March 7, 2001

Mr. Guy G. Campbell
Vice President - Nuclear
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 INSPECTION REPORT 50-346/01-03(DRP)

Dear Mr. Campbell:

On February 13, 2001, the NRC completed an inspection at your Davis-Besse reactor facility. The results were discussed with you and other members of your staff on February 13, 2001. The enclosed report presents the results of that inspection.

The inspection was an examination of 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.

Based on the results of this inspection, the inspectors identified one issue of very low safety significance (Green). This issue has been entered into your corrective action program and is discussed in the summary of findings and in the body of the attached inspection report.

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/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Thomas J. Kozak, Chief
Reactor Projects Branch 4

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

Enclosure: Inspection Report 50-346/01-03(DRP)

See Attached Distribution

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REGION III

Docket No:	50-346
License No:	NPF-3
Report No:	50-346/01-03(DRP)
Licensee:	FirstEnergy Nuclear Operating Company
Facility:	Davis-Besse Nuclear Power Station
Location:	5501 N. State Route 2 Oak Harbor, OH 43449-9760
Dates:	January 1 - February 13, 2001
Inspectors:	K. Zellers, Senior Resident Inspector D. Simpkins, Resident Inspector
Approved by:	Thomas J. Kozak, Chief Reactor Projects Branch 4 Division of Reactor Projects

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
● Initiating Events	● Occupational	● Physical Protection
● Mitigating Systems	● Public	
● Barrier Integrity		
● Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.

SUMMARY OF FINDINGS

IR 50-346-01-03, on 01/01-02/13/2001; FirstEnergy Nuclear Operating Company; Davis-Besse Nuclear Power Station. Post-maintenance testing.

The inspection was conducted by resident inspectors. The inspection identified one Green finding. The significance of issues is indicated by their color (GREEN, WHITE, YELLOW, RED) and was determined by the Significance Determination Process.

Cornerstone: Mitigating Systems

• Green. The failure to conduct post maintenance testing resulted in risk significant equipment (the spare component cooling water (CCW) pump and a station air compressor) being unavailable following their return to service after maintenance.

This issue was of very low risk significance (Green) because two other station air compressors and the running and standby CCW pumps were still available.

Report Details

Summary of Plant Status: The plant was operated at about 100 percent power throughout the inspection period, except for brief down powers to about 93 percent power for testing activities.

1. REACTOR SAFETY

1R04 Equipment Alignment (Inspection Procedure 71111.04)

a. Inspection Scope

The inspectors conducted partial walk-down inspections by comparing station configuration control documentation with actual system/train lineups on the following trains of equipment to verify the system/train was operable when a redundant system/train was out-of-service:

- Decay Heat System train #1 during an outage of Decay Heat System train #2 (documents reviewed: unit log, test completion log, Davis-Besse Material Condition Report, Operations Schematics (OS) OS-003-004, Piping and Instrumentation Diagrams (P&ID) M-033 A-C, Updated Safety Analysis Report (USAR) Section 6.3 and Technical Specification (TS) 3.5.2).

- High Pressure Injection System train #2 during an outage of High Pressure Injection System train #1 (document reviewed: DB-OP-06011 (High Pressure Injection System Operating Procedure) Attachments 2 and 4).

b. Findings

There were no findings identified.

1R05 Fire Protection (Inspection Procedure 71111.05)

a. Inspection Scope

The inspectors verified fire protection program implementation by reviewing equipment status and lineup, control of transient combustibles and ignition sources, condition of fire detection systems, fire suppression systems, manual fire fighting equipment, passive fire protection features and compensatory measures. The inspectors walked down the following areas: Circulating Water bay, turbine deck area, heater bays, Condensate Storage Tank room, Service Water Pump room, Service Water tunnel, Diesel Fire Pump room, Dilution Pump room, Electric Fire Pump area, Main Steamline rooms, Control Room, and the Cable Spreading room. Documents reviewed were the Pre-Fire Plan, the Fire Hazards Analysis Report, and Fire Protection Drawings A222F-A224F.

b. Findings

There were no findings identified.

1R12 Maintenance Rule Implementation (Inspection Procedure 71111.12)

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the maintenance rule requirements, including a review of scope, goal setting, and performance monitoring, short-term and long-term corrective actions, and current equipment performance status for the following components and systems which have had performance problems:

- Spare CCW Circuit breaker ACD2 (documents reviewed: DB Maintenance Rule Program for Miscellaneous A/C, DB Standing Order 99-009 (Circuit Breaker Operations), DB Standing Order 99-009 (Circuit Breaker Operations - Rev. 1), DB Standing Order 00-013 (Breaker Racking), Maintenance Work Order (MWO) 00-000970-024, DB-ME-09107 (Westinghouse DHP Breaker Refurbishment), DB-ME-09104 (13.8 KV and 4.16 KV Westinghouse DHP Breakers), DB-OP-01000 (Operation of Station Breakers), Unit Log, Condition Reports (CR) 00-4113, 00-4114, 01-0043, 01-0188, 01-0177, and 01-0234).

- Spare CCW Circuit Breaker ACD3 (documents reviewed: Davis-Besse (DB) Maintenance Rule Program for Miscellaneous A/C, DB Standing Order 99-009 (Circuit Operations), DB Standing Order 99-009 (Circuit Breaker Operations - Rev. 1), DB Standing Order 00-013 (Breaker Racking), MWO 00-000970-025, DB-ME-09107 (Westinghouse DHP Breaker Refurbishment), DB-ME-09104 (13.8 KV and 4.16 KV Westinghouse DHP Breakers), DB-OP-01000 (Operation of Station Breakers), Unit Log, CRs 00-4038, 00-4116, 01-0043, 01-0188, 01-0177, and 01-0234).

- Station Air Compressor #1 Circuit Breaker BE309 (documents reviewed: DB Maintenance Rule Program for Miscellaneous A/C, DB Standing Order 99-009 (Circuit Breaker Operations), DB Standing Order 99-009 (Circuit Breaker Operations - Rev. 1), DB Standing Order 00-013 (Breaker Racking), DB Unit Log, DB-ME-09102 (480V GE (AK25) Breaker Maintenance), DB-ME-09103 (480V GE (AK50) Breaker Maintenance), DB-ME-09105 (480V GE (AKF) Breaker Maintenance), MWO 00-000963-037, CRs 01-0049, 01-0052 and 2001-0214).

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (Inspection Procedure 71111.13)

a. Inspection Scope

The inspectors evaluated the effectiveness of the risk assessments performed before maintenance was conducted on structures, systems, and components (SSCs) and verified how risk was managed and if maintenance risk assessments and emergent work problems were adequately identified and resolved for the following activities:

- #1 High Pressure Injection (HPI) system outage (documents reviewed: unit logs, work week schedule for Jan 28 - Feb 03, Weekly Maintenance Risk Summary for Jan 29 - Feb 04, CR 01-0299, CR 01-0312, WPG-1 (Work Process Guidelines))

- Essential Bus Undervoltage Device Testing (documents reviewed: unit logs, Maintenance Risk Summary for Jan 26, WPG-1 (Work Process Guidelines)).

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (Inspection Procedure 71111.15)

a. Inspection Scope

The inspectors reviewed the following operability evaluations affecting mitigating systems and barrier integrity. The reviews considered whether the evaluations were technically justified, the adequacy and functionality of any compensatory measures, and any degradations that might cause a loss of function as described in the USAR or Technical Specifications (TSs).

- Intermittent Steam Generator Auto Level Control Setpoint Change (documents reviewed: USAR Sections 5.5.2.1, 5.5.2.3, 7.4.1.3.1, and 9.2.7.3, DB-OP-02000 (RPS, SFAS, SFRCS Trip or SG Tube Rupture), System Descriptions SD-15 (Auxiliary Feedwater System), SD-41 (Steam Generator), and SD-45 (Integrated Control System), and CRs 2000-2068 and 2000-3060 and TS 3.7.1.2 (Auxiliary Feedwater System).

- #2 Auxiliary Feedwater (AFW) Pump Suction Pressure Switch Response Time Change (documents reviewed: CR 2001-0193, Operability Justification 0001-0004, Unit Logs, TS 3.7.1.2 (Auxiliary Feedwater System), SD-015 (Auxiliary Feedwater), USAR Section 9.2.7.3, and TS Bases 4.7.1.2).

- Non-Q Parts in Q circuit breakers (documents reviewed: CR 2001-0138, Operability Justification 01-03, Material Engineering Evaluation No. 20010138 (Non-Q Mounting Kit used in Q Circuit Breaker)).

- Borated Water Storage Tank Overflow Line Freeze Protection (documents reviewed: CR 2000-4107, Operability Justification 2000-0020, DB-OP-06331

(Freeze Protection and Electrical Heat Trace Procedure), and TS 3.5.4 (Borated Water Storage Tank)).

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors reviewed the following plant modifications against the design bases, licensing bases, and performance capabilities to ensure risk significant structures, systems, and components (SSCs) had not been degraded and modifications performed during increased risk-significant configurations did not place the plant in an unsafe condition:

- Intake Crib Modifications for Frazil Ice Formation (documents reviewed: Modification package 00-0033-00, CR 1999-2282, CR 1999-2308, TS 3.7.5 (Ultimate Heat Sink), USAR Section 2.2, and Safety Evaluation 00-0026).

- Station Blackout Diesel Generator (SBODG) Battery Replacement (documents reviewed: Mod 99-0068-000, 5 MWO's, DB-SC-04271 (SBODG Monthly Test), DB-ME-04004 (SBODG Battery Test), and DB-ME-0448 (SBODG Battery Performance and Service Discharge Test))

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (Inspection Procedure 71111.19)

a. Inspection Scope

The inspectors verified that the post-maintenance test procedures and test activities were adequate to verify system operability and functional capability for the following risk significant activities:

- #2 Low Pressure Injection pump and motor oil change-out (documents reviewed: DB-SP-03152 (AFW Train 1 Level Control, Interlock and Flow Transmitter Test)).

- Anticipatory Reactor Trip System pressure switch replacement (documents reviewed: DB-MI-03353 (Channel Functional Test of PSL-4533C, 4534C and 4535C Main Feed Pump 1 and 2 Turbine Hydraulic Oil Trip and Main Turbine Oil ARTS #3), MWO 99-002037-000, and MWO 00-001243-001).

- #1 HPI Pump Circuit Breaker AC-111 change-out for refurbishment (documents reviewed: MWO 00-000970-046, DB-ME-09104 (operation of 4160 volts),

Standing Order 99-009 rev 1 (circuit breaker operations), and Standing Order 00-013 (breaker racking)).

- Circuit Breaker BE309 (#1 Station Air Compressor) Refurbishment Post Maintenance Testing (documents reviewed: DB Standing Order 99-009 (Circuit Breaker Operations), DB Standing Order 99-009 (Circuit Breaker Operations - Rev. 1), DB Standing Order 00-013 (Breaker Racking), DB Unit Log, MWO 00-000963-037, CRs 01-0049, 01-0052, and 2001-0214).

- Circuit Breaker ACD2 (Spare CCW pump) Refurbishment Post Maintenance Testing (documents reviewed: DB Standing Order 99-009 (Circuit Breaker Operations), DB Standing Order 99-009 (Circuit Breaker Operations - Rev. 1), DB Standing Order 00-013 (Breaker Racking), MWO 00-000970-024, DB-ME-09107 (Westinghouse DHP Breaker Refurbishment), DB-ME-09104 (13.8 KV and 4.16 KV Westinghouse DHP Breakers), DB-OP-01000 (Operation of Station Breakers), DB Unit Log, CRs 00-4113, 00-4114, 01-0043, and 01-0234).

- Circuit Breaker ACD3 (Spare CCW Pump) Refurbishment Post Maintenance Testing (documents reviewed: DB Standing Order 99-009 (Circuit Breaker Operations), DB Standing Order 99-009 (Circuit Breaker Operations - Rev. 1), DB Standing Order 00-013 (Breaker Racking), MWO 00-000970-025, DB-ME-09107 (Westinghouse DHP Breaker Refurbishment), DB-ME-09104 (13.8 KV and 4.16 KV Westinghouse DHP Breakers), DB-OP-01000 (Operation of Station Breakers), DB Unit Log, CRs 00-4038, 00-4116, 01-0043, and 01-0234).

b. Findings

The inspectors identified instances of inadequate post maintenance testing associated with the licensee's electrical circuit breaker refurbishment program which were of very low risk significance (Green).

On December 8, 2000, a refurbished circuit breaker used to supply power to the #1 Station Air Compressor was installed. However, the post maintenance test prescribed by the MWO was not conducted. When operators attempted to start the air compressor on January 7, 2001, the circuit breaker did not close. The licensee determined that auxiliary contacts on the circuit breaker were not making proper contact with the breaker cubicle and needed adjustment. Consequently, for 30 days, the #1 Station Air Compressor could not perform its function to start and provide station air loads if #2 Station Air Compressor failed. If the post maintenance test had been performed after the circuit breaker was installed, this condition would have been recognized and corrected. This issue was documented on CR 2001-0214.

Circuit breaker ACD2 provided electrical power to the spare CCW pump from safety-related bus C1 and circuit breaker ACD3 provided electrical power to the spare CCW pump from safety-related bus D1. During the circuit breaker refurbishment program, the licensee swapped circuit breakers in and out of the cubicles but did not conduct adequate post maintenance testing. During December 2000, both of these circuit breakers failed to close upon demand. The cause of the failures was a

combination of tripper finger and circuit breaker to cubicle mis-adjustments that occurred during circuit breaker manipulations and swap-outs. With either ACD2 or ACD3 functional, the spare CCW pump could be considered available for maintenance rule purposes. However, the inspectors determined that both ACD2 and ACD3 were unavailable from the period of December 8 to December 19 which made the spare CCW pump unavailable during that time-frame. If adequate post maintenance tests would have been done, then the circuit breaker performance issues would have been corrected which would have resulted in minmized spare CCW pump unavailability.

Both the #1 Station Air Compressor and the spare CCW pump are risk significant equipment that were unavailable for the same reason (no post maintenance testing performed). This issue had an actual impact on safety because it increased core damage frequency. This issue was of very low risk significance (Green) because two other station air compressors and the running and standby CCW pumps were still available.

1R22 Surveillance Testing (Inspection Procedure 71111.22)

a. Inspection Scope

The inspectors verified by witnessing the following surveillance tests and/or reviewing the test data; that the subject risk-significant SSCs met TS, USAR, and licensee procedure requirements; and demonstrated that the SSCs were capable of performing their intended safety functions. The inspectors evaluated the following tests for preconditioning, effect of the test on plant risk, clear and adequate acceptance criteria, operator procedural adherence, test data completeness, test frequency, test equipment range and accuracy, and post test equipment restoration:

- Emergency Diesel Generator (EDG) #1 184-Day Test (documents reviewed: DB-SC-03076, Rev. 02 (EDG #1 184-Day Test)).

- Auxiliary Feedwater Train #1 Level Control, Interlock and Flow Transmitter Test (documents reviewed: DB-SP-03152 (Auxiliary Feedwater Train #1 Level Control, Interlock and Flow Transmitter Test)).

- Containment Spray Pump 1-2 Discharge Check Valve Reverse Flow Test (documents reviewed: DB-PF-03968 (Containment Spray Pump 1-2 Discharge Check Valve Reverse Flow Test) and DB-SP-03338 (Containment Spray Train 2 Quarterly Pump and Valve Test)).

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (Inspection Procedure 71111.23)

a. Inspection Scope

The inspectors reviewed the following temporary modifications to verify that they did not affect the safety functions of important safety systems. The inspectors reviewed the temporary modification and the associated 10 CFR 50.59 screening against the system design basis documentation, including the Updated Safety Analysis Report and Technical Specifications to verify that the modifications did not affect system operability/availability. The inspectors also verified that the temporary modification was consistent with plant documentation and procedures.

- Temporary Modification 00-0032, X1, Main Transformer, Cooler Bank 2, East Oil Conservator Tank Flex Line (documents reviewed: NG-EN-00313 (Control of Temporary Modifications), TM 00-0032, MWO 00-006027-000)

b. Findings

No findings of significance were identified.

OTHER ACTIVITIES (OA)

4OA6 Management Meeting

The inspectors presented the inspection results to Mr. G. Campbell and other members of licensee management on February 13, 2001. The licensee acknowledged the findings presented. No proprietary information was identified.

SUPPLEMENTAL INFORMATION

Key Points of Contact

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R. W. Pell, Manager, Plant Operations
R. I. Rishel, Maintenance Rule Coordinator

Items Opened, Closed, and Discussed

None

List of Acronyms

AFW	Auxiliary Feedwater
DB	Davis-Besse
CCW	Component Cooling Water
CR	Condition Report
DRP	Division of Reactor Projects
EDG	Emergency Diesel Generator
EOP	Emergency Operating Procedure
HPI	High Pressure Injection
MDT	Maintenance Deficiency Tag
MWO	Maintenance Work Order
NRC	Nuclear Regulatory Commission
OS	Operations Schematic
P&ID	Piping and Instrumentation Diagram
SBODG	Station Blackout Diesel Generator
SD	System Description
SDP	Significance Determination Process
SSC	Structures, Systems, and Components
TS	Technical Specification
USAR	Updated Safety Analysis Report