

July 21, 2000

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
50-346/2000004(DRP)

Dear Mr. Campbell:

On June 30, 2000, the NRC completed an inspection at your Davis-Besse reactor facility. The results were discussed with you and other members of your staff on June 28. 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. Within these areas the inspection consisted of a selective examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, the NRC identified one issue which was categorized as being 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. This issue was determined to involve a violation of NRC requirements, but because of its very low safety significance and the issue has been entered into your corrective action program, the violation is not cited. If you contest this Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with a copy to the Regional Administrator, Region III; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-001; and the NRC Resident Inspector at the Davis-Besse facility.

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*

G. Campbell

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Sincerely,

/RA/

Thomas J. Kozak, Chief
Reactor Projects Branch 4

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

Enclosure: Inspection Report 50-346/2000004(DRP)

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 50-346/2000004(DRP)

Licensee: FirstEnergy Nuclear Operating Company

Facility: Davis-Besse Nuclear Power Station

Location: 5501 N. State Route 2
Oak Harbor, OH 43449-9760

Dates: May 21-June 30, 2000

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
<ul style="list-style-type: none">● Initiating Events● Mitigating Systems● Barrier Integrity● Emergency Preparedness	<ul style="list-style-type: none">● Occupational● Public	<ul style="list-style-type: none">● Physical Protection

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 05000346-00-04, on 05/21-6/30/2000; FirstEnergy Nuclear Operating Company; Davis-Besse Nuclear Power Station; Event Followup.

The inspection was conducted by resident inspectors. This inspection identified one green issue, which was a Non-Cited Violation. The significance of issues is indicated by their color (green, white, yellow, red) and was determined by the Significance Determination Process.

Cornerstone: Initiating Events

- GREEN. Operators failed to perform a Technical Specification required surveillance test to verify one qualified A.C. power circuit existed when the other qualified circuit was not available. This was a Non-Cited Violation of Technical Specification surveillance requirement 4.8.1.1.a. This issue was of very low safety significance because no Technical Specification allowed outage times were exceeded (Section 4AO3).

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 90 percent power for testing activities or low system demand. Additionally, a plant shutdown was initiated to comply with Technical Specifications when the response time of the steam and feedwater rupture control system was temporarily questioned. The response time issue was resolved when the plant was at 96 percent power, and the unit was subsequently returned to 100 percent power.

1. **REACTOR SAFETY**

1R01 Adverse Weather

a. Inspection Scope (Inspection Procedure 71111.01)

Inspections were conducted to verify that plant equipment was protected from seasonal-related risks to the plant such as mayfly infestation, hot temperatures, and high winds. Transformer cooling systems were inspected for heat transfer ability, the switchyard was inspected for debris that could be swept into switchgear under high wind conditions, and the effectiveness of actions taken to limit mayfly infestation affects were reviewed. Procedure DB-OP-06913, "Seasonal Plant Preparation Checklist," was referenced as part of this review.

b. Findings

There were no findings identified.

1R04 Equipment Alignments (Inspection Procedure 71111.04)

.1 System Walkdowns

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:

- Emergency instrument air system, while the emergency instrument air compressor was out of service for maintenance (documents reviewed were Operations Schematic OS-19A and OS-19B)
- No. 2 auxiliary feedwater pump, startup feedwater pump and motor driven feedwater pump, during a maintenance outage on No. 1 auxiliary feedwater pump that was conducted on June 20 (documents that were used were OS-10, OS-12A, OS-17A, and OS-17B)

- No. 2 emergency diesel generator, station blackout diesel generator, and component cooling water train No. 2, while No. 1 emergency diesel generator was unavailable while running and electrically connected to the offsite AC system during a monthly surveillance test on June 22 (OS-21 and OS-41A through F were referenced to verify proper system configuration).

b. Findings

There were no findings identified.

.2 Operator Failure to Shut Valve Results in Auxiliary Feedwater Train Unavailability for One Week

a. Inspection Scope

The licensee identified that valve MS-750, the above seat drain valve for No. 1 auxiliary feedwater pump turbine trip throttle valve, was found in the open position by an equipment operator. This caused the #1 auxiliary feed pump to be inoperable for a 1 week period. The inspectors conducted a review to determine if the problem was accurately described and classified in the corrective action system. Condition Report 2000-1578, Standing Order 00-006, and calculation C-NSA-99.15-31 were reviewed.

b. Findings

On a weekly basis, equipment operators were measuring auxiliary feedwater steam admission valve leakage by draining downstream piping of condensed water. The resultant quantity was measured against acceptance criteria to verify operability and was also trended by engineering personnel. On June 8, an equipment operator was performing this task and found that MS-750 was open when it should have been closed. The licensee then determined that this valve had been left open for about 7 days since the last weekly draining. If the pump would have been called on to operate, high pressure steam would pass through MS-750 into the No. 1 auxiliary feedwater pump room, bringing into question the ability of the pump to perform its design function. Initially, the licensee determined that the pump was inoperable; however, the licensee was conducting a more detailed review to determine if the pump would have been able to perform its design function with valve MS-750 open. Therefore, this item is unresolved pending further inspector review (**URI 50-346/2000004-001**).

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: electrical penetration rooms, mechanical penetration rooms 1, 2, and 4,

spent fuel pool cooling room, emergency core cooling room 1 and interconnecting hallways. Fire protection drawings A-223F through A-226F were reviewed.

b. Findings

There were no findings identified.

1R11 Licensed Operator Regualification (Inspection Procedure 71111.11)

a. Inspection Scope

The inspectors observed high risk licensed operator actions and emergency plan implementation for simulator scenarios to identify deficiencies and discrepancies in the training, and to assess operator performance and evaluator critiques. These observations included small and large break loss-of-coolant-accidents with equipment problems and actions to control boron precipitation in the reactor vessel.

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 that have had performance problems:

- Emergency diesel generator (EDG) including a review of the EDG system scoping sheet in the maintenance rule program manual and the Davis-Besse material condition report for the EDGs

b. Findings

There were no findings identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluation (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.

- Emergency instrument air compressor maintenance outage (reviewed the weekly risk summary for June 5-11, 2000)
- Steam and feedwater rupture control system testing (reviewed the weekly risk summary for May 22-28, 2000)
- Emergency diesel generator testing (reviewed the weekly risk summary for June 19-25, 2000)
- Steam and feedwater rupture control system testing (reviewed the weekly risk summary for June 5-11, 2000, and Procedure DB-MI-03212, "Channel Functional Test of SFRCS Actuation Channel Two Logic for Mode One")
- Channel functional test of reactor trip breaker D, reactor protection system channel 3 reactor trip module logic, and anticipatory reactor trip system channel 3 output logic (reviewed the weekly risk summary for June 12-18, 2000)
- No. 1 auxiliary feedwater pump preventive maintenance outage (reviewed the weekly risk summary for June 19-26, 2000, reviewed nuclear group guideline, "Administrative Work Process Guideline," and Attachment 6, "Risk Significant System Matrix")

b. Findings

There were no findings identified.

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, updated safety analysis report, 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, and post test equipment restoration:

- Channel Functional Test of Reactor Trip Breaker D, Reactor Protection System Channel 3 Reactor Trip Module Logic, and Anticipatory Reactor Trip System Channel 3 Output Logic, DB-MI-03013
- High Pressure Injection Pump 1 Quarterly Pump and Valve Test, DB-SP-03218
- Service Water Pump 1 Quarterly Test, DB-PF-03017 (also reviewed operations schematic OS-20, piping and instrumentation drawing M-41D)

b. Findings

There were no findings identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (Inspection Procedure 71151)

a. Inspection Scope

The inspectors reviewed licensee event reports (LERs) to determine if the performance indicators for unplanned scrams per 7000 critical hours and scrams with loss of normal heat removal were accurately and completely reported to the NRC by the licensee. Since this was the first time that this inspection activity was conducted for these performance indicators, the previous 4 quarters of data for unplanned scrams and the previous 12 quarters of data for scrams with loss of normal heat removal were inspected. The following LERs pertaining to reactor trips were reviewed in detail to determine if a loss of normal heat sink occurred:

- 97-010 Reactor trip due to main transformer deluge system actuation
- 98-002 Plant trip due to high pressurizer level as a result of loss of letdown capability
- 98-006 Tornado damage to switchyard causing loss of offsite power
- 98-010 Mis-diagnosis of feedwater control valve solenoid failure during testing results in manual reactor trip
- 98-011 Manual reactor trip due to component cooling water system leak
- 98-012 Reactor trip due to anticipatory reactor trip system (ARTS) signal while removing ARTS channel one from bypass

b. Findings

There were no findings identified.

4OA3 Event Followup (Inspection Procedure 71153)

(Closed) LER 50-346/2000-001: Failure to perform Technical Specification action with switchyard circuit inoperable due to inadequate procedure. The licensee determined that on September 26, 1998, TS Surveillance Requirement 4.8.1.1.1.a was not conducted to verify the remaining A.C. sources were available, because operators did not realize entry into TS 3.8.1.1 was required with the switchyard placed in a particular configuration.

The cause of this event was that previous reviews of the switchyard did not address all configurations of the switchyard for instances where only one qualified circuit was available. Licensee corrective actions were to provide operators guidance for entering TS 3.8.1.1 and for performing the appropriate actions when operating switchyard breakers. Additionally, the licensee committed to revise relevant procedures to alert operators of conditions that would require entry into TS 3.8.1.1. The inspectors verified additional guidance had been provided to operators to prevent recurrence of the problem, that operators had been correctly recognizing when conditions existed that required entry into TS 3.8.1.1, and that operators conducted the required surveillance testing for these conditions.

This issue was considered more than minor because it represented a failure to meet a TS requirement. This issue was determined to have very low safety significance because no allowed outage time violations occurred (Green).

This was a TS violation associated with an inspection finding that is characterized by the significance determination process as having very low safety significance (Green) and is being treated as a Non-Cited Violation, consistent with Section VI.A.I of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as LER 2000-001 (**NCV 50-346/2000004-002**).

4OA6 Management Meetings

The inspectors presented the inspection results to Mr. G. Campbell and other members of licensee management on June 28, 2000. The licensee acknowledged the findings presented. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

W. J. Bentley, Manager, Work Control
K. W. Byrd, Senior Engineer, Nuclear Engineering
G. G. Campbell, Vice President - Nuclear
R. B. Coad, Jr., Manager, Plant Operations
C. A. Gale, Senior Engineer, Plant Engineering
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NRC

T. J. Kozak, Chief, Reactor Projects Branch 4
K. S. Zellers, Senior Resident Inspector, Davis-Besse
D. S. Simpkins, Resident Inspector, Davis-Besse

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-346/2000004-001	URI	Operator failure to shut valve results in auxiliary feedwater train unavailability for 1 week.
50-346/2000004-002	NCV	Failure to perform Technical Specification action with switchyard circuit inoperable due to inadequate procedure.

Closed

50-346/2000004-002	NCV	Failure to perform Technical Specification action with switchyard circuit inoperable due to inadequate procedure.
50-346/2000-001	LER	Failure to perform Technical Specification action with switchyard circuit inoperable due to inadequate procedure.

LIST OF ACRONYMS USED

AC	Alternating Current
ARTS	Anticipatory Reactor Trip System
CFR	Code of Federal Regulations
CR	Condition Report
EDG	Emergency Diesel Generator
IFI	Inspection Follow-up Item
LER	Licensee Event Report
MWO	Maintenance Work Order
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
SSC	Structures, Systems, and Components
TS	Technical Specification
URI	Unresolved Item
USAR	Updated Safety Analysis Report