

May 16, 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 RADIATION SAFETY INSPECTION REPORT
50-346/2000006(DRS)

Dear Mr. Campbell:

On April 21, 2000, the NRC completed a routine inspection at your Davis-Besse Nuclear Power Station. The results were discussed on April 21, 2000, with you and other members of your staff. The enclosed report presents the results of that inspection.

The inspection was an examination of activities conducted under your license as they relate to radiation safety and to 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. Specifically, this inspection focused on occupational radiation safety and on the radiological controls implemented during the refueling outage. In addition, we reviewed aspects of your source term reduction, respiratory protection, and fetal protection programs.

Based on the results of this inspection, the NRC did not identify any issues which were categorized as being of risk significance.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Electronic Reading Room (PERR) link at the NRC homepage, <http://www.nrc.gov/NRC/ADAMS/index.html>.

G. Campbell

-2-

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

/RA/

Wayne Slawinski, Acting Chief
Plant Support Branch
Division of Reactor Safety

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

Enclosure: Inspection Report 50-346/2000006(DRS)

cc w/encl: B. Saunders, President - FENOC
J. Lash, Plant Manager
J. Freels, Manager, Regulatory Affairs
M. O'Reilly, FirstEnergy
State Liaison Officer, State of Ohio
R. Owen, Ohio Department of Health
C. Glazer, Chairman, Ohio Public
Utilities Commission

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

/RA/

Wayne Slawinski, Acting Chief
Plant Support Branch
Division of Reactor Safety

Docket Nos. 50-346
License Nos. NPF-3

Enclosure: Inspection Report 50-346/2000002(DRS)

cc w/encl: B. Saunders, President - FENOC
J. Lash, Plant Manager
J. Freels, Manager, Regulatory Affairs
M. O'Reilly, FirstEnergy
State Liaison Officer, State of Ohio
R. Owen, Ohio Department of Health
C. Glazer, Chairman, Ohio Public
Utilities Commission

ADAMS Distribution:

WES (E-Mail)
SNB (Project Mgr.)
J. Caldwell, RIII w/encl
B. Clayton, RIII w/encl
SRI Davis-Besse w/encl
DRP w/encl
DRS w/encl
RIII PRR w/encl
PUBLIC IE-01 w/encl
Docket File w/encl
GREENS
RIII_IRTS
DOCDESK
JRK1
BAH3

DOCUMENT NAME: G:DRS\DAV2000006 DRS.WPD

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	RIII	RIII	RIII	RIII
NAME	JHouse:jp	JHouse for RJickling	WSlawinski	TKozak
DATE	05/16/00	05/16/00	05/16/00	05/16/00

OFFICIAL RECORD COPY

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 50-346/2000006(DRS)

Licensee: FirstEnergy Nuclear Operating Company

Facility: Davis-Besse Nuclear Power Station

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

Dates: April 17 - 21, 2000

Inspectors: John E. House, Senior Radiation Specialist
Robert D. Jickling, Emergency Preparedness Analyst

Approved by: Wayne Slawinski, Acting Chief, Plant Support Branch
Division of Reactor Safety

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) 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 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 little effect on safety. WHITE findings indicate issues with some increased importance to safety, which may require additional NRC inspections. YELLOW findings are more serious issues with an even higher potential to effect safety and would require the NRC to take additional actions. RED findings represent an unacceptable loss of safety margin and would result in the NRC taking significant actions that could include ordering the plant to shut down.

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 incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. The color for an indicator corresponds to levels of performance that may result in increased NRC oversight (WHITE), performance that results in definitive, required action by the NRC (YELLOW), and performance that is unacceptable but still provides adequate protection to public health and safety (RED). GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections.

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. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, as described in the matrix. 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.

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

SUMMARY OF FINDINGS

Davis-Besse Nuclear Power Station
NRC Inspection Report 50-346/2000006(DRS)

The report covers a one-week period of announced inspection by one regional radiation specialist and one emergency preparedness analyst. This inspection focused on occupational radiation safety and included a review of as-low-as-is-reasonably-achievable (ALARA) controls for the ongoing refueling outage, the respiratory protection program, dose controls for declared pregnant workers, source term reduction, and problem identification and resolution. The significance of issues is indicated by their color (green, white, yellow, red) and was determined by the Significance Determination Process in Inspection Manual Chapter 0609.

RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

- There were no inspection findings identified or documented.

Report Details

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety (OS)

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

.1 Review of Radiologically Significant Work Activities

a. Inspection Scope

The inspectors reviewed the licensee's radiological controls for the following radiologically significant work activities:

- Refueling floor activities;
- Radiography activities in the turbine building;
- Underwater reactor vessel testing;
- Primary side steam generator eddy current testing;
- Secondary side steam generator chemical cleaning.

As part of this inspection, the inspectors reviewed ALARA plans and radiation work permits, observed work activities, and attended pre-job briefings. The inspectors also attended pre job briefings and a post job critique for the following activities:

- DuraTec filter cartridge removal and relocation;
- Reactor head 'O' ring removal.

b. Observations and Findings

There were no findings identified and documented during this inspection.

.2 Radiation Dose Controls and Trending

a. Inspection Scope

The inspectors reviewed the licensee's dose goals and dose trending for the ongoing refueling outage. The inspectors also interviewed representatives of the maintenance and construction staffs to determine their level of involvement in dose control and tracking.

b. Observations and Findings

The licensee had raised its original outage dose estimate from 147 rem to 163.7 rem, as a result of additional work to be included in this outage. As of May 16, 2000, with the plant undergoing start-up, outage dose was approximately 167 rem. A licensee representative stated that an additional 1 or 2 rem was expected during the final phase of

the outage and that additional emergent work had pushed the station over the dose goal. Given the scope of the outage, which included primary and secondary side steam generator work, the outage performance coincided well with the dose estimate.

There were no findings identified and documented during this inspection.

.3 Source Term Reduction

a. Inspection Scope

The inspectors reviewed the status of the licensee's source term reduction program, which included hot spot tracking/reduction, cobalt reduction, and chemistry controls. The inspectors also performed surveys within the radiologically controlled area to verify the accuracy of the licensee's records/surveys of identified hot spots and to identify any other significant unidentified sources of radiation exposure.

b. Observations and Findings

There were no findings identified and documented during this inspection.

.4 Declared Pregnant Workers

a. Inspection Scope

The inspectors reviewed the controls implemented by the licensee for two individuals who voluntarily declared their pregnancies within the last 18 months. Specifically, the inspectors reviewed the licensee's adherence to the requirements contained in 10 CFR 20.1208 and reviewed the licensee's evaluation of the dose to the individuals' embryos.

b. Observations and Findings

In accordance with the licensee's program, an additional level of exposure control and monitoring was provided to the two individuals. The two declared pregnant workers made several entries into the radiologically protected area and received no trackable dose. Consequently, the licensee assigned no radiation dose to the individuals' embryos.

.5 Radiation Worker Performance

a. Inspection Scope

The inspectors observed radiation workers performing the activities described in Section 2OS2.1 and evaluated their awareness of radiological conditions and their implementation of applicable radiological controls.

b. Observations and Findings

There were no findings identified and documented during this inspection.

2OS3 Radiation Monitoring Instrumentation

.1 Respiratory Protection

a. Inspection Scope

The inspectors reviewed the status and surveillance records for self-contained breathing apparatus located in various areas within the site. In addition, the inspectors reviewed applicable qualification documentation for control room, radiation protection, chemistry, and maintenance personnel for respirators and self-contained breathing apparatus.

b. Observations and Findings

There were no findings identified and documented during this inspection.

4. **OTHER ACTIVITIES (OA)**

4OA2 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the licensee's self assessments, audits, and condition reports concerning the station's radiation protection program. The inspectors also reviewed ALARA in progress reviews to evaluate the staff's critiques of ALARA performance. The inspectors verified that the staff was effectively using the corrective action system to identify and correct issues within radiation protection organization.

b. Observations and Findings

There were no findings identified and documented during this inspection.

4OA6 Management Meetings

The inspectors presented the inspection results to Mr. Campbell and other members of licensee management at the conclusion of the inspection on April 21, 2000. The licensee acknowledged the findings presented. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

L. Bonker	Health Physics Services Supervisor
G. Campbell	Site Vice-President
R. Coad	Operations Manager
R. Greenwood	Health Physics Services Supervisor
J. Lash	Plant Manager
D. Lockwood	Regulatory Affairs/Compliance Supervisor
D. Miller	Senior Engineer-Compliance
S. Moffitt	Director Technical Services
H. Stevens	Quality Assurance Manager
P. Shultz	Radiation Protection Manager

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF BASELINE INSPECTION PROCEDURES PERFORMED

The following inspectable-area procedures were used to perform inspections during the report period. Documented findings are contained in the body of the report.

<u>Inspection Procedure</u>		<u>Report</u>
<u>Number</u>	<u>Title</u>	<u>Section</u>
71121-02	ALARA Planning and Controls	2OS2
71121-02	Identification and Resolution of Problems	4OA2
71121-03	Respiratory Protection–SCBA	2OS3
(none)	Management Meetings	4OA6

LIST OF ACRONYMS USED

ALARA	As-Low-As-Is-Reasonably-Achievable
CFR	Code of Federal Regulations
NRC	Nuclear Regulatory Commission
OS	Occupational Radiation Safety

LIST OF DOCUMENTS REVIEWED

Assessments and Audits

SR-99-RPRWP-04 Radioactive Source Accountability, November 10, 1999
AR-99-TSTCA-01 Quality Assessment Testing and Calibration Audit, December 9, 1999
AR-99-RPPCP-01 Radioactive Effluents, REMP and Process Control Program Radwaste Program, December 16, 1999

Miscellaneous

Information Notice Number 99-05, "Inadvertent Discharge of Carbon Dioxide Fire Protection System and Gas Migration;"

Condition Reports

2000-0102 SCBA Cylinder Change-out, January 18, 2000
2000-0945 Respiratory Protection, April 13, 2000
2000-1027 Radiation Survey of Side of Incore Tank, April 17, 2000
2000-1045 Contaminated Bucket Outside of RRA, April 17, 2000
2000-0635 Procedure Requirements for Posting of Airborne Areas, March 25, 2000
2000-1068 Workers Exiting RRA with MB's Alarming on Dose, April 19, 2000

Procedures

DB-HP-01201 (Revision 4), "Administrative Dose Control Levels;"
DB-HP-01308 (Revision 3), "Respiratory Protection Equipment Inspection and Maintenance;"
RA-EP-01500 (Revision 1), "Emergency Classification;"

Radiation Work Permits and Associated ALARA Action Reviews

RWP No.2000-5118 (Revision 0), "Remove Plenum From Reactor Vessel, Place in Shallow End of Refueling Canal;"
RWP No. 2000-5800 (Revision 0), "Mode 3/4 Pre/Post Outage Walkdowns, Inspections, Testing, and Associated Work Activities; Including Work on Elevator and Fuel Handling Bridge;"
RWP No. 2000-5302 (Revision 0), "Setup/Maintenance/Tear-down of Eddy Current Equipment, Including Installation and Removal of Manipulator, Run Cable, Snorkel Adjust, Change Out Probes, Reels, Data Cables, and Remote Tube Plugging Evolutions;"
RWP No. 2000-5115 (Revision 0), "Remove Reactor Head O-rings, Clean Flange Surface, and Install New O-rings, Cut Up Old O-ring and Place In A Lead Lined Drum;"
RWP No. 2000-6025 (Revision 0), "Removal Transport and storage of DuraTec Mechanical Prefilter "