June 10, 2005

EA 03-214

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

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION
NRC INTEGRATED INSPECTION REPORT 05000346/2005006

Dear Mr. Bezilla:

On May 13, 2005, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Davis-Besse Nuclear Power Station. The enclosed inspection report documents the inspection findings which were discussed on May 19, 2005, with you and other members of your staff. Additionally, this inspection report documents special inspection activities to ensure your compliance with the March 8, 2004, Confirmatory Order (EA 03-214).

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, Davis-Besse was under the Inspection Manual Chapter 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 Davis-Besse, it was used as guidance for inspection activities and to assess findings.

Based on the results of this inspection, the NRC has determined that no violations of NRC requirements occurred.

In accordance with 10 CFR 2.390 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/

Steven A. Reynolds
Chairman
Davis-Besse Oversight Panel

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

Enclosure: Inspection Report 05000346/2005006
w/Attachment: Supplemental Information

cc w/encl: The Honorable Dennis Kucinich
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J. Hagan, Senior Vice President
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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-346
License No:	NPF-3
Report No:	05000346/2005006
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Davis-Besse Nuclear Power Station
Location:	5501 North State Route 2 Oak Harbor, OH 43449-9760
Dates:	April 1 through May 13, 2005
Inspectors:	S. Thomas, Senior Resident Inspector J. Rutkowski, Resident Inspector M. Salter-Williams, Resident Inspector G. Wright, Project Engineer R. Landsman, Project Inspector, Decommissioning Branch M. Maymi, Reactor Inspector Region II J. Persensky, Office of Research M. Keefe, Office of Research J. Cai, NRR
Approved by:	C. Lipa, Chief Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000346/2005006; 4/1/2005 - 5/13/2005; Davis-Besse Nuclear Power Station; Routine Integrated Inspection Report, including special inspection related to Confirmatory Order.

This report covers a 6 week period of resident inspection, including special inspection related to the March 8 Confirmatory Order. The inspection was conducted by staff from NRR and Research, a Region II inspector, Region III inspectors, and resident inspectors. No findings of significance 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

No findings of significance were identified.

B. Licensee-Identified Findings

No findings of significance were identified.

REPORT DETAILS

Summary of Plant Status

At the beginning of the inspection period, the plant was operating at approximately 100 percent power. During this inspection period, brief planned power reductions of less than 10 percent occurred on two occasions (April 17th and May 8th) to support planned testing. On each occasion, the testing was completed and power was restored to approximately 100 percent. The plant operated at approximately 100 percent power for the remainder of the inspection period.

For the entire inspection period, the Davis-Besse Nuclear Power Station was under the IMC 0350 Process.

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

The inspectors reviewed the licensee's restoration of systems from cold weather preparations and the licensee's preparations for hot weather operations. The inspectors reviewed the licensee's procedural requirements and sampled equipment status for restoration from cold weather valve and ventilation alignments. Additionally, the inspectors, after reviewing the procedural status of preparations for hot weather operations, interviewed operations personnel on their progress towards completion of the preparations. This included questioning the time period assumed in the licensee's procedure for completion of hot weather preparations.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q)

a. Inspection Scope

The inspectors reviewed equipment alignment to identify any discrepancies that would impact the function of system components. The inspectors also reviewed if the licensee had properly identified and resolved any equipment alignment problems that could cause an initiating event or impact the availability and functional capability of the mitigating system. Documentation reviewed to determine the correct system lineup included plant procedures, drawings, and the Updated Safety Analysis Report (USAR).

During the walkdown, the inspectors also evaluated the material condition of the equipment to identify if there were significant conditions not already in the licensee's corrective action system. The following samples were selected:

- April 8, 2005, emergency diesel generator 2 (following maintenance activities on the starting air system);
- April 14, 2005, high pressure injection system train 2 (while high pressure injection train 1 was inoperable and unavailable for scheduled maintenance activities);
- April 21, 2005, decay heat system train 2 (while decay heat train 1 was inoperable and unavailable due to scheduled maintenance activities); and
- May 3, 2005, high pressure injection system train 1 (while high pressure injection train 2 was inoperable and unavailable for scheduled maintenance activities).

This constitutes four samples.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

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

The following areas were inspected:

- Mechanical penetration room 4 (Fire Area A, Room 314);
- Diesel generator 1-2 room (Fire Area J, Rooms 319 and 319A);
- Auxiliary building elevation 545' and 555' passageway (Fire Area A, Rooms 110 and 110A);
- Borated water storage tank pipe tunnel, (Fire Area B, Rooms 100 and 101); and
- ECCS pump room 1-1, (Fire Area AB, Room 105).

This constitutes five samples.

b. Findings

No findings of significance were identified.

1R06 Flood Protection - External Flooding (71111.06)

a. Inspection Scope

The inspectors evaluated the potential for flooding from external factors by reviewing plant design parameters pertinent to controlling the potential for flooding from external means. The evaluation included a review to check for deviations from the descriptions provided in the USAR for features intended to mitigate the potential for flooding from external factors. As part of this evaluation, the inspectors reviewed the conditions of roof drains on the auxiliary building and checked for obstructions that could prevent draining and checked that the roofs did not contain obvious loose items that could clog drains in the event of heavy precipitation. Additionally, the inspectors walked down portions of accessible auxiliary building interior roof drain lines to observe if the pipes were intact. The inspectors also reviewed the visible condition of sewer and culvert drains that surrounded the unit's power block.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11Q)

a. Inspection Scope

On April 19, 2005, the inspectors observed operating crews during simulator annual requalification training associated with an emergency plan exercise and attended the post-session licensee controller critique. The inspectors reviewed crew performance in the areas of:

- Clarity and formality of communications;
- Ability to take timely action in a safe direction;
- Ability to prioritize, interpret and respond to alarms;
- Procedure use;
- Oversight and direction from supervisors; and
- Group dynamics.

Crew performance in these areas was compared to licensee management expectations and guidelines as presented in Davis-Besse operational and administrative procedures. The operational scenario included a reactor coolant system small break with a subsequent loss of offsite power.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 480 Volt AC System

a. Inspection Scope

The inspectors reviewed the licensee's handling of performance issues associated with the 480 V AC system, specifically the failures of breakers BEF122, BE314, B25Q25, loss of buses F4 and F6, and manual de-energization of motor control center E21A. The inspection consisted of evaluating the following specific activities:

- The licensee's use of the condition report process in identifying deficiencies and issues with 480V AC system equipment;
- Whether equipment performance issues were correctly categorized per the system's scoping sheet performance criteria for reliability;
- Whether the licensee was effectively tracking key parameters and recognizing trends for 480V AC system condition monitoring failures;
- Appropriateness of goals and corrective actions for the long-term reliability;
- Whether the licensee's corrective actions included extent of condition; and
- Appropriateness of maintenance rule system status classification and current reclassification appeared appropriate for the equipment's recent history.

This constitutes one sample.

b. Findings

No findings of significance were identified.

.2 345 kV Switchyard Components

a. Inspection Scope

The inspectors reviewed the licensee's handling of material condition issues associated with the 345 kV switchyard, specifically the spalling and freeze cracking of concrete caissons, soil drainage, and an air brake misalignment. The inspection consisted of evaluating the following specific activities:

- The licensee's use of the condition report process and work order notification system in identifying deficiencies and issues with switchyard equipment;
- Whether observed deficiencies were captured in either the condition report system or the work order system;
- Appropriateness of short term corrective actions for deficiencies with potential for significant operator workarounds;
- Whether equipment performance issues were correctly categorized per the system's scoping sheet performance criteria for reliability

- Appropriateness of goals and corrective actions for the long-term reliability;
- Whether the licensee's corrective actions included extent of condition; and
- Appropriateness of maintenance rule system status classification and current reclassification of equipment's recent history;

Additionally the inspectors performed a walkdown of the switchyard and discussed future corrective actions with the system engineer.

This constitutes one sample.

b. Findings

No findings of significance were identified.

.3 Control Room Emergency Ventilation System

a. Inspection Scope

The inspectors used an issue/problem oriented approach to identify performance problems associated with the control room normal chillers S12-1 and S12-2. The control room normal ventilation system provides a supporting function to the control room emergency ventilation system during a high radiation event. The normal ventilation system can be placed in recirculation mode to prevent the potential in leakage of toxic gases or a radiological release. On several occasions, the control room normal chillers S12-1 and S12-2 tripped during the spring and summer months resulting in increased temperatures in the control room. The inspectors reviewed performance history, work orders and corrective and preventive maintenance documents to independently assess the extent of condition and to determine to what extent the problems may affect other systems. The inspectors reviewed condition report and work orders to determine if observed deficiencies were captured in the condition report system or the work order system and whether goals and corrective actions for the long-term reliability were appropriate. In addition, the inspectors walked down the system and evaluated whether the maintenance rule system status classification and current reclassification appeared appropriate for the equipment's recent history.

This constitutes one sample.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's response to risk significant activities. These activities were chosen based on their potential impact on increasing overall plant risk. The inspections were conducted to determine whether the planning, control, and performance of the work were done in a manner to reduce overall plant risk and minimize the duration where practical, and that contingency plans were in place where appropriate. The licensee's daily configuration risk assessments, observations of shift turnover meetings, observations of daily plant status meetings, and the documents listed at the end of this report were used by the inspectors to verify that the equipment configurations had been properly listed, that protected equipment had been identified and was being controlled where appropriate, and that significant aspects of plant risk were being communicated to the necessary personnel. The inspectors evaluated the following licensee activities:

- The licensee's initial response and long term corrective actions associated with the discovery of a misaligned headshaft sleeve on an operating service water pump, on March 4, 2005;
- The licensee's response to an unexplained increase (approximately 0.200 gallons per minute) in unidentified reactor coolant system leakage, on April 9, 2005;
- The licensee experienced a test failure of the relays that sense the loss of a auxiliary feedwater sources to the pump and provide input signals to the control scheme for the steam supply valves to the auxiliary feedwater turbine during planned surveillance testing of auxiliary feedwater water system train 1, on April 19 and 20, 2005;
- The licensee entered an Orange risk condition with train 1 emergency core cooling equipment inoperable due to stroking close decay heat valve 7B which isolated train 1 equipment from the borated water storage tank, on April 21, 2005;
- The licensee response to cloudy oil samples taken from high pressure injection pump 2 and subsequent draining of the pump's lube oil system, on May 4, 2005; and
- The licensee entered an Orange risk condition due to the unavailability of the motor driven feed pump while replacing breaker AD 210, on May 6, 2005.

This constitutes six samples.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors performed a review of all the existing operator workarounds and control room deficiencies to determine whether their cumulative affect had a significant impact on plant risk or on the operators' ability to respond to a transient or an accident. This involved reviewing all documented operator workarounds, control room deficiencies, and shift turnover sheets. In addition, the inspectors interviewed operators and licensee staff to determine whether the licensee had appropriately classified the significance of the workarounds and deficiencies, that the workarounds were achievable, and whether the licensee had initiated the appropriate corrective actions, commensurate with the significance of the deficiency or workaround. The inspectors also reviewed the impact of licensee's program being controlled in accordance with a guideline and not a procedure. In addition to evaluating the individual impact of each operator workaround, the inspector evaluated the cumulative effect of all workarounds on plant safety.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed post-maintenance testing activities to determine whether the testing adequately verified system operability and functional capability with consideration of the actual maintenance performed. The inspectors referenced the appropriate sections of the Technical Specifications (TSs), the USAR, as well as the documents listed at the end of this report, to evaluate the scope of the maintenance and see that the work control documents required sufficient post-maintenance testing to adequately demonstrate that the maintenance was successful and that operability was restored. The inspectors observed and evaluated test activities associated with the following sample:

- Forward and reverse flow testing of auxiliary feedwater pump/cooling water return check valve AF63 after replacement of valve, on April 23, 2005.

This constitutes one sample.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

- DB-SC-03071, "Emergency Diesel Generator 2 Monthly Test," Revision 07, on April 7, 2005; and
- DB-ME-03046; D1 Bus Under Voltage Units Monthly Functional Test, Revision 06, on April 8, 2005.

This constitutes two samples.

b Findings

No findings of significance were identified.

EP6 Drill Evaluation (71114.06)

a. Inspection Scope:

The inspectors monitored the licensee's emergency preparedness exercise conducted on April 19, 2005, from various locations and perspectives. The observations included licensee preparations, evaluation of drill conduct, review of the drill critiques, and the identification of weaknesses and deficiencies. The inspectors reviewed the licensee's scenario and preparations to determine if the drill evolution was of appropriate scope to be included in the performance indicator statistics. The inspectors observed drill activities and personnel performance in the simulator control room, the technical support center, and the emergency operating facility. The inspectors evaluated the effectiveness of the licensee's communications, the accuracy of situation evaluations, and the timeliness of required reporting (simulated) of event related information to the appropriate agencies. Finally, the inspectors reviewed the licensee's drill critique to determine whether weaknesses and deficiencies were acknowledged and appropriate corrective actions identified.

This constitutes one sample.

b. Findings:

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (71152)

.1 Daily Review

a. Inspection Scope

As required by Inspection Procedure 71152, Identification and Resolution of Problems, and in order to help identify any repetitive equipment deficiencies or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. This screening was accomplished by reviewing documents entered into the licensee corrective action program and review of document packages prepared for the licensee's daily Management Alignment and Ownership Meetings.

b. Findings

No findings of significance were identified.

.2 Small Bore Piping Condition Report - Annual Sample

a. Inspection Scope

The inspectors chose for review condition report CR 05-00750 (Incorrect Pipe Support Installation) and performed a detailed review of an issue involving small bore piping supports. Various support configurations had been installed using a simplified design methodology. The inspectors reviewed the extent of issue identification through review of condition reports, extent of condition evaluations, operating experience, and operability evaluations. The inspectors also reviewed specified corrective actions for appropriateness, completeness, and if identified issues were addressed in a timely manner.

b. Findings and Observations

The issue was initially identified when it was observed that a pipe support on the reactor coolant pump seal injection line was different than that shown on the drawing. The licensee initiated a condition report (CR 05-00750) which eventually led to an extent of condition investigation and generation of an operability evaluation to address the conditions found. The extent of condition review found other conditions that needed to be reviewed. Overall, the licensee concluded that some discrepancies in construction and some assumptions used in the original design of small bore piping, while not sufficient to cause loss of function in the reviewed piping, could result in potential or actual over-stress condition under maximum thermal load conditions.

The licensee's original design criteria stated that small bore piping systems that have service conditions less than 500F (low carbon and low alloy systems) or 400F (stainless steel), did not need to have a rigorous computer analysis but could be analyzed with a less rigorous approach that was assumed to be conservative for seismic loading. This original methodology has been replaced, in current design efforts, by a more rigorous approach.

The original identified issue was resolved with physical changes to the supports on the reactor coolant pump seal injection lines. The licensee completed an operability evaluation for the other conditions, identified by the extent of condition review, where potential overstress conditions might develop. The operability evaluation was initially reviewed in IR 05000346/2005002. The licensee initiated corrective actions to perform reviews of existing calculations for some piping and perform pipe stress analysis for others where a thermal stress issue may exist. These actions were scheduled to be completed by July 13, 2005.

The licensee's corrective actions are adequate to address the issue and no findings of significance were identified during the evaluation of this issue.

.3 Elevated Reactor Coolant System (RCS) Unidentified Leakage - Annual Sample

a. Inspection Scope

The inspectors chose to review Condition Report 05-02165, "RCS Unidentified Leakage Rise from Approximately 0.024 to 0.26 gpm," and the licensee's response to the identified condition. The inspectors reviewed the licensee's program documents governing RCS leakage rate monitoring and the responses to increased leakage and compared the licensee's actions to their program requirements. This included the licensee's criteria for entering and exiting the licensee's defined action levels associated with unidentified RCS leakage. Additionally, the inspectors reviewed the licensee's condition report system for recent condition reports describing conditions that might affect RCS leakage rate or the leakage rate program.

b. Findings and Observations

The condition was initially identified on April 9, 2005, when control room personnel noted an increase in containment sump pump-out rate. Subsequent to that observation, the control room operators, using existing procedures, determined that the RCS unidentified leakrate had increased, in about one day, from approximately 0.024 gpm to 0.26 gpm. The licensee's Technical Specification limit for unidentified leakage is 1.0 gpm. The licensee's leakage rate measurement program has significantly lower limits that trigger investigations and other actions designed to determine the source of the leakage.

The licensee formed a problem solving team that gathered the known facts and developed a problem solving plan. That plan included listing potential leak sources and locations and implementing followup activities which included actions that were specified in NG-EN-00327 (RCS Integrated Leakage Program). Procedure NG-EN-00327 specifies 3 Action Levels, in addition to normal operation, that are triggered by sustained step changes in leak rate, specified rate of changes in leak rate, or by cumulative leakage. The observed change in leak rate was sufficient to trigger the licensee's highest action level, Action Level three.

In addition to reviewing potential leakage paths outside of the reactor containment, the problem solving plan included a containment entry at power. The data from that entry, combined with the results from inspections external to containment, led the licensee to conclude that the increase in leakage was due to leakage through one or more sets of

RCS manually operated drain valves. These drain valves are hard-piped to a drain header, which can be aligned to a drain tank outside containment. The physical location of the drain valves within containment precludes operating them during full power operation.

The licensee, through discussions with the valve vendor and other utilities, found that there is industry experience showing that RCS drain valves, if checked closed at RCS temperatures lower than normal RCS operating temperature, have developed seat leakage as the valve heats up and expands. The licensee had procedure requirements to verify several drain isolation valves closed when RCS temperature exceeded 355 degrees F. They initiated a condition report to change the closure verification to be when RCS temperature was at or above 500 degrees F.

Since the licensee believed they had identified the source of the leakage, that the leakage was being collected in a closed system, and that the leakage could be measured, the licensee, using existing procedures, developed the documents necessary under their program, to reclassify the measured leakage through the drain valves as identified instead of unidentified. The licensee's technical specification limit for identified leakage is 10 gpm. The licensee stated that they were reclassifying this leakage as identified leakage, as allowed by their procedures, to maintain sensitivity to new changes in unidentified leakage.

Throughout the event, the licensee demonstrated actions consistent with their procedural requirements and with an appropriate sensitivity to unidentified RCS leakage. The licensee's program provides for action level entries at unidentified leakage rates significantly below technical specification limits and the licensee took action when trigger levels were exceeded. The licensee's program permitted the exit from action levels if leakage rates did not show a continuing upward trend.

There were no findings of significance identified during the evaluation of this issue.

4OA5 Other Activities

.1 Operation of an Independent Spent Fuel Storage Installation (ISFSI) (60855.1)

a. Inspection Scope

The inspectors evaluated the licensee's monitoring of dry fuel storage to verify that the concrete temperatures remained within long-term storage limits. The inspectors verified that the monitoring (visual inspection that the vent screens are clear and thermocouple readings) was performed as specified in the site surveillance test procedure, DB-NE-03400, "Horizontal Storage Module (HSM) Monitoring." The inspectors also reviewed data for the three HSMs, and compared it to the requirements specified in the Certificate of Compliance, the TSs, and the Safety Analysis Report.

b. Findings

No findings of significance were identified.

4OA5 Other Activities (93812)

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

.1 Review Submitted Calendar Year 2005 Independent Assessment Plan for the Corrective Action Program

a. Inspection Scope

As part of the inspection activities performed to verify the licensee's compliance with the requirements for independent assessments, as described in the March 8, 2004, Confirmatory Order Modifying License No. NPF-3 (EA-03-214), the inspectors verified that the licensee had submitted the required inspection plan for the year 2005 corrective action program independent assessment 90 days prior to the performance of the assessment, currently scheduled for July 11-22, 2005. The licensee submitted its plan in a letter to the NRC, dated April 12, 2005 (ML051030011). The inspectors reviewed the licensee's letter describing the assessment plans and evaluated the scope and depth of the plans, including the credentials, experience, objectivity, and independence of the designated assessors.

b. Observations and Findings

The inspectors verified that the individuals designated to perform the assessment were independent from FENOC and that they had the credentials, experience, and objectivity necessary to accomplish the assessment. The inspectors determined that the assessment plan as described in the April 12, 2005, letter should provide a comprehensive review of the Davis-Besse corrective action program and its implementation.

.2 Review of Cycle 14 Operational Improvement Plan Commitments

As part of the licensee's Return to Service Plan, the licensee developed a Cycle 14 Operational Improvement Plan. This plan was developed to focus on key improvement initiatives and safety barriers to ensure continued improvements and sustained performance in nuclear safety and plant operations. During this inspection period, the inspectors performed a basic review of the following Cycle 14 completed operational improvement plan initiatives:

- Implement Risk Management Process to Improve Station Knowledge and Awareness (Initiative 5.1.d);
- Provide Apparent Cause Training to Managers (Initiative 9.5);
- Directors and Managers to Attend a Leadership Academy to Improve Management Skills (Initiative 1.3);

- Provide Face-to-Face Communications Training to All Site Supervisors and Above (Initiative 1.7);
- Monitor Safety Culture on a Monthly Basis (Initiative 7.1);
- Provide Refresher Training on SCWE and Safety Culture to Davis-Besse Supervisors and Above (Initiative 7.5);
- Perform an Effectiveness Assessment of the Corrective Actions Taken in Response to the November 2003 SCWE Survey Results (Initiative 7.8) [Additional information on this initiative can be found in inspection report 05000346/2004015];
- Supplement Management Oversight With Off-Site Assistance to Improve Objectivity and Ensure Assessments are Sufficiently Critical (Initiative 10.2);
- Conduct an External Assessment to Evaluate the Progress of Organizational Improvements in the Areas of Critical Self-Assessments and Performance Observations (Initiative 10.5); and
- Utilize INPO Assist Visits to Assess the Effectiveness of Improvement Initiatives (Initiative 10.6)

Overall the inspectors concluded that the referenced Operating Cycle 14 commitments had been adequately implemented.

.3 Evaluation of the Independent Safety Culture/Safety Conscious Work Environment Assessment Report

a. Inspection Scope

As part of the inspection activities performed to verify the licensee's compliance with the requirements for independent assessments, as described in the March 8, 2004, Confirmatory Order Modifying License No. NPF-3, the inspectors reviewed the Confirmatory Order Safety Culture/Safety Conscious Work Environment Assessment for the Davis-Besse Nuclear Power Station, dated February 4, 2005. The inspectors reviewed the report to ensure that the report provided an overall assessment of Safety Culture and Safety Conscious Work Environment, the assessment activities supported the report's conclusions, and the licensee documented specific action plans to address areas for improvement identified in the report.

In addition to the external assessment, the inspectors performed a detailed review of the following Cycle 14 completed Operational Improvement Plan initiatives regarding the area of safety culture and safety conscious work environment:

- Assess Safety Culture Using the FENOC Guidance (Initiative 7.2)
- Perform a Safety Culture Assessment Utilizing an Independent Outside Organization (Initiative 7.3)
- NQA to Perform a Safety Culture Assessment in 2004 (Initiative 7.6(04))

- Employee Concerns Program Group to Perform a Survey of the Safety Conscious Work Environment in 2004 (Initiative 7.7(04))

b. Observations and Findings

The independent assessment and associated action plan submitted by the licensee was consistent with the requirements of the Confirmatory Order. The inspection team found the assessment team members to be appropriately qualified, methodologies used were valid, and conclusions were consistent with other assessments conducted by the licensee.

The external assessment concluded that overall safety culture and safety conscious work environment had not significantly changed since the February 2003 independent assessment. The assessment and internal surveys revealed that a number of organizations exhibited a continuation of the negative trend from the March 2003 results. The continued negative trend indicated that the licensee's corrective actions have not been fully effective. The team's evaluation of the assessment results indicated that previous corrective actions have not always been aggressively and broadly implemented.

The assessment identified six areas for improvement and four "cross cutting" issues (not related to NRC cross-cutting issues), to be considered in developing the action plan. The areas for improvement were entered into the licensee's Corrective Action Program (CAP) as condition report 04-07262 and broadly discussed in the action plan. The licensee's list of corrective actions addressed all of the areas identified for improvement. The licensee planned to assess SC and SCWE monitoring and assessment tools to identify opportunities to enhance their effectiveness. The inspection team will monitor the licensee's efforts in assessing the SC and SCWE tools to ensure the tools' can accurately reflect the status of SC and SCWE at the site and allow for effective comparisons and trending with previous results.

The licensee reported that the results of a survey conducted following its mid-cycle outage (January 17, 2005 through February 9, 2005) were fairly positive. The interviews conducted by the inspection team with senior managers indicated the same and provided some examples to illustrate improvements in the work environment. The inspection team did not interview any staff level individuals, therefore the team did not obtain independent information on plant staff views regarding the outage. Further, the inspection team did not evaluate the effectiveness of the licensee's corrective actions because not all actions had been implemented and not enough time had passed for them to have had an effect. For example, part of the licensee's action plan relies on the Teamwork-Ownership-Pride (TOP) Team to address all the areas for improvement. However, the inspection team received mixed information on the TOP team and it was not evident that the TOP Team had a clear picture of its mission, responsibilities, or activities. The licensee indicated that the TOP Team charter was being revised and that members will receive training on SCWE. The NRC Inspection Team will assess the effectiveness of the actions assigned to the TOP team at a later date.

The licensee indicated it had received several comments from its staff regarding the lack of consistency in understanding the wording of questions on the survey instruments. The comments indicated that some questions appeared to have been interpreted differently by groups of individuals. For example, the term "management" appeared to be unclear. Some individuals may have interpreted the word management to mean the upper echelon of corporate management for Davis-Besse and FENOC. Others may have interpreted the word management to mean their immediate shift supervisors and section

management. Plant management is aware of the issues regarding misinterpretation of the questions on the survey instruments and plans to take this issue into consideration when assessing the results of subsequent surveys.

c. Conclusion

Based on its review of the assessments and interviews with licensee management, the inspection team concluded that:

1) the external assessment and associated action plan were consistent with the Confirmatory Order;
2) the safety culture and safety conscious work environment at Davis-Besse continues to be acceptable for plant operation;
3) the external and internal SC/SCWE evaluations were reasonably consistent in their identification of areas for improvement at Davis-Besse;
4) the action plan contains appropriate actions to address the areas for improvement identified by the assessments; and
5) the licensee's implementation of previous corrective actions, in the SC/SCWE arena, has not been sufficiently aggressive or broadly applied to ensure their effectiveness.

.4 Company Nuclear Review Board Meeting

The inspectors attended the meeting of the Davis-Besse Company Nuclear Review Board meeting which was held on April 7, 2005. The inspectors attended presentations given by the Chairmen for the following subcommittees; Operate the Plant/Training, Configuration Control/Equipment Reliability, Work Management, Loss Prevention, 10 CFR 50.59 Evaluation Review, and License Amendment Requests. The inspectors determined that the depth of evaluation and the material selected for review by each subcommittee was appropriate and that the Board was sufficiently challenging in their evaluation of the licensee.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. M. Bezilla, and other members of licensee management on May 19, 2005. The licensee acknowledged the findings presented. No proprietary information was identified.

.2 Interim Exit Meetings

Interim exit meetings were conducted for:

- Independent Spent Fuel Storage Installation with the Dry Cask Project Manager, D. Dibert on April 13, 2005; and

- Inspection of SC/SCWE Independent Assessment and review of several Cycle 14 initiatives with M. Bezilla, on April 14, 2005.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

B. Allen, Director, Plant Operation
J. Amidon, ECP Coordinator
M. Bezilla, Site Vice President
B. Boles, Manager, Plant Engineering
D. Dibert, Dry Cask Project Manager
J. Grabnar, Manager, Design Engineering
L. Harder, Manager, Radiation Protection
D. Haskins, Manager, Leadership & Organizational Development
R. Hovland, Manager, Technical Services
R. Hruby, Manager, Nuclear Oversight
G. Kendrick, Acting Manager, Site Maintenance
D. Kline, Manager, Security
S. Loehlein, Director, Station Engineering
P. McClosky, Manager, Site Chemistry & TOP Team Manager Sponsor
L. Myers, Chief Operating Officer, FENOC
D. Noble, Radiation Protection Supervisor
K. Ostrowski, Manager, Plant Operations
C. Price, Manager, Regulatory Compliance
R. Schrauder, Director, Performance Improvement
M. Trump, Manager, Training

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

None

LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection

DB-OP-06913; Seasonal Plant Preparation Checklist; Revision 11
DB-OP-06232; Circulating Water System and Cooling Tower Operation; Revision 10
DB-OP-06016; Containment Air Cooling System Procedure; Revision 19

1R04 Equipment Alignment

DB-OP-06316; Diesel Generator Operating Procedure; Revision 17
SD-003B; System Description for Emergency Diesel Generators and Station Blackout Generator; Revision 3
OS-041A; Emergency Diesel Generator Systems; Sheets 1 & 2; Revision 23
OS-041B; Emergency Diesel Generator Air/Start Engine Air System; Revision 28
OS-041C; Emergency Diesel Generator Diesel Oil System; Revision 16
DB-OP-06012; Decay Heat and Low Pressure Injection System Operating Procedure; Revision 23
Drawing OS-004, Sheet 1; Decay Heat Removal/Low Pressure Injection System; Revision 40
DB-OP-06011; High Pressure Injection System; Revision 12
OS-003; High Pressure Injection System; Revision 26
SD-038; System Description for High Pressure Injection System; Revision 2

1R05 Fire Protection

Davis-Besse Nuclear Power Station Fire Hazard Analysis Report
Drawing A-223F; Fire Protection General Floor Plan elevation 585'; Revision 17
PFP-AB-314; Protected Area Pre-Fire Plan for No. 4 Mechanical Penetration Room; Revision 06
PFP-AB-319; Protected Area Pre-Fire Plan for Diesel Generator 1-2 Room; Revision 06
Drawing A-221F; Fire Protection General Floor Plan elevation 545' and 555'; Revision 07
PFP-AB-105; Protected Area Pre-Fire Plan for ECCS Pump Room 1-1; Revision 07
DB-FP-00018; Control of Ignition Sources; Revision 05

1R06 Flood Protection

RA-EP-02830; Flooding; Revision 01
USAR Section 3.4; Water Level (Flood) Design Criteria; Revision 02

USAR Section 2.4.3; Probable Maximum Flood (PMF) on Streams and Rivers; Revision 05
USAR Section 2.4.2.2 Flood Design Considerations; Revision 00

Drawing —090; Station Plumbing and Drains; Revision 4
Drawing —180; Shield Building and Auxiliary Building Roof Drains - Plan; Revision 12
Drawing A-61; Roof and Exterior Walls and Details; Revision 12

1R11 Licensed Operator Requalification Program

DBBP-TRAN-0017; Conduct of Simulator Training; Revision 01
Davis-Besse Controller Manual for April 19, 2005 Emergency Exercise Dry Run; April 15, 2005
CR 05-02331; EP Drill - Simulator

1R12 Maintenance Effectiveness

NPE-03-00228, 480 VAC Maintenance Rule (a)(1) Action Plan
Maintenance Rule Program Manual; Revision 17
Davis-Besse System Health Report; 480 VAC System; 4th Quarter 2004
CR 04-02360; Failure of Breaker BEF122 to Close Due to Poor Vendor Workmanship
CR 04-05117; Failure of Breaker BE314 to Close Due to Interlock Adjustment Issue
CR 04-05363; X Relay Failure on Breaker B25Q25 Found During Preventive Maintenance
CR 05-00239; MCC E21A De-Energization Due to Water Intrusion and Electrical Smoke Smell
CR 05-01304; 480 VAC Returned to (a)(1) Red Status from (a)(1) Yellow by MR Expert Panel
CR 05-01784; Loss of Beach Feeder, F4 and F6 Buses Due to Ground Fault on HBBF4
CR 02-07972; SHRR Switchyard/Transformers - Swithyard Soft Ground Bogs Down Equipment
ORR- System Condition Report for Switchyard and Transformers
CR 05-02121; 345 KV Switchyard Fence Grounding
CR 05-01991; Switchyard Aerial Inspection identified Deficiencies
CR 03-10328 RFA/CR Switchyard Support Structure
SD-029B; System Description for Control Room Emergency Ventilation System; Revision 3
CR 04-03130; Cracked Fan Blades
CR 04-03193; Loss of Control Room Chilled Water
CR 04-03794; #2 Control Room Chiller Relief Lifted and #1 Chiller Tripped
CR 04-06555; #2 CTRM Chiller Trip with #1 OOS, Maintenance Rule (a)(1) Evaluation of CREVS
OS-032B; Control Room Emergency Ventilation System; Revision 15

1R13 Maintenance Risk Assessment and Emergent Work Evaluation

NG-DB-00001; On-line Risk Management; Revision 03
DBBP-OPS-0003; On-line Risk Management Process; Revision 01

Stoke DH78 Operations Evolution Order
CR 05-02591; Sediment and Moisture Found in T1999-2, HPI Pump 1-2 Lube Oil Reservoir
05-02572; HPI Pump #2 Oil Sample was Cloudy Following Quarterly Operational Testing

CR 05-02554; HPI Pump 2 Pump Inboard Oil Cloudy
DB-OP-06225; MDFP Operating Procedure; Revision 10
OS 17A, Sheet 1; Auxiliary Feedwater System; Revision 20
OS 17B, Sheet 2; Auxiliary Feedwater Pumps and Turbines; Revision 7
CR 05-02289; Trending CR Instruments Found Out of Tolerance During Testing
DB-MI-03902; Channel Calibration of PSL-4930A and PSL-4930B, Auxiliary Feed Pump Turbine 1-1 Suction Pressure Interlocks; Revision 06
SAP Order 200132639; MI3902-001 08.000 K003-01
DB-MM-09061; Service Water Pump Maintenance, Revision 03
CR 05-02165; RCS Unidentified Leakage Rise From Approx. 0.024 to 0.26

1R16 Operator Work-Arounds

Listing of Control Room Deficiencies and Operator Work-Arounds; April 4, 2005
Shift Manager Turnover Checklist; April 13, 2005
WPG-2; Operations Equipment Issues; Revision 06

1R19 Post-Maintenance Testing

DB-PF-03153; AFW Train 1 Check Valve Test; Revision 07
CR 02-09024 AF63 and AF69 Forward Flow Acceptance Criteria in Question
CR 03-03173 CR-RFA: Request Engineering Support for the replacement of valve AF63
CR 04-01498; AF63 Check Valve Failed its Reverse Flow Test
CR 05-02393; Failure of AF63 to Prevent Reverse Flow

1R22 Surveillance Testing

DB-SC-03071; Emergency Diesel Generator 2 Monthly Test; Revision 07
DB-SC-03076; Emergency Diesel Generator 1 184 Day Test; Revision 06; performed April 20, 2004
DB-SC-03077; Emergency Diesel Generator 2 184 Day Test; Revision 04; performed on July 1, 2004
DB-ME-03046; D1 Bus Under Voltage Units Monthly Functional Test; Revision 06

EP6 Drill Evaluation

Davis-Besse Controller Manual for April 19, 2005 Emergency Exercise Dry Run; April 15, 2005
CR 05-02348; Application of 10 CFR 50.54(x) or NOED Process During Emergency Situations

4OA2 Identification and Resolution of Problems

OE 2005-0002; Small Bore Piping Installed Using Simplified Methods; Revision 0
ECP 05-0065-000; RCP Seal Injection Water Piping Supports Upgrade; Revision 3
CR 05-00750; Incorrect Pipe Support Installation
CR 05-00784; RCP Seal Injection Piping Overstressed

CR 05-00863; Drawing Discrepancy for Core Flooding Tank Sample Line
CR 05-00916; Anchor Fastener Missing
CR 05-00918; Additional Pipe Support Installed on RCP 1-1-2 Seal Injection Piping
CR 05-00921; RCP Seal Injection Pipe Stress Analysis - Temperature Input;
CR 05-00983; Aux Building Small Bore Piping Extent of Condition
CR 05-02376; Inconsistency Between NG-EN-0327 and RCS Integrated Leakage Program Manual
CR 05-02206; PCR: Enhancement DB-OP-6900 Plant Heatup
Operations Evolution Order; Measuring RCS Identified Leakage to the CTMT Drain Header; April 12, 2005
CR 05-02381; Performance of Drain Header Ops Evolution Order Could Affect Leakrate Test
CR 05-02366; Standing Order Not Generated for Leakage Impact Evaluation 2004-005
CR 05-02378; Leakage Impact Evaluation Not Prepared to Address Leakage During Midcycle Outage
Leakage Impact Evaluation 2005-001; RCS Leakage into the Reactor Coolant Drain Header; April 12, 2005
NG-EN-00327; RCS Integrated Leakage Program; Revision 00
CR 05-02165; RCS Unidentified Leakage Rise from Approx 0.024 to 0.26
DB-SP-03357; RCS Water Inventory Balance; Revision 08
DB-OP-01200; Reactor Coolant System Leakage Management; Revision 05
EN-DP-01171; Engineering Implementation of the RCS Integrate Leakage Program; Revision 01
OS-001A, Sheet 3; Reactor Coolant System; Revision 19

4OA5 Other Activities

DB-NE-03400; “Horizontal Storage Module (HSM) Monitoring”

4OA5 Other Activities (93812)

Independent Corrective Action Program Implementation Assessment Plan for the Davis-Besse Nuclear Power Station - Year 2005; dated April 12, 2005
Commitment Close Out/Extension Form A21021; dated 3/29/2004
Commitment Close Out/Extension Form A21027; dated 4/7/2004
Commitment Close Out/Extension Form A21028; dated 9/30/2004
Commitment Close Out/Extension Form A21029; dated 6/28/2004
Commitment Close Out/Extension Form A21030; dated 6/25/2004
Commitment Close Out/Extension Form A21031; dated 6/25/2004
Commitment Close Out/Extension Form A21032; dated 8/31/04
Commitment Close Out/Extension Form A21034; dated 3/22/04

Commitment Close Out/Extension Form A21074; dated 12/10/2004
Commitment Close Out/Extension Form A21076; dated 3/30/2004
External Safety Culture/Safety Conscious Work Environment Report for CY2004, dated 2/4/05
NQA Safety Culture Report, 10/28/04
SCWE Survey Review Report; dated 6/23/2004
Commitment Close Out/Extension Form A21077; dated 3/30/2004 and 9/30/2004

Commitment Close Out/Extension Form A21112; dated 6/25/2004
Commitment Close Out/Extension Form A21089; dated 2/18/2004
Commitment Close Out/Extension Form A21090; dated 2/17/2004
Commitment Close Out/Extension Form A21091; dated 3/30/2004
Commitment Close Out/Extension Form A21092; dated 6/14/2004
Commitment Close Out/Extension Form A21093; dated 9/30/2004
Commitment Close Out/Extension Form A21094; dated 12/22/2004

LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agency-wide Document Access and Management System
AF	Auxiliary Feedwater
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
ECCS	Emergency Core Cooling System
FENOC	FirstEnergy Nuclear Operating Company
GPM	Gallons per Minute
HPI	High Pressure Injection
HSM	Horizontal Storage Module
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
IR	Inspection Report
kV	Kilovolt
MCC	Motor Control Center
NQA	Nuclear Quality Assurance
NRC	United States Nuclear Regulatory Commission
PARS	Publicly Available Records
RCS	Reactor Coolant System
SC	Safety Culture
SCWE	Safety Conscious Work Environment
SDP	Significance Determination Process
TOP	Teamwork-Ownership-Pride
TS	Technical Specifications
USAR	Updated Safety Analysis Report