reviewed by Regional Management, in accordance with IMC 0612 Section 05.04c, and determined to be of very low safety significance (Green) because no safety systems were degraded nor was any safety equipment rendered inoperable due to this issue. This finding was related to the cross-cutting area of Problem Identification and Resolution.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI required, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, and nonconformances are promptly identified and

corrected. Contrary to this requirement, subsequent to November 7, 2003, the licensee failed to promptly identify and correct issues identified in Davis-Besse Operational Readiness Assessment Report No. 2003-0021. Because the violation was of very low safety significance and it was entered into the licensee's corrective action program, this violation was being treated as a NCV, consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000346/2003011-02). The licensee initiated or updated CRs 03-10893 and CR 03-10023 to track corrective actions for this issue.

b.2 Assessment Plan for Adequacy of the Restart Process and Operations Improvement Action Plan, Revision 0

The team reviewed the Nuclear Quality Assurance (NQA) organization's plan for assessing the adequacy of the restart process and the Operations Improvement Action Plan, Revision 0. The team determined that the NQA organization had an adequate assessment plan to evaluate restart activities.

The assessment plan covered the period of time before commencing the heatup through Mode 1. The plan described the higher level activities to be assessed prior to each Mode change and also described assessments to be performed by functional area, for example, operations, radiation protection, chemistry, maintenance, support, and engineering. The plan included a form for documenting observations and condition reports and also denoted which groups or individuals were assigned to the assessment activities.

c. Conclusions

The team's review of the Davis-Besse Operational Readiness Assessment Report No. 2003-0021 found several recommendations that were not captured in the licensee's corrective action program or other improvement plans, and therefore may not have been completed. This was determined to be a finding of very low safety significance and a NCV of 10 CFR 50 Appendix B Criterion XVI, "Corrective Action." The Nuclear Quality Assurance organization had an adequate plan for assessing restart of the plant.

2. Assess the Effectiveness of the Quality Assurance Organizations's Involvement in Operations

a. Inspection Scope

The team reviewed the effectiveness of the NQA organization's involvement in operations department activities to assess whether issues identified by NQA were being tracked and resolved by the plant staff in a timely manner. In assessing this area the team reviewed the NQA assessment reports with a focus on "Nuclear Quality Assessment Quarterly Assessment Report DB-C-03-03, July 7 to October 3, 2003." The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

The team determined that the NQA organization appropriately identified operational performance issues and entered them into the corrective action program. The team selected various condition reports initiated by NQA personnel and determined that the issues were appropriately characterized and prioritized.

The NQA assessment report included an assessment of operations' performance observations made during the Fall 2003 normal operating pressure (NOP) test. The assessment of conduct of operations was rated as "unacceptable" based on the significance of identified deficiencies in the areas of procedure compliance, design and configuration control, and test control. The weaknesses were observed primarily during surveillance tests and other activities prior to and during the NOP test.

The team reviewed NQA-initiated Condition Reports 03-08779, 03-08794, 03-08780, 03-08780, and 03-09179, written for various weaknesses identified during the time of the NOP test. Two notable operational events occurred: (1) With plant shutdown/cooldown was in progress following the seven-day NOP test with the plant in Mode 3, a reactor trip occurred due to exceeding the Reactor Protection System (RPS) shutdown bypass high pressure trip on RPS Channels 2 and 4. The secondary RO established an undesirably high cool down rate causing a drop in pressurizer level. The actions taken to restore pressurizer level ultimately resulted in the reactor trip when reactor coolant system (RCS) pressure increased to the high RCS pressure trip setpoint. (2) During a separate event, the outlet isolation valve for Core Flood Tank 1 unexpectedly opened when operators were not closely monitoring RCS pressure indicators while running only two reactor coolant pumps. Due to back flow through partially opened decay heat system check valves the decay heat piping was pressurized and one or more decay heat system relief valves lifted. Because the RCS was at a higher pressure, no water from Core Flood Tank 1 injected into the RCS. The team reviewed all of the CRs and determined that the licensee had appropriately described the concerns in the condition reports and identified appropriate corrective actions.

c. Conclusions

The team concluded that the NQA organization was effectively involved in assessing operations department activities during the normal operating pressure test in Fall 2003. Issues identified by NQA were entered into the corrective action system with appropriate corrective actions identified.

3. Evaluate the Interfaces Between Plant Support Groups and Plant Operations, Engineering, and Maintenance

a. Inspection Scope

The team reviewed an interface issue regarding NQA personnel and other organizations. The licensee's documents reviewed during this inspection were listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

Based on the team's observations of day-to-day activities and during various meeting, and through interviews and the review of licensee documents, the interactions between NQA and other organizations appeared good. However, the team noted one discrepancy.

During assembly of the high pressure injection pump 1 under WO 200053815, maintenance workers discovered that the pump shaft had become bound, and could not be rotated. Maintenance personnel disassembled the pump and discovered that the thrust-bearing sleeve was stuck on the shaft. Maintenance personnel prepared and processed an addendum to allow the stuck thrust-bearing sleeve to be removed from the shaft by cutting/grinding. However, the maintenance planner incorrectly wrote the addendum for WO 200040906 (high pressure injection pump 2) and not WO 200053815 (high pressure injection pump 1). The addendum was reviewed by five individuals and approved by the Unit Supervisor. The addendum was placed in the WO 200053815 package. This administrative error was caught and a pen and ink change was made to correct the addendum after the work on high pressure injection pump 1 was in progress. Nuclear Quality Assessment personnel identified this error and initiated CR 03-10011 after determining that the review and approval process for issuing the addendum was not followed as required by Procedure NOP-WM-1001, "Order Planning Process," Revision 4.

The team determined that CR 03-10011 did not address that the process for review and approval of work order addenda was not set up to find this type of problem. The team questioned quality control personnel, who approved the addendum, on how this error was missed during their review. The quality control personnel stated that the maintenance planner hand carried the work order addendum to the various department personnel to obtain the required signatures. When asked how the addendum was verified to be accurate for the intended work, the quality control person stated that the approval was based on faith in the maintenance planner. The team discussed this observation with the Nuclear Quality Assessment Department Manager, who agreed that the work order addendum process should be revisited and initiated CR 03-10727.

10 CFR 50, Appendix B, Criterion XVI required, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, and nonconformances are promptly identified and corrected. Contrary to this requirement, the licensee did not identify nor address the deficiency in the process for reviewing and approving work order addenda. The team reviewed the issue against the guidance contained in IMC 0612, and determined this to be a minor violation of 10 CFR 50, Appendix B, Criterion XVI because the operability of the high pressure injection pumps was not affected. This issue was considered to be a violation of minor significance and was not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee initiated CR 03-10727 to track this issue.

c. Conclusions

In general the interface between NQA and other organizations was good. However, during their review, the team identified a lack of rigor in the licensee's process for reviewing and approving work order addenda.

4. Operations Department Ineffective Corrective Actions from September 2003 Normal Operating Pressure Test

a. Inspection Scope

The team reviewed the Operation's Department corrective actions taken as a result of several operational events from the September 2003 Mode 3 normal operating pressure and temperature test. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

Introduction: The team identified one finding of very low safety significance (Green) and associated NCV of 10 CFR 50, Appendix B, Criterion XVI, related to failure to implement effective corrective actions for significant conditions adverse to quality following several operational events from the September 2003 Mode 3 normal operating pressure and temperature test.

Description: The team reviewed the issues associated with the operational events from the September 2003 Mode 3 normal operating pressure and temperature test to assess the effectiveness of the corrective actions. Specifically, some of the operational events that occurred were documented in the following condition reports:

- CR 03-07746: On September 15, 2003, an unexpected opening of the outlet isolation valve for a core flood tank occurred resulting in the pressurization of portions of the decay heat system. This event was due in part to inadequate plant awareness.

- CR 03-07710: On September 23, 2003, a water hammer event occurred in Steam Generator 2 due to a combination of a drain path that was not designed to provide a useful drain rate at low steam pressure conditions. In addition, it was determined that the operators lacked sensitivity to water hammer transients due to past experiences and a station operating culture that was tolerant of inadequate procedures.

- CR 03-07262: On September 3, 2003, during performance of reverse flow testing of auxiliary feedwater system check valves, operators attempted to vent off higher than expected upstream pressure without any procedural guidance.

- CR 03-07930: On September 22, 2003, during an attempt to establish additional turbine plant cooling water flow through the Generator H_2 cooler, operators noticed water draining from the turbine deck to the turbine plant cooling water heat exchangers due to open vents and drains for the Generator H_2 cooler. The licensee determined that the performance of the evolution did not include a system status review to verify valve line-up prior to the first attempt to establish flow.

- CR 03-07689: On September 12, 2003, during performance of a reactor coolant vent valve operability test, when stroking open vent valve RC4610A, the open

indication was received for RC4610B. This was unexpected. The licensee identified the apparent cause to be less than adequate procedure guidance.

- CR 03-08374: On September 30, 2003, a reactor trip occurred due to exceeding the reactor protection system shutdown bypass high pressure trip on reactor protection system Channels 2 and 4. The licensee identified the cause to be related to poor work practices and weak communications.

In addition to the corrective actions specified with each condition report, the licensee also completed a Collective Significance Review for Operating Events and Errors Identified in Condition Report 03-08418. The Collective Significance Review in conjunction with the licensee's Operations Improvement Implementation Action Plan, Revision 2, called out a number of corrective actions to be taken to address the identified operational concerns. Based on the types of findings identified by the team during this inspection as documented throughout this report two particular areas were noted as recurring:

- Inadequate pre-job briefings associated with the condensate pump start and the drawing of the pressurizer bubble described in Report Section 4OA5.A.1.2, and pretesting briefings associated with the AFW testing as described in Sections 4OA5.A.1.1 and 4OA5.B.2.1 of this report.

- Repeated failure of operators and other members of the licensee's staff to effectively implement prescribed standards and expectations. This was most evident by the operators' lack of awareness of plant equipment demonstrated during the December 11, 2003, evolution to draw a pressurizer bubble as described in Section 4OA5.A.9 of this report, but it was also evident in the many cases of procedure noncompliance observed by the team (See Report Sections 4OA5.A.1.1, A.1.2, A1.5, A.1.9, B.2.1 and B.2.2).

These two areas where noted as contributors to the operations events that occurred in September 2003, and corrective actions for these areas were explicitly described in the Operations Improvement Implementation Action Plan. Specifically:

- Item 1.3, Evaluate and Improve Standards and Expectations;

- Item 1.4, Assess Understanding of Expectations and Standards; and

- Item 2.3, Improve Pre-Job Briefs.

Based on the examples described above, the team determined that the corrective actions taken by the licensee as referenced in the Operations Improvement Implementation Plan were ineffective.

Analysis: The team determined that the ineffective corrective actions described above was a performance deficiency warranting a significance evaluation. The team concluded that the finding was greater than minor in accordance with IMC 0612. This was because if left uncorrected the issues would become a more significant safety concern.

The team determined that the finding could not be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," because this issue did not directly affect any of the cornerstone attributes in accordance with IMC 0612 Appendix B. Therefore, this finding was reviewed by Regional Management, in accordance with IMC 0612 Section 05.04c, and determined to be of very low safety significance (Green) because no safety systems were degraded nor was any safety equipment rendered inoperable due to this issue. This finding was related to the cross-cutting area of Problem Identification and Resolution.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI required, in part, that measures shall be established to assure that in cases of significant conditions adverse to quality, measures shall assure that the cause of the condition was determined and corrective action taken to preclude recurrence. Contrary to this requirement, subsequent to the normal operating pressure test in September 2003, the licensee corrective actions identified Collective Significance Review for Operating Events and Errors Identified in Condition Report 03-08418, in conjunction with the licensee's Operations Improvement Implementation Action Plan, Revision 2, failed to prevent recurrence of Operations Department performance issues in the areas of pre-job and pretest brief and effective implementation of prescribed standards and expectations. Because the violation was of very low safety significance and it was entered into the licensee's corrective action program, this violation was being treated as a NCV, consistent with Section VI.A of the NRC Enforcement Policy ((NCV 5000346/2003011-03). The licensee initiated CR 03-11314 to track corrective actions for this issue.

B. MAINTENANCE AND SURVEILLANCE TESTING

B.1 Maintenance

1. Maintenance Activity Preparations

a. Inspection Scope

The team assessed the licensee's preparation for maintenance activities to ensure safe operations of the plant during these activities. The team compared the performance to standards established in the licensee's procedures. The team also assessed the engineering input to the maintenance activities to ensure it was at an appropriate level to ensure safe and reliable plant operations. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were Identified.

The team attended Fix-it-now (FIN) maintenance team meetings and observed discussion and prioritizing of minor maintenance for the support of operations. Procedure NOP-WM-9001, "Fix It Now (FIN) and Minor Maintenance Processes" noted that the FIN team leader (FTL) was a licensed Senior Reactor Operator and was considered a member of Operations Shift Management for the purpose of authorizing work to support operations. The team observed the FTL's active participation in the

operation shift's daily turnover meeting discussions about the need for maintenance support on issues identified by, and for, Operations.

The team observed pre-job preparations for maintenance activities and conducted interviews with selected maintenance planners, work-week managers, supervisors, mechanics, and technicians on the planning and conduct of maintenance. Observations included scheduled and unscheduled planning meetings in the work control area concerning activities that needed to be completed prior to planned reactor mode changes.

During the course of the inspection, the team found that work control planning discussions did not appear to consider the staffing levels of the operations shifts as a resource limitation. Work control personnel apparently had an understanding that the Operations Department was routinely overstaffed (the Operations Department had double crews on shift to handle the extra work necessary for start-up) and therefore apparently did not feel the need to resource-load the schedule. The problem was exacerbated by the fact that the Shift Manager occasionally posted a third RO in the control room to respond to expected, maintenance-related annunciator alarms. This additional control room staffing reduced the number of operators available to support the maintenance and testing activities on the schedule.

The size and configuration of the Control Room were also apparently not considered as a resource limitation. The team noted at least one instance where two jobs were scheduled, (control rod testing and AFW full flow testing) for the same time frame, requiring that personnel monitor control board instruments immediately adjacent to each other on the control panel. It was left up to the Shift Manager and the Unit Supervisor to determine the priority, as there was not enough room in that area of the control room to accommodate both test crews.

Interview discussions included maintenance activities associated with walkdowns of jobs, and procedure reviews prior to pre-job briefings with control room operators. The team noted one case where a maintenance mechanic assigned to support a condensate pump start did not know what procedure or work order would be used if the pump packing had to be adjusted.

Additional observations related to the prioritization and completion of work activities was provided in Section 4OA5.1.11 of this report.

The team reviewed the maintenance support provided by Plant Engineering. The review included discussions and interviews with plant engineers providing support for monitoring and detection of DC grounds, and providing direction for Post-Modification testing of modifications on ECCS room cooler coils, (Mod # 03-0630). The review also included Procedure NOP-ER-3001, "Problem Solving and Decision Making Process" that provided structured troubleshooting and investigation procedures for significant corrective maintenance activities.

The team found that the Plant Engineering organization provided relatively good support for Operations, but was not necessarily as aggressive as Operations would have liked. The engineer assigned to monitor DC grounds was very knowledgeable about potential

sources and their significance. He was also very familiar with the accepted practice of locating DC grounds through systematic isolation of potentially affected systems. During discussion, the team learned that the site had recently purchased a new state-of-the-art instrument for detecting the location of grounds without isolating systems, but that engineering was reluctant to use the instrument in the field until they had thoroughly tested the instrument and were familiar with its capabilities and limitations. When Operations personnel learned about the instrument, they couldn't understand why Plant Engineering hadn't just scheduled a field representative from the manufacturer to come to the site and show them how to use the equipment on the existing grounds in the plant, while the plant was still shut down and in a relatively safe configuration.

Interactions between operations and maintenance organizations were observed during daily operations turnover meetings, maintenance planning meetings, work control scheduling meetings, and pre-job briefings. The team found that in these interactions, the operations managers were clearly in charge, but it appeared that, except for the FIN team, (led by an SRO considered to be a member of operations staff management), they were separate organizations and not a team. (An indication of lack of unity of the site organizations was expressed at every shift turnover meeting when the spokesman for each organization announced how many "contamination-free" days his organization had amassed before providing input to the meeting. The team understands that competitions of this sort can be good, but also understands that over-publication, and the ensuing comparisons, tend to be counterproductive for team-building.)

c. Conclusions

Work control, the scheduling and oversight of maintenance to support operations, appeared, on occasions, to be disorganized. Operations personnel did not appear to take ownership of schedules and plans provided by the planning organization, and the work control personnel did not appear to appreciate the need to included operations staffing as one of the necessary resources to be included in the schedule. Operations Department Interface with other organizations appeared good with operations clearly in charge.

2. Observations of Ongoing Maintenance Activities

a. Inspection Scope

The team assessed the licensee's on-going maintenance activities to ensure safe operations of the plant during these activities, and that the activities were completed in accordance with the licensee's written procedures. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were Identified.

The team observed a limited number of maintenance activities due to the minimal amount of risk significant work performed during the inspection period. The team reviewed and made direct observations of portions of the following work activities:

- Painting of Diesel Generator Rooms;
- Weld Repair of Pressurizer 14B Valve; and
- Freeze Seal for Repair of DH 1509 Relief Valve.

The team found that maintenance workers were generally competent and appeared to be well trained. When scheduling and coordination activities were sorted out, and the actual work started, the team found few problems associated with procedure adherence or general competence of the maintenance workers.

c. Conclusions

Maintenance activities were generally conducted in a safe manner by competent mechanics and technicians.

3. Review of Completed Maintenance Activities

a. Inspection Scope

The team reviewed completed maintenance activities on safety-related equipment and components to verify the activities were conducted in accordance with licensee procedures and NRC regulatory requirements. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were Identified.

A sample of completed work packages was reviewed by the team to determine if the packages contained enough detail to perform and adequately document the intended maintenance work and to verify that the work had been performed in accordance with current written and approved instructions. Five work packages reviewed were as follows:

- WO# 02-005888-000 Turbine Driven Aux Feed Pump 1-2, Repair/Replace Outboard Bearing Oil Sightglass;
- WO# 03-003334-000 Prep and Paint Diesel Generator Room 319;
- WO# 02-005769-000 CR 02-4667 Identified that Motor Leads were taped - not meeting EQ requirements;
- WO# 02-007382-000 Repair/Replace Overlength Flexible Conduit on MS106A Limitorque Actuator; and
- WO# 03-000177-000 Flange Bolting VT-3 examination and repair - Boric acid leak issue.

The work orders reviewed were found to be in good order. The documentation was complete, clearly indicated compliance with required procedures, and contained appropriate signatures for required reviews.

c. Conclusions

Completed maintenance activities were effective in correcting identified problems and restoration of plant equipment to an operable condition.

4. Quality Control Related Activities

a. Inspection Scope

The team assessed the planning and completion of Quality Control activities at the Davis-Besse Station. The team compared the performance to standards established in the licensee's procedures. The licensee's documents reviewed during this inspection are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were Identified.

The team examined the licensee's process for the planning and conduct of quality control (QC) inspections during the conduct of maintenance and modification activities. The team reviewed QC-related documents and held discussions with several members of the licensee's NQA/QC organization. Documents reviewed included the following:

- NA-QC-00650, Inspection of Maintenance and Modification Activities;
- December 9, 2003, Memorandum to: Quality Control File; from: R. H. Robinson, QC Training Coordinator; Subject: Year 2003 Hold/Witness Point Review;
- November 24, 2003, Computer-generated table listing QC inspection percentages versus required inspection percentage; and
- December 17, 2003, Computer-generated table listing QC inspections conducted with rejection percentage data.

In generally QC-related activities were properly completed. However, the team identified the following shortcoming.

Procedure, NA-QC-00650, did not require that QC Hold/Witness Points be applied to 100% of work documents related to maintenance or modification of quality-related components. QC personnel were using the above-listed, December 9, 2003, memorandum-to-Quality Control file, as guidance for determining the percentage of activities to inspect. Through review of the memorandum and discussions with QC personnel, the team determined that establishment, and adjustment, of the inspection sample percentages was apparently based on subjective, collaborative decisions by Level III QC personnel, and they did not document any objective, auditable, review of ongoing inspection history. Neither the procedure nor the memorandum contained a specified periodicity for the Level III review of inspection history, nor any statistical-based criteria for the purpose of adjusting the sample size.

The team found that the use of a memorandum-to-file to provide details for the implementation of procedure requirements, was less formal than would be expected for activities attesting to the quality of safety-related maintenance activities.

The November 24, 2003, computer-generated table, listed above, was purported to be an informal inspection status report for use by QC personnel. The table listed all categories of work activities which could require QC inspection, with columns indicating what percentage of the work activities should be inspected for each, and what recent level of inspection had been. The table showed that in most cases, QC was inspecting a larger sample than the table required, but there was no documented rationale for the additional inspections.

The team requested the December 17, 2003, computer printout in order to assess the level of QC activity indicated by the November 24, 2003, table. The team found that current reject rate for Raychem splices was 10% and Fire-retarding Foam was 25%. These numbers partially explained why the current level of inspection was 29% for Raychem splices (25% inspection required by memo) and 41% for Fire-retarding Foam (20% inspection required by memo). The team found that the reasons for the rejects were technicalities and not indicative of programmatic problems with the installation of the splices or the foam. Even so, it was less than reassuring to find that the reject rates were apparently being handled by informally increasing the sample size rather than through a documented exercise by QC Level III reviews.

In discussion with NQA and QC personnel, the team acknowledged that there were no regulatory requirements for doing more inspections than the procedure required. But, the team also expressed observations about the seemingly informal rationale for sample size selection, in that there were apparently no statistically defensible bases, and the apparent informal adjustment to sample sizes. As a result of the discussions, QC personnel initiated CR 03-11044, "RRATI: Required QC Inspection Percentages Deficient" for the review of the QC inspection sampling program.

c. Conclusions

In general QC-related activities were properly completed. The licensee's rationale for adjustment of QC inspection sample size was not well documented, and appeared to be based on workmanship rather than operational considerations.

B.2 Surveillance Testing

1. Observation of Ongoing Surveillance Testing

a. Inspection Scope

The team reviewed the adequacy of the licensee's surveillance test program controls and observed surveillance test activities on safety-related equipment and components to determine whether the activities were conducted in accordance with licensee procedures and NRC regulatory requirements. Other licensee documents reviewed during the inspections are listed in the Attachment to this report.

b. Observations and Findings

No findings of significance were identified.

The team observed portions of the following ongoing surveillance test activities:

- DB-ME-03045, "C1 Bus Under Voltage Units Monthly Functional Test," Revision 4;
- DB-SP-03155, "AFW Train 1 Flow Path to SG [Steam Generator] Verification," Revision 4;
- DB-SP-03164, "AFW Train 2 Flow Path to SG Verification," Revision 5; and
- DB-SC-03271, "Control Rod Drive Program Verification," Revision 1.

b.1 General Observations

The licensee's surveillance test program was described in Procedures DB-DP-00013, "Surveillance and Periodic Test Program," DB-PF-00203, "Acceptance Test Program," NG-DB-00201, "Conduct of Infrequently Performed Tests and Evolutions," and NG-DB-00202, "Test Control." These procedures provided the requirements and responsibilities for testing structures, systems, and components at Davis-Besse. The team discussed the implementation of the program and procedural controls with individuals in the Outage Management and Work Control group, responsible for maintaining and updating the computerized surveillance tracking database, as well as with individuals in the other site organizations responsible for implementing aspects of the program. The team found that surveillance testing and scheduling controls were detailed and clearly understood by those implementing the program. The team determined that an adequate surveillance test program had been implemented to ensure that surveillance testing was properly conducted in accordance with TS requirements and at the required TS frequencies.

The team determined that the tests were conducted by approved procedures that adequately met TS requirements. The procedures contained adequate administrative controls, such as: delineating initial test conditions and prerequisites; providing adequate limits and precautions; establishing the proper plant configuration necessary to support testing; and, providing adequate test acceptance criteria. Permission to conduct the tests was required and obtained from the operations Shift Manager. All entries into TS actions statements, when necessary, were adequately performed and documented. The team verified, on a sampling basis, that testing was accomplished by appropriately qualified personnel. The team verified that instrumentation necessary for conducting the tests was calibrated and properly used. The team verified that test results met the acceptance criteria. The team observed that when problems or discrepancies were encountered, the licensee took appropriate actions to resolve these issues.

b.2 Specific Surveillance Performance Observations

The team identified the following discrepancies during observation of the above-mentioned surveillance tests:

DB-SP-03155, "AFW Train 1 Flow Path to SG Verification":

Two discrepancies were noted as follows:

- On December 11, 2003, during the pre-test briefing, the Test Leader was not cognizant of, and therefore failed to discuss, a previous test performance deficiency involving abnormal flow oscillations associated with FI4630, the control room post-accident Channel 1 AFW flow to Steam Generator 1. This previous test deficiency was identified when the same test was conducted on September 7, 2003, and was documented in CR 03-07450. Prior to the briefing, the team had noted this CR was still open pending resolution of the deficiency. Following the briefing, the team discussed the CR with the Test Leader. As a result of the team's concerns raised regarding how this test deficiency had been resolved, the Test Leader performed additional followup and discovered an open WO that had previously been initiated as part of the resolution to CR 03-07450. This WO (#200055372) required additional flow instrumentation be installed during the next performance of DB-SP-03155 in order to help resolve the original flow anomaly experienced with FI4630. Based on the insights gained from the team's question the licensee placed test DB-SP-03155 on hold until the issue with the WO was appropriately resolved. The licensee ultimately decided to conduct the test without installing the additional flow instrumentation in lieu of subsequent opportunities to investigate the flow gauge anomaly prior to plant startup. The team determined that, while the Test Leader's failure to recognize the need to implement the WO impacted the conduct of the test, it would have had no impact on the successful outcome of the test results. The Test Leader's failure to be cognizant of and discuss past test deficiencies and problems at the pre-test briefing was one example of several weaknesses identified in the quality of pre-job briefings that were observed during the inspection. The regulatory significance of the other pre-job briefing issues were discussed in more detail in Section 4OA5.A.1.2 of this report.

  The team determined that the failure to recognize open work activities affecting the test was a minor violation of TS 6.8.1.a, for failing to follow procedures associated with Regulatory Guide 1.33, Appendix A, February 1978, Section 1.b, for administrative procedures that implement the authorities and responsibilities for safe operation and shutdown. The specific violation was the failure to follow Procedure DB-PF-00203, "Acceptance Test Program," Revision 1, Section 6.3.3.b. This section required the assigned Test Leader to ensure, as part of test preparations, that all work activities that can affect the conduct or results of testing were complete. Contrary to this requirement, the Test Leader failed to identify outstanding work activities that affected the testing during test preparation activities. The team reviewed this issue against the guidance contained in Appendix B, of IMC 0612, and the issue was considered to be a violation of minor significance not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee documented this issue in their corrective action program as CR 03-11033.

- On December 12, 2003, during valve restorations as part of completing the test, the licensee identified that valve FW1008, the motor driven feedwater pump (MDFP) outlet isolation, had been incorrectly aligned during the actual test performance. Instead of being closed, the valve was found in the locked open position. The licensee's investigation revealed that the equipment operator who was assigned to align the valve in accordance with the test lineup attachment

had failed to ensure that the valve was in the closed position. FW1008 needed to be closed during the test in order to properly verify there was no reverse flow through check valve AF49, MDFP to Auxiliary Feed Line 2 Discharge Check. Using alternate plant level and pressure indications that were recorded during the check valve test, the licensee was able to determine that there was no indication of reverse flow through AF49. Based on this, the team concluded that the impact of the misalignment error had minimal actual consequence.

The team determined that the failure to properly control the configuration necessary to support testing was a minor violation of TS 6.8.1.a, for failing to follow procedures associated with Regulatory Guide 1.33, Appendix A, February 1978, Section 8.b(1)(r), for specific procedures to conduct AFW surveillance tests. The specific violation was the failure to follow the valve line-up in Procedure DB-SP-03155, "AFW Train 1 Flow Path to SG Verification," Revision 4, Attachment 1: AFP 1 Valve Lineup. The team reviewed this issue against the guidance contained in Appendix B, of IMC 0612, and determined this issue did not rise to the level of more than minor significance. This issue was considered to be a violation of minor significance not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee documented this issue in their corrective action program as CR 03-10800.

Additional observations regarding configuration control were provided in Section 4OA5.3.1 of this report.

<u>DB-SP-03164, "AFW Train 2 Flow Path to SG Verification":</u>

Two discrepancies were noted as follows:

- During the December 15, 2003, pre-test briefing witnessed by the team, the Test Leader discussed details on the number of turns expected to open the steam admission valve to the AFW pump, but did not adequately address a procedure precaution specifying the valve to be cracked open initially and subsequently opened incrementally to prevent the potential for water hammer. Following the briefing, the team discussed this item with the Test Leader, who agreed with the observation, and subsequently decided to perform another briefing with the appropriate personnel to reemphasises this procedure precaution. The team determined that this adequately addressed the concern. This was one of several weaknesses identified in the quality of pre-job briefings and test preparations that were observed during the inspection. The regulatory significance of this and other pre-job briefing issues were discussed in Section 4OA5.A.1.2 of this report.

- On December 15, 2003, while operating the AFW Train 2 pump in recirculation mode at the low governor speed setting, recirculation flow was measured at 65 gallons per minute (gpm). Step 4.47 of the procedure required a minimum recirculation flow of 70 gpm. The Shift Manager discussed the issue with the acting system engineer, who was unfamiliar with the basis of the 70 gpm. The Shift Manager requested the previous test performance procedure be reviewed. Based on that review, it was identified that:

1) a similar discrepancy was identified when the test was last performed on September 8, 2003;

2) during the September test, 60 gpm had been measured, and a test deficiency documented that engineering had been consulted and it was decided that the limit was not a test acceptance criteria and the test could be completed; and

3) as part of the test deficiency resolution, it was recommended that engineering evaluate the procedure-specified limit and determine if 60 gpm was adequate. However, no evidence could be found indicating that engineering completed this evaluation.

Based on this new information regarding the flow limit, the Shift Manager decided to abort testing until the issue could be adequately addressed by engineering. The team later learned that applicable test deficiency associated with the September 8, 2003 test performance had been closed without completing the intended engineering review.

The team determined that the failure to adequately resolve the flow limit test deficiency associated with the performance of Procedure DB-SP-03164 on September 8, 2003, was a minor violation of TS 6.8.1.a, for failing to follow procedures associated with Regulatory Guide 1.33, Appendix A, February 1978, Section 1.b, for administrative procedures that implement the authorities and responsibilities for safe operation and shutdown, as well as Section 8.b(1)(r), for specific procedures to conduct AFW surveillance tests. The team reviewed this issue per Appendix B, of IMC 0612, and determined this issue did not rise to the level of more than minor significance. This issue was considered to be a violation of minor significance not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee documented this issue in their corrective action program as CR 03-11033 and CR 03-11156.

c. Conclusions

The team concluded that the licensee had implemented detailed surveillance testing and scheduling controls to ensure that surveillance testing was properly conducted in accordance with TS requirements and at the required TS frequencies. Surveillance testing observed was normally conducted in accordance with the program, however, several deficiencies were identified in the quality of testing preparations and pretest briefings associated with auxiliary feedwater surveillance testing. In addition, a previous auxiliary feedwater test deficiency was not adequately resolved resulting in the subsequent test performance being aborted in order to address the issue.

2. Review of Completed Surveillance Testing

a. Inspection Scope

The team reviewed completed surveillance test activities on safety-related equipment and components to verify the activities were conducted in accordance with licensee and

NRC regulatory requirements. Other licensee documents reviewed during the inspections are listed in the Attachment of this report.

b. Observations and Findings

The team reviewed the following completed surveillance test activities associated with the emergency diesel generator and AFW systems:

- DB-CH-03023, "Emergency Diesel Generator Fuel Oil Storage Tank 1-2 Quarterly Analysis" (completed 7/8/03 and 10/22/03);
- DB-CH-03024, "Emergency Diesel Generator Fuel Oil Storage Tank 1 Monthly Analysis" (completed 10/28/03);
- DB-PF-03272, "Post Maintenance Valve Test" (completed 12/9 for valve DH7B);
- DB-SC-03110, "SFAS Channel 1 Functional Test" (completed 9/2/03);
- DB-SC-03111, "SFAS Channel 2 Functional Test" (completed 10/1/03);
- DB-SC-03112, "SFAS Channel 3 Functional Test" (completed 9/3/03);
- DB-SC-03113, "SFAS Channel 4 Functional Test" (completed 9/30/03);
- DB-SP-03151, "AFP 1 Quarterly Test" (completed 9/27/03);
- DB-SP-03152, "AFW Train 1 Level Control, Interlock and Flow Transmitter Test" (completed 9/2/03);
- DB-SP-03153, "Auxiliary Feedwater Train 1 Monthly Valve Verification" (completed 9/14/03);
- DB-SP-03155, "AFW Train 1 Flow Path to SG Verification" (completed 9/7/03);
- DB-SP-03157, "AFP 1 Response Time Test" (completed 10/8/03);
- DB-SP-03160, "AFP 2 Quarterly Test" (completed 9/24/03);
- DB-SP-03161, "AFW Train 2 Level Control, Interlock and Flow Transmitter Test (completed 9/4/03 and 9/20/03);
- DB-SP-03162, "Auxiliary Feedwater Train 2 Monthly Valve Verification" (completed 9/24/03);
- DB-SP-03164, "AFW Train 2 Flow to SG Verification" (completed 9/8/03); and
- DB-SP-03166, "AFP 2 Response Test" (completed 9/23/03).

b.1 General Observations

The team determined that the above testing was conducted in accordance with approved procedures that adequately met TS requirements. Personnel performing the tests were appropriately qualified and test results met the test procedure and TS acceptance criteria. With one exception, the team determined that when problems and test discrepancies were encountered, they were properly documented and resolved in a timely manner. The exception involved the failure to adequately resolve a test deficiency associated with the September 8, 2003, AFW testing per Procedure DB-SP-03164, as discussed in Section B.2.1 above.

The team identified several minor discrepancies or weaknesses in the licensee's Measuring and Test Equipment (M&TE) program. These items were described as follows:

- The licensee's new corporate level M&TE Procedure NOP-WM-5002, "Control of Measuring and Test Equipment," Revision 0, which replaced the site specific

M&TE procedure, was issued on December 12, 2002. At the time of issuance, the procedure was classified as "Q" (Quality Related). Based on the licensee's criteria for procedure classification contained in Procedure NG-QS-00120, "Davis-Besse Supplemental Procedure Requirements/Guidance," Revision 3, the team determined that NOP-WM-5002 should have been classified as "S" (Safety Related) since it was a procedure covered by TS 6.8.1. The only difference in the review and approval process between the two procedure classifications was that safety related procedures require Safety Review Board review. However, the licensee determined that even though NOP-WM-5002 was mis-classified, in this case, it was still reviewed by the Safety Review Board. Therefore, the team determined that there was minimal impact from this discrepancy. The licensee initiated CR 03-11087 to address this issue and to review other recently approved corporate procedures, especially those that replaced site specific procedures, to ensure that proper procedure classifications were made.

- The team observed that the same M&TE was being used on cross-train applications, such as during the Train 1 and Train 2 AFW flow tests discussed in Section B.2.1. The team noted that the M&TE program did not have any restrictions against using the same M&TE on both Train or Channel equipment. If M&TE that were used in this manner were found to be out-of-tolerance, this could create the potential of having common mode inoperability conditions. The licensee initiated CR 03-10911 to consider if any improvements in this area were warranted. The team considered this an observation comment only and not a regulatory concern.

- The team observed that Procedure NOP-WM-5002, Section 4.5.3.8, allowed M&TE users to request an immediate post-calibration for M&TE used in "critical use applications." However, the procedure did not define critical use or provide any additional guidance on when to exercise this request. Based on discussions with the M&TE coordinator, this request was seldom implemented by M&TE users except for M&TE used in American Society of Mechanical Engineers (ASME) Section XI applications, which have specific requirements for conducting post-calibration checks. The licensee initiated CR 03-10911 to evaluate the need to make improvements in this area. The team considered this an observation comment only and not a regulatory concern.

b.2 Inadequate Documentation of M&TE Usage

Introduction: The team identified a finding of very low safety significance (Green) and an associated NCV of TS 6.8.1.a, related to multiple failures to follow the procedure for documenting usage of M&TE.

Description: While verifying that test instrumentation was properly calibrated and properly used in the completed surveillances reviewed above, the team identified eight examples where M&TE (two multimeters, two fixed value resistors, chart recorder, tachometer, and two stopwatches) were documented as being used, however, the record of usage had not been entered into the licensee's computerized M&TE database. The purpose of this database was to track the usage of all plant M&TE, so that out-of-tolerance M&TE could be cross referenced to where it had been used. The end user of

M&TE was responsible for ensuring that all M&TE uses were properly documented and provided to M&TE issue personnel so that appropriate database entries can be made. Normally, M&TE usage information was provided via a “Traveler” form, however, the user was not required to use the Traveler if there was only one known intended use at the time of issuance. The team determined that M&TE users had failed to ensure that multiple uses of M&TE were conveyed to M&TE issue personnel and the problem was most likely being compounded by the lack of using a Traveler form which could help serve as a reminder to the user.

The licensee’s initial response to this issue was comprehensive. On December 17, 2003, the licensee issued a memo to all station personnel describing the M&TE documentation problems and directing that all M&TE would be issued with a Traveler that should remain with the M&TE until turned back in.

Analysis: The team determined that a performance deficiency existed, because M&TE users failed to follow procedures requiring M&TE usage to be documented so that it could be entered into the M&TE database. The team reviewed this finding using the guidance contained in Appendix B, of IMC 0612. The team compared this finding to those identified in Appendix E, “Examples of Minor Issues,” of IMC 0612 to determine if the finding was minor. Based on this review, the team determined that the guidance in Appendix E was not applicable. As a result, the team compared this performance deficiency to the minor questions contained in Section C, “Minor Questions,” to Appendix B of IMC 0612. The team concluded that the finding was more than minor because it involved the equipment performance attribute of the Mitigating System cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. If M&TE failed a post-calibration check, traceability lapses in the licensee’s M&TE database would make it difficult to identify all instances where the out-of-tolerance M&TE was used since last calibrated in order to evaluate the impact of the condition on components and systems. The finding also affected the cross-cutting area of Human Performance in that M&TE users had failed to properly account for M&TE usage.

The team reviewed this finding in accordance with IMC 0609, “Significance Determination Process (SDP)," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The team determined that the finding affected the Mitigation Systems Cornerstone; however, the finding was not a design or qualification deficiency, did not represent an actual loss of safety function of a system or single train loss of TS or non-TS equipment, and did not involve seismic, fire, flooding, or severe weather initiating events. Therefore, the finding was considered to be of very low safety significance (Green).

Enforcement: TS 6.8.1.a. and Regulatory Guide 1.33, Appendix A, February 1978, Section 8, “Procedures for Control of Measuring and Test Equipment and for Surveillance Tests, Procedures, and Calibrations,” required that activities associated with the control of M&TE be performed in accordance with written procedures or documented instructions appropriate to the circumstances. Procedure NOP-WM-5002, “Control of Measuring and Test Equipment,” Revision 0, Section 4.5.3, required M&TE users to be responsible for properly documenting M&TE usage so that the information

could be captured in the M&TE database. Contrary to this requirement, eight examples during the period of September 3, 2003 through October 1, 2003, were identified where M&TE users failed to document M&TE usage information so that the M&TE database could be updated. Because this violation was of very low significance and because it was entered into the licensee's corrective action program (CRs 03-10911, 03-11014, 03-11092, and 03-11093) it was being treated as a NCV, consistent with Section VI.A of the NRC's Enforcement Policy (NCV 05000346/2003011-04).

c. Conclusions

The team concluded that completed surveillance testing reviewed associated with the emergency diesel generators and auxiliary feedwater systems were conducted in accordance with licensee and NRC regulatory requirements. An NCV was identified for multiple examples where personnel using M&TE during testing failed to ensure that records of the usage were included in the M&TE database. The licensee initiated comprehensive corrective actions to address this issue prior to the end of the inspection.

C ENGINEERING AND TECHNICAL SUPPORT

1. Effectiveness of the Technical Staff Supporting Safe Plant Operations

a. Inspection Scope

The team reviewed the effectiveness of the licensee's technical staff and their ability to support safe plant operations. The team interviewed technical staff members in the plant and design engineering departments, reviewed documents related to equipment performance problems, evaluated the effectiveness of the technical staff to support restart readiness review activities. Other licensee documents reviewed during the inspections are listed in the Attachment of this report.

b. Observations and Findings

No findings of significance were identified.

The Davis-Besse technical staff consisted of a design engineering department and the plant engineering department. The design engineering department had 53 assigned employees in various groups including analysis, mechanical, electrical, structural, and a rapid response team. The plant engineering department had about 78 employees assigned in various groups including mechanical systems, predictive maintenance and reliability, electrical systems, components and materials, and plant computer support. The team noted that the licensee had about 17 open vacant positions within the two departments discussed above.

Technical staff personnel from plant engineering, design engineering, and projects departments were routinely observed by the inspection team engaged in plant activities. They were routinely observed attending plant status meetings including the morning operations status meeting, pre-job brief meetings, and other various planning and status meetings. The team observed the technical staff participating in discussions in support

of work activities and plant operations at the work control desk area and in the control room respectively.

During the inspection period, the team reviewed temporary modification package 03-031 which installed a temporary freeze seal on the decay heat removal system to facilitate the replacement of a relief valve. The package was prepared by planning and scheduling with maintenance and engineering support. The engineering safety review was properly documented and screened in accordance with 10 CFR 50.59.

c. Conclusions

The technical staff departments had several vacancies. This condition did not appear to affect their ability to perform their functions. The technical staff was engaged and aware of daily plant activities while contributing to safe operations. The technical staff supported the operations department with technical expertise.

2. System Engineering Effectiveness

a. Inspection Scope

The team evaluated the readiness of the system engineering organization to be effective in managing the reliability of systems, structures, and components (SSC) focusing on safety related equipment including ECCS. To evaluate the effectiveness of the system engineers, the team assessed the following aspects:

- System Engineering Training and Practical Experience;
- System Engineering Communication; and
- System Engineering Interface with Design Engineering.

The team interviewed several system engineers, supervisors, and managers within the engineering organization. The team attended daily meetings, reviewed system engineering training records, organization charts, plant engineering procedures, technical specification administrative requirements, condition reports, and plant engineering system restart readiness review reports to confirm adequate demonstration of system engineering effectiveness.

b. Observations and Findings

No findings of significance were identified.

b.1 System Engineering Training and Practical Experience

The team determined that system engineering position personnel were assigned to the plant engineering department spread out among several groups including mechanical systems, electrical systems, predictive maintenance and reliability, components and materials, and plant components. The plant engineering department consisted of 78 personnel with 27 personnel assigned system expert responsibilities. A majority of the engineering organization consisted of experienced personnel with an excess of 10 years of practical experience in their fields. Training and qualification records were

maintained and updated by a training coordinator assigned to the plant engineering manager.

The team reviewed training records for two system engineers who were in a training status and not fully qualified. One of the individuals had been in the department for over a year while the other had just been assigned within two weeks. The licensee's Administrative Training Program Procedure, NT-ST-07044, "Training and Qualification of Engineering Support Personnel," Revision 7, delineated the responsibilities and requirements for their training. The two individuals in a training status both had qualification cards issued and had been assigned system expert responsibilities for multiple safety-related systems including the auxiliary feedwater, high pressure injection, low pressure injection, decay heat removal, and emergency sump systems. Procedure NT-ST-07044, Section 6.35, required engineering support personnel to complete their orientation training within one year of being assigned to a plant engineering functional position. Contrary to this requirement, the team determined that one assigned system expert had been assigned to plant engineering and issued a general orientation guideline on October 21, 2002, and had yet to complete it as of December 19, 2003. In addition, Procedure NT-ST-07044, Section 6.43, required plant engineering individuals to complete position specific qualification requirements prior to independently performing associated job activities. Contrary to this requirement, the team determined that assigned in-training system experts performed independent system readiness affirmation evaluations in accordance with Davis-Besse Procedure DBBP-VP-0002, "Restart Readiness Review Extended Plant Outage," Revision 10, for entering Mode 4 plant operations.

Davis-Besse TS 6.3.1, "Facility Staff Qualifications," states that each member of the facility staff shall meet or exceed the minimum requirements of ANSI N18.1-1971. ANSI N18.1-1971, "Selection and Training of Nuclear Power Plant Personnel," Section 5.3.3, in part, states that technical personnel shall be qualified by programs in related technical training. Contrary to this requirement, permanently assigned technical personnel in the form of system experts were given the responsibility to ensure the safe and reliable operation of safety-related systems, structures, and components (SSC) who were not qualified in accordance with their program requirements. The team reviewed the issue against the guidance contained in Appendix B, "Issue Dispositioning Screening," of IMC 0612, "Power Reactor Inspection Reports." In particular, the team compared this issue to the findings identified in Appendix E, "Examples of Minor Issues," of IMC 0612 and determined this to be a minor violation of TS 6.3.1 because there were other technical staff members available who were qualified in accordance with their training program and this practice was not wide spread. This issue was considered to be a violation of minor significance and was not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee entered this condition in their corrective action program as CR 03-10833.

b.2 System Engineering Communication

During the period from December 8 thru 19, 2003, the team observed system engineering participation in a number of communication meetings. The daily operations shift turnover meeting was attended by a system engineering representative who answered questions and provided engineering department points of contact to

operations and maintenance personnel. Following the operations shift turnover meeting, the system engineer representative that attended the meeting met with plant engineering management staff to communicate the issues discussed at that meeting.

On December 9, 2003, the team observed a pre-job brief for the condensate system start-up attended by the system engineer who was prepared and able to answer technical questions raised by the operations and maintenance departments relative to operation of the system.

On December 10, 2003, while performing a walkdown of the operating # 1 decay heat removal (DHR) train, the team identified a spring can hanger (33B-GCB-1-H5) which was set above its load indicating scale. The inspection team brought this condition to the attention of the DHR system engineer who confirmed the team's observation. On December 11, 2003, the inspection team determined that, contrary to the licensee's procedure, this condition adverse to quality that could affect equipment operability was not promptly identified and communicated to the designated on-shift SRO by the system engineer. The team reviewed the issue against the guidance contained in Appendix B and Appendix E, of IMC 0612, and determined this to be a minor violation. Specifically, licensee Procedure NOP-LP-2001, Revision 5, Condition Report Process, Section 4.3.1 required immediate notification of the on-shift SRO whenever an issue was identified which appears to affect equipment operability. The issue was not more than minor because the subject spring can was subsequently determined to be operable. The issue was considered to be a violation of minor significance and was not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee documented this issue in their corrective action program in CR 03-10771.

b.3 System Engineering Interface with Design Engineering

The team determined the system engineering organization was responsible for plant system reliability. The system engineering organization had the lead role for determining when plant systems were ready to be returned to service during an extended plant outage period. The system engineering organization performed walkdowns, corrective action item closeouts, and final system readiness system affirmation evaluations on assigned systems. Design engineering was responsible for a number of design change modifications performed during the extended shutdown period. The inspection team observed the two organizations working together to reach system final readiness for restart.

During the inspection period, the team reviewed Nuclear Operating Business Practice Procedure, DBBP-VP-0002, Revision 10, "Restart Readiness Review Extended Plant Outage," Attachment 1 Reports. The reports identified restart readiness review indicators for the plant engineering and the design engineering departments. The team determined the reports were consistent between the organizations and the licensee identified a large number of incomplete work activities associated with restart readiness requirements.

c. Conclusions

Most system engineers were well trained and qualified to perform assigned responsibilities associated with safe plant operations. Two system engineers were assigned system expert responsibilities for safety-related systems who were not trained or qualified on those systems.

The system engineers attended daily meetings and communicated technical information as necessary. Generally the communications between the system engineers and other organizations, including operations, were effective. However, on one occasion an assigned system engineer did not promptly notify the operations shift manager after learning of a condition adverse to quality that could affect the operability of an operating system.

Although the system engineering and design engineering organizations had separate responsibilities, they effectively coordinated their tasks through meetings and the corrective action program.

4OA4 Cross-Cutting Aspects of Findings

.1 A finding identified in Section 4OA5.A.1.9 had as its primary cause a human performance deficiency because operators were unaware of the status of plant equipment. Specifically, during the evolution to draw a pressurizer draw bubble, the operators were unaware that some of the pressurizer heaters were unavailable for operation due to interlocks not being met and power not being available.

.2 A finding identified in Section 4OA5.A.4.1 of this report was related to the cross-cutting area of Problem Identification and Resolution. The licensee failed to promptly identify and correct issues identified in Davis-Besse Operational Readiness Assessment Report No. 2003-0021.

.3 A finding identified in Section 4OA5.A.4.4 of this report was related to the cross-cutting area of Problem Identification and Resolution. The licensee failed to take effective corrective actions to preclude recurrence of operational performance issues described in the Collective Significance Review for Operating Events and Errors Identified in Condition Report 03-08418, in conjunction with the Operations Improvement Implementation Action Plan.

.4 A finding identified in Section 4OA5.B.2.2 had as its primary cause a human performance deficiency because the users of M&TE failed to properly account for M&TE usage.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. Lew Myers, and other members of licensee management at the conclusion of the inspection during a public exit on December 19, 2003. The NRC inspectors asked the licensee whether any materials discussed as potential report material should be considered proprietary. No proprietary information was identified.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

G. Leidich, President, FENOC
L. Myers, Chief Operating Officer, FENOC
J. Hagan, Senior Vice President, FENOC
M. Bezilla, Site Vice President
B. Allen, Plant Manager
G. Becker, Engineer, Regulatory Affairs
B. Boles, Manager, Plant Engineering
K. Byrd, Supervisor, Design Engineering
G. Dunn, Manager, Work Management
J. Grabnar, Manager, Design Engineering
D. Gudger, Supervisor, Regulatory Affairs
B. Hennessy, Supervisor, Nuclear Compliance
H. Hopkins, Supervisor, Mechanical Systems
R. Hovland, Supervisor, Electrical Systems
S. Loehlein, Manager, Nuclear Quality Assurance
W. Marini, Regulatory Affairs
W. McLeod, System Engineer
K. Ostrowski, Manager, Regulatory Affairs
J. Powers, Director, Nuclear Engineering
J. Reddington, Manager, Operations Department Training
M. Roder, Manager, Plant Operations
M. Ross, Director Restart
R. Schrauder, Director, Support Services
R. Smith, System Engineer
A. Stallard, Operating Support Superintendent
M. Stevens, Director, Maintenance
J. Sturdavant, Senior Engineer, Regulatory Affairs
D. Williams, Supervisor, Maintenance
D. Woodfin, Supervisor, Engineering

NRC
J. Grobe, Chairman, Davis-Besse Oversight Panel, RIII
C. Lipa, Branch Chief, Division of Reactor Projects, RIII
W. Ruland, Assistant Chairman, Davis-Besse Oversight Panel, NRR
M. Salter-Williams, Resident Inspector, Davis-Besse
S. Thomas, Senior Resident Inspector, Davis-Besse

State of Ohio
S. Eischen, Radiological Analyst, Emergency Management Agency
S. James, Radioactive Materials Inspector, Department of Health Bureau of Radiation Protection

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000346/2003011-01	NCV	Failure to follow DB-OP-00000, "Conduct of Operations," regarding present plant conditions and understanding of the operation of the plant equipment. (Section 4OA5.A.1.9)
05000346/2003011-02	NCV	Failure to promptly identify and correct issues identified in Davis-Besse Operational Readiness Assessment Report No. 2003-0021. (Section 4OA5.A.4.1)
05000346/2003011-03	NCV	Failure to take effective corrective actions to preclude recurrence of operator performance described in Collective Significance Review for Operating Events. (Section 4OA5.A.4.4)
05000346/2003011-04	NCV	Failure to control test equipment in accordance with licensee procedure. (Section 4OA5.B.2.2)

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 team reviewed the documents in their entirety but rather that selected sections or 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 this is stated in the body of the inspection report.

Procedures

DBBP-OPS-0001, Conduct for Excellence; Revision 4

DBBP-OPS-0003, On-Line Risk Management Process; Revision 1

DBBP-OPS-0004, Operations Continuous Improvement; Revision 2

DBBP-VP-0002, Restart Readiness Review Extended Plant Outage, Revision 0

DB-DP-00013, Surveillance and Periodic Test Program, Revision 8

DB-MN-00001, Conduct of Maintenance, Revision 10

DB-OP-00000, Conduct of Operations, Revision 6

DB-OP-00000, Conduct of Operations; Revision 6

DB-OP-00000, Conduct of Operations, Revision 7

DB-OP-00006, Night Orders and Standing Order Log; Revision 6

DB-OP-00005, Operator Logs and Rounds; Revision 10

DB-DP-00007, Control of Work; Revision 5

DB-OP-0008, Operation and Control of Locked Valves, Revision 02

DB-OP-00100, Shift Turnover, Revision 6

DB-OP-00016, Temporary Configuration Control, Revision 06

DB-OP-01002, Component Operation and Verification, Revision 00

DB-OP-01003, Operations Procedure Use Instructions, Revision 2

DB-OP-02000, Emergency Procedure; Revision 9

DB-OP-02003, ECCS Alarm Panel 3 Annunciators

DB-OP-03004, Locked Valve Verification, Revision 02

DB-OP-06003, Pressurizer Operating Procedure; Revision 9

DB-OP-06012, Decay Heat and Low Pressure Injection System Operating Procedure, Revision 16

DB-OP-06233, Auxiliary Feedwater System, Revision 10

DB-OP-06261, Service Water System Operating Procedure, Revision 12

DB-OP-06316, Diesel Generator Operating Procedure, Revision 11

DP-OP-06911, Pre-Startup Checklist, Revision 07

DB-OP-06900, Plant Heatup; Revision 22

DB-PF-00203, Acceptance Test Program, Revision 1

DB-PF-05010, Electrical Circuit Functional Test, Revision 05

DB-SC-03271, Attachment 1, Control Rod Drive Program Verification By Control Rod Movement, Revision 1

GP-03, Conduct of Pre-Job Briefs and Post-Job Reviews, Revision 5

EN-DP-10702, Modification Test Requirements, Revision 04

EO-10, Protected Train Room Sign Posting, Revision 3

GP-03, Conduct of Pre-Job and Post-Job Reviews; Revision 6

ISI-366, Visual Examination for VT-1 and VT-3 Methods

NG-DB-00201, Conduct of Infrequently Performed Tests and Evolutions, Revision 2

NG-DB-00202, Test Control, Revision 4

NG-DB-00225, Procedure Use and Adherence, Revision 1

NG-EN-00313, Control of Temporary Modifications, Revision 04

NG-EN-00309, Plant Modification, Revision 01

NG-QS-00120, Davis-Besse Supplemental Procedure Requirements/Guidance, Revision 3.

NOBP-WM-0002, Maintenance Planning, Revision 0

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

NOP-LP-2001, Condition Report Process, Revision 4

NOP-OP-1001, Clearance/Tagging Program, Revision 3

NOP-SS-1001, FENOC Administrative Program for Computer Related Activities, Revision 1

NOP-WM-5002, Control of Measuring and Test Equipment, Revision 0

NT-ST-07044, Training and Qualification of Engineering Support Personnel, Revision 7

Control Of Temporary Modifications, Revision 4

Control Of Work, Revision 5

Fitness for Duty Program, Revision 1

On-Line Risk Management, Revision 2

Procedure Use and Adherence, Revision 1

Work Management Process, Revision 2

Condition Reports

CR 02-05188, SHRR Walkdown of HPI train 2: Plant Configuration Issues, August 16, 2002

CR 02-05800, SHRR-RC Makeup System Walkdown - Tape Residue on Stainless Steel

CR 02-08254, Battery Discharge Alarm Setpoint Changed Under a Voided FCR

CR 02-07206, LIR: EDG Derating Curve

CR 02-08429, PR/MOD: Inadequate Resolution to Condition Report 02-02358

CR 02-08925, Design Issues Identified During (SHRR) of DC System

CR 02-08929, Persistent Grounds on DC System (SHRR)

CR 03-00459, No Jumper Lifted Wire Log Sheet for C.A.C. 1-3

CR 03-00683, Contamination Boundary Requirements Not Followed

CR 03-01234, Jumper Wire Lifted Logs for BPH4-2 Was Filled Out Incorrectly

CR 03-04296, Tracking CR - Operations Section 2003 Business Plan/Action Plan Assignments (NRC Identified)CR 03-05357

CR 03-05472, Station Staff Lacks Understanding of 10 CFR 50.9 Complete and Accurate

CR 03-07302, Appropriateness of Basis for Removing Mode Restraints

CR 03-07439, AFPT Did Not Start

CR 03-07450, DB-SP-03155 Flow Discrepancies with FI4630

CR 03-08029, Failure to Record M&TE Used in the Measuring & Test Equipment Database

CR 03-08032, Failure to Record M&TE Used in the Measuring & Test Equipment Database

CR 03-08220, Auxiliary Feedwater Check Valve Testing not Performed as Scheduled

CR 03-08374, Reactor Trip on Shutdown Bypass High Pressure Trip

CR 03-08780, Clarify and Standardize Requirements and Instructions for Using Trippable Reactivity During Plant Heatups and Cooldowns

CR 03-08418, Operational Events - Collective Significance Review (*Corrective Actions 43, 44, 45, 46, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, and 63 were initiated based on NRC questions*)

CR 03-08794, Inadequate Alarm Response Procedure for Core Flood Tank Valve Open Annunciators

CR 03-08828, Collective Significance Evaluation of Operations' Procedure Content Deficiencies

CR 03-09179, Plant Shutdown and Cooldown Procedure Unnecessarily Requires Makeup to Be Shutdown Before RCS Temperature Is Reduced to less than 140^{o}F.

CR 03-09942, Jumper & Lifted Wire Log

CR 03-10011, Wrong Order Revised and Used to Perform Work on #1 High Pressure Injection Pump

CR 03-10023, Restart Readiness Review Safety Culture Assessment, Attribute 3.E (*Corrective Actions 2 and 3 were initiated based on NRC questions*)

CR 03-10405, Personnel Qualifications Not Completed within Required Timeframe, December 2, 2003 (NRC Identified)

CR 03-10626, Improper Storage of Ladders Observed During Paired Observation

CR 03-10647, Required Readings Expectations; December 9, 2003 (NRC Identified)

CR 03-10661, RRATI: The AFW System Engineer is not Listed as a Qualified System Engineer, December 9, 2003

CR 03-10677, EDG Cabinet C3617 Orifice Plate Material, December 10, 2003

CR 03-10668, PCR DB-OP-06904 Door 317A to #2 EDG Air Receivers Needs a Protected Train Sign, December 9, 2003 (NRC Identified)

CR 03-10706; RRATI team noted inconsistencies in completing the overtime deviation forms, December 10, 2003 (NRC identified)

CR 03-10726, HPI Pump #1 Conduit Support Foundation Not Completely Issued, December 10, 2003 (NRC Identified)

CR 03-10727, RRATI - Possible Additional Actions to Prevent Future Errors with Order Addenda (NRC Identified)

CR 03-10730, DH Train 2 Pump Discharge Spring Hanger Set Outside Vendor Recommended Band, December 10, 2003 (NRC Identified)

CR 03-10759, RRATI - Failure to Meet Expectations for End of Shift Briefs, December 10, 2003 (NRC Identified)

CR 03-10760, RRATI- SFAS Channel 3 Key - Opening Cabinet is Difficult - Key Lock may be Worn

CR 03-10771, RRATI: Inspector Expressed a Safety Issue with the Handling of CR 03-10730, December 11, 2003 (NRC Identified)

CR 03-10776, Pipe Support Spring Hanger M-1147-H36, December 11, 2003 CR 03-10792; AFW Flow Indicator Oscillations During SB-SP-03155

CR 03-10793, Lock Nut for Actuator Open Stop Found Loose on SW 1424

CR 03-10794, TPCW HX Outlet Valve Tied Off in SW Pressure Control Mode, December 12, 2003 (NRC Identified)

CR 03-10800; FW1008 Found Out of Required Test Position

CR 03-10833, RRATI: System Engineer Qualification Issues, December 12, 2003 (NRC Identified)

CR 03-10834, CTRM Annunciators 1-4-B and 1-4-J Alarm Workaround, December 12, 2003 (NRC Identified)

CR 03-10872, 0630 Turnover Meeting on 12-14-03, December 14, 2003

CR 03-10876, Dayshift 12/14/03 Observation Unsat, December 14, 2003

CR 03-10893, RRATI - Operational Readiness Assessment Report Recommended Actions (NRC Identified)

CR 03-10907, Aggregate Review Of Workarounds; December 15, 2003 (NRC Identified)

CR 03-10911, Instruments Used on Multiple Trains and Not in Database (NRC Identified)

CR 03-10912, Training Completion Required for Interim Completion of Modification 03-0533, December 15, 2003

CR 03-10927, BF 1274 Hot Checks

CR 03-10939, Insufficient Detail and Followup on Procedure Deficiency Form

CR 03-10958, An RO Noted Acknowledging Alarms By Leaning on the Switch, December 15, 2003 (NRC Identified)

CR 03-10965, RRATI Improvement Opportunity for Turnover Meeting, December 15, 2003 (NRC Identified)

CR–3-10979, RRATI Inspector Questioned if the Ladder in the EDG Room is Properly Restrained

CR 03-10980, RRATI - Use of Magnetic Labels on Control Room Panels, December 16, 2003 (NRC Identified)

CR 03-10985, Damaged Cover on HPI #1 DC Oil Pump (MP 197-2) Electrical Termination Box, December 10, 2003 (NRC Identified)

CR 03-11010, Control of Camera Installation and Use

CR 03-11014, M&TE Documentation (NRC Identified)

CR 03-11033, RRATI team identified several examples where Operations failed to meet standards; December 17, 2003 (NRC Identified)

CR 03-11087, Classification Incorrect on NOP-WM-5002 (NRC Identified)

CR 03-11092, M&TE Documentation is Less Than Adequate (NRC Identified)

CR 03-11093, NOP-WM-5002, Control of Measuring and Test Equipment Deficiencies (NRC Identified)

CR 03-11156, Opportunities for Improvement In Operations During Testing (NRC Identified)

CR 03-11314, Corrective Actions Taken to Improve Operational Deficiencies Appear Ineffective, December 26, 2003 (NRC Identified)

Other Documents

Control Room Deficiencies; December 12, 2003

Cooldown Guide - Guidance for Performing Section 5, Cooldown of NSSS from Mode 3, of DB-OP-06903, "Shutdown and Cooldown"

Current Control Room Procedure and Revision List; December 9, 2003

Current Control Room Drawing and Revision List; December 9, 2003

Cycle 03-02 Current Events

Cycle 03-04 Current Events

Davis-Besse Fourth Quarter 2003 Nuclear Quality Assessment Plan

Davis-Besse Operational Readiness Assessment Report No. 2003-0021

Davis-Besse Nuclear Power Station Operational Improvement Plan Operating Cycle 14, Revision 0

Davis-Besse Nuclear Quality Assessment Quarterly Assessment Report DB-C-03-03, July 7 to October 3, 2003

Davis-Besse Operations Training - Non-Licensed Operator Training Program - Training Plan, Revision 5

FENOC Observations Cards DB02003-1215

FENOC Observations Cards DB02003-3456

Final Safety Analysis Report Section 9.2.1, Service Water System

Intra-Company Memorandum; Proficiency Requirements; December 3, 2003

Non-Licensed Operator Special Restart Cycle Primary CRC Cycles 03-06 and 03-07 Meeting Minutes

Nuclear Group Guideline/Handbook

Nuclear Quality Assessment Oversight of Davis-Besse Return to Service Plan, Revision 3

ONL Cycle A-C Crew (training) Schedule

ONL Qualification Card

Open Operations Equipment Issues List; December 10, 2003

Operations Improvement Implementation Action Plan, Revision 2

Operator Logs; December 7-17, 2003

Operations Observation Detail Report (December 8 - 12, 2003)

Operations Section Manning; December 4, 2003

Operations Section Required Reading; Revision 4

Required Reading; Containment Air Cooler Operation; December 4, 2003

Required Reading; Auxiliary Feedwater Pump Number Two Oil Problems; September 24, 2003

Simulator Guide; Loss of Reactor Coolant System Makeup; Revision 2

Simulator Guide; Reactor SCRAM; Revision 2

Training Needed Report, December 15, 2003

Work Order Addendum 200053815, Remove Thrust Bearing Retaining Sleeve on High Pressure Injection Pump

LIST OF ABBREVIATIONS

ADAMS	Agency Wide Documents Access and Management System
AFW	Auxiliary Feedwater
ASME	American Society of Mechanical Engineers
CFR	Code of Federal Regulations
CR	Condition Report
DB	Davis-Besse
DBBP	Davis-Besse Business Practice
DH	Decay Heat
DHR	Decay Heat Removal
DRP	Division of Reactor Projects
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
eSOMS	Shift Operations Management System
FENOC	FirstEnergy Nuclear Operating Company
FIN	Fix-it Now
FTL	FIN Team Leader
GP	General Procedure
gpm	gallons per minute
IMC	Inspection Manual Chapter
LOCA	Loss of Coolant Accident
M&TE	Measuring and Test Equipment
MDFP	Motor Driven Feedwater Pump
NCV	Non-Cited Violation
NLO	Non-Licensed Operator
NOP	Normal Operating Pressure
NQA	Nuclear Quality Assurance
NRC	Nuclear Regulatory Commission
OP	Operations Procedure
PARS	Publicly Available Records
QC	Quality Control
RCS	Reactor Coolant System
RO	Reactor Operator
RPS	Reactor Protection System
RRATI	Restart Readiness Assessment Team Inspection
SSC	Systems, Structures, and Components
SCR	Silicon Controlled Rectifier
SDP	Significance Determination Process
SFAS	Safety Feature Actuation System
SG	Steam Generator
SM	Shift Manager
SRO	Senior Reactor Operator
SW	Service Water
TS	Technical Specification
US	Unit Supervisor
WO	Work Order