December 23, 2003

Mr. Lew W. Myers
Chief Operating Officer
FirstEnergy Nuclear Operating Company
Davis-Besse Nuclear Power Station
5501 North State Route 2
Oak Harbor, OH 43449-9760

SUBJECT: DAVIS-BESSE NUCLEAR POWER STATION
NRC INTEGRATED INSPECTION REPORT 05000346/2003022

Dear Mr. Myers:

On November 15, 2003, 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 13, 2003, 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.

The report documents one inspector identified and one self revealing finding of very low safety significance (Green). These findings did not present an immediate safety concern. These findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these two findings as non-cited violations (NCVs) consistent with Section VI.A of the NRC Enforcement Policy.

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

This report also documents the closure of two items on the NRC's Restart Checklist. Item 2.d, "Extent of Condition of Boric Acid in Systems Outside Containment," was resolved through our inspection of associated licensee activities and our independent inspection of systems that contain boric acid. Item 5.a, "Review of Licensee's Restart Action Plan," was closed based on our inspection of the plan and portions of each of the activities that are included in this plan.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

John A. Grobe, Chairman
Davis-Besse Oversight Panel

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

Enclosure: Inspection Report 05000346/2003022
w/Attachment: Supplemental Information

cc w/encl: The Honorable Dennis Kucinich
G. Leidich, President - FENOC
Plant Manager
Manager - Regulatory Affairs
M. O'Reilly, Attorney, FirstEnergy
Ohio State Liaison Officer
R. Owen, Ohio Department of Health
Public Utilities Commission of Ohio
President, Board of County Commissioners
Of Lucas County
Steve Arndt, President, Ottawa County Board of Commissioners
D. Lochbaum, Union Of Concerned Scientists
J. Riccio, Greenpeace
P. Gunter, N.I.R.S.

DOCUMENT NAME: C:\ORPCheckout\FileNET\ML033570081.wpd
To receive a copy of this document, indicate in the box:"C" = Copy without enclosure "**E**"= Copy with enclosure"**N**"= No copy

OFFICE	RIII		RIII		RIII	
NAME	RBaker for DPassehl:dtp		CLipa		JGrobe	
DATE	12/17/03		12/17/03		12/23/03	

OFFICIAL RECORD COPY

L. Myers

<u>ADAMS Distribution</u>:
AJM
DFT
SPS1
RidsNrrDipmIipb
GEG
HBC
CST1
NRR/DSSA/SPLB
  ATTN: R. Architzel
C. Ariano (hard copy)
C. Pederson, DRS (hard copy - IR's only)
DRPIII
DRSIII
PLB1
JRK1
DB0350
REA
GVC

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-346
License No:	NPF-3
Report No:	05000346/2003022
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, 2003, through November 15, 2003
Inspectors:	S. Thomas, Senior Resident Inspector J. Rutkowski, Resident Inspector M. Salter-Williams, Resident Inspector J. House, Senior Radiation Specialist A. Dunlop, Reactor Engineer, DRS R. Winter, Reactor Engineer, DRS M. Holmberg, Reactor Engineer, DRS
Approved by:	Christine A. Lipa, Chief Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000346/2003022; 10/1/2003 - 11/15/2003; Davis-Besse Nuclear Power Station; Personnel Performance During Nonroutine Evolutions, Other Activities.

This report covers a 6-week period of resident inspection and baseline inspection of maintenance rule implementation. The inspection was conducted by resident, region based inspectors, and regional health physicist inspectors. Two Green findings associated with two non-cited violations were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 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: Initiating Events

- Green. A self-revealing finding of very low safety significance was identified when control room staff did not adequately monitor and control reactor coolant system pressure during reactor coolant system cooldown which resulted in a reactor trip on shutdown bypass high pressure.

  The inspectors determined that this finding was of more than minor safety significance because it (1) involved the human performance attribute of the Initiating Events Cornerstone; and (2) affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. This finding was of very low safety significance because at the time of the event, the reactor was subcritical with only group one safety control rods withdrawn. This was a non-cited violation of a procedure required by Technical Specification 6.8.1.a. (Section 1R14)

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance was identified when the inspectors identified that relays in the EDG "start and run" circuits were not rated for the application that they were being used.

  The inspectors determined that this finding was of more than minor safety significance because it affected the mitigating systems cornerstone objective. The finding was of very low safety significance since the issue was a design deficiency that was confirmed not to result in the loss of function in accordance with GL 91-18 (Revision 1). This was a non-cited violation of 10 CFR 50, Appendix B, Criterion III. (Section 4OA5)

B. Licensee Identified Findings

No findings of significance were identified.

REPORT DETAILS

Summary of Plant Status

The plant was shutdown on February 16, 2002, for a refueling outage. During scheduled inspections of the control rod drive mechanism nozzles, significant degradation of the reactor vessel head was discovered. As a direct result of the need to resolve many issues surrounding the Davis-Besse reactor vessel head degradation, NRC management decided to implement IMC 0350, "Oversight of Operating Reactor Facilities in a Shutdown Condition With Performance Problems." Significant dates for this extended outage were as follows:

- fuel was removed from the reactor on June 26, 2002;
- entered operational Mode 6 on February 19, 2003;
- fuel reload was completed on February 26, 2003;
- entered operational Mode 5 on March 12, 2003;
- entered operational Mode 4 on September 13, 2003;
- entered operational Mode 3 on September 14, 2003;
- completed the normal operating pressure test for the reactor coolant system and started cooldown to Mode 5 on September 30, 2003 ;

On September 30, 2003, while in the process of cooling the plant to Mode 5 after completion of reactor coolant system (RCS) leakage inspections at normal operating pressure, a reactor trip was received from the reactor protection system due to Shutdown Bypass High Pressure trip. Group 1 safety control rods, prior to the trip, had been fully withdrawn to provide "trippable" reactivity. Licensee management placed a hold on further plant heatup and cooldowns until a better understanding of the trip could be obtained and, if necessary, compensatory measures could be established.

On October 2, 2003, plant cooldown to Mode 5 was re-commenced with Mode 5 attained on October 4, 2003. The unit remained in Mode 5 for the remainder of the inspection period.

For the entire inspection period, the Davis-Besse Nuclear Power Station was under the IMC 0350 Process. As part of this Process, several additional team inspections continued. The status of these inspections will not be included as part of this inspection report, but upon completion, each will be documented in a separate inspection report which will be made publicly available on the NRC website.

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

The inspectors verified that the licensee equipment arrangement and storage of material accounted for wind generated debris potentially affecting electrical power supples whose loss might initiate a plant transient. Additionally the inspectors viewed external missile barriers to verify that they were installed and functional to protect safety related equipment from externally wind generated missiles. A majority of the inspector's time

was spent performing walkdown inspections of equipment external to the buildings. Key aspects of the walkdown inspections included:

- checking the switchyard for any loose stored equipment and equipment stored just outside the switchyard that might be blown into the switchyard with high winds;
- checking the type of material stored under the overhead electrical lines that run from the switchyard to the plant main and startup transformers ;
- checking the type of material stored around the main and startup transformers;
- reviewing the appropriateness of temporary structures in the vicinity of the electrical lines; and
- verifying that various designed missile gratings and doors were in place on the exterior of the auxiliary building, service water building, and the fuel building

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q)

a. Inspection Scope

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

- valves were correctly positioned and did not exhibit leakage that would impact their function;
- electrical power was available as required;
- major system components were correctly labeled, lubricated, cooled, ventilated, etc.;
- hangers and supports were correctly installed and functional;
- essential support systems were operational;
- ancillary equipment or debris did not interfere with system performance;
- tagging clearances were appropriate; and
- valves were locked as required by the licensee's locked valve program.

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

- emergency diesel generator 1; and
- component cooling water train 1 pump lineup.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection inspections, which were focused on the availability, accessibility, and condition of fire fighting equipment, the control of transient combustibles, and the condition and operating status of installed fire barriers. The inspectors selected fire areas for inspection based on their overall contribution to internal fire risk, as documented in the Individual Plant Examination of External Events, their potential to impact equipment which could initiate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed at the end of this report, the 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 four areas were inspected:

- fire area DH (Purge Inlet Room and Main Steam Isolation Valve Areas);
- fire area HH (Control Room Air Conditioning Room);
- fire area G (Auxiliary Building 565' elevation, southern portion of building); and
- station black out diesel room.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On October 2, 2003, the inspectors observed one operating crew during a "just in time" training session conducted on the simulator. On September 30, 2003, the plant experienced a reactor trip. As a corrective action for the trip and other recent operational events, the licensee stopped all cooldown and heatup operations and conducted "just in time" training for each crew which covered plant evolutions that would occur on their shift. This "just in time training" was specific to reactor coolant system (RCS) cooldown evolutions and included the use of a revised cooldown procedure and the use of predetermined specific target bands for reactor coolant system temperature and pressure. The inspectors evaluated crew performance in the areas of:

- clarity and formality of communications;
- adequacy of pre-job and pre-evolution briefs
- ability to take appropriate actions;
- 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 crew adhered to established RCS target bands and discussed the appropriateness of established target bands. The crew also discussed, in the scope of the "just-in-time" training, the scope of the evolutions that were scheduled to be accomplished their shift subsequent to the training.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

.1 Reactor Coolant Pumps 1-1, 1-2, 2-1 and 2-2

a. Inspection Scope

The inspectors reviewed whether the licensee properly implemented the Maintenance Rule, 10 CFR 50.65, for the reactor coolant system. Specifically, the inspectors reviewed the reactor coolant system normal operating pressure test results with regard to reactor coolant pump casing to pump cover inner and outer gasket performance. The results of the test were:

- Reactor Coolant Pumps 1-1 and 1-2
  No leakage past the inner gasket occurred during plant heat-up, normal operating temperature and pressure, or cool-down. The inner and outer gaskets were replaced with new gaskets during this outage.

- Reactor Coolant Pump 2-1
  Inter-gasket leak checks indicated that slight leakage past the inner gasket occurred during heat-up, normal operating pressure and temperature, and cooldown. No boric acid was found at the case to cover joint following cool-down from the Mode 3 NOP/NOT test. No outer gasket leakage was noted.

- Reactor Coolant Pump 2-2
  Inter-gasket leak checks indicated slight leakage past the inner gasket during heat-up. The leakage stopped after a day at normal operating temperature and pressure. No leakage occurred during the cool-down. The case to cover inspections identified four discrete particles of boric acid forming during the heat-up. The particles did not grow during the normal operating temperature and pressure test or during cool-down.

Based on these results and vendor recommendations, the licensee determined that reactor coolant pumps 2-1 and 2-2 pump cover to casing gaskets performance was acceptable for one more operating cycle. The licensee was scheduled to inspect the pump cover to casing interface on reactor coolant pumps 2-1 and 2-2 during the scheduled mid-cycle outage. Engineering recommended that reactor coolant pumps 2-1 and 2-2 be refurbished during the next refueling outage (14RFO).

At the time this inspection was performed, the reactor coolant system was a Maintenance Rule (a)(1) system, for reasons not related to reactor coolant pump performance. The inspectors reviewed the licensee's action plan to address corrective actions and performance goals to restore the system to (a)(2).

b. Findings

No findings of significance were identified.

.2 Periodic Evaluation Maintenance Rule Implementation (71111.12B)

a. Inspection Scope

The inspectors reviewed the maintenance rule periodic evaluation report, which was required per 10 CFR 50.65 (a)(3). This evaluation was a periodic assessment of the effectiveness of maintenance for those structures, systems, and components (SSCs) included within the scope of the rule. For SSCs where maintenance has not been demonstrated as being effective, by either excessive failures or unavailability, the licensee monitors under (a)(1) of the rule, such that the SSCs receive the appropriate attention to correct deficiencies. The remaining SSCs where maintenance has been demonstrated as being effective, usually through the use of reliability and/or unavailability performance criteria, the licensee assesses under (a)(2) of the rule, to ensure the SSCs will continue to be able to perform their intended function. The objective of the inspection was to:

- Verify that the periodic evaluation was completed within the time restraints defined in 10 CFR 50.65 (once per refueling cycle, not to exceed 2 years), ensuring that the licensee reviewed its goals, monitoring, preventive maintenance activities, industry operating experience, and made appropriate adjustments as a result of that review;

- Verify that the licensee balanced reliability and unavailability for safety significant SSCs during the previous refueling cycle;

- Verify for SSCs being monitored under (a)(1) of the rule, that goals were being met, corrective actions were appropriate to correct the defective condition including the use of industry operating experience, and (a)(1) activities and related goals were adjusted as needed; and

- Verify that the licensee has established (a)(2) performance criteria, examined any SSCs that failed to meet their performance criteria, or reviewed any SSCs that have suffered repeated maintenance preventable functional failures including a verification that failed SSCs were considered for monitoring under (a)(1) of the rule.

The inspectors examined the periodic evaluation report for Cycle 13, which included the time frame of May 2000 through April 2002. To evaluate the effectiveness of (a)(1) and (a)(2) activities, the inspectors examined (a)(1) action plans, justifications for returning SSCs from (a)(1) to (a)(2), and a number of condition reports (CRs) to evaluate the licensee's functional failure determinations. In addition, the CRs were reviewed to verify that the threshold for identification of problems was at an appropriate level and the

associated corrective actions were appropriate. The inspectors focused the inspection on the following systems:

- Auxiliary Feedwater;
- Component Cooling Water;
- Containment;
- Control Room Emergency Ventilation;
- Service Water; and
- 480 Vac [volt alternating current].

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- On October 4, 2003, the licensee entered an Orange risk condition when both switchyard electrical busses G and J were taken out of service to support work on G electrical bus. This electrical configuration removed startup transformer 01 from service and the ability to utilize back-feed capability through auxiliary transformer 11. The inspectors verified that the remaining onsite and offsite power sources were available and the licensee had developed and implemented a contingency plan for the duration of switchyard bus outage.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions (71111.14)

Reactor Trip While Shutdown

a. Inspection Scope

The inspectors reviewed the performance of the control room operators and their oversight management during the plant cooldown from Mode 3 to Mode 5 including their

performance prior to and after the reactor trip on shutdown bypass high reactor system pressure. The inspections reviewed the additional actions taken after the reactor trip to continue the cooldown to Mode 5.

b. Findings

Introduction. A self-revealing Non-Cited Violation of Technical Specification 6.8.1.a having very low safety significance was identified when control room staff did not adequately monitor and control reactor coolant system pressure which resulted in actuation of a reactor trip on shutdown bypass high pressure. Procedure DB-OP-0000, "Conduct of Operations," Revision 06, required, in part, that Operations personnel "shall be responsible for monitoring the equipment, instrumentation and controls within their area and for taking timely and proper actions to ensure safe, conservative operation of the unit." Even though the licensee had an individual whose main duty was to monitor the reactor coolant system pressure, action was not taken to prevent reactor coolant pressure from increasing to the point where shutdown bypass high pressure reactor trip automatically actuated.

Description. During the performance of the reactor coolant system (RCS) cooldown, following the completion of the normal operating pressure test, an unexpected trip of the safety group 1 control rods occurred. The operational sequence for this portion of the plant cooldown procedure was as follows:

- Verify that adequate makeup water at the appropriate boron concentration was available to account for water contraction during the cooldown process and that makeup pumps and flow paths were available to supply the water to the reactor coolant system.
- Adjust pressurizer level to less than or equal to 85 inches when the RCS temperature was less than 500°F.
- Maintain a maximum RCS cooldown rate of less than 100°F/hr.
- Lower RCS pressure to a band of 1750 to 1800 psig, place the reactor protection system in shutdown bypass, and fully withdraw Safety Group 1.

The applicable plant conditions that existed just prior to the event were:

- The RCS temperature was 532.3°F and RCS pressure was 1752 psig as measured on the lowest reading Safety Feature Actuation System (SFAS) computer pressure instrument point P732 (SFAS Channel 2 RCS Pressure).
- Safety Group 1 rods were fully withdrawn and the Shutdown Bypass was in effect;
- Cooldown had been stopped to withdraw Safety Group 1 rods.
- Indications of SFAS RCS pressure was being monitored, as required by procedure, from each loop.
- The reactor operator was maintaining the required pressure band by monitoring SFAS channel 2 pressure indication as required by procedure.
- There was approximately 20 psig difference between the lowest and highest reading SFAS RCS pressure channels.

- The highest reading reactor protection system pressure instrument was not being monitored, but the indicated temperature was consistent with the highest range SFAS pressure channel.

On September 30, 2003, as directed, the reactor operator recommenced the RCS cooldown. The reactor operator opened the turbine bypass valves approximately 5 percent which increased the rate of dumping steam to the main condenser. This action resulted in a faster than expected decrease in reactor coolant temperature, pressurizer level, and RCS pressure. The control room operators took action to slow the cooldown rate and to re-establish pressure and level. These actions resulted in RCS pressure transient which caused pressure to increase by approximately 35 psig, resulting in trip condition on 2 shutdown bypass high pressure trip channels. This actuated a reactor trip and safety group 1 rods dropped, as designed, to the bottom of the reactor core. The plant and equipment responded to the trip as was expected by the plant's design.

Evaluation of this event revealed the following:

- The pressure as sensed by the reactor protection pressure channels 2 and 4 was allowed to reach the shutdown high pressure trip setpoint which made up 2 out of 4 logic to initiate a reactor trip signal. The shutdown bypass high pressure trip bistable setpoint is approximately 1812 $\pm$ 3 psig.
- The operating crew involved in the event had recently completed simulator cooldown training with safety group 1 rods tripped, rather than withdrawn.
- The simulator training had been conducted with decay heat programmed into the simulator at a higher level than what existed in the actual core
- The crew briefing for the cooldown included a discussion of pressurizer level and trips that would have to be bypassed as RCS pressure and temperature was reduced. There was no discussion of the shutdown bypass high pressure trips or limits.
- The cooldown procedure did not provide any discussion or precautions on the setpoints for the shutdown bypass high pressure trips
- The cooldown procedure only directed monitoring pressure as indicated on the SFAS pressure channels.
- RPS pressure channels were not being monitored on the computer displays.
- The cooldown procedure specified an RCS pressure control band of 1750 - 1800 psig as indicated by the lowest reading SFAS pressure channel.
- Procedure DB-OP-06903, "Plant Shutdown and Cooldown," Revision 11, was deficient in that it did not provide sufficient precautions to advise the operators of the shutdown bypass high pressure trip setpoint proximity to the specified pressure band. This was aggravated by only directing monitoring of the lowest reading SFAS RCS pressures.

The licensee implemented several actions to address the deficiencies associated with this issue. These actions included the following:

- until completion of the initial analysis of the event, returned the plant to normal operating pressure and temperature with all control rods tripped;
- implemented an operational stand down until the initial investigation of the event could be completed;

- implemented their problem solving and decision process and developed a root cause analysis;
- modified the cooldown procedure to reflect results from the initial investigation;
- developed guidance for that cooldown that specified the pressure and temperature band specifically for each evolution until Mode 5 was attained;
- for the cooldown to Mode 5 for each control room shift crew, conducted just in time simulator training that covered just the activities that would occur on that shift
- chartered a team to review the collective significance of this trip and other recent events involving operations and to develop an operations improvement plan;

Analysis. In accordance with IMC 0609, Appendix A, Attachment 1, the inspectors performed an SDP Phase 1 screening and determined that the issue affected the Reactor Safety Strategic Performance Area. The finding was more than minor because it: (1) involved the human performance attribute of the Initiating Events Cornerstone; and (2) affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. This finding was of very low safety significance because at the time of the trip, the reactor was subcritical with only group 1 safety control rods withdrawn. The reactor trip did not significantly challenge any safety related equipment or cause a plant transient.

Enforcement. This is a performance issue because preventing the generation of the shutdown bypass high pressure trip was reasonably within the licensee's ability to control and could have been prevented. The performance deficiency associated with this event is the control room staff did not adequately monitor and control reactor coolant system pressure which resulted in an unexpected reactor trip on shutdown bypass high pressure. Technical Specification 6.8.1.a requires implementation of procedures required by Regulatory Guide 1.33. Regulatory Guide 1.33 requires Administrative Procedures which address authorities and responsibilities for safe operation and shutdown. The licensee developed DB-OP-0000, "Conduct of Operations," Revision 06, a safety related procedure, to, in part, provide guidance on how Operations personnel carry out their duties and responsibilities as delineated in Station Procedures, Policies, Directives, and Manuals. Step 6.2.1.c of DB-OP-0000 states "Operations personnel shall be responsible for monitoring the equipment, instrumentation and controls within their area and taking timely and proper actions to ensure safe, conservative operation of the unit." Contrary to this requirement, even though the licensee had an individual whose main duty was to monitor the reactor coolant system pressure, insufficient action was taken to prevent reactor coolant pressure from increasing to the point where the shutdown bypass high pressure trip level was actuated. Because of the very low safety significance and because the issue has been entered into the licensee's corrective action program (CR 03-08374) it is being treated as a Non-Cited Violation, consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000346/2003022-01).

1R16 Operator Work-Arounds (71111.16)

a. Inspection Scope The inspectors reviewed all of the existing operator workarounds and control room deficiencies to determine whether the cumulative conditions had a significant impact on plant risk or on the operators' ability to respond to a transient or an accident. This involved reviewing the entire list of operator workarounds and control

room deficiencies, interviewing operators and staff, and reviewing operator turnover sheets to verify that the licensee had appropriately classified workarounds for significance, that the workarounds were achievable, and that the licensee had made or planned timely and appropriate corrective actions. In addition to evaluating the individual impact of each operator workaround, the inspector evaluated the cumulative affect of all workarounds on plant safety.

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 used the appropriate sections of the TSs and the USAR, as well as the documents listed at the end of this report, to evaluate the scope of the maintenance and verify that the work control documents required sufficient post-maintenance testing to adequately demonstrate that the maintenance was successful and that operability was restored. The inspectors observed and evaluated test activities associated with the following:

- SW 1356; Containment Air Cooler 1-2 Outlet Temperature Control Valve “air drop” test and valve stroke timing;
- DH 2736; Auxiliary Spray Throttle valve post repack packing load friction measurement;
- IA 501; Instrument Air Containment Isolation Check Valve local leak rate testing after valve maintenance;
- MP 195-2; EDG Fuel Tank 2 Transfer Pump 2 testing after retermination of power cables;
- Testing of EDG fuel oil week tank 1 contents for presence of oil after completion of tank hydrolasing;
- Decay Heat Pit Tank leak test after hatch closure;
- DH14A; Decay Heat Cooler 2 Outlet Flow Control Valve stroke timing after controller maintenance;
- EDG 1 Idle Start; and
- EDG 1 24-Hr Run.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

On October 16, 2003, the inspectors observed the licensee perform an emergency preparedness drill. The inspectors observed activities in the control room simulator, Technical Support Center, and the Emergency Control Center. The inspectors also

attended the post-drill facility critique in the technical support center. The focus of the inspectors activities was to note any weaknesses and deficiencies in the drill performance and ensure that the licensee evaluators noted the same weaknesses and deficiencies and entered them into the corrective action program. The inspectors placed emphasis on observations regarding event classification, notifications, protective action recommendations, and site evacuation and accountability activities.

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

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

b. Findings

No findings of significance were identified.

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

.1 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 developing contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry. (This represents one sample.)

The inspectors verified that the licensee had developed an understanding of the plant source-term, that this included knowledge of input mechanisms to reduce the source term and that the licensee had a source-term control strategy in place that included cobalt reduction and a shutdown ramping and operating chemistry plan designed to minimize the source-term external to the core. Other methods used by the licensee to control the source term, including component and system decontamination and use of shielding, were evaluated. (This represents one sample.)

The licensee's identification of specific sources was reviewed along with exposure reduction actions and the priorities the licensee had established for implementation of those actions. The results that had been achieved against these priorities since the last refueling cycle were reviewed. Source reduction evaluations were verified along with actions taken to reduce the overall source-term for the current assessment period, and compared with the previous year. (This represents one sample.)

b. Findings

No findings of significance were identified.

.2 Declared Pregnant Workers

a. Inspection Scope

The inspectors reviewed dose records of declared pregnant workers for the current assessment period to verify that the exposure results and monitoring controls employed by the licensee complied with the requirements of 10 CFR 20.1208. (This represents one sample.)

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the plant Updated Safety Analysis Report (USAR) to identify applicable radiation monitors associated with transient high and very high radiation areas including those used in remote emergency assessment (This represents one sample). The inspectors identified the types of portable radiation detection instrumentation used for job coverage of high radiation area work, other temporary area radiation monitors currently used in the plant, continuous air monitors associated with jobs with the potential for workers to receive 50 millirem committed effective dose equivalent, whole body counters, and radiation detection instruments utilized for personnel survey and for release of material from the radiologically controlled area. (This represents one sample.)

Licensee personnel were observed performing calibration and source checks of selected instruments. The inspectors verified calibration, operability, and alarm set points (where applicable) of selected instruments including accident range radiation monitors, portable hand-held survey instruments and personal monitoring devices. This review included but was not limited to the following:

- RE-2387 Containment Wide Range Radiation Monitor;
- RE4597AB Containment Post Accident Atmosphere Accident Range Radiation Monitor;
- 2.7.272 RSO-5 Ion Chamber;
- 2.7.383 AMP-100 Underwater Detector;
- 2.8.172 AMS-4 Air Sampler;
- 2.8.111 Lapel Air Sampler;
- 2.12.47 Portal Monitor SPM 904C;
- 2.12.68 PCM-2 Personnel Contamination Monitor;
- 2.12.42 Fastscan Whole Body Counter; and
- 169319-296 Electronic Dosimeter.

The inspectors reviewed what actions would be taken when, during calibration or source checks, an instrument was found out of calibration by more than 50 percent. Should that occur, the inspectors verified that the licensee's actions would include a determination of the instruments previous usages and the possible consequences of that use since the last calibration. The inspectors also reviewed the licensee's 10 CFR Part 61 source term analyses to determine if the calibration sources used were representative of the plant source term. (This represents one sample.)

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution for Radiation Monitoring Instrumentation and Protective Equipment

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, CRs, Licensee Event Reports, and Special Reports that involved personnel contamination monitor alarms due to personnel internal exposures to verify that identified problems were entered into the corrective action program for resolution. Internal exposure occurrences greater than 50 millirem committed effective dose equivalent (CEDE) were reviewed to determine if the affected personnel were properly monitored utilizing calibrated equipment and if the data was analyzed and internal exposures properly assessed in accordance with licensee procedures. (This represents one sample.)

The inspectors reviewed corrective action program reports related to exposure significant radiological incidents that involved radiation monitoring instrument deficiencies since the last inspection in this area. Staff members were interviewed and corrective action documents were reviewed to verify that follow-up activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk based on the following:

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

(This represents one sample.)

The inspectors determined that the licensee's self-assessment activities identified and addressed repetitive deficiencies or significant individual deficiencies in problem identification and resolution. (This represents one sample.)

b. Findings

No findings of significance were identified.

.3 Radiation Protection Technician Instrument Use

a. Inspection Scope

The inspectors verified the calibration expiration and source response check data records on radiation detection instruments staged for use, and observed radiation protection technicians for appropriate instrument selection and self-verification of instrument operability prior to use. (This represents one sample.)

b. Findings

No findings of significance were identified.

.4 Self-Contained Breathing Apparatus (SCBA) Maintenance and User Training

a. Inspection Scope

The inspectors reviewed the status, maintenance and surveillance records of selected SCBAs staged and ready for use in the plant and inspected the licensee's capability for refilling and transporting SCBA air bottles to and from the control room and operations support center during emergency conditions. The inspectors verified that control room operators and other emergency response and radiation protection personnel were trained and qualified in the use of SCBAs including personal bottle change-out. This included verification that licensee personnel were trained and qualified to refill air bottles. The inspectors also verified the training and qualification records for selected (more than three) individuals on each control room shift crew, and selected (more than three) individuals from each designated department that were currently assigned emergency duties including onsite search and rescue. (This represents one sample.)

The inspectors identified three SCBA units currently designated as "ready for service" and reviewed maintenance records for work performed by qualified vendors on this equipment, including the vital component maintenance records, over the past 5 years. Maintenance records, covering the period since the last inspection of this area, were reviewed for selected SCBA units including spare air bottles. The licensee performs no maintenance on vendor designated vital components. The inspectors also ensured that the required, periodic air cylinder hydrostatic testing was documented, up to date, and that the Department Of Transportation required retest air cylinder markings were in place for the three identified SCBA units as well as other selected units. The inspectors reviewed the onsite maintenance procedures and the SCBA manufacturer's recommended practices to determine if there were inconsistencies between them. The inspectors also observed licensee staff inspect and refurbish SCBA equipment and refill air bottles to verity compliance with those procedures. (This represents one sample.)

b. Findings

No findings of significance were identified.

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

Cornerstone: Public Radiation Safety

.1 Air Cleaning Systems

a. Inspection Scope

The inspectors reviewed air cleaning system surveillance test results including vent flow rates, and activated carbon tests performed by an offsite vendor to verify that the system was operating within the licensee's acceptance criteria and that flow rates were consistent with USAR values. (This represents one sample.)

b. Findings

No findings of significance were identified.

.2 Effluent Monitoring Systems

a. Inspection Scope

The inspectors reviewed the USAR description of the radioactive waste processing systems along with the Radiological Environmental Technical Specifications/Offsite Dose Calculation Manual (RETS/ODCM) to identify the effluent radiation monitoring systems, their flow measurement devices and any modifications in alarm set point determinations. Calibration records for the effluent monitoring systems and alarm set point values were reviewed. There were no radiological effluent performance indicator incidents, see Section 4OA1.2. (This represents one sample.)

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution for Radioactive Gaseous and Liquid Effluents

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program including quality assurance audits and self assessments and CRs to verify that the licensee met the requirements of 10 CFR 20.1101(c) and the RETS/ODCM, and that identified problems were addressed in a timely manner. The review was also performed to determine that the licensee's corrective action program identified and addressed repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

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

1. Initial problem identification, characterization, and tracking;
2. Disposition of operability/reportability issues;
3. Evaluation of safety significance/risk and priority for resolution;
4. Identification of repetitive problems;
5. Identification of contributing causes;
6. Identification and implementation of effective corrective actions;
7. Resolution of non-cited violations (NCVs) tracked in the corrective action system; and
8. Implementation/consideration of risk significant operational experience feedback.

(This represents one sample.)

b. Findings

No findings of significance were identified.

2PS3 Radiological Environmental Monitoring Program (REMP) And Radioactive Material Control Program (71122.03)

.1 Problem Identification and Resolution for the Radiological Environmental Monitoring Program

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program including CRs, quality assurance audits and self assessments to verify that the licensee met the requirements of 10 CFR 20.1101(c) and the RETS/ODCM. The inspectors also determined that the licensee's corrective action program identified and addressed repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

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

1. Initial problem identification, characterization, and tracking;
2. Disposition of operability/reportability issues;
3. Evaluation of safety significance/risk and priority for resolution;
4. Identification of repetitive problems;
5. Identification of contributing causes;
6. Identification and implementation of effective corrective actions;
7. Resolution of non-cited violations (NCVs) tracked in the corrective action system; and
8. Implementation/consideration of risk significant operational experience feedback.

(This represents one sample.)

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151)

a. Inspection Scope

The inspectors reviewed the licensee's records related to Safety System Functional Failures to verify that the licensee's program was implemented consistent with the industry guidelines in Nuclear Energy Institute publication No. 99-02, Regulator Assessment Performance Indicator Guideline, and related licensee procedures. The documents reviewed by the inspectors included licensee event reports (LERs), plant logs and corrective action CRs. These documents were reviewed to verify the accuracy

and completeness of the data submitted to the NRC for the period from October 2002 through September 2003.

b. Findings

No findings of significance were identified.

Cornerstones: Barrier Integrity and Public Radiation Safety

.1 Reactor Safety Strategic Area

a. Inspection Scope

The inspectors sampled the licensee's submittals for performance indicators (PIs) and 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:

- The inspectors discussed the PI for dose equivalent iodine with licensee representatives. As the reactor has been in shutdown conditions since February 2002, this PI was not applicable during the previous four quarters.

b. Findings

No findings of significance were identified.

.2 Radiation Safety Strategic Area

a. Inspection Scope

The inspectors sampled the licensee's submittals for PIs and 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:

- Occupational Exposure Control Effectiveness

  The inspectors reviewed the licensee's assessment of the performance indicator (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 CR database, radiological restricted area exit electronic dosimetry transaction records, conducted walkdowns of accessible locked high radiation area entrances to verify the adequacy of controls in place for these areas, and discussed PI data collection and analyses methods 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."

b. Findings

No findings of significance were identified.

.3 Radiation Safety Strategic Area

a. Inspection Scope

The inspectors sampled the licensee's submittals for PIs and 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:

- 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."

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Resolution of Restart Restraints

a. Inspection Scope

The inspectors reviewed a sampling of corrective actions for CRs written by the licensee to address eight violations of regulatory requirements that were documented in Inspection Reports 05000346/2003004, 05000346/2003013, 05000346/2003015, and 05000346/2003017. The inspectors determined that a majority of the corrective actions associated with these CR had been implemented and appropriately addressed the causes of the performance deficiency. The inspectors also reviewed the outstanding corrective actions and determined that the due dates assigned to these actions were appropriate.

b. Findings

No findings of significance were identified.

.2 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As discussed in previous section of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action system at the appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Minor issues entered into the licensee's corrective action system as a result of inspector observations are included in the list of documents reviewed which are attached to this report.

b. Findings

No findings of significance were identified.

4OA3 Event Followup (71153)

.1 Steam and Feedwater Rupture Control System (SFRCS) Design Issue

a. Inspection Scope

On October 17, 2003 the licensee reported, in accordance with 10 CFR 50.72(b)(3)(ii)(B), a design issue associated with SFRCS. The licensee discovered that following a main steam line rupture followed by a loss of offsite power and subsequent restoration of power to SFRCS, the low pressure trip functions of the system could be blocked when plant conditions did not warrant blocking. The licensee also discovered that the condition had existed since the initial installation of SFRCS in the mid 1980s.

The inspectors evaluated the impact of this design issue on the current plant conditions, ensured that the licensee had place the appropriate restart restraint on the resolution of the design issue, and that the licensee had entered the issue into their corrective action program (CR 03-08917).

b. Findings

No findings of significance were identified. Adequacy of corrective actions, impact of past system inoperability, and potential enforcement actions for the design deficiency will be assessed subsequent to the licensee's LER submittal.

.2 Reactor Trip of Group 1 Safety Control Rods Due to Shutdown Bypass High Pressure Trip

a. Inspection Scope

On September 30, 2003, the licensee reported, in accordance with 10 CFR 50.72(b)(3)(iv)(A), a valid engineered safety feature system actuation. The licensee was conducting a plant cooldown from operating Mode 3 to Mode 5, when the shutdown bypass high pressure trip setpoint was exceeded. Since the Group 1 safety control rods were withdrawn, a reactor trip was initiated.

Davis-Besse Operations Procedure DB-OP-06903, "Plant Shutdown and Cooldown," Revision 11 provided an option to cooldown the reactor coolant system with the Group 1 Safety Control Rods fully withdrawn. The reason given in the procedure is to provide trippable reactivity prior to the addition of positive reactivity [potentially caused by a boron dilution accident]. Technical Specifications required for operational Modes 1, 2, 3, 4, and 5 that shutdown margin was greater than or equal to 1 percent Δk/k. Additionally, by definition, during operational Modes, 3, 4 and 5, Keff was required to be maintained less than 0.99 [Keff = 0.99 is approximately 1 percent Δk/k]. During the transition from operational Mode 3 [Hot Standby] to Mode 5 [Cold Shutdown], even with the Group 1 Safety Rods withdrawn, the reactor coolant system boron concentration provided a reactivity margin to criticality of approximately 7.0 percent Δk/k [or Keff of approximately 0.935 at 532 F] and 7.5 percent Δk/k [or Keff of approximately 0.93 at 70 F]. This same reactor coolant boron concentration provided an approximate 2.0 percent Δk/k [or Keff of approximately 0.98] with all the control rods fully withdrawn.

The inspectors verified, subsequent to the trip, that all systems functioned as required and that the plant was stable in Mode 3. As discussed in the previous paragraph, the impact of the reactor trip on reactor shutdown margin was negligible. Operator performance issues associated with this event were further discussed in Section 1R14 of this report. The inspectors verified that the licensee had entered this issue into their corrective action program (CR 03-08374).

b. Findings

See Section 1R14.

.3 (Closed) LER 50-346/03-010-00: Potential Inability of Decay Heat Valve DH14B to Function During Design Basis Conditions.

During troubleshooting efforts to resolve sluggish operation of the valve, it was discovered that the taper pins which secure the disc to the stem were missing. The licensee determined that the loss of the taper pins was due to incorrect installation of the pins by the vendor coupled with vibration induced flow during valve testing and lack of adequate taper pin staking.

The missing pins could not be located in the piping adjacent to the valve and are considered to be foreign material that may have been transported to the reactor vessel. The licensee performed an evaluation comparing this debris condition to Framatome

ANP 51-501734-00, dated March 11, 2002, “Reactor Operation with Loose Parts at Davis-Besse.” This evaluation compared the potential effects of specified taper pins to the potential effects of several steam generator plugs in circulation. The current condition was considered to be bounded by the Framatome evaluation relative to the effect on fuel fretting. The licensee evaluation concluded that there was low likelihood that the taper pins would cause fuel fretting. Framatome reviewed the licensee’s evaluation and concurred with its conclusions.

The licensee has taken corrective actions to properly install and stake the taper pins in DH14B. The licensee also ensured that the taper pins were correctly installed and staked in DH13A, DH13B, and DH14A (valves which utilized a similar disc taper pin arrangement). The licensee has taken additional corrective actions to ensure that maintenance procedures for the various butterfly valves installed at Davis-Besse have been revised to ensure that the taper pins or keys are staked or welded.

No findings of significance were identified. The licensee entered this issue into their corrective action program as CRs 03-03385, 03-07037, 03-07049, 03-07065, and 03-07177.

.4 (Closed) LER 50-346/03-009-00: Loss of Offsite Power Due to Degraded Regional Grid Voltage

On August 14, 2003, with the plant shutdown in Mode 5, grid voltage degraded to the point at which the under voltage relays actuated to disconnect the essential buses from the normal power source, which resulted in the start of the Emergency Diesel Generators (EDG). As a result of the stopping and automatic restarting of the Service Water Pumps, a pressure transient was experienced in the Service Water System which caused a gasket leak on a Component Cooling Water (CCW) Heat Exchanger and distortion of Containment Air Coolers (CAC) expansion bellows. The licensee attributed the distortion of the CAC Service Water piping expansion bellow to an inadequate hydrodynamic transient analysis which under-predicted the peak pressures that would occur for a loss of offsite power condition. The Service Water System leakage from the end bell of the CCW Heat Exchanger 3 was attributed to the inadequate thickness dimension of the gasket material installed during the current extended outage. The gasket material could not accommodate the irregularities that existed in the gasket sealing surfaces. The LER was reviewed by the inspectors and no findings of significance were identified. The licensee documented the loss of offsite power, the CCW leak and the CAC bellow distortions in CRs 03-06590, 03-06597 and 03-06651 respectively. This LER is closed.

4OA5 Other Activities

One of the key building blocks in the licensee’s Return to Service Plan was the Management and Human Performance Excellence Plan. The purpose of this plan was to address the fact that “management ineffectively implemented processes, and thus failed to detect and address plant problems as opportunities arose.” The primary management contributors to this failure were grouped into the following areas:

- Nuclear Safety Culture;

- Management/Personnel Development;
- Standards and Decision-Making;
- Oversight and Assessments;
- Program/Corrective Action/Procedure Compliance.

The inspectors had the opportunity to observe the day-to-day implementation that the licensee made toward completing Return to Service Plan activities. Almost every inspection activity performed by the resident inspectors touched upon one of those five areas. Observations made by the resident inspectors were routinely discussed with the Davis-Besse Oversight Panel members and were used, in part, to gauge licensee efforts to improve their performance in these areas on a day-to-day basis.

To better facilitate the inspection and documentation of issues not specifically covered by existing inspection procedures, but important to the evaluation of the licensee's readiness for restart, the Special Inspection for Residents inspection plan was developed and implemented. Inspection Procedure 93812, "Special Inspection," was used as a guideline to document these issues and remains in effect for future resident inspection reports until a time to be determined by the Davis-Besse Oversight Panel. The inspectors performed inspections, as required, to adequately assess licensee performance and readiness for restart in the following areas:

- performance of plant activities, including maintenance activities;
- follow-up of specific Oversight Panel Technical issues;
- licensee performance during restart readiness meetings;
- licensee performance in categorizing, classifying, and correcting deficient plant conditions during the restart process;
- licensee performance at meetings associated with work backlogs, including the deferral of work orders, operator work arounds, temporary modifications, and permanent modifications; and
- activities associated with safety conscious work environment and safety culture.

The following issues were evaluated during this inspection period:

.1 Misapplication of Relays in the Emergency Diesel Generator Start and Run Circuit

a. Inspection Scope

The inspectors evaluated the application of KPD-13V63 Square-D brand relays used in the EDG control circuitry.

b. Findings

Introduction: The inspectors identified that relays in the EDG "start and run" circuits were not rated for the application that they were being used. The design of the EDG control circuitry required a relay that could withstand higher currents than the relays being used. This failure to translate the design basis of the plant into the field configuration of the EDGs was determined to be of very low safety significance and was dispositioned as a Green Non-Cited Violation (NCV).

Description: During a teleconference with the licensee, Region III inspectors expressed concerns that relays in the EDG “start and run” control circuits may not be rated for their application. Specifically, the inspectors were concerned that Square-D brand relays used in the EDG control circuitry may not be rated for their 125 VDC application. Based upon this concern, the licensee initiated CR 03-06618, and at a later date, CR 03-07197. As a result of the investigation for these CRs, the licensee determined that the KPD-13V63 Square-D relays used in the “start and run” control circuitry for the EDG’s were rated for DC applications. However, the relay contacts were rated for a “make or break” amperage of 10 Amps at 28 VDC and 0.4 Amps at 125 VDC.

The licensee initially determined that there were 6 of these Square-D relays with a total of 8 contacts used in 125 VDC applications in each EDG at Davis-Besse, resulting in a total of 12 relays and 16 contacts being used in the EDG “start and run” circuitry. Based upon the licensee’s investigation, four of the relays may see current up to 1.13 Amps, four may see currents up to 5.0 Amps, and four may see currents up to 5.9 Amps. Even though the relays and contacts were rated for 125 VDC application, these currents far exceed the manufacturer’s make or break rating of 0.4 Amps and therefore should not be used in this type of application. At the conclusion of this inspection, the licensee was continuing to perform reviews of this issue.

Since none of the relays had failed and could all perform their intended function, this issue was not an operability concern; however, the inspector determined that this misapplication could lead to long-term degradation of the relay contacts and/or the increased probability of a relay failure in the short term.

Analysis: The inspectors determined that this misapplication of the Square-D relays was a violation of the requirements in 10 CFR 50, Appendix B, Criterion III, because the licensee failed to assure that the design basis of the plant was accurately maintained and translated into the field configuration. This finding was determined to be more than minor because it affected the mitigating systems cornerstone objective. The finding screened as Green in the SPD Phase 1, since this issue was a design deficiency that was confirmed not to result in the loss of function in accordance with GL 91-18 (Revision 1).

Enforcement: 10 CFR 50, Appendix B, Criterion III, Design Control, states, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, the licensee failed to assure that the design basis of the plant was accurately translated by using relays in the EDG “start and run” circuitry that were not rated for the application. The results of this violation were determined to be of very low safety significance because it did not result in the loss of the EDG safety function. Therefore, since this violation of the requirements contained in 10 CFR 50, Appendix B, Criterion III was captured in the licensee’s corrective action program (CR 03-06618 and CR 03-07197), it is considered a Non-Cited Violation consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000346/2003022-02(DRP).

.2 Mis-positioning of Emergency Diesel Generator Appendix R Switch

On October 28, 2003, during the conduct of emergency diesel generator 1 operational testing, the emergency diesel generator disconnect switch was mis-positioned to the "emergency" position, on two separate occasions, by two separate watchstanders. The mis-positioning events occurred during routine log taking when the operators manipulated the disconnect switch instead of a switch that selects generator phase voltages. When the emergency disconnect switch is in the "emergency " position, the ability to adjust machine voltage from the control room is defeated. This was not a significant operational issue because the machine was already being control locally during the operational test.

The inspectors determined this to be a minor violation Technical Specification 6.8.1.a. Specifically, procedure DB-OP-0000, "Conduct of Operations," Revision 06, provided guidance on how Operations personnel carry out their duties and responsibilities as delineated in Station Procedures, Policies, Directives, and Manuals. Step 6.2.1.c of DB-OP-0000 states "Operations personnel shall be responsible for monitoring the equipment, instrumentation and controls within their area and taking timely and proper actions to ensure safe, conservative operation of the unit." Contrary to this requirement, equipment operators performing the emergency diesel generator testing, on two separate occasions, did not utilize conservative watchstanding practices while taking required log readings and mis-positioned the emergency diesel generator disconnect switch. This issue did not rise to the level of more than minor significance because the emergency diesel generator 1 was not considered operable when the watchstanding errors occurred, and the switch mis-positionings had minimal impact of the operation of the diesel generator. This issue was considered to be a violation of minor significance and was not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. The licensee documented this issue in their corrective action program (CR 03-09261).

.3 Classification, Categorization, and Resolution of Restart Related Issues

The resident inspectors continued to monitor the licensee activity related to classifying, categorizing and resolving their backlog of work orders, corrective actions, and modifications required to be completed prior to transitioning to Mode 4. To accomplish this, the inspectors:

- attended and assessed licensee management meetings;
- monitored the management of open Mode 4 and 3 restraints;
- evaluated the licensee classification of emergent deficient conditions; and
- evaluated closed mode restraints.

As part of this inspection, the inspectors attended selected Plant Support Center meetings, Restart Readiness Review meetings, Senior Management Team meetings, Management Review Board meetings, and various work planning meetings where classification of CRs, prioritization of work activities, and setting of work completion dates took place.

No significant issues were identified with the conduct of these meeting.

.4 Reactor Containment Sump Blockage (TI 2515/153)

a. Inspection Scope

On June 9, 2003, the NRC issued Bulletin 2003-01, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized-Water Reactors." The Licensee responded to this bulletin by letter of August 8, 2003, serial 2977 receipt of which was acknowledged by NRC letter of October 16, 2003. The inspectors, using the guidance contained in TI 2515/153, reviewed the licensee's response to the bulletin, the previous inspections associated with the sump, the physical modifications made to the sump, and licensee's documents that addressed the sump blockage potential.

b. Findings

Introduction: The licensee, by LER 2002-005, dated November 2, 2002, reported that they had found a gap in the reactor containment recirculation sump screen that exceeded their existing design basis of 1/4 inch and that the amount of unqualified coatings located in the containment building could potentially block the emergency sump intake screen during design basis accident conditions. The licensee supplemented that initial information on December 11, 2002 and May 21, 2003. In those submittals, the licensee had committed to take certain actions prior to restart. These actions included:

- install a new ECCS sump strainer with greater surface area
- identify and evaluate all fibrous insulation and unqualified coatings that would be left in the containment, post restart;
- evaluate post accident debris generation and transport; and
- verify adequate margin for net positive suction head (NPSH) existed for pumps that could take a suction on the ECCS sump.

Inspection Report 50-346/03-006(DRS) reported the results of a special inspection that reviewed the adequacy of licensee modifications to the ECCS sump screen. Inspection Report IR50-346/03-017 reported the review of the licensee's re-evaluation of NPSH calculations for affected pumps.

Description and Observation: The licensee stated that their ECCS and containment spray system recirculation functions have been analyzed with respect to the potentially adverse post-accident debris blockage effects identified in Bulletin 2003-01 and are in compliance with all existing applicable regulatory requirements. The licensee conducted, during the current outage, containment walkdowns to identify potential sources of debris that could potentially clog the recirculation sump screen. The walkdowns and associated efforts identified degraded and unqualified coatings. Additionally the licensee identified that fibrous insulation material used within the containment could also be deleterious to sump performance. The licensee undertook efforts to remove the majority of fibrous material and to improve the coatings within the containment.

The licensee's made extensive modifications to emergency sump screening that included increasing the screening surface area to approximately 1100 square feet from the original design of approximately 50 square feet. The new screens are fabricated

from perforated stainless steel plates with 3/16 inch diameter holes. The screens are either bolted or welded in place.

The licensee has analyzed various scenarios to determine the amount of debris that could be generated during accident conditions and to review the transport of those debris to the sump. For the assumed scenarios the licensee has performed calculations that indicate, with the assumed debris loading and the modified sump, sufficient net positive suction head is available during ECCS and CSS pump recirculation operation. The licensee has modified procedures to include containment inspection for foreign material and established a procedure to verify condition of the emergency sump and trash racks. The inspectors did not identify any training or procedures specifically directed at addressing potential sump blockage during operation of the sump.

Conclusion: All inspection requirements of TI 153 have been reviewed. The licensee has modified its recirculation sump to address concerns presented in NRC Bulletin 2003-01 and has performed and documented site specific calculations and assessments to support compliance with 10 CFR 50.46(b) 5 and existing applicable regulatory requirements.

.5 System Health Report of Risk-Significant Systems

On October 14, 2003, the inspectors attended the licensee's 3rd Quarter System Health Report Review Meeting. The purpose of the meeting was to discuss the status of Primary Equipment system, Balance of Plant systems and Electrical/Control systems prior to plant restart. The inspectors assessed the current status of selected systems and evaluated their projected status at the time of restart.

The inspectors reviewed whether the licensee properly implemented the Maintenance Rule, 10 CFR 50.65, for risk-significant mitigating systems. The review included selected CRs, open WOs, control room log entries and the licensee's system monitoring and trend reports. Specifically, the inspectors determined whether:

- the systems were scoped in accordance with 10 CFR 50.65;
- performance problems constituted maintenance rule functional failures;
- the system had been assigned the proper safety significance classification;
- the system was properly classified as (a)(1) or (a)(2);
- the goals and corrective actions for the system were appropriate; and
- that each system classified as an (a)(1) system had an improvement plan and that the plan would restore the system to an (a)(2) status in an appropriate time, commensurate with the safety significance of the system.

The inspectors reviewed the following systems:

- Auxiliary Feedwater System
- Containment Spray System
- Reactor Coolant System
- Service Water System
- Emergency Diesel Generators
- SFAS System

b. Findings

No findings of significance were identified. During this inspection period, additional evaluation of the licensee's maintenance rule program was conducted by region based inspectors. The results of this inspection are documented in Section 1R12 of this report.

.6 Restart Check List Items

Item 2.d - Boric Acid Corrosion of Systems Outside Containment

a. Inspection Scope

From October 6, 2003, through October 10, 2003, and on November 25, 2003, the inspectors performed a review of the licensee resolution of the NRC Restart Checklist Item 2.d, "Extent-of-Condition of Boric Acid in Systems Outside Containment." Specifically, the inspectors reviewed the licensee's closure packages for CH-IAP-2c-02, "Containment Health Assurance Implementation Action Plan," and SH-DAP-5A-01, "System Health Assurance Discovery Action Plan," in the NRC Region III office.

b. Observations

Evaluation of Licensee Actions to Close NRC Restart Checklist Item 2.d

In July of 2002, NRC inspectors performed walkdowns of the decay heat removal (DHR) system (documented in NRC report 50-346/2002-09) to assess the condition of this system which contained borated water outside containment. During this inspection, the inspectors observed minor boric acid leakage indications at a few valves and at the mechanical seal for both the "A" and "B" DHR Pumps, which had not been identified and evaluated by the licensee. Subsequent to this inspection, the licensee identified a need to revise the Boric Acid Control Program to include systems with boric acid outside containment and issued procedure NOP-ER-2001, "Boric Acid Corrosion Control Program." This corporate wide procedure, required the licensee to establish a site-specific procedure for conducting inspections of systems containing borated water outside containment.

In the Closure Package for Milestone 16 of SH-DAP-5A-01, "System Health Assurance Discovery Action Plan," the licensee identified a procedure EN-DP-1506, "Borated Water System Inspections (Outside Containment)," which defined the scope and methods used to identify evidence of borated water leakage from systems outside containment. This inspection was required to be performed at two year intervals in accordance with the Plant Engineering Program Manual. In accordance with EN-DP-1506, the licensee had performed inspections of each system outside containment that contained borated water using personnel qualified as Mechanical Boric Acid Corrosion Control Inspectors. In accordance with EN-DP-1506, licensee personnel were required to document evidence of boric acid residue or corrosion in a CR.

The licensee documented the CR evaluations and corrective actions generated as a result of boric acid extent of condition inspections on systems outside containment in several volumes. However, there was no specific Action Plan Milestone associated with

completion of this activity. At the time of this inspection, the licensee had completed documenting Volume 1 of a planned six volume set of CRs and corrective action records. Volume 1 contained a total of 45 CRs and associated corrective actions designated as required for restart. The inspectors reviewed a sample of these CRs to evaluate if the licensee had implemented appropriate corrective actions for components with identified boric acid/corrosion. The typical licensee corrective actions proposed for these components included removing the boric acid deposits (prior to restart) and eliminate the leakage source (e.g., packing replacement to correct leakage at valves as a post restart activity) causing the boric acid deposits. Most of the components with identified deposits of boric acid were fabricated from stainless and were not appreciably affected by boric acid corrosion. However, for the decay heat cooler 1-2 bypass valve (DH13A), the licensee had identified boron at the packing gland which was red in color. The licensee documented that the gland stud nuts, yoke bolts and yoke nuts had Category C rust, which is loose, flaky, pitted or involves material wastage. For this valve, the licensee documented (in corrective action number 8 of CR 02-03178) that the that the yoke bolting and flange bolting had been replaced. The actual replacement of the yoke bolting and nuts occurred under corrective actions numbers 1 and 5 for CR 02-03178. The inspectors reviewed work orders 02-003967-000, "DH Cooler 1-2 Bypass Flow Control Valve," 03-000367-000, "DH Cooler 1-2 Bypass Flow Control Valve," and supporting documentation to confirm that the affected studs and nuts had been replaced.

In the Closure Package for Milestones 1 and 2 of CH-IAP-2c-02, "Containment Health Extent of Condition Implementation Action Plan," the licensee developed a guidance document DBRM-13R-0001, "Disposition of Non-Restart Corrective Actions." This document provided licensee personnel with guidance to use in evaluating valves or electrical components affected by boric acid corrosion. The inspectors reviewed this guidance and concluded that it provided appropriate guidance for the intended use.

In the Closure Package for Milestone 3 of CH-IAP-2c-02, "Containment Health Extent of Condition Implementation Action Plan," the licensee documented the status of CRs and their associated corrective actions associated with the Containment Health Building Block which included systems both inside and outside containment. The inspectors reviewed this status list dated April 28, 2003, and did not identify any concerns.

To independently confirm the adequacy of the licensee corrective actions for systems containing borated water outside containment, the NRC performed a walkdown of the makeup and purification system in May of 2003. During this inspection, the inspectors confirmed that the licensee boric acid corrosion control program had adequately identified and corrected discrepancies in the material condition of components within the system (reference NRC Inspection Report 50-346/2003-013).

Based on review of licensee completed corrective actions in the closure packages discussed above and based on the results of NRC inspections of systems containing borated water outside containment, NRC Restart Checklist Item 2.d "Extent-of-Condition of Boric Acid in Systems Outside Containment," is ready to be closed. This item was discussed with the Davis-Besse 0350 Panel on October 14, 2003, and the Panel approved closure.

Item 5.a - Review Licensee's Restart Action Plan

The Restart Action Plan establishes the process for administration and control of actions to meet all Company-identified objectives and requirements under the Davis-Besse Return to Service Plan. The Restart Action Plan defines four phases of the process; Planning, Discovery, Implementation, and Validation/Closure. The Plan establishes that closure packages documenting the resolution of issues on the Davis-Besse IMC 0350 Restart List would be prepared, validated, and approved, and made available for NRC review. The Davis-Besse Restart Action Plan is intended to be maintained through restart and until the NRC terminates the IMC 0350 Reactor Oversight Process.

a. Inspection Scope

The review of the licensee's Restart Action Plan encompassed both an assessment of the plan's adequacy to address administration and control of actions to meet all Company-identified objectives and requirements under the Davis-Besse Return to Service Plan, as well as ongoing observation and assessment of the activities associated with the specific phases credited in the plan. These ongoing inspection efforts are categorized into specific inspection scope areas to evaluate:

- the adequacy of the Planning phase to develop an effective Restart Action Plan and process for implementing the plan;
- the effectiveness of utilizing the process and criteria for the evaluation of condition reports, and the effectiveness of the Restart Station Review Board during the Discovery phase;
- the adequacy of the corrective actions identified from the condition reports evaluated as required prior to restart, and the effectiveness of the Engineering Assessment Board and Restart Overview Panel during the Implementation phase; and
- the adequacy of closure of open issues and the effectiveness of the Senior Management Team validation.

b. Observations

Evaluation of the Planning Phase

The licensee documented the Restart Action Plan Process in Procedure NG-VP-00100, "Restart Action Plan Process." The planning phase consisted of approving the "Building Block" Plans and associated procedures. The Restart Action Plan Process also described the responsibilities of the Restart Senior Management Team (RSMT). With regards to the Program Compliance Review, the RSMT was responsible for review and approval of the discovery and restart implementation action plans and for reviewing reports generated from the discovery action plan for Manual Chapter 0350 related restart items.

The inspectors reviewed the licensee's Restart Action Plan and Program Compliance Review Processes, the applicable procedures, and attended licensee meetings, including the Program Review Board, Restart Station Review Board, Restart Senior

Management Team, and the Management Review Board, as documented in IR 05000346/2002011. The inspectors also conducted individual interviews.

The inspectors determined that the licensee's Restart Action Plan and Program Compliance Review Processes provided a reasonable method for determining if a plant program correctly implemented regulatory and other requirements, effectively interfaced with other supporting plant programs, appropriately considered industry experienced, was properly staffed by qualified individuals, and resolved identified weaknesses or deficiencies in a timely manner.

Evaluation of the Discovery Phase

The discovery phase included an evaluation of the specific programs and an identification of issues requiring resolution. The process included a requirement that certain types of corrective actions shall be completed prior to restart of the plant; while some corrective actions could be completed after restart of the plant. As documented in IR 05000346/2002011, the inspectors reviewed the licensee staff's implementation of the discovery phase evaluations for the Corrective Action, Boric Acid Corrosion Control, and Quality Assurance Audit Programs.

The licensee staff documented issues, identified during the discovery phase, in condition reports. The condition reports were screened and classified by the Restart Station Review Board (RSRB) into one of four categories. The four categories included items for which corrective actions: 1) were necessary to address NRC Manual Chapter 0350 issues; 2) were necessary to address Davis-Besse Restart expectations; 3) could be implemented following plant restart (Post-Restart), and; 4) could be addressed at a time unrelated to plant restart (Not Restart). Once the licensee staff developed corrective actions to address the issues documented in the condition reports, the RSRB screened the proposed corrective actions to ensure that the underlying issues were fully addressed. The RSRB also screened maintenance work orders associated with the corrective actions.

The inspectors concluded that the processes included an appropriate method for evaluating and characterizing newly identified issues.

Evaluation of the Implementation Phase

The implementation phase encompassed the development and completion of corrective actions which were to be completed prior to restart of the plant. As documented in Resident Inspection Reports (05000346/2003002, 05000346/2003004, 05000346/2003013, 05000346/2003015, 05000346/2003018, 05000346/2003022), the resident inspectors continued to monitor the licensee's activity related to properly classifying, categorizing and resolving their backlog of work orders, corrective actions, and modifications required to be completed prior to conducting Mode changes. To accomplish this, the inspectors:

- attended and assessed licensee management meetings;
- attended and assessed licensee restart readiness meetings;

- monitored the management of open Mode 6, Mode 5, Mode 4, and Mode 3 restraints;
- evaluated the licensee classification of emergent deficient conditions; and
- evaluated closed mode restraints.

As part of these inspections, the inspectors attended selected Mode Change Readiness Review meetings, Senior Management Team meetings, Management Review Board meetings, and Restart Station Review Board meetings where classification of CRs, prioritization of work activities, and setting of work completion dates took place.

The inspectors also attended several Plant Support Center Meetings. The purpose of these meetings was to status significant restart equipment issues and focus licensee resources to efficiently and effectively work activities to provide more realistic work completion schedules. Additionally, the inspectors attended various work planning meetings. During the meetings there were discussions among the planners, workers, and management on the approaches needed to correct equipment issues. No significant issues were identified.

Evaluation of the Validation/Closure Phase

The validation and closure process involves a planned and organized method to gather and validate the documented evidence to demonstrate that the planning, discovery, and implementation activities for licensee's Davis-Besse IMC 0350 Restart List items have been properly completed. The licensee's program requires that each closure package, for items on the Davis-Besse 0350 Oversight Panel Restart Checklist, be independently reviewed by the Validation Team, approved by the Building Block Owners or Responsible Director, and then sent to the FENOC Chief Operating Officer for final concurrence, signifying that the restart item is ready for NRC inspection.

As documented in IR 05000346/2003009 and IR 05000346/2003022, NRC inspectors assessed the adequacy of the validation/closure phase of the Restart Action Plan by reviewing a sample of closure packages for items on the Davis-Besse 0350 Oversight Panel Restart Checklist. Specifically, the samples reviewed were closure packages for the Modification Control Program (Restart Checklist item 3.g) and the extent of condition of Boric Acid Corrosion of Systems Outside Containment (Restart Checklist Item 2.d).

The assessment of the review samples performed provides confidence that the validation/closure phase of the Restart Action Plan has a process in place that should adequately control administration of the defined licensee goal to gather and validate the documented evidence to demonstrate that the planning, discovery, and implementation activities for licensee's Davis-Besse IMC 0350 Restart List items should be properly completed.

Based on documented results of NRC inspections of the credited phases of the licensee's Restart Action Plan-Revision 5, dated March 31,2003, the NRC Restart Checklist Item 5.a "Review Licensee's Restart Action Plan," is ready to be closed. This item was discussed with the Davis-Besse 0350 Panel on October 30, 2003, and the Panel approved closure.

c. Findings

No findings of significance were identified.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. L. Myers, and other members of licensee management on November 13, 2003. The licensee acknowledged the findings presented. No proprietary information was identified.

.2 Interim Exit Meetings

An interim exit was conducted for:

- Maintenance Rule Implementation - Periodic Evaluation with Mr. L. Myers on October 31, 2003.

An interim exit meeting was conducted for:

Radiological Monitoring Instrumentation and aspects of radiological access control, ALARA, radioactive effluents and the radiological environmental monitoring programs with Mr. M. Bezilla on October 24, 2003.

An interim exit meeting was conducted for:

The special inspection to review closure documentation for Restart Checklist Item 2.d, “Extent-of-Condition of Boric Acid in Systems Outside Containment,” on November 25, 2003, by telephone with Mr. W. Marini.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

B. Allen, Plant Manager
M. Bezilla, Site Vice President
B. Boles, Manager, Plant Engineering
G. Dunn, Outage Manager
K. Filar, Senior Engineer, Chemistry
J. Grabnar, Manager, Design Engineering
J. Hagan, Senior Vice President, FENOC
G. Melssen, Maintenance Rule Coordinator
L. Myers, Chief Operating Officer, FENOC
K. Ostrowski, Manager, Regulatory Affairs
J. Powers, Director, Nuclear Engineering
M. Roder, Manager, Plant Operations
R. Schrauder, Director Support Services
M. Stevens, Director, Maintenance
D. Noble, Radiation Protection Supervisor
W. Marini, Regulatory Affairs

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000346/2003022-01	NCV	Control Room Staff Did Not Adequately Monitor and Control Reactor Coolant System Pressure During Reactor Coolant System Cooldown Which Resulted in a Reactor Trip on Shutdown Bypass High Pressure.
05000346/2003022-02	NCV	EDG Relays In the Start and Run Circuits Were Not Rated For the Current Application

Closed

50-346/03-010-00	LER	Potential Inability of Decay Heat Valve DH14B to Function During Design Basis Conditions
50-346/03-009-00	LER	Loss of Offsite Power Due to Degraded Regional Grid Voltage

LIST OF DOCUMENTS REVIEWED

1R01 Adverse Weather Protection

DB-MM-09041; Missile Barriers; Revision 03

Drawing M-104; Plan at El 585'-0"

USAR 3.3; Wind and Tornado Design Criteria

DB-OP-0005; Operator Logs and Rounds; Revision 15

CR 03-09574; Temporary Structure on Auxiliary Building Roof

DB-OP-06913; Seasonal Plant Preparation Checklist; Revision 07

1R04 Equipment Alignment

DB-OP-06316; Diesel Generator Operating Procedure; Revision 10

DB-OP-06262; Component Cooling Water System Procedure; Revision 06

1R05 Fire Protection

Fire Hazards Analysis Report

Drawing A-226F; Fire Protection General Floor Plan El. 643'; Revision 12

Drawing A-222F; Fire Protection General Floor Plan El. 565'; Revision 12

DB-FP-0415; Fire Hose Hydrostatic Tests, Rerack, and Visual Inspections; Revision 02

1R11 Licensed Operator Requalification Program

DB-OP-06903; Plant Shutdown and Cooldown; Revision 11

DB-OP-06903; Plant Shutdown and Cooldown; Revision 12

DBBP-OPS-0001; Operations Expectation and Standards; Revision 04

DB-OP-0000; Conduct of Operations; Revision 06

1R12 Maintenance Effectiveness

Davis-Besse System Health Report for the Third Quarter, 2003
CR 03-06296; Boric Acid Identified on Reactor Coolant Pump 2-2

Reactor Coolant Pump Integrity Scheduled Inspections and Monitoring Plan, Supplement II, for CR 03-06296

Cycle 12 Periodic Maintenance Effectiveness Assessment Report; November 16, 2000

Cycle 13 Periodic Maintenance Effectiveness Assessment Report; November 1, 2002

MRPM 06; Maintenance Rule Program Manual; Revision 10

DB-PF-00003; Maintenance Rule Administrative Procedure; Revision 4

Maintenance Rule Expert Panel Meeting Minutes; dated June 8, 2000, June 27, 2000, August 17, 2000, August 25, 2000, November 22, 2000, December 22, 2000, April 11, 2001, April 27, 2001, July 5, 2001, September 7, 2001, October 15, 2001, November 7, 2001, November 26, 2001, January 21, 2002, March 21, 2002

Davis-Besse System Health Report - 2nd Quarter 2000

Davis-Besse System Health Report - 3rd Quarter 2000

Davis-Besse System Health Report - 4th Quarter 2000

Davis-Besse System Health Report - 1st Quarter 2001

Davis-Besse System Health Report - 2nd Quarter 2001

Davis-Besse System Health Report - 3rd Quarter 2001

Davis-Besse System Health Report - 4th Quarter 2001

Maintenance Rule a(1) Action Plan - Instrument Isolation Valves; dated November 22, 2000

Maintenance Rule a(1) Action Plan - Station and Instrument Air System; dated February 19, 2001, November 26, 2001, June 22, 2002, March 31, 2003

Maintenance Rule a(1) Action Plan - Makeup Pump Room AC; dated November 22, 2000

Maintenance Rule a(1) Action Plan - CTMT Hydrogen Analyzer System; dated July 23, 2001, November 26, 2001, and August 7, 2002

Maintenance Rule a(1) Action Plan - Auxiliary Feedwater System; dated October 15, 2001, January 14, 2002

Maintenance Rule a(1) Action Plan - Emergency Diesel Generator System; dated November 26, 2001, June 28, 2003

Maintenance Rule a(1) Action Plan - Medium Voltage AC; dated June 11, 2003

Maintenance Rule a(1) Action Plan - Reactor Coolant System; dated February 28, 2003
CR 2000-1488; Leakage Past SW 81; dated May 22, 2000

CR 2000-1687; SW 24 Shear Pin Broke; dated June 26, 2000

CR 2000-2001; Screenwash Pump 2 Not Operating; dated August 16, 2000

CR 2000-2022; CT 2955 Will Not Stay Open; dated August 18, 2000

CR 01-0188; Potential Unavailability of CCW Pump 3; dated March 7, 2001

CR 01-0512; Traveling Screen # 3 Failed to Start; dated March 30, 2001

CR 01-1036; Loss of AFWPT 2 Speed Indication; dated May 26, 2001

CR 01-1215; AFW Train 1 Level Control Valve Failure; dated June 20, 2001

CR 01-1336; Broken Check Valve; dated July 6, 2001

CR 01-1687; AFW Status Changing to Category (a)(1) per Maintenance Rule; dated August 4, 2001

CR 01-2913; Unnecessary Accrual of Unavailability; dated December 14, 2001

CR 02-00052; Accrual of Service Water System Availability; dated February 11, 2002

CR 02-00540; SW236 Failed to Pass Acceptable Flow During DB-PF-03026; dated April 2, 2002

CR 02-01139; Corrosion of Containment Air Cooler #1 Flange Faces; dated April 22, 2002

1R13 Maintenance Risk and Emergent Work

Contingency Plan 13RFO-40; G-Bus Outage With J-Bus Removed From Service; Revision 0

1R14 Personnel Performance During Nonroutine Plant Evolutions

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

CR 03-08418; Operations Events - Collective Significance Review

DB-OP-06903; Plant Shutdown and Cooldown; Revision 01

DB-OP-06403; Reactor Protection (RPS) and Nuclear Instrumentation (NI) Operating Procedure; Revision 04

DB-OP-0000; Conduct of Operations; Revision 06

1R19 Post-Maintenance Testing

DB-PF-03020; Service Water Train 1 Valve Test; Revision 08

WO 200005083; Mod 99-0039 Rev1, Reinstall Refurbished Valve/Actuator Assembly

System Description for Service Water System; Revision 2

USAR Section 9.2.1, Service Water System

SAR Section 6.2.4, Containment Vessel Isolation Systems

DB-SC-03071; Emergency Diesel Generator 2 Monthly Test; Revision 05

WO 200048873; Low Insulation Readings for MP195-2

WO 200059415; DH 2736 Repack Valve

DB-PF-09306; Operation of Valve Vision and Packing “Nforcer; Revision 07

DB-CH-0422; Emergency Diesel Generator Fuel Oil Storage Tank1 Drain Sample, Revision 06

DB-SP-03135; Decay Heat Valve Pit Leak Test; Revision 02

DB-PF-03206; ECCS Train 2 Valve Test; Revision 03

2OS1 Access Control to Radiologically Significant Areas

MSS2003-01; Spent Fuel Pool ICA Map For SNM Accountability; dated March 3, 2003

DP-HP-04033; Spent Fuel Pool Radiological Material Inventory; dated October 10, 2001

2OS2 ALARA Planning and Controls

Exposure Reports For Declared Pregnant Females; dated October 21, 2003

NG-DB-00243; Personnel Dosimetry Program: Sections 6.4 and 6.6; Revision 00

DB-HP-01801; ALARA Design Review; Revision 2

NG-DB-00241; ALARA Program; Revision 0

DB-HP-01802; Control Of Shielding; Revision 4

DB-HP-01344; Source Term Determination; Revision 00

CR 2002-00659; Basic Cause Analysis Report: Shutdown Chemistry Method Utilized For 13 RFO Less Effective Than Anticipated; dated April 19, 2002

Primary System Strategic Water Chemistry Plan; Revision 00

Twelfth Refueling Outage Primary Chemistry Shutdown Control

2OS3 Radiation Monitoring Instrumentation and Protective Equipment

79A-ISR2387; String Work Package, Containment Wide Range Rad Monitor; dated August 28, 2003

DB-RE-04508; String Check of RE-2387 Rad Monitor Ion Chamber; dated September 7, 2003

79A-ISR2389; String Work Package, Containment Wide Range Rad Monitor; dated August 28, 2003

DB-RE-04508; String Check of RE-2389 Rad Monitor Ion Chamber; dated September 17, 2003

79A-ISR4597AA; String Work Package, Containment Post Accident Atmosphere Normal Range Rad Monitor; dated April 19, 2003

79A-ISR4597AB; String Work Package, Containment Post Accident Atmosphere Accident Range Rad Monitor; dated April 11, 2003

79A-ISR4597BB; String Work Package, Containment Post Accident Atmosphere Accident Range Rad Monitor; dated March 28, 2003

32A-ISR 8446; String Work Package, Fuel Handling Area Monitor; dated September 4, 2003

DB-MI-03416; Channel Calibration of 32A-ISR8446 Fuel Handing Area Rad Monitor; dated September 5, 2003

32A-ISR 8447; String Work Package, Fuel Handling Area Monitor; dated September 3, 2003

DB-MI-03416; Channel Calibration of 32A-ISR8447 Fuel Handing Area Rad Monitor; dated September 3, 2003

2.7.272; RSO-5 Ion Chamber Calibration; dated June 23, 2003

2.7.262; RSO-50 Ion Chamber Calibration; dated July 31, 2003

2.7.383; AMP-100 Underwater Detector Calibration; dated June 28, 2003

2.7.137E; RM-14 Frisker Calibration; dated January 7, 2003

2.7.397; AMP-100 Underwater Detector Calibration; dated May 30, 2003

2.7.398; AMP-100 Underwater Detector Calibration; dated May 9, 2003

2.8.170; AMS-4 Air Sampler Calibration; dated January 13, 2003

2.8.172; AMS-4 Air Sampler Calibration; dated March 15, 2003

2.8.111; Lapel Air Sampler Calibration; dated August 30, 2003

2.12.47; Portal Monitor SPM 904C Calibration; dated July 14, 2003

2.12.48; Portal Monitor SPM 904C Calibration; dated July 21, 2003

2.7.348; MG Telepole Calibration; dated September 8, 2003

2.7.345; MG Telepole Calibration; dated July 30, 2003

2.12.49; SAM 11 Tool Monitor Calibration; dated November 29, 2002

2.12.54; SAM 11 Tool Monitor Calibration; dated November 10, 2002

2.12.68; PCM-2 Personnel Contamination Monitor Calibration; dated January 8, 2003

2.12.42; Fastscan Whole Body Counter Calibration; dated July 25, 2003

169319-296; Electronic Dosimeter Calibration; dated March 6, 2003

NG-DB-00222; Respiratory Protection Program; Revision 3

NG-NT-00600; Training And Qualification; Revision 3

DB-HP-01308; Respiratory Protection Equipment Inspection & Maintenance; Revision 5

DB-HP-06000; Operation Of The Bauer Air Compressor; Revision 6

DB-HP-01318; Cleaning And Surveying of Respiratory Protection Equipment; Revision 2

SCBA Hydro Test Data; dated October 20, 2003

SCBA 5-Year Maintenance Records, SCPM 44, 50 and 33; dated October 21, 2003

SCBA Maintenance Record Report by Inventory Number; dated October 20, 2003

MSA Procheck3 Test Results, Complete SCBA Tests; dated January 27-30, 2003

SCBA Monthly Maintenance Record Reports, Air Bottles; dated October 16, 2003

Fire Safety Services, Inc.; SCBA Maintenance Records; dated January 27-30, 2003

Davis-Besse SCBA Personnel Qualification Matrices; dated October 20, 2003

ERO SCBA Personnel Requirements; dated October 15, 2003

DB-C-02-04; Nuclear Quality Assessment Quarterly Report; dated February 19, 2003

SA 2000-0023; Self Assessment, RP Instruments and Surveys; dated November 30, 2000

CR03-04703; Procedure Enhancement; dated June 14, 2003

CR03-05050; Electronic Dosimeter Damaged While Welding; dated June 26, 2003

CR03-05259; Procedural Inconsistence For Air Supplied Respirators; dated July 3, 2003

CR03-05264; Failure To Update Procedure DB-HP-04008; dated July 3, 2003

CR03-05343; RP Calibration Facility Poor Ventilation; dated July 7, 2003

CR03-07545; No Audible Alarm on PAM-1; dated September 10, 2003

CR03-08208; PCM In Alarm; dated September 26, 2003

CR03-08573; Electronic Dosimeter Discovered Post Calibration Due Date; dated October 7, 2003

CR03-08732; Canceled Procedure In Controlled Manual; dated October 11, 2003

CR03-04937; Personnel Contamination greater than 5000 CCPM; dated June 24, 2003

CR03-05673; Personnel Contamination greater than 5000 CCPM; dated July 16, 2003

CR03-06676; Personnel Contamination greater than 5000 CCPM; dated August 19, 2003

CR03-07063; Shoe Contamination During Aux Building Tour; dated August 29, 2003

CR03-07442; Individual Contaminated in MP Room 4; dated September 7, 2003

Dose Level Report; dated October 23, 2003

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

CR03-05081; Corrective Action For CR-02-02360 Less Than Adequate; dated June 27, 2003

CR03-06304; PCR: DB-CH-03008, Station Vent Sampling and Analysis; dated August 6, 2003
CR03-08559; Process Control Program Enhancements; dated October 7, 2003

DB-SS-03145; CREV Refueling Interval or Special Test Train 1; dated April 17, 2001

NUCON International; I-131 Removal Efficiency Determination; dated April 23, 2001

DB-SS-03146; CREV Refueling Interval or Special Test Train 2; dated April 3, 2001

NUCON International; I-131 Removal Efficiency Determination; dated April 11, 2001

DB-SS-04045; HEPA Filters and Charcoal Adsorbers Test; dated January 15, 2002

DB-SS-03710; CREV Train 1 Refueling Surveillance Test; dated March 26, 2002

DB-SS-03711; CREV Train 2 Refueling Surveillance Test; dated March 27, 2002

DB-SS-03146; CREV Refueling Interval or Special Test Train 2; dated October 19, 2003

NUCON International; I-131 Removal Efficiency Determination; dated October 10, 2003

69D-ISF1700B; Clean Waste System Outlet Flow Meter; dated November 5, 2002

71C-ISF1887A; Miscellaneous Waste Outlet; dated March 24, 2000

71C-ISF1887B; Miscellaneous Waste Outlet; dated January 10, 2003

RE4598BA; Station Vent Monitor; dated July 31, 2001

20M-ISR4686; Storm Sewer Drain Line Monitor; dated January 30, 2002

71C-ISR1878B; Miscellaneous Radwaste Monitor; dated January 17, 2002

71C-ISR1878A; Miscellaneous Radwaste Monitor; dated November 21, 2001

72C-ISR1822A; Waste Gas Decay Tank System Monitor; dated June 12, 2002

72C-ISR1822B; Waste Gas Decay Tank System Monitor; dated March 2, 2001

69D-ISR1770A; Clean Radwaste Effluent Monitor; dated August 16, 2001

69D-ISR1770B; Clean Radwaste Effluent Monitor; dated September 24, 2001

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

72C-ISF1821B; Waste Gas System Outflow; dated December 12, 2001

2PS3 Radiological Environmental Monitoring Program (REMP) And Radioactive Material Control Program

DB12003710; Quality Field Observation; dated January 9, 2003

DB-C-02-04; Fourth Quarter Report, Chemistry; dated Fourth Quarter 2002

AR-01-RPPCP-01; Audit; dated January 23, 2002

71151 Performance Indicator Verification

Employee Exclusions Report; dated October 22, 2003

Selected Access Control Records; dated October 22, 2003

Performance Indicator Summary Reports; dated October 22, 2002, July 22, 2002, January 29, 2003, and July 21, 2003

4OA2 Problem Identification and Resolution

CR 03-01888; Service Water to Containment Air Cooler PVC Piping Break During Service Water Flush

CR 03-03232; Inadequate Approval of Replacement SFAS Output Relays: Deutsch 4CP36AF

CR 03-03398; Containment Gas Analyzer CCW Deficiencies

CR 03-03815; West Pit Flodding

CR 03-04278; Broken Bolting Found In High Pressure Injection Pump #1

CR 03-02554; DH7B Opened Unexpectedly

CR 03-03427; RC4608A and RC4608B Are Not Wired Properly

CR 03-04773; RCP RTD Installation Not in Accordance With Vendor Manual

CR 03-09261; DS-1B, Isolation Switch

4OA3 Event Followup

CR 03-03385; Observed Degraded Condition of DH14B

CR 03-07037; Missing Taper Pins

CR 03-07049; Disc Pins May Have Entered RCS

CR 03-07177; DH14A and DH13A Disc Pin Staking

License Evaluation of 3/8" x 2.5" Stem-to-Disc Pins and Disc Seat Fragments from DH13B/DH14B Potentially in the Reactor Coolant System; dated September 7, 2003

4OA5 Other Activities

CR 03-07197; Make/Break Contact Rating Square D KPD-13 Relay in EDG Control Circuits

CR 03-09261; DS-1B, Isolation Switch

C-NSA-049.02-26; Calculation for NPSH Licensing Basis Analysis for Davis -Besse LPI & CS Pumps

C-CSS-100.05-001; Calculation for Service Level 1 Non-DBA Qualified Protective Coating Application Inventory

DB-SP-03134; Containment Emergency Sump Visual Inspection; Revision 02

DB-OP-06900; Plant Heatup; Revision 17

CR 02-02836; BWST Line 1 to Make Up Pump Suction Isolation Valve

CR 02-02904; CTMT Spray Pump 1-2

CR 02-03847; BWST Level Transmitters

CR 02-04062; DH Train ½ Cross Connect and Cross Connect Bypass Check Valve

CR 02-04238; Relief valve DH 1529 Leaks

CR 02-04507; SFAS BWST Level Transmitter

CR 02-05032; Decay Heat Train 2 Components, PI 1538, DH52, DH2882A, DH831

EN-DP-1506; Borated Water System Inspections (Outside Containment); Revision 2

Plant Engineering Program Manual; Revision 5

CH-IAP-2c-02; Containment Health Extent of Condition Implementation Action Plan; Revision 1

Closure Package for Milestones 1, 2 and 3 of CH-IAP-2c-02 “Containment Health Extent of Condition Implementation Action Plan.”

Closure Package for Milestone 16, of SH-DAP-5A-01; System Health Assurance Discovery Action Plan

Work Order 02-003967-000; DH Cooler 1-2 Bypass Flow Control Valve; dated February 7, 2003.

Work Order 03-000367-000; DH Cooler 1-2 Bypass Flow Control Valve; dated February 8, 2003.

Valtek Assembly Drawing A60284.001-1; Sheets 1 & 2; Revision T1

Material Certifications for PO Number 7116354; dated February 1, 2003

Material Certifications for PO Number 7084696; dated February 14, 2002

Material Certifications for PO Number 7105338; dated October 10, 2002

Material Certifications for PO Number 7116348; dated February 1, 2003

Plant Design Standard M-601; Sheets 19 and 19a; Revision 7

LIST OF ACRONYMS USED

ADAMS	Agency-wide Document Access and Management System
ALARA	As-Low-As-Is-Reasonably-Achievable
CAC	Containment Air Cooler
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CR	CR
DH	Decay Heat
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
FENOC	FirstEnergy Nuclear Operating Company
FSAR	Final Safety Analysis Report
GL	Generic Letter
IMC	Inspection Manual Chapter
IR	Inspection Report
LER	Licensee Event Report
NCV	Non-Cited Violation
NOP	Normal Operating Pressure
NOT	Normal Operating Temperature
NRC	United States Nuclear Regulatory Commission
PARS	Publicly Available Records
PI	Performance Indicator
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
RETS/ODCM	Radiological Environmental Technical Specifications/Offsite Dose Calculation Manual
SCBA	Self Contained Breathing Apparatus
SFAS	Safety Features Actuation System
SFRCS	Steam Feedwater Rupture Control System
SDP	Significance Determination Process
SSC	Structures, Systems, Components
SW	Service Water
TS	Technical Specifications
USAR	Updated Safety Analysis Report
WO	Work Order