December 20, 2004

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 05000346/2004015

Dear Mr. Bezilla:

On November 13, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Davis-Besse Nuclear Power Station. The enclosed inspection report documents the inspection findings which were discussed on November 17, 2004, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

For the entire inspection period, the Davis-Besse Nuclear Power Station was under the Inspection Manual Chapter (IMC) 0350 Process. The Davis-Besse Oversight Panel assessed inspection findings and other performance data to determine the required level and focus of followup inspection activities and any other appropriate regulatory actions. Even though the Reactor Oversight Process had been suspended at the Davis-Besse Nuclear Power Station, it was used as guidance for inspection activities and to assess findings.

Based on the results of this inspection, the NRC has determined that violations of NRC requirements occurred. The report documents one self-revealed finding of very low safety significance which involved a violation of NRC requirements. In addition, one issue was reviewed under the NRC traditional enforcement process and was determined to be a Severity Level IV violation. However, because these violations were of very low safety significance and because they were entered into your corrective action program, the NRC is treating these issues as Non-Cited Violations consistent with Section VI.A of the NRC Enforcement Policy.

If you contest the severity of a Non-Cited Violation, 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, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; 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 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/

John A. Grobe, Chairman
Davis-Besse Oversight Panel

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

Enclosure: Inspection Report 05000346/2004015
w/Attachment: Supplemental Information

cc w/encl: The Honorable Dennis Kucinich
G. Leidich, President - FENOC
J. Hagan, Senior Vice President
Engineering and Services, FENOC
L. Myers, Chief Operating Officer, FENOC
Plant Manager
Manager - Regulatory Compliance
M. O'Reilly, Attorney, FirstEnergy
Ohio State Liaison Officer
R. Owen, Administrator, Ohio Department of Health
Public Utilities Commission of Ohio
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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-346
License No:	NPF-3
Report No:	05000346/2004015
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Davis-Besse Nuclear Power Station
Location:	5501 North State Route 2 Oak Harbor, OH 43449-9760
Dates:	October 1 through November 13, 2004
Inspectors:	S. Thomas, Senior Resident Inspector J. Rutkowski, Resident Inspector M. Salter-Williams, Resident Inspector D. Passehl, Project Engineer J. House, Senior Radiation Specialist P. Lougheed, Senior Engineering Inspector G. Roach, Reactor Inspector K. Walton, Reactor Inspector
Approved by:	C. Lipa, Chief Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000346/2004015; 10/01/2004 - 11/13/2004; Davis-Besse Nuclear Power Station; Flood Protection, and Other Activities.

This report covers a 6 week period of resident inspection. The inspection was conducted by Region III inspectors and resident inspectors. One Severity Level IV non-cited violation and one Green finding associated with one non-cited violation 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-Revealing Findings

Cornerstone: Mitigating System

- Severity Level IV. A failure to perform an adequate safety evaluation review as required by 10 CFR 50.59 for changes made to the facility as described in the Updated Safety Analysis Report (USAR) was self-revealed. In June 2003, the licensee changed the limit and precautions sections of several procedures to specify that emergency core cooling system (ECCS) room sump pumps were not required to be in service for ECCS and containment spray equipment operability. However, the USAR credits the ECCS sump pumps and their running lights for providing indication of the need for operator action in response to a passive failure in the ECCS system. The procedure changes were inappropriately categorized as being exempt from the 50.59 process because the changes involved "Managerial or Administrative Procedures."

  Because the issue affected the NRC's ability to perform its regulatory function, this finding was evaluated with the traditional enforcement process. The finding was determined to be of very low safety significance because, although the procedure changes could have resulted in the operation outside the requirements of technical specification action statements, no loss of function occurred. This was determined to be a Severity Level IV NCV of 10 CFR 50.59. (Section 1R06)

- Green. A finding of very low safety significance was self-revealed when maintenance personnel failed to adhere to the requirements of administrative work control documents and instructions during maintenance activities associated with the racking in of breaker AC113 [CCW 1 Motor Supply Breaker]. With a danger tag hanging on the breaker cubicle door, licensee personnel installed the breaker into the breaker cubicle with the intention of operating the breaker to perform maintenance checks on the CCW pump 1 motor. This was contrary to licensee's procedural requirements.

  The inspectors concluded that the finding was more than minor because, if left uncorrected, it could become a more significant safety concern. Specifically, the operation or manipulation of the danger tagged AC-113 breaker could have resulted in equipment damage or serious personnel injury. This issue was determined to be of very

low safety significance because there was no maintenance evolutions in progress on the CCW 1 pump motor which would have required the breaker AC-113 to be racked out at the time of the breaker was inappropriately racked into its cubicle. This was determined to be a Non-Cited Violation of Technical Specification 6.8.1.a. (Section 4OA5*)*

B. Licensee Identified Findings

None

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 three occasions (October 23, October 30, and November 21, 2004) 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 preparation for cold weather operations. The inspectors reviewed the licensee's completion of the cold weather procedure DB-OP-06913 (Seasonal Plant Preparation Checklist), section 3.1 (Preparations for Cold Weather Operations) and section 4.1 (Preparations for Frazil Ice Conditions). Additionally, the inspectors verified the completion of a sample of items contained in the procedure. The inspectors reviewed a listing of open work order (WO) items which had the potential to challenge the plant's ability to mitigate the impact of winter weather. The inspectors evaluated the outstanding work's potential significance and verified that the licensee had scheduled, if appropriate, corrective action or compensatory action to address each issue. Additionally, the inspectors toured several of the components potentially affected by cold weather and sampled the corrective action data base for items that could increase the station's susceptibility to cold weather related equipment damage.

This activity constitutes one sample.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q)

a. Inspection Scope

The inspectors verified equipment alignment to identify any discrepancies that would impact the function of system components. The inspectors also verified that 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 verify that there were no significant conditions not already in the licensee's corrective action system. The following one sample was selected:

- EDG1 [October 19, 2004], during planned maintenance on EDG 2

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 verified that fire hoses and extinguishers were in their designated locations and available for immediate use, that fire detectors and sprinklers were unobstructed, that transient material loading was within the analyzed limits, and that fire doors, dampers, and penetration seals appeared to be in satisfactory condition.

The following area was inspected and constitutes one sample:

- Accessible areas of Room 212 [Clean Waste Polish and Purification Demineralizer Valve Room] Fire Area G

b. Findings

No findings of significance were identified.

1R06 Flood Protection (71111.06)

a. Inspection Scope

The inspectors reviewed the ECCS rooms and adjacent areas to verify that the internal flooding vulnerabilities were accurately depicted in design basis documents and risk assessments; that licensee procedures were in place to address flooding; and that compensatory measures were established during maintenance activities which increased flooding potential. Specifically, the inspectors walked down the ECCS rooms and adjacent areas to verify that the licensee had identified all sources that could flood the rooms.

b. Findings

Introduction: A Severity Level IV Non-Cited Violation associated with the failure to perform an adequate safety evaluation review as required by 10 CFR 50.59 for changes made to the facility as described in the Updated Safety Analysis Report (USAR) was identified. The issue was considered to be of very low safety significance and was dispositioned as a Severity Level IV NCV.

Description: During June 2003, the licensee changed the limit and precautions sections of procedures DB-OP-06272, Station Drainage and Discharge System, DB-OP-06011, High Pressure Injection (HPI) System, DB-OP-06012, Decay Heat and Low Pressure Injection System and DB-OP-06013, Containment Spray System (CSS) to specify that ECCS room sump pumps were not required to be in service for ECCS equipment operability. The licensee justified the procedure changes by referencing a letter from Toledo Edison to the NRC, Serial 1228, dated December 13, 1985 and NUREG-1177, the NRC's Safety Evaluation Report for the restart of Davis-Besse following the 1985 Loss of Feedwater event, issued in June 1986. The letter contained the following statement, "Although the ECCS room sump pumps are "Q" listed, they are not required to operate to mitigate any Design Basis Accident Sequence. Failures of sump pumps coupled with equipment leakage in sumps is detected by operators on normal rounds. Consequently ECCS equipment operability is not dependent on the operation of the sump pumps." The NRC's Safety Evaluation Report stated,"the licensee has excluded the ECCS room sump pumps from the System Review and Test Plan (SRTP) because they are not required to mitigate any design-basis accident sequence. The licensee has reviewed the ECCS room sump pumps to the extent needed to ensure proper ECCS capability." The NRC's Safety Evaluation Report credited the letter from Toledo Edison as the basis for its statement that the ECCS sump pumps were not required to mitigate any design basis accident. However, USAR Section 3.6.2.7.11 states, "The sump pump running indication lights and the high level alarm from the ECCS room sump alert the operator of a flooding condition. Safe shutdown is continued on the redundant Decay Heat Removal System". Additionally, Section 3.6.2.7.1.14 states, "The sump pump running indication lights and high level alarm from the ECCS room sump alert the operator of a flooding condition. Safe shutdown is continued on the redundant train".

Upon reviewing the procedure development package for the revision to procedure DB-OP-06011, the licensee determined that the procedure changes had been incorrectly categorized as a change involving managerial or administrative procedures. As a result of the improper categorization, the licensee failed to perform an adequate safety evaluation review as required by 10 CFR 50.59 for changes made to the facility as described in the USAR.

Analysis: Because the SDP is not designed to assess the significance of violations that potentially impact or impede the regulatory process, this issue was dispositioned using the traditional enforcement process in accordance with Section IV of the NRC Enforcement Policy. However, the results of the violation, that is, the procedure changes which eliminated the requirement for equipment that performs a design function was assessed using the SDP. In this case, using IMC 0612, Appendix B, "Issue Screening," the inspectors determined that the finding was more than minor because the finding: (1) involved the equipment performance and the procedure quality attributes of the mitigating systems cornerstone; and (2) affected the mitigating systems objective of ensuring the availability, reliability, and capability of the ECCS system in response to initiating events to prevent undesirable consequences (i.e., core damage). The inspectors determined that the issue was of very low safety significance, because even though there were failures to declare the affected ECCS trains inoperable during periods when both ECCS sump pumps were unavailable in an ECCS room no associated Technical Specification requirements were violated.

Enforcement: Part 50.59 of 10 CFR states, in part, that the licensee shall maintain records of changes in the facility, of changes in procedures, and of tests and experiments. These records must include a written evaluation which provides the bases for the determination that the change, test, or experiment does not require a license amendment. Contrary to the above, the licensee failed to provide a basis for the determination that the that ECCS room sump pumps were not required to be in service for ECCS equipment operability. The results of this violation were determined to be of very low safety significance because even though there were failures to declare the affected ECCS trains inoperable during periods when both ECCS sump pumps were unavailable in an ECCS room, no associated TS requirements were violated. The procedures were modified in October 2004 to properly reflect the ECCS room sump pumps relationship to ECCS operability. This Severity Level IV violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 05000346/2004015-01). The licensee entered this issue into the corrective action program as CR 04-06313.

1R11 Licensed Operator Requalification Program (71111.11Q)

a. Inspection Scope

On November 2, 2004, the inspectors observed operating crews during simulator annual requalification training and attended the post-session licensee 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 verify 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 pump seal cooler leak with a loss of all feedwater.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Control Rod Drive System

a. Inspection Scope

The inspectors evaluated the licensee's handling of performance issues related to the electronics, power supplies, transfer switches, mechanism cables, mechanism temperature elements, vent piping, and fans associated with the control rod drive system.

This inspection consisted of evaluating the following licensee activities:

- work scheduling practices, including consideration of risk of transient initiation while performing work on operating components;
- use of the condition report process and WO notification system in identifying deficiencies and issues with the equipment;
- walking down the system and verifying that observed deficiencies were documented within the licensee's problem identification or work control system;
- problem solving and issue resolution associated with the failures and degradations of components associated with the systems;
- that maintenance activities on the components had been assigned appropriate risk classification;
- that corrective actions for the long term reliability were appropriate;
- that short term corrective actions were appropriate for deficiencies with potential to become operator workarounds or the potential to become transient initiators; and
- that maintenance rule system status determination was appropriate for the equipment's recent history and current open work items and that, where appropriate, action plans were developed for systems in maintenance rule (a)(1) status.

The inspectors also observed licensee discussions on the feasibility and desirability of working, while on line and energized, the components within the rod drive system that were preventing control rod transfer from the control room between the normal and auxiliary power supplies.

b. Findings

No findings of significance were identified.

.2 Turbine By-Pass Valves

a. Inspection Scope

The inspectors used an issue/problem oriented approach to identify performance problems with the turbine bypass valves. The turbine bypass valves control the main steam header pressure during load swings and controls the steam generator outlet pressure while the main turbine is off line. During plant startups and the plant trip on August 4, 2004, the operators have had to manually control or isolate selected valves due to the valves not fully closing on demand. The turbine bypass valves are not necessary for safe shutdown, however, without operator intervention, they have the potential of causing or contributing to an overcooling event. The inspectors performed a detailed review of 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 interviewed the system engineer and the maintenance rule program coordinator to verify that the equipment failures were identified, entered into the licensee corrective action program, and categorized appropriately in accordance with the maintenance rule. The inspectors reviewed the apparent cause evaluation associated with the turbine bypass valve performance issue and corrective actions proposed to improve the reliability of the valves.

b. Findings

No findings of significance were identified.

.3 Turbine Electro Hydraulic Control System

a. Inspection Scope

The inspectors used an issue/problem oriented approach to identify performance problems with the turbine electro hydraulic control system. On several occasions, during testing of the Turbine Master Trip Solenoids A and B and the Turbine Backup Overspeed device, a -24 VDC ground had been observed in the Electro Hydraulic Control Cabinet. The turbine electro hydraulic control system is a non-safety related system; however if the -24 VDC ground were to occur coincident with a +24 VDC ground, the potential exists for an inadvertent reactor trip. 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 interviewed the system engineer, reviewed the licensee's troubleshooting plan, and verified that the equipment performance problems were identified, entered into the licensee corrective action program, and categorized appropriately in accordance with the maintenance rule.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

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

The two samples evaluated were:

- CR 04-05564 (P201-1 Motor Termed with Wire Nuts) and CR 04-06640 (Electrical Wire Nuts Used in MP2011) which documented reviewing and determining operability status of emergency diesel generator 1 due to the discovery of wire nuts instead of crimp connections in the motor termination box of the DC fuel oil pump; and

- CR 04-06256 [Inspection Requirement Missed by Receipt Inspection] which documented and issue regarding the acceptability of using porcelain clamps on station safety related battery cabling to restrain its movement.

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 ensure that 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, the USAR, as well as the documents listed at the end of this report, to evaluate the scope of the maintenance and verify that the work control

documents required sufficient post-maintenance testing to adequately demonstrate that the maintenance was successful and that operability was restored. The inspectors observed and evaluated test activities associated with the following one sample:

- Emergency Diesel Generator 2 and associated systems on October 21 through 22, 2004, after completion of a planned EDG train 2 outage.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

On October 22, 2004, the inspectors observed the auxiliary feedwater pump 2 monthly surveillance test. The inspectors used the test procedure and technical specifications to verify that the test met the Technical Specification frequency requirements; that the test was conducted in accordance with the procedures, including establishing the proper plant conditions and prerequisites; and that the test acceptance criteria were met.

This constitutes one sample.

b Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed temporary modification 04-0030. This temporary modification impacted the water source for the fire protection system jockey fire pump. This temporary modification, which re-routed the suction source from the fire water tank to a domestic water source, was put in place to allow maintenance on the electric fire pump and associated suction isolation valve without the need to continuously run the diesel fire pump to maintain pressure in the fire water headers.

The inspectors reviewed this temporary modification and associated 10 CFR 50.59 screening against system requirements, including the USAR and Technical Specifications, to determine if there were any effects on system operability or availability and to verify temporary modification consistency with plant documentation and procedures. The inspectors observed installation activities and reviewed the final installation for compliance with the temporary modification instructions.

This inspection constitutes one sample.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Plant Walkdowns and Radiation Work Permit Reviews

a. Inspection Scope

During this inspection, the inspectors identified one radiologically significant work area within a radiation and potential airborne radioactivity area in the auxiliary building which involved cutting out and replacing valve DH121. The radiation work permit (RWP) and work package, which included radiological controls and surveys of this area, were reviewed to determine if radiological controls including surveys, air sampling data, postings, and barricades were adequate.

This work area perimeter was walked down and surveyed using an NRC survey meter in order to verify that the prescribed RWP, procedures, and engineering controls were in place, that licensee surveys and postings were complete and accurate, and that air samplers were properly located.

The inspectors reviewed RWPs and associated radiological controls used to access this and other radiologically significant areas, and evaluated the work control instructions and control barriers that were specified in order to verify that the controls and requirements were complied with. Site technical specification requirements for high radiation areas and locked high radiation areas were used as standards for the necessary barriers. Electronic dosimeter alarm setpoints for both integrated dose and dose rate were evaluated for conformity with survey indications and plant policy. Workers were interviewed to verify that they were aware of the actions required when their electronic dosimeters noticeably malfunctioned or alarmed.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, and condition reports (CRs) related to the access control program to verify that identified problems were entered into the corrective action program for resolution. These reviews represented one sample.

b. Findings

No findings of significance were identified.

.3 Job-In-Progress Reviews

a. Inspection Scope

The inspectors selected one job being performed in a radiation area, which had the potential for airborne radioactivity, for observation of work activities that presented the greatest radiological risk to workers. This was the only radiologically significant work being conducted during the inspection.

The inspectors reviewed radiological job requirements including RWP and work procedure requirements and attended the as-low-as-is-reasonably-achievable (ALARA) job briefing. Job performance was observed with respect to these requirements to verify that radiological conditions in the work area were adequately communicated to workers through the pre-job briefing and radiological condition postings. The inspectors also verified the adequacy of radiological controls including required radiation, contamination and airborne surveys for the system breach; radiation protection (RP) job coverage which included direct visual surveillance by RP technicians, and contamination controls.

There were no work activities occurring in high radiation areas having significant dose rate gradients during this inspection.

b. Findings

No findings of significance were identified.

.4 High Risk Significant, High Dose Rate, High Radiation Area and Very High Radiation Area Controls

a. Inspection Scope

The inspectors evaluated the controls (including Procedure DB-HP-01152, “Performance Of High Exposure Work”) that were in place for special areas that had the potential to become very high radiation areas during certain plant operations. Discussions were held with RP supervisors to determine how the required communications between the RP group and other involved groups would occur beforehand in order to allow corresponding timely actions to properly post and control the radiation hazards. These reviews represented one sample.

b. Findings

No findings of significance were identified.

.5 Radiation Worker Performance

a. Inspection Scope

During job performance observations, the inspectors evaluated radiation worker performance with respect to stated RP work requirements and evaluated whether workers were aware of the significant radiological conditions in their workplace, the RWP controls and limits in place, and that their performance had accounted for the level of radiological hazards present.

Radiological problem reports, which found that the cause of an event resulted from radiation worker errors, were reviewed to determine if there was an observable pattern traceable to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

b. Findings

No findings of significance were identified.

.6 Radiation Protection Technician Proficiency

a. Inspection Scope

The inspectors observed and evaluated RP technician performance with respect to RP work requirements. This was done to evaluate whether the technicians were aware of the radiological conditions in their workplace, the RWP controls and limits in place, and if their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

Radiological problem reports, which found that the cause of an event was RP technician error, were reviewed to determine if there was an observable pattern traceable to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

b. Findings

No findings of significance were identified.

2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning and Controls (71121.02)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed plant collective exposure history, current exposure trends along with ongoing and planned activities in order to assess current performance and exposure challenges. This included determining the plant's current 3-year rolling average collective exposure and comparing radiological exposure on a yearly basis for

the previous 5 years in order to establish the effects of the plant's source term on radiological exposure for non-outage years, routine refueling outage (RO) years, and the extended outage of 2002-2003. These reviews represented one sample.

Site specific trends in collective exposures and source-term measurements were reviewed. This review represented one sample.

Procedures associated with maintaining occupational exposures ALARA, and processes used to estimate and track work activity specific exposures were reviewed. These reviews represented one sample.

b. Findings

No findings of significance were identified.

.2 Job Site Inspections and ALARA Control

a. Inspection Scope

The inspectors selected one work activity in a radiation area, having the potential for airborne radioactivity, for observation emphasizing work activities that presented the greatest radiological risk to workers. The licensee's use of ALARA controls for these work activities was evaluated using the following:

- The licensee's use of engineering controls to achieve dose reductions was evaluated to verify that procedures and controls were consistent with the licensee's ALARA reviews, that sufficient shielding of radiation sources was provided for and that the dose expended to install/remove the shielding did not exceed the dose reduction benefits afforded by the shielding;

- The job site was observed to determine if workers were utilizing low dose waiting areas and were effective in maintaining their doses ALARA by moving to a low dose waiting area when subjected to temporary work delays; and

- The inspectors attended the work briefing and observed ongoing work activities to determine if workers received appropriate on-the-job supervision to ensure the ALARA requirements were met. This included verification that the first-line job supervisor ensured that the work activity was conducted in a dose efficient manner by minimizing work crew size, ensuring that workers were properly trained, and that proper tools and equipment were available when the job started.

b. Findings

No findings of significance were identified.

.3 Source-Term Reduction and Control

a. Inspection Scope

The inspectors reviewed licensee records to determine the historical trends and current status of tracked plant source terms and determined that the licensee was making allowances and had developed contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry. This review represented one sample.

The inspectors verified that the licensee had developed an understanding of the plant source-term, which included knowledge of input mechanisms in order to reduce the source term. The licensee's source-term control strategy, which included a process for evaluating radionuclide distribution plus a shutdown and operating chemistry plan which can minimize the source-term external to the core, was evaluated. Other methods used by the licensee to control the source term, including component/system decontamination, hotspot flushing and the use of shielding, were evaluated. These reviews represented one sample.

The licensee's process for identification of specific sources was reviewed along with exposure reduction actions and the priorities the licensee had established for implementation of those actions. Results achieved against these priorities since the last refueling cycle were reviewed. For the current assessment period, source-term reduction evaluations were verified, and actions taken to reduce the overall source-term were compared to the previous year. These reviews represented one sample.

b. Findings

No findings of significance were identified.

.4 Declared Pregnant Workers

a. Inspection Scope

The inspectors reviewed the licensee's process for limiting the radiological exposure of an embryo/fetus of a declared pregnant worker in order to verify that 10 CFR Part 20 requirements were met. No declared pregnant workers were identified during the assessment period. This review represented one sample.

b. Findings

No findings of significance were identified.

.5 Problem Identification and Resolutions

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, and Special Reports related to the ALARA program since the last inspection to determine if the licensee's overall audit program's scope and frequency for all applicable areas under the Occupational Cornerstone met the requirements of 10 CFR 20.1101©). This review represented one sample.

The inspectors verified that identified problems were entered into the corrective action program for resolution, and that they had been properly characterized, prioritized, and resolved. This included dose significant post-job (work activity) reviews and post-outage ALARA report critiques of exposure performance. This review represented one sample.

Corrective action reports related to the ALARA program were reviewed and staff members were interviewed to verify that follow-up activities had been conducted in an effective and timely manner commensurate with their importance to safety and risk using the following criteria:

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

This review represented one sample.

The inspectors also determined that the licensee's self-assessment program identified and addressed repetitive deficiencies and significant individual deficiencies that were identified in the licensee's problem identification and resolution process. This review represented one sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151)

Cornerstones: Mitigating Systems, Barrier Integrity, Occupational and Public Radiation Safety

Reactor Safety Strategic Area

.1 Mitigating System Cornerstone Performance Indicator Review

a. Inspection Scope

The inspectors reviewed the reported data [3rd quarter 2003 to 2nd quarter 2004] for the following Mitigating System Cornerstone performance indicators:

- Safety System Unavailability, Auxiliary Feedwater System;
- Safety System Unavailability, Residual Heat Removal System;
- Safety System Unavailability, High Pressure Safety Injection System; and
- Safety System Functional Failures.

The inspectors used the definitions and guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Indicator Guideline," Revision 2, during the conduct of this review. The inspectors reviewed station logs and condition reports to verify the accuracy of the licensee's data submission.

Due to the length of the Davis-Besse extended outage, limited data was available to support several of these performance indicators. To compensate for the limited data available for certain Performance Indicators, the Davis-Besse 0350 Oversight Panel approved an inspection strategy which supplemented the baseline Performance Indicator inspections with additional baseline inspection activities which supported the validity of the Performance Indicator data. These additional inspection activities were as follows:

- six additional equipment alignment samples with two of those samples being full system alignments;
- four additional post maintenance testing samples;
- four additional surveillance samples associated with mitigating safety system testing; and
- two additional identification and problem resolution samples for mitigating safety systems.

b. Findings

No findings of significance were identified.

.2 Barrier Integrity Cornerstone Performance Indicator Review

a. Inspection Scope

The inspectors sampled the licensee's performance indicator submittals for the periods listed below. The inspectors used PI definitions and guidance contained in Revision 2 of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," to verify the accuracy of the PI data. The following PI was reviewed:

- Reactor Coolant System (RCS) Specific Activity

The inspectors reviewed Chemistry Department records and selected isotopic analyses (March through October, 2004) to verify that the greatest Dose Equivalent Iodine (DEI) values obtained during those months corresponded with the values reported to the NRC. Additionally, the inspectors observed a chemistry technician obtain and analyze a reactor coolant sample for DEI to verify adherence with licensee procedures for the collection and analysis of RCS samples. These reviews represented one sample.

b. Findings

No findings of significance were identified.

Radiation Safety Strategic Area

.3 Occupational Radiation Safety and Public Radiation Safety Cornerstone Performance Indicator Review

a. Inspection Scope

The inspectors sampled the licensee's PI submittals for the periods listed below. The inspectors used PI definitions and guidance contained in Revision 2 of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," to verify the accuracy of the PI data. The following PIs were reviewed:

- Occupational Exposure Control Effectiveness

  The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety, to determine if indicator-related data was adequately assessed and reported during the previous four quarters. The inspectors compared the licensee's PI data with the condition report database, reviewed radiological restricted area exit electronic dosimetry transaction records, and conducted walkdowns of accessible locked high radiation area entrances to verify the adequacy of controls in place for these areas. Data collection and analyses methods for PIs were discussed with licensee representatives to verify that there were no unaccounted for occurrences in the Occupational Radiation Safety PI as defined in Revision 2 of Nuclear Energy Institute Document 99-02, "Regulatory

Assessment Performance Indicator Guideline." These reviews represented one sample.

- Radiological Environmental Technical Specification/Offsite Dose Calculation Manual (RETS/ODCM) Radiological Effluent Occurrences

  The inspectors reviewed data associated with the RETS/ODCM PI to determine if the indicator was accurately assessed and reported. This review included the licensee's CR database and selected CRs generated over the previous four quarters, to identify any potential occurrences such as unmonitored, uncontrolled or improperly calculated effluent releases that may have impacted offsite dose. The inspectors also selectively reviewed gaseous and liquid effluent release data and the results of associated offsite dose calculations and quarterly PI verification records generated over the previous four quarters. Data collection and analyses methods for PIs were discussed with licensee representatives to determine if the process was implemented consistent with industry guidance in Revision 2 of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline." These reviews represented one sample.

b. Findings

No findings of significance were identified.

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 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.

4OA5 Other Activities

.1 Review of Generic Letter (GL) 89-13: Service Water (SW) System Problems Affecting Safety-Related Equipment (TI 2515/159)

a. Inspection Scope

On July 29, 2004, as part of a Davis-Besse Lessons-Learned Task Force Recommendation [3.1.2(5)] commitment, the NRC issued a temporary instruction to review the licensee's continued actions in response to Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment."

From October 4 through 8, 2004, three inspectors from the regional office along with a resident inspector conducted an inspection at the Davis-Besse Nuclear Power Station to assess the licensee's continued actions in response to Generic Letter 89-13. The inspectors reviewed licensee documents such as surveillance procedures, normal and emergency operating procedures, annunciator response procedures, and operating logs. The inspectors also interviewed operations, maintenance, chemistry, engineering and training personnel and performed walkdowns of the SW system. The objective of this inspection was to review licensees' activities in response to NRC generic communications through focus on Generic Letter 89-13. Additionally, the inspection was to gather information to help the NRC staff identify and shape possible future regulatory positions and enhance the agency operating experience program. A complete list of documents reviewed is listed in the attached "List of Documents."

As part of this inspection, the inspectors completed the scope of the following baseline inspections:

71111.07B, "Heat Sink Performance": The biennial portion of this baseline inspection was completed in its entirety. Under the activities required to complete Inspection Requirement 03.02 of the TI, two sets of heat exchangers were reviewed. These heat exchangers were the component cooling water heat exchangers and the ECCS room coolers. Review of these heat exchangers comprised two biennial samples.

b. Findings

TI Analysis

In accordance with TI 2515/159 reporting requirements, the inspectors provided the required data to the NRC headquarters staff for further analysis. A summary of the responses to the questions of the TI is provided below.

I. Determine the Effectiveness of Generic Letter 89-13 in Communicating Information

Generic Letter 89-13 was clear in communicating information about SW system problems, both in the initial letter and the supplement. The licensee took the actions to which it officially committed in its response and has continued to

implement those commitments. The commitments appeared to encompass the scope of the generic letter recommendations.

Although the licensee did not have a Generic Letter 89-13 program document to ensure continued implementation of the commitments until just prior to the inspection; it had maintained a strong plant engineering oversight of the SW system.

The licensee indicated that the current problems facing its SW system differ from those discussed in the generic letter. These problems included frazil ice formation, a phenomenon that has affected several plants in the midwest in recent years.

ii. Describe the Licensee Actions That Are Being Implemented for the Five Recommended Actions of Generic Letter 89-13

Generic Letter 89-13 had five recommendations; the licensee made commitments for on-going programs for three of them.

- The first recommendation was to implement and maintain an ongoing program of surveillance and control techniques to significantly reduce the incidence of flow blockage problems as a result of biofouling. The licensee made commitments to visually inspect the intake structure for macroscopic fouling, corrosion and sediment; and to normally maintain continuous chlorination of the SW system.

  The licensee's initial response stated that the system was not idle and did not include dead legs, but committed to conduct a review of the existing surveillances and performance testing to determine if enhancements could be made. During the extended outage, the licensee identified some infrequently used lines. As a result, the licensee modified their GL 89-13 program document to require periodic testing and inspecting of SW piping to infrequently used lines.

  The inspectors determined that the licensee had met its commitments in this area. The licensee had implemented a program, to prevent biofouling of SW to safety-related systems. A review of operational history has not identified any adverse system operations attributable to biofouling of the SW system. The program consisted of numerous preventive maintenance items to clean and inspect the intake crib, to clean and inspect safety-related components and piping, and to perform SW flow testing of safety-related components. Additionally, the licensee hydrolazed the interior of most of the safety-related SW piping in 2003. The licensee had plans to expand SW piping cleaning and inspections into its non-safety related SW piping.

  The licensee used a combination of sodium hypochlorate and sodium bromate solutions injected in the SW intake pump house as a primary

means of prevention of biofouling. The inspectors computed an 87 percent availability of the chlorination systems from March 2004 to August 2004. The licensee attributed the chlorination unavailability to times when discharges to the lake had occurred. (The licensee was required to minimize chemical discharges to the lake in accordance with state and federal regulations.) Interior inspection of piping have concluded that chlorination was an effective deterrent to the formation of zebra mussels and other biological growth.

The licensee has an electric-driven fire pump that drew from a potable water tank. The diesel-driven fire water pump, however, drew from the intake structure. The design of the system was such that SW did not enter into the fire protection header except on rare occasions. During a maintenance activity, the licensee had inspected a portion of the interior of the fire protection header where both the electric and diesel fire pumps discharge. No biofouling was identified. At the time of this inspection, no preventative maintenance items to periodically inspect the interior of the fire protection header for biofouling existed.

The licensee was maintaining its commitment to the generic letter.

- The second recommendation was to conduct a test program to verify the heat transfer capability of all safety-related heat exchangers cooled by SW. The licensee's response stated that the plant had an on-going performance test program for heat exchangers that was consistent with the generic letter recommendation. The licensee stated that the program included the major heat exchangers in the SW and component cooling water systems and committed to perform initial testing prior to start of the seventh RO and to then determine the best testing frequency to provide assurance that the equipment would perform the intended safety function during the intervals between testing.

  The licensee was currently performing heat exchanger thermal performance testing on the component cooling water heat exchangers. All three heat exchangers were inspected and cleaned during the extended outage and baseline testing performed. The tests were performed and analyzed using standard methodologies. The licensee tracked flow and differential pressure for the ECCS room coolers and had appropriate criteria for ensuring operability of the room coolers. During the extended outage, the licensee replaced all three of the containment air coolers and two of the ECCS room coolers; therefore, the inspectors determined that these coolers were capable of performing their safety function. The licensee was maintaining their commitment in this area.

- The third recommendation was to establish a routine inspection and maintenance program to ensure that corrosion, erosion, protective coating failure, silting, and biofouling could not degrade the performance of the safety-related systems supplied by SW. The licensee stated that

the preventive maintenance program would be used for routine inspection and maintenance of the SW system. Additionally, the licensee noted that the SW system was one of the systems included in the erosion/corrosion program as part of the licensee's response to NRC Bulletin 88-01 and, as such, would receive routine ultrasonic pipe wall thickness measurements. Finally, the licensee noted that protective coatings were not used in the SW system such that this component of the generic letter was not applicable.

The inspectors determined that the licensee had met its commitments in this area. The licensee had installed removable spool pieces in the SW system to provide for interior piping inspections. The licensee had also added preventive maintenance items to inspect the intake bays for biofouling and silt formation each refuel outage. The inspectors reviewed reports from contracted divers who inspected and cleaned the intake bays. Some silt buildup and zebra mussels were present in the intake bays.

The licensee included a depth profile of the silt in both the safety-related (Q) and non-safety related (non-Q) portions of the intake canal. The licensee previously dredged the non-Q portion of the intake canal and was making plans on removing silt from the Q portion of the intake canal. The licensee estimated an average of 1.49 feet of silt depth in the Q portion of the intake canal from data collected in September 2001. Data collected from the intake canal in July 2004 had not yet been processed. The depth of the silt was important since it could adversely affect post-loss of coolant accident containment temperatures. The inspectors reviewed the results of a calculation that concluded that a maximum of 2 feet of silt buildup in the Q portion of the intake canal was the maximum allowed. The inspectors concluded that the calculation was acceptable.

During the 13th refuel outage, the licensee identified three sections of safety-related SW piping that were not included in its Generic Letter 89-13 program. The licensee identified this condition and added these piping sections to its program. In early 2003, the licensee identified that the train #1 SW piping to the component cooling water (CCW) system was clogged with silt and debris. The line was replaced and put back into standby service. The train #2 SW piping to CCW was flow tested satisfactorily. The licensee also cut open and inspected the SW piping to the motor driven feedwater pump. This standby piping had some black silt in it but not enough to render the system inoperable.

The inspectors reviewed videotapes of the interior SW piping to both steam-driven auxiliary feedwater pumps prior to cleaning. The interior of the piping had a tightly adherent corrosion layer with few microbiologically-induced corrosion modules. There was no evidence of mollusk formation. Mud and silt existed in some horizontal runs of this standby piping. The

licensee determined that this material would not have been enough to prevent passing the required flow.

The licensee did not include SW piping as part of the corrosion/erosion monitoring program since the piping was considered low energy piping. However, the licensee performed limited ultrasonic testing of certain SW piping/components deemed prone to thinning. Although not a commitment to the NRC, the licensee did not perform eddy current testing of heat exchanger tubes but was planning on starting this evolution in Spring 2006.

- The fourth recommendation was to confirm that the SW system would perform its intended function in accordance with the licensing basis for the plant. The licensee stated that it had performed extensive system walkdowns which satisfied the inspections required by this recommendation. The licensee reviewed the single failure analysis and concluded that SW and component cooling water systems could perform their intended safety functions in accordance with the licensing basis of the plant.

  In 1993, NRC performed a SW system operational performance inspection which identified a number of violations. In 2002, during the extended shutdown, the licensee performed a latent issue review of the SW system, which identified a number of areas where the SW system design basis was deficient. Also in 2002, the NRC performed a baseline safety system design and performance capability inspection which reviewed the SW system. This inspection identified a number of unresolved items, many of which were determined to involve violations during the 2003 corrective action team inspection. All the deficiencies were determined to be adequately corrected prior to start up from the extended outage.

  Test procedures appeared adequate to demonstrate acceptable pump performance. The inspectors verified that, under different scenarios, the SW system could provide sufficient cooling for the safety-related heat loads. The inspectors also reviewed the set points for alarms and actuations to ensure that they were consistent with the design basis and assumptions. Overall, the licensee's analyses of SW system scenarios appeared sufficient.

  The inspectors reviewed three permanent plant modifications to ensure that the design basis of the SW system was maintained. The addition of a control logic circuit to the three inlet isolation valves to the containment air coolers to mitigate water hammer; the redesign of the intake crib to minimize frazil ice accumulation; and the throttling of butterfly valve SW 15 to meet flow balance requirements in Train 2 SW loop were the samples selected. Overall, the licensee's modifications to the SW system did not appear to compromise the design basis or introduce single-failure vulnerabilities.

The inspectors conducted a SW system walkdown to review the SW system configuration for consistency with design drawings and for material condition. The SW system presently has 179 open WOs. A review of these WOs and a visual inspection show that the licensee has maintained an aggressive system of early identification of system problems.

The inspectors reviewed an ongoing licensee operability evaluation concerning low SW flow to the CCW heat exchangers. During the last refuel outage, the licensee identified that not all SW pumps and CCW heat exchanger combinations could produce the required 8000 gpm flow rate required by the plant design. The licensee was also concerned that margin degradation could render the SW system inoperable over time. As a result, the licensee was in the process of changing the design basis of the SW flow to the CCW heat exchangers to 7500 gpm. As of this report, the licensee had documented this condition in its corrective action program, and had a schedule to complete the design change by Spring of 2005. The inspectors determined that the licensee had appropriately implemented Generic Letter 91-18, "Resolution of Degraded and Nonconforming Conditions and On Operability."

Based on the above, the licensee appeared to be maintaining the design basis of the SW system.

- The fifth recommendation was to confirm that maintenance practices, operating and emergency procedures, and training that involves the SW system were adequate to ensure that safety-related equipment cooled by the SW system will function as intended and that operators of this equipment would perform effectively. The licensee reviewed operating and abnormal procedures to ensure the procedures are technically and functionally correct. The licensee credited the routine maintenance training program and the existing operator training programs in response to this recommendation. The licensee did not have a specific on-going commitment in this area.

  The inspectors reviewed normal operating procedures, emergency operating procedures, and annunciator response procedures to determine if the system was operated within design basis. Additionally, the inspectors reviewed the available operating logs, verification procedures for periodic and post-maintenance valve alignments, and the methodology for proper SW system throttle valve position. Based on the review of these documents and interviews with operations personnel, the inspectors determined that the procedures and verification methods were adequate to ensure that the SW system was operated as described in the design basis documents.

  The inspectors verified that the licensee maintained control of the SW system heat exchanger flow variations due to changing climate

(temperature) conditions. Changing climate conditions results in pressure changes within the system. This pressure was controlled by placing or removing a spare CCW heat exchanger into/from service. SW temperature and flow were recorded once per shift in the operator logs.

The inspectors reviewed the SW system maintenance procedures and training lesson plans as well as the system vendor manuals to determine if the training and procedures were technically adequate and sufficient to perform maintenance activities and that the vendor recommendations were appropriately incorporated into the procedures. In addition, the inspectors discussed the level of maintenance training with the appropriate maintenance and training personnel to determine if the training was sufficient to identify and evaluate SW equipment deficiencies. The licensee's maintenance training lesson plans did not contain specific lesson plans for the SW system. Maintenance personnel were qualified on general plant components and any system specific information was discussed during a pre-job brief prior to actual maintenance.

The inspectors reviewed operator classroom and simulator training for the SW system focusing on the technical completeness and accuracy of the training plans. In addition, the inspectors conducted interviews with operations personnel to determine the operators' knowledge in regards to the location and operation of special equipment necessary to ensure control of the SW system. The inspectors identified a minor issue in which the Operations Service Water Lesson Plan contained the incorrect design bases temperature. The licensee entered this issue into their corrective action program.

The licensee's maintenance practices, operating and emergency procedures, and training in regards to the SW system appear to be adequate to ensure that safety-related equipment cooled by the SW system will function as intended and that operators of this equipment will perform effectively.

iii. Determine the Effectiveness of Programmatic Maintenance of the Actions in Response to Generic Letter 89-13

The licensee has maintained the actions to which they committed in their response to the generic letter. The overall program level has remained steady, with some improvement in regard to its generic letter commitments.

iv. As Applicable, Describe Noteworthy SWS Operational History That Supports Inspection Results

During the extended outage, the licensee identified sections of SW piping which were not in normal operation. One section of piping, the emergency fill for the component cooling water system from the SW system, was found to be

completely clogged with silt and other debris. This section of pipe was replaced and the pipes were incorporated into the routine preventive maintenance program.

v. Provide an Assessment of the Effectiveness of Licensee's Program Procedure(s) on Related SWS Operating Experience

The licensee had a well-defined site procedure for review of operating experience which provided appropriate guidance for review of operating experience. This procedure provided a structured review of incoming operating experience that appeared to adequately ensure that operating experience was reviewed at the level necessary. The licensee provided a wide dissemination of operating experience, including weekly e-mails and posting on bulletin boards.

Formal written reviews were only required for high level events. The licensee had done formal reviews on three events relating to SW in the past year. These reviews appeared to have been done to an appropriate level to ensure that Davis-Besse personnel recognized the possible impact of such an event on the SW system. The plant engineer appeared to be knowledgeable of industry events. The inspectors noted that the licensee had provided appropriate out-going operating experience, such as on a frazil ice event.

4OA5 Other Activities (93812)

Following restart authorization, Inspection Procedure 93812 remained in effect to facilitate the documentation of issues not specifically covered by existing procedures, but are 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 Evaluation of the Independent Operations 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 Independent Assessment for Operations Performance at the Davis-Besse Nuclear Power Station, dated October 8, 2004. As part of the Order related inspection activities, the inspectors reviewed the report to ensure that the report provided an overall assessment of Operations Department performance, that the Team's inspection activities supported the report's conclusions, and that the licensee documented specific action plans to address deficiencies that were documented in the report.

b. Observations and Findings

The first Davis-Besse Independent Operations Assessment was performed during the time period of August 16, 2004 to August 25, 2004. The inspectors reviewed and documented their evaluation of the Independent Assessment Plan in integrated inspection report 05000346/2004008. During the time period that the assessment team was on site, the inspectors observed many of the assessment activities in process. On October 8, 2004, the licensee submitted to the NRC the Operations Independent Assessment Final Report. This report documented the findings of that assessment.

The Confirmatory Order Independent Assessment of Operations Performance final report was broken down into four areas of assessment:

- Shift and Meeting Observation;
- Interviews;
- Condition Report Review; and
- Licensed Operator Continuing Training.

In addition to these four areas, a separate evaluation of Davis-Besse Self Assessments was performed.

The inspectors determined that the Team's inspection activities were of sufficient depth and scope to develop an adequate assessment of Operations performance. As a direct result of the inspection activities, the Team developed conclusions in each of these areas and, based on those conclusions, identified the following ten "Areas for Improvement":

- Resolve operators misunderstanding about work scheduling and improve the quality of work scheduling;
- Ensure that Shift Management understands that they have the authority and responsibility to stop work if that activity compromises their ability to safely operate the plant and maintain full knowledge of plant status;
- Develop and aggressively pursue a plan to reduce the large number of Operations Procedure changes in the system;
- The timeliness of corrective actions taken on Operation's condition reports does not always match the importance of the condition report. Operations department should evaluate open condition reports and appropriately prioritize them to correct the important ones first;
- Reduce the large number of unassigned corrective actions so work can begin to address identified problems;
- Cause determination does not go deep enough. Use the methodology of asking the "five whys";
- Implementation of a continuous license and non-licensed operator training program;
- Focus on the operator training feedback program; and
- Implementation of the shift mentor program.
- Clear ownership of the Required Reading Program.

c. Conclusions

The inspectors concluded that the Team's inspection activities were of sufficient depth and scope and the results of these individual inspection activities were sufficiently documented and the Action Plans developed by the licensee to address the Areas For Improvement were adequate. The inspectors also determined that the individual findings which comprised the report's Executive Summary were not fully developed into an overall assessment which documented the current level of Operations Department performance at Davis-Besse.

Since the Confirmatory Order specifies that each Independent Assessment be completed by the end of the calendar year, the omission of an overall conclusion which documented the current level of the Operations Department performance is not currently being considered as non-compliant with the requirements of the Order.

In a meeting on December 7, 2004, the NRC requested the licensee to provide an overall assessment of Operations Department performance beyond that already submitted to the NRC on October 8, 2004. In addition to the overall performance assessment, the NRC also requested that several of the report's documented Areas For Improvement be clarified and placed in proper context. The licensee agreed to include this additional information in a supplement to the original assessment report. Submittal of this information will ensure that the licensee remains in compliance with the requirements of the Confirmatory Order. Based on the discussion, the licensee committed to request the Operations Independent Team to revised their report to provide a comprehensive assessment of their findings and to clarify the Areas For Improvement associated with non-licensed operator/licensed operator training programs (Commitment #A21355) and Shift Manager Responsibilities (Commitment #A21341).

.2 Review of Independent Assessment Plan for the Davis-Besse Nuclear Power Station Organizational Safety Culture, Including Safety Conscious Work Environment (SCWE)

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 verified that the licensee had submitted the required inspection plan for the organizational safety culture, including SCWE, assessment 90 days prior to the performance of the corrective action program assessment. The licensee submitted its plan in a letter to the NRC dated August 4, 2004. 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 brought the appropriate credentials and experience necessary to accomplish the assessment. The NRC's review also

concluded that the assessment process, and its scope and depth were comparable to the external assessment performed in March 2003. Specifically, the same organization that performed the 2003 assessment was performing the 2004 assessment, and two of the four member team were the same, including the team leader. Based on having performed a review of the methodology in 2003, the NRC concluded that the process was appropriate for assessing the safety culture and SCWE at Davis-Besse.

During the week of November 15, 2004, NRC inspectors observed the external team's implementation of the assessment process. In addition, the inspectors discussed the team's implementation of the plan with all members of the team. Based on the observation, the inspectors concluded that the process was being implemented as outlined in the Plan. Additional reviews will be conducted following issuance of the assessment report by Human Performance Analysis Corporation and FENOC's action plan for addressing issues, if any, identified by the assessment.

.3 Review of Engineering Program Effectiveness Independent Assessment Plan and implementation

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 verified that the licensee had submitted the required inspection plan for the Engineering Program. The licensee submitted its plan 90 days prior to the performance of the assessment (start date of October 11, 2004) in a letter to the NRC dated July 12, 2004. 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 brought the appropriate credentials and experience necessary to accomplish the assessment. The plan included six team members for a period of 2 weeks. The purpose of the plan was to provide an independent and comprehensive assessment of the Engineering Program effectiveness. The plan included details to assess Engineering effectiveness in the following areas:

- Plant Modification Process;
- Calculation Process;
- System Engineering;
- Corrective Action Program;
- Engineering Interfaces and Change Management; and
- Self assessment.

The scope and depth of the proposed plan appeared adequate to accomplish the objective of assessing Engineering Program effectiveness. The inspectors observed

the second week of the assessment activities and attended the exit meeting on October 22, 2004. The interviews and reviews observed during the second week were thorough and probing, and in accordance with the plan discussed above. At the exit meeting, the team concluded that the Engineering Program was generally effective with some opportunities for improvement such as improving closure time for modifications, as well as some strengths such as System Engineering support. The NRC will review the team report when it becomes available.

.4 Review of Completed Cycle 14 Operational Improvement Plan Initiatives

As part of the licensee's Return to Service Plan, they 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.

To facilitate the evaluation of the licensee's commitments which were documented in the Cycle 14 Operational Improvement Plan, the Davis-Besse Oversight Panel approved an inspection approach which designated lead inspectors in the areas of Operations, Engineering, Corrective Actions, and Safety Culture. Each inspector selected several licensee commitments for either a basic review for completeness or a more detail review for effectiveness.

During this inspection period, the inspectors performed a basic review of the following Cycle 14 completed operational improvement plan initiatives:

- Implement FENOC Business Practice for Focused Self-assessments (Initiative 1.2a);
- Implement FENOC Business Practice for Ongoing Self-assessments (Initiative 1.2b);
- Implement FENOC Business Practice for Benchmarking (Initiative 1.2c);
- Implement FENOC Business Practice for Semi-Annual Collective Significance Self-Assessments (Initiative 1.2d);
- Provide Formal Management Observation Skills Training (Initiative 1.4);
- Enhance the Management Observation Program by Ensuring Personnel Providing Oversight Monitoring Are Familiar with DBBP-OPS-0001, "Operations Expectations and Standards" (Initiative 1.5);
- Implement Actions to Improve Trending of Major Plant Evolutions Utilizing the Management Observation Program to Track Performance and Feedback (Initiative 1.6);
- Conduct Supervisor and Management Talent Management Talks (Initiative 1.9);
- Provide SCWE Training to Site Employees Who Have Not Completed the SCWE Portion of the Site Employee Orientation Manual (Initiative 7.4);
- Provide Refresher Training on SCWE and Safety Culture to Davis-Besse Supervisors and Above [first quarter 2004] (Initiative 7.5);
- Supplement Quality Oversight with Off-site Assistance to Improve Objectivity and Ensure Assessments Are Sufficiently Critical (Initiative 10.1);
- Focus More Quality Oversight on Cross-functional Activities and Interfaces (Initiative 10.3); and

- Review and Revise the Master Assessment Plan at All Three FENOC Sites (Initiative 10.4).

Overall the inspectors concluded that the referenced Operating Cycle 14 commitments had been properly implemented. The inspectors also concluded that in a number of cases, the closure documentation did not provide for a stand-alone document. Additional information was necessary for the inspectors to conclude that the actions committed to had been accomplished. This issue is similar to one brought up during the Management & Human Performance Root Cause Analysis Corrective Action inspection, where considerable effort was necessary for the inspectors to conclude that the corrective actions listed had been implemented.

During this inspection period, the inspectors performed a detailed review of the following Cycle 14 completed operational improvement plan initiatives:

a. Establish Engineering Positional Qualification Requirements Based on the Standard FENOC Engineering Organization and Complete Qualification Training for Incumbent and New Engineers.

The inspectors evaluated the Cycle 14 Operational Improvement Plan Initiative 4.2 for implementation and effectiveness.

This commitment required that positional qualification requirements be established in accordance with the engineering roles and responsibilities as described in NOPL-CC-0002, Revision 1, “Policy for FENOC Engineering Roles and Responsibilities”, and that those qualifications be completed for the engineering staff. The licensee determined that most Job Familiarization Guidelines (JFGs), used to train and qualify individuals, were in need of revision or required development to fully meet the intent of NOPL-CC-0002. The process for Orientation Training was determined to be highly inefficient and training for program owners was inadequate.

To improve the efficiency of the Orientation Training process, self-study workbooks, based on objectives identified in the INPO basis documents, were created to enable newly hired staff to work at their own pace and greatly streamline the orientation process. The initial position specific training was accomplished through implementation of JFGs designed to train the individual on core activities that all staff in a particular unit are required to perform. A total of 14 JFGs of this type required revision or initial development and are complete.

The need to be able to qualify individuals on select tasks was identified during the extended outage based on the need to bring in external support personnel. To facilitate resource sharing during outages a series of Activity Specific JFGs (28) in the areas of Generic Activities, Plant Engineering Activities, and Design Engineering Activities were planned for development. Approximately 80 percent of this effort is complete.

The need to better prepare individuals to complete supervisory reviews and other supervisory duties was identified. The lack of specific Supervisor qualifications was first identified as a deficiency contributing to problems initially identified with oversight of the

Boric Acid Corrosion Control (BACC) program. A total of 13 JFGs were identified for development and are complete.

The need to prepare individuals to perform the duties of Program Owners and to capture the knowledge possessed by incumbents was identified. To accomplish this objective a total of 62 JFGs were identified for development. Approximately 95 percent of this effort is complete.

The revision and development of the JFGs discussed above represents a substantial effort to better formalize the transfer of knowledge to Engineering staff and to ensure that the staff has the skills to perform their tasks. As a result of FENOC reorganization, several Program Owner JFGs were deactivated. Total JFGs remain at 72 with 59 complete and the remainder in the review process. At this time, approximately 40 percent of the affected staff have completed the required JFGs. NRC will continue to monitor the licensee's progress in this area.

b. Schedule and Conduct Additional Program Compliance Reviews

The inspectors evaluated the Cycle 14 Operational Improvement Plan Initiative 6.6 for implementation and effectiveness.

This commitment required that the Senior Management Team select additional programs for focused self assessment. For this period, the BACC, Steam Generator Management, and Risk Management programs were selected. At the time of the inspection, the BACC self assessment was complete and the Steam Generator and Risk Management Assessment Plans were complete.

The BACC self assessment (SA 2003-002) was completed on September 27, 2004. The scope of the assessment was on the implementation and administration of the program. The licensee's assessment was performed by conducting interviews, reviewing related documentation and distributing a benchmarking questionnaire to nine other utilities regarding training qualifications and staff utilization. Additionally, the BACC Program was compared to a draft industry document WCAP 15988, "Generic Guidance for an Effective Boric Acid Inspection Program."

The assessment concluded that the current program exceeds the draft industry standard and that plant personnel were actively involved. Condition reports were being initiated as required by NOP-ER-2001, "BACC Program," and the Shift Manager and BACC Program Owner were being notified. The assessment also recommended that Condition Report evaluations be standardized to ensure all required attributes are discussed (CR 04-0846).

The Steam Generator and Risk Management Assessment Plans were also reviewed and found to be reasonable efforts to ensure program compliance with existing procedures and standards. The licensee plans to continue to identify programs for focused self assessment in accordance with NG-EN-00386, "Program Assessment, Ownership, and Development." Performance Indicators for the BACC and Steam

Generator Programs were reviewed and found to be acceptable and to provide a reasonable indicator of program health.

c. Maintenance Backlog Reduction

The inspectors evaluated the Cycle 14 Operational Improvement Plan Initiative 5.2 for implementation and effectiveness.

This commitment required that the licensee walk down the entire maintenance order backlog (approximately 3600 orders) to ensure proper category and priority, and to consolidate and eliminate invalid orders. The commitment also required that the Cycle Plan be completed to identify equipment outages. Completion of the Cycle Plan is discussed in Inspection Report 04-12 .

Forty members of management were assigned to perform the walkdown. Of the nearly 3600 orders, almost 1000 were determined to not be required, appropriate for Minor Deficiency Monitoring (MDM), or appropriate to be assigned to a PM. A backlog reduction plan for the 2390 remaining orders was initiated with a target completion date of December 2005. To date, backlog reduction of PMs, elective maintenance, and corrective maintenance are projected to meet year end estimates. NRC will continue to monitor the licensee's progress in this area.

d. Perform a Safety Culture Assessment Utilizing an Independent Outside Organization

The inspectors evaluated the Cycle 14 Operational Improvement Plan Initiative 7.3 for implementation and effectiveness.

The inspectors noted that this item had been closed by the licensee to Confirmatory Order item CO-02 "Conduct Annual Independent Outside Organizational Assessment of Davis-Besse Organizational Safety Culture, Including SCWE." The inspectors noted that the independent assessment began on November 15, 2004. Additional inspection activities are planned after NRC's receipt of the licensee's final report which documents this activity.

e. Perform an Effectiveness Assessment of the Corrective Actions Taken in Response to the November 2003 SCWE Survey Results

The inspectors evaluated the Cycle 14 Operational Improvement Plan Initiative 7.8 for implementation and effectiveness.

The licensee had performed an effectiveness review and the NRC had conducted an independent assessment of that activity. The results of the NRC's assessment are documented in NRC Inspection Report 05000346/2004013.

.5 Review of Licensee Operator Performance Related to the Incomplete Performance of a Required Surveillance Procedure

On October 21, 2004, during an engineering review of data collected during the performance of a weekly surveillance test that checks temperatures in the boric acid storage and transfer system, the licensee discovered that one of the required data points had not been recorded. The surveillance test in question had been performed on October 15, 2004. The licensee entered Technical Specification 4.0.3 and re-performed the surveillance test. All required temperature measurements were within the required temperature band. Based on temperature data collected by engineering personnel (data used by engineering to evaluate system performance), the data point in question appeared to be within specification on October 15, 2004. The licensee determined that the operator performing the surveillance test had made an error in entering points into a keyboard that was used to collect data for the test and also that the individual combined two steps in the procedure. Additionally, the licensee noted that the error was not discovered by normal on-shift review of test data. The licensee suspended on-shift activities of the involved personnel until a review of the circumstances could be completed and also mandated more in-depth reviews of surveillance tests by operations department personnel. This finding constituted a violation of minor significance that was not subject to enforcement in accordance with Section VI of the NRC's Enforcement Policy. The licensee documented the issue in CR 04-06498.

.6 Equipment Configuration Control

Introduction: A Non-Cited Violation of Technical Specification 6.8.1, having very low safety significance, was self-revealed when maintenance personnel failed to adhere to the requirements of administrative work control documents and instructions during maintenance activities associated with the racking in of breaker AC113 [CCW 1 Motor Supply Breaker]. With a danger tag hanging on the breaker cubicle door, licensee personnel installed the breaker into the breaker cubicle with the intention of operating the breaker to perform maintenance checks on the CCW pump 1 motor. This was contrary to licensee's procedural requirements.

Description: At approximately 0130, on October 7, 2004, maintenance personnel racked in breaker AC113 onto bus C1 in preparation for an uncoupled bump of the component cooling water pump 1 motor. This was contrary to the clearance associated with the danger tag that was hanging on the front of the breaker's cubicle door which prohibited this activity.

A licensee investigation determined that the Field Support supervisor had authorized a temporary lift of the danger tag located on the AC113 breaker cubicle door to support the uncoupled run of the CCW pump 1 motor. The temporary lift was authorized at 2347 on October 6, 2004. When the Equipment Operator arrived to lift the tag at 0230 on October 7, 2004, he discovered that the breaker had already been racked in and that electricians were installing test equipment. Both activities were performed with the danger tag hanging on the breaker cubicle door.

Analysis: The inspectors determined that not properly controlling the work activities associated with the racking in of breaker AC-113 was a performance deficiency warranting a significance evaluation in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," issued on June 20, 2003. The inspectors determined that the finding was more than minor because, if left uncorrected, it could become a more significant safety concern. Specifically, the operation or manipulation of the danger tagged AC-113 breaker could have resulted in equipment damage or serious personnel injury. This violation was determined not to constitute an immediate safety issue and was determined to be of very low safety significance because there were no maintenance evolutions in progress on the CCW 1 pump motor, during the time period when the breaker was inappropriately racked in, which would have required the breaker AC-113 to be racked out of its cubicle.

Enforcement: Technical Specification 6.8.1, states, in part, that written procedures shall be established, implemented, and maintained covering applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, February, 1978. Regulatory Guide 1.33, Appendix "A" states, in part, that maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Procedure DB-MN-00001, "Conduct of Maintenance," established the administrative controls, responsibilities, and duties of personnel conducting maintenance or modifications at the Davis-Besse Nuclear Power Station. Procedure NOP-OP-1001, "Clearance/Tagging Program," describes the methods and responsibilities for the administrative control of activities associated with WO implementation and closure. Specifically, Section 4.3.2 states, in part, that danger tagged components shall not be operated or manipulated in any manner. Contrary to this requirement, breaker AC 113 was racked into its cubicle with an active danger tag still hanging on the cubicle door. Because this finding was determined to have very low safety significance, and because this issue was entered into the licensee's corrective action program, this violation is being treated as a Non-Cited Violation consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000346/2004015-02). The licensee entered this issue into the corrective action program as CR 04-06154.

.7 Safety Culture Assessment

On October 26 and 27, 2004, the licensee conducted their annual safety culture assessment in accordance with NOBP-LP-2501 [Safety Culture Assessment]. The inspectors observed portions of the 2-day meeting and the licensee's classification of their culture using predefined criteria. The licensee self identified several areas requiring either increased or continuing licensee management attention. No findings of significance were identified.

.8 Review of Institute of Nuclear Power Operations Report

The inspectors completed a review of the final report for the Institute of Nuclear Power Operations (INPO) May 2004 Evaluation of Davis-Besse nuclear power station that was transmitted to the licensee by INPO letter dated October 19, 2004.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. M. Bezilla, and other members of licensee management on November 17, 2004. The licensee acknowledged the findings presented. No proprietary information was identified.

.2 Interim Exit Meetings

Interim exit meetings were conducted for:

- Temporary Inspection (TI 2515/159) on Generic Letter 89-13: Service Water, with Mr. M. Bezilla on October 8, 2004.

- Access control to radiologically significant areas, ALARA planning and controls program and PI verifications with Mr. M. Bezilla on October 29, 2004.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

B. Allen, Director, Plant Operation
M. Bezilla, Site Vice President
B. Boles, Manager, Plant Engineering
J. Grabnar, Manager, Design Engineering
L. Harder, Manager, Radiation Protection
R. Hovland, Manger, Technical Services
R. Hruby, Manager, Nuclear Oversight
D. Kline, Manager, Security
S. Loehlein, Director, Station Engineering
L. Myers, Chief Operating Officer, FENOC
D. Noble, Radiation Protection Supervisor
K. Ostrowski, Manager, Plant Operations
M. Parker, Supervisor, Plant Engineering
C. Price, Manager, Regulatory Compliance
R. Schrauder, Director, Performance Improvement
M. Stevens, Manager, Maintenance
M. Trump, Manager, Training
D. Wahlers, Supervisor, Nuclear Quality Assurance
D. Wuokko, Supervisor, Compliance

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000346/2004015-01	NCV	Failure to Perform Appropriate 50.59 Screening Concerning ECCS Sump Pump Affect on ECCS Component Operability
05000346/2004015-02	NCV	Failure to Comply with TS Required Procedures for Control of Status of CCW 1 Breaker While Danger Tagged

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 10

1R04 Equipment Alignment

DB-OP-06316; Diesel Generator Operating Procedure; Revision 16

1R05 Fire Protection

Davis-Besse Nuclear Power Station Fire Hazard Analysis Report
PFP-AB-211; Protected Area Pre-Fire Plan, Rooms 211 and 212; Revision 03
Drawing A-222F; Fire Protection General Floor Plan El 565'; Revision 13

1R06 Flood Protection

Identification of Flood Initiating Events for the Davis-Besse Individual Plant Examination; dated May 1992
RA-EP-02880; Internal Flooding; Revision 02
DB-OP-06272; Station Drainage and Discharge System; Revision 06
DB-OP-06011; High Pressure Injection System; Revision 10
DB-OP-06012; Decay Heat and Low Pressure Injection System; Revision 18
DB-OP-06013; Containment Spray System; Revision 11
CR 03-02446; PCR: ECCS Equipment Operability with ECCS Room Sump Pumps OOS
CR 04-05412; PCR: ECCS Sump and Train Operability Guidance - Deficiency
CR 04-06313; Improper 50.59 Categorization
NUREG-1177; “Safety Evaluation Report related to the restart of Davis-Besse Nuclear Power Station, Unit 1, following the event of June 9, 1985"

1R11 Licensed Operator Requalification Program

Applicable Drill Simulator Guide for the Observed Scenario
DBBP-TRAN-0017; Conduct of Simulator Training; Revision 01

1R12 Maintenance Effectiveness

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

CR 04-05150; Maintenance Rule Performance Criteria for Control Rod Drive System Exceeded
CR 04-04927; Reactor Trip During Control Rod Drive Breaker Testing
DB System Health Report, Balance of Plant Window 10 [Main Steam] and Electrical/Control System Window 9 [Control Rod Drive]; 2nd Quarter 2004
Maintenance Rule Program Manual; November 2, 2004
DB-PF-00003; Maintenance Rule; Revision 06
Minutes, Maintenance Rule Expert Panel Meeting; October 10, 2004, September 2, 2004, and August 27, 2004
CR 04-04615; -24 VDC Ground Indicator Light Present at the Electro Hydraulic Cabinet C5757B
DB-SS-04161; Power/Load Unbalance Test; Revision 03
DB-ss-04154; Turbine-Generator Backup Overspeed Trip Circuit Test
DB-SS-04159; 24 Volt DC Master Trip Solenoid Valves Test; Revision 03
CR 04-04870; -24 VDC Ground Lit During TG B/U Overspeed Testing
CR 03-00931; SP13A1-3, SP13B1-3 Do Not Meet AOV Acceptance Criteria
CR 02-00522; Turbine Bypass Valve SP13A3 Failed to Approximately 20 percent During Plant Shutdown
CR 04-04987; Root Cause Evaluation for Turbine Bypass Valve Performance Issues
CR 03-02062; Turbine Bypass Valves' Accumulator is Undersized
CR 04-01936; Turbine Bypass Valve SP13A3 Does Not Respond Due to Mechanical Binding

1R15 Operability Evaluations

CR 04-06640; Electrical Wire Nuts Used in MP2011
CR 04-05564; P201-1 Motor Termed With Wire Nuts
SAP Order 200120236; MP2011:Tape Wire Nuts @ DB-MP2011
SAP Order 200120221; Replace Wire Nuts on MP2011
CR 04-06256; Inspection Requirement Missed by Receipt Inspection
Engineering Evaluation for System 002-01; Station Batteries 1P and 1N Porcelain Cable Clamps for Battery Jumper Cables; October 12, 2004

1R19 Post-Maintenance Testing

DB-OP-06316; Diesel Generator Operating Procedure; Revision 16
DB-SC-03081; Emergency Diesel Generator 2 Overspeed Trip Test

1R22 Surveillance Testing

DB-SP-04159; AFP2 Monthly Test; Revision 03

1R23 Temporary Plant Modifications

Temporary Modification 04-0030; Jockey Fire Pump (P6) Temporary Suction Flow Path; October 20, 2004
Temporary Drawing Change Notice for M-016A; Revision 45

Tagout Clearance EDB-Sub013-05-008; P^*FP Jockey Fire Pump; October 20, 2004
NG-EN-00313; Control of Temporary Modifications; Revision 04
DB-OP-06610; Station Fire Suppression Water System; Revision 10

2OS1 Access Control to Radiologically Significant Areas

2OS2 ALARA Planning And Controls

RWP 2003-5229; Under Reactor Vessel Work; Revision 0
Access Control Records for RWP 2003-5229; dated October 22, 2004
RWP 2004-1002; Auxiliary Building Work: DH121 Valve Replacement; Revision 2
RWP 2004-1013; Spent Fuel Pool Demineralizer Resin Sluice; Revision 0
RWP 2004-1022; Clean And Maintain All ECCS And Aux Building Sumps; Revision 0
RWP 2004-1028; Transfer Spare Reactor Coolant Pump Rotating Assembly; Revision 1
RWP 2004-1029; ECCS Pump Room #2; Revision 2
DB-C-03-03; NQA Quarterly Assessment Report; dated November 17, 2003
DB-C-03-02; NQA Quarterly Assessment Report; dated September 1, 2003
NQA Oversight: ALARA Brief Observation; dated July 8, 2003
NQA Oversight: Radiography Review; dated September 20, 2004
NQA Oversight: ALARA Brief Observation; dated November 12, 2003
CR04-06247; Contamination Found In Unposted Area; dated October 4, 2004
CR04-06499; RWP Reviews Not Completed; dated October 21, 2004
CR04-04340; High Airborne Radiation Level In Aux Building; dated July 1, 2004
CR04-04349; Unexpected Alert/High Alarms On RE-5405, Iodine Tripped Radwaste Ventilation; dated July 1, 2004
CR04-04500; Putting Letdown Filter in HIC Did Not Happen as Scheduled; dated August 8, 2004
CR04-04709; Contamination Control Program Enhancement; dated July 21, 2004
CR04-06502; NRC PI For RCS Activity Higher Than Industry Average; dated October 22, 2004
CR04-06571; Work Week Schedule Issue-lead Shop Fails to Adequately Communicate With RP; dated October 26, 2004
CR04-05979; Tracking CR (Self Assessment) For ALARA Program Review; dated September 29, 2004
CR04-04839; Missing Piece Of Roof Drain Piping On Building; dated July 29, 2004
CR04-03448; Individual Entered RRA Without Required RP Brief; dated July 2, 2004
CR04-02716; Contamination Boundary Violation; dated April 15, 2004
CR04-02718; Violation Of Personnel Dosimetry Program; dated April 16, 2004
DB-HP-01152; Performance Of High Exposure Work; Revision 1
DB-HP-01152; Performance Of High Exposure Work; Revision 2 (Draft)
NG-DB-00243; Personnel Dosimetry Program; Revision 0
NG-DB-00240; Radiological Area Access And Work Controls; Revision 2
NG-DB-00241; ALARA Program; Revision 0
DB-HP-01154; Radiological Work ALARA Reviews; Revision 1
DB-HP-01801; ALARA Design Review; Revision 2
DB-HP-01802; Control Of Shielding; Revision 4
DB-HP-01901; Radiation Work Permits; Revision 16

DB-HP-01208; Extremity Badging: Issue, Use And Collection; Revision 3
DB-HP-01206; Multiple Badging: Issue, Use And Collection; Revision 6
NOP-OP-3502; Shutdown Chemistry Program; Revision 1
DB-HP-01344; Source Term Location Data; Revision 0
NOP-CC-4003; Fuel Reliability Monitoring And Assessment; Revision 1
DBBP-RP-0010; ALARA Review Committee; Revision 0
DB-OP-01004; Hotspot Flushing Procedure; Revision 1
DB-HP-01109; High Radiation Area Access Control; Revision 16
Trend Chart: Cycle 14 Dose Equivalent Iodine
Trend Chart: Cycle 14 Neptunium 239 On RCS Crud Filter
Trend Chart: Cycle 13 Dose Equivalent Iodine
Trend Chart: Cycle 13 Neptunium 239 On RCS Crud Filter
RCS Specific Activity Dose Equivalent Iodine; March-October 2004
Occupational Exposure Control Effectiveness PI Data; Q4 2003-Q3 2004
RETS/ODCM Effluent Occurrences PI Data; Q4 2003-Q3 2004
Radiochemical Analysis Report (Part 61); dated April 30, 2004
Station Dose Trend Vs. PWR Industry for 2003-2004
Station Dose Trend for 2004
Station Annual Exposure for 1998 through 2004
ALARA Plan For Containment Entry (12/18/04); Draft
ALARA Plan For Operating Cycle 14; dated June 7, 2004
Access Control Data, Dose Records; October 2003-October 2004
ALARA Review Committee Meetings Minutes For 2004
ALARA Planning Mid-Cycle S/G Eddy Current Testing

4OA1 Performance Indicator Verification

Unit Logs for the period of July 1, 2003 to June 30, 2004
CR 04-00523; NRC Performance Indicators Incorrectly Calculated and Submitted to Reg Affairs-
CR 04-00927; RRATI: PCR: DB-SP-03157 and DB-SP-03166, AFP 1 (2) Response Time Test

4OA5 Other Activities

14-1661; Schedule Change Request for Emergency Core Cooling System Room Cooler 2 Replacement; dated October 5, 2004
14-1662; Schedule Change Request for Emergency Core Cooling System Room Cooler 1 Replacement; dated October 5, 2004
ACT 01-0082; Conceptual Study of a Lake Erie Intake to Resist Blockage by Frazil Ice (Proprietary); dated September 2000
Calculation 013DBE/050391; Service Water System Performance Following Appendix R Event
Calculation EE-006.01-027; Safety Related Motor Contractor Control Circuit Voltage; dated December 8, 2003
Calculation 01-0665; Effect of Ultimate Heat Sink Pond Siltation on Service Water Inlet Temperature; dated October 20, 1999

Calculation NSA-011.01-014; Evaluation of Service Water Flow Balance and Service Water Pump Baseline Testing Results; Revision 00; dated December 13, 2003
Calculation NSA-060.05-010; Containment Post Loss of Coolant Accident Response with New Dome Paint; dated May 30, 2003
CR 01-2587; Silt Accumulation in Non-Q Portion of Intake Canal; dated October 3, 2001
CR 03-04342; SEN 239 – Massive Fish Intrusion Results in Dual Unit Shutdown and Inoperable Emergency Diesel Generators; dated June 3, 2003
CR 03-06241; Inadvertent Loss of Secondary Service Water Cooling, Cause Evaluation and Corrective Action 5; dated August 29, 2003
CR 03-06624; Erratic Operation of Service Water Pump 3 Strainer and Blowdown Valve; Corrective Action 2; dated August 29, 2003
CR 03-07524; Service Water Train 2 Flow less than Flow Balance Acceptance Criteria; dated September 9, 2003
CR 03-09568; Suspected Controlotron Flow Measurement Errors During Service Water Flow Balance Testing; dated November 6, 2003
CR 03-10262; Tracking Condition Report for Open Assumptions Contained in Engineering Change Request 03-0533; dated November 26, 2003
CR 03-10901; Explore Methods to Improve Service Water Flow Margins; dated February 13, 2004
CR 04-00242; Intake Crib Modification to Prevent Ice Blockage May Be Ineffective; dated January 9, 2004
CR 04-01566; SEN 247 – Potential Common Cause Failure of Safety Injection Pump Lube Oil Coolers; dated February 27, 2004
CR 04-03622; FENOC Operating Experience Review – Perry Essential Service Water Pump A Failure; dated May 27, 2004
CR 04-03863; OE – Magnetrol Level Switch Operating Difficulties; dated June 9, 2004
CR 04-04678; Emergency Core Cooling System Room Coolers Did Not Meet All Acceptance Criteria per DB-PF-04736; dated July 21, 2004
CR 04-06114; Evaluation Not Attached to CA 01-10901-3 as Stated; dated October 5, 2004
CR 04-06151; NRC Finding of Packing Leak on Service Water Strainer F15-3; dated October 6, 2004
CR 04-06172; Error Found in Service Water Lesson Plan; dated October 7, 2004
CR 04-06174; Work Order Voided with Outstanding Corrective Action; dated October 7, 2004
CR 04-06187; Disparity Between PSA Analysis and Maintenance Rule; dated October 8, 2004
CR 02-03278; Lack of PT Acceptance Criterion Margin for Service Water Flow to Component Cooling Water Heat Exchangers; dated July 10, 2002
DB-DP-00307; Station Configuration Control; Revision 00
DB-OP-00008; Operation and Control of Locked Valves; Revision 04
DB-OP-00016; Temporary Configuration Control; Revision 07
DB-OP-01002; Component Operation and Verification; Revision 01
DB-OP-02011; Heat Sink Alarm Panel 11 Annunciators; Revision 06
DB-OP-02511; Loss of Service Water Pumps/Systems (With Abnormal Procedure Discussion); Revision 07
DB-OP-02521; Loss of ac Bus Power Sources; Revision 07

DB-OP-03004; Locked Valve Verification; Revision 04
DB-OP-06016; Containment Air Cooling System Procedure; Revision 16
DB-OP-06261; Service Water System Operating Procedure; Revision 15
DB-OP-06913; Seasonal Plant Preparation Checklist; Revision 09
DB-PF-03017; Service Water Pump 1 Testing; Revision 08; dated July 28, 2004
DB-PF-03020; Service Water Train 1 Valve Test; Revision 12
DB-PF-03023; Service Water Pump 2 Testing; Revision 09
DB-PF-03026; Service Water Manual Valve Test; Revision 02
DB-PF-03027; Service Water Train 2 Valve Test; Revisions 10 and 11
DB-PF-03030; Service Water Pump 3 Testing; Revision 07
DB-PF-04704; Component Cooling Water Heat Exchanger 1; Revision 05
DB-PF-04705; Component Cooling Water Heat Exchanger 2; Revision 05
DB-PF-04706; Component Cooling Water Heat Exchanger 3; Revision 05
DB-PF-04729; Containment Air Cooler Monitoring Test; Revision 07
DB-PF-04736; Emergency Core Cooling System Room Cooler Monitoring Test; Revision 01; dated April 23, 2004
DB-PF-04736; Emergency Core Cooling System Room Cooler Monitoring Test, Tests Completed; April 26, 2004 and July 21, 2004
DB-PF-06704; Attachment 6: Pump Acceptance Criteria Curves – Section 3; Pages 28 - 33 (Service Water Pumps); Revision 13
DB-SP-03000; Service Water Loop 1 Integrated Flow Balance Procedure; Revisions 04 and 05
DB-SP-03001; Service Water Loop 2 Integrated Flow Balance Procedure; Revisions 04 and 05
DB-SP-03019; Service Water Valve Verification Monthly Test Train 1; Revision 06
DB-SP-03026; Service Water Valve Verification Monthly Test Train 2; Revision 07
DB-SS-04021; Backup Service Water Pump Quarterly Test; Revision 03
EPA 4500; Monthly Davis-Besse NPS Chemistry Discharge Forms for Period from January to August 2004
FENOC Operating Experience Report for Week of September 27, 2004
Flow Chart; Voiding an Order; dated April 27, 2004
Maintenance and Test Equipment Calibration and Maintenance Record; Foxboro Differential Pressure Instrumentation PDT0043, Calibrated; dated February 3, 2004
Maintenance and Test Equipment Calibration and Maintenance Record, Service Water Pump 2 Discharge Pressure PI 1374
Maintenance and Test Equipment Calibration and Maintenance Record, Component Cooling Water Heat Exchanger 2 Outlet Temperature TI 1490
M-041A; Service Water Pumps and Secondary Service Water System; Revision 26
M-041B; Primary Service Water System; Revision 56
M-041C; Service Water System for Containment Air Coolers; Revision 30
—45-18; Vendor Manual; Service Water Pumps
—52-30; Vendor Manual; Backup Service Water Pump
M-52N-28; Vendor Manual; Backup Service Water Pump
MMA-HEX-I000.03; Heat Exchangers Course Outline
MMA-PMP-I000.00; Pump Maintenance
MMA-PMP-I001.00; Pump Theory Lesson Plan
NG-EN-00307; Configuration Management; Revision 08

NG-NA-00305; Operating Experience Assessment Program; Revision 06; dated August 10, 2004
NRC Generic Letter 89-13: Service Water Reliability Program Manual; Revision 00; dated July 29, 2004
OP Eval 2003-0032; Service Water Trains 1 and 2 Flow Balance Tests Did Not Meet Flow Balance Acceptance Criteria; Revision 02
OPS-GOP-I111; Loss of Service Water Pump/Systems; Revision 02
OPS-JPM-001; Provide Service Water Flow to the Service Water System, Loop 1, by Utilizing the Backup Service Water Pump; Revision 00
OPS-JPM-013; Replacing the Service Water Pump Supplying Primary Loads with Service Water Pump 1 - 3; Revision 01
OPS-JPM-014; Loss of Service Water Loop 1 to Primary Loads; Revision 00
OPS-JPM-022; Startup of Containment Air Cooler 3 Aligned as Containment Air Cooler 1; Revision 00
OPS-JPM-027; Use Circulating Water to Supply Service Water Primary Loads; Revision 00
OPS-JPM-083; Service Water Non-Seismic Line Rupture; Revision 01
OPS-SYS-I305; Service Water; Revision 06
ORQ-AUX-S403; Loss of Service Water to Primary Loads; Revision 03
ORQ-AUX-S405; Loss of Service Water to Secondary Loads; Revision 01
ORQ-AUX-S408; Service Water Non-seismic Line Rupture; Revision 01
ORQ-AUX-S409; Loss of All Service Water Pumps with a Fire in the Service Water Pump Room; Revision 00
ORQ-SIM-S166; Loss of D1N, Loss Service Water Pump 1 (Secondaries), Loss Instrument and Stuck CRD Group; Revision 00
ORQ-SIM-S168; Lemoyne Line Lock Out, Fire Alarm Emergency Diesel Generator Room 2, Fire Main Rupture Service Water Pump Room, Loss of Service Water Pump 2; Revision 00
OS-02-01; Operational Schematic, Service Water System, Sheet 1; Revision 65
PM 2694; Inspect Intake Crib
PM 4894; Inspect Intake Canal/Forebay Area
PM 5927; Remove Service Water Piping to Component Cooling Water Train 1 for Clean/Inspect
PM 5928; Remove Service Water Piping to Component Cooling Water Train 2 for Clean/Inspect
RA-EP-02810; Tornado; Revision 03
RA-EP-02820; Earthquake; Revision 05
RA-EP-02830; Flooding; Revision 01
RA-EP-02840; Explosion; Revision 01
RA-EP-02880; Internal Flooding; Revision 02
SD-018; System Description for Service Water System; Revision 02; dated September 23, 2004
Service Water Maintenance History Work Order Printout; dated September 24, 2004
SE 00-0026; Safety Evaluation for Intake Crib Modifications for Frazil Ice Protection; Revision 00
10 CFR 50.59 Eval 03-01742; Change SW15 Configuration from Normally Open to Throttled; Revision 00

10 CFR 50.59 Eval 03-02234; Service Water System Water Hammer Reduction Modification; Revision 00
Trend Charts; – Service Water Pumps 1, 2, and 3 Flows and Differential Pressure Test Result Data, Printed; dated October 1, 2004
Trend Charts; – Service Water Pumps 1, 2, and 3 Vibration Test Result Data, Printed; dated October 1, 2004
Trend Graph; – Component Cooling Water Heat Exchangers 1, 2, and 3 Accident Heat Transfer Rate Test Results; dated October 1, 2004
Trend Graph; – Containment Air Coolers Heat Exchangers 1, 2, and 3 Accident Heat Transfer Rate Test Results; dated October 1, 2004
Trend Graph; – Emergency Core Cooling System Room Cooler 1 and 2 Differential Pressure Versus Flow Showing 2001 Test Results; dated October 1, 2004
Trend Graph; – Emergency Core Cooling System Room Coolers 1, 2, 4, and 5 Differential Pressure Versus Flow Showing 2001 Test Results; dated October 1, 2004
Trend Graph; – Emergency Core Cooling System Room Coolers 4 and 5 Differential Pressure Versus Flow Showing 2001 Test Results; dated October 1, 2004
WO 01-002650; Remove Service Water Piping to Motor Driven Feedwater Pump; dated March 7, 2002
WO 02-007420; Remove Service Water Piping to #2 Auxiliary Feedwater Pump; dated February 16, 2003
WO 03-000143; Remove Service Water Piping to #1 Auxiliary Feedwater Pump; dated February 18, 2003
WO 200071883; Replace Emergency Core Cooling System Room Cooler Coil E42-2; dated December 16, 2003
WO 200071884; Replace Emergency Core Cooling System Room Cooler Coil E42-1; dated December 16, 2003

4OA5 Other Activities (93812)

CR 04-06370; F1 Trouble Alarm After Starting Containment Spray Pump 2
NOBP-LP-2501; Safety Culture Assessment; Revision 01
CR 04-06607; Safety Culture Assessment 2004 3.D.3 Attribute on KIP Behaviors Rated Yellow
CR 04-06608; Safety Culture Assessment 2004
CR 04-06609; Safety Culture Assessment 2004
CR 04-06610; Safety Culture Assessment 2004
CR 04-06614; Safety Culture Assessment - Maintenance Yellow Attribute for Resources
DB-SC-03059; Boric Acid Flow Path Heat Tracing Weekly Test; Revision 02
CR 04-06498; DB-SC-03059 - Did Not Provide Verification of Heat Trace Circuit 153 Above 105F
CR 04-06486; EDG #2 Day Tank Level Low Annunciator Did Not Come In with Level Below Setpoint
CR 04-06500; EDG 2 Week Tank Level Alarm/Computer Point Not Working
CR 04-06877; PCR Enhancement to DB-SC-03059, BA Heat Trace
CR 04-06154; Temporary Lift Issue for CCW Pump 1 Uncoupled Run
Davis-Besse Site Vice President Memo to Supervisors and above “Expectations for Performing Observations,”dated 5/28/04

Collective Significance Reviews for Operations, Engineering, Chemistry, Radiation Protection, and Maintenance.
Commitment Close-out Document, CCN RAS-04-00214
CR-02-02693; Observation Skills Training
CR-04-02358; Tracking Condition Report for Employees Off-Site For First Quarter SCWE Training
DBBP-OPS-0001; Operations Expectations & Standards
DBBP-VP-0006; Standards and Expectations for the Duty Team
Master Assessment Plan; dated April 8, 2004
NOBP -LP-2001; FENOC Focused Self-Assessment; dated December 8, 2003
NOBP-LP-2002; Benchmarking; dated December 8, 2003
NOBP-LP-2006; Collective Significance Review; dated September 8, 2003
NQO Find It Now Team Charter
Project Plan; Master Assessment Plan Revision; Rev. 0
Quality Field Observation 1670; dated March 30, 2004
Quality Field Observation 1589; dated January 12, 2004
Quality Field Observation 1623; dated February 3, 2004
Quality Field Observation1655; March 19, 2004
SCWE Training Attendance printout, 3/30/04
Training Material; Our Responsibilities for Maintaining a Safety Conscious Work Environment

LIST OF ACRONYMS USED

ADAMS	Agency-wide Document Access and Management System
AFP	Auxiliary Feedwater Pump
ALARA	As Low As Is Reasonably Achievable
BACC	Boric Acid Corrosion Control
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CR	Condition Report
CSS	Containment Spray System
DEI	Dose Equivalent Iodine
ECCS	Emergency Core Cooling System
FENOC	FirstEnergy Nuclear Operating Company
HPI	High Pressure Injection
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IR	Inspection Report
JFG	Job Familiarization Guidelines
LER	Licensee Event Report
NCV	Non-Cited Violation
NRC	United States Nuclear Regulatory Commission
PARS	Publicly Available Records
PI	Performance Indicator
QFO	Quality Field Observation
RCS	Reactor Coolant System
RETS/ODCM	Radiological Environmental Technical Specification/Offsite Dose Calculation Manual
RFO	Refueling Outage
RP	Radiation Protection
RWP	Radiation Work Permit
SCWE	Safety Conscious Work Environment
SDP	Significance Determination Process
SRTP	System Review & Test Plan
SW	Service Water
TS	Technical Specifications
USAR	Updated Safety Analysis Report
WO	Work Order