U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-346/84-30(DRSS)

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

Licensee: Toledo Edison Company
Edison Plaza
300 Madison Avenue
Toledo, OH 43652

Facility Name: Davis-Besse Nuclear Power Station (DBNPS)

Inspection At: DBNPS, Unit 1, Oak Harbor, OH

Inspection Conducted: November 26-30, and December 19, 1984

D. E. Miller/for

Inspector: N. A. Nicholson 1/4/85
Date

D. E. Miller/for

Approved By: L. R. Greger, Chief
Facilities Radiation Protection Section 1/4/85
Date

Inspection Summary

Inspection on November 26-30, and December 19, 1984
(Report No. 50-346/84-30(DRSS))
Areas Inspected: Routine, unannounced inspection of the radiation protection and radwaste management programs including: organization and management controls; solid waste processing and storage; disposal of solid low level wastes; liquid effluents and instrumentation; reactor coolant water quality; gaseous effluents and instrumentation; and selected open items. The inspection involved 39 inspector-hours onsite by one NRC inspector.
Results: No violations or deviations were identified.

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DETAILS

1. Persons Contacted

L. Bonker, Health Physics Specialist
[1]S. Byrne, Chemistry and Health Physics Group
Briden, Chemist and Health Physicist
Frazer, Radwaste and Decontamination Supervisor
Freels, Nuclear Training Supervisor
J. Geddes, Associate QA Auditor
M. Horne, Health Physics Supervisor
[2]S. Quennoz, Station Superintendent
[1]R. Scott, Chemistry and Radiochemistry Supervisor
[1]J. Swartz, Maintenance Specialist, Instrument and Control (I&C)
[1]S. Wideman, Nuclear Licensing

[1]W. Rogers, NRC Senior Resident Inspector

The inspector also contacted chemistry and health physics foremen, testers, I&C technicians, and members of the engineering staff.

[1]Attended the November 30, 1984 exit meeting.
[2]Telephone discussions on December 19, 1984.

2. General

This inspection, which began at 11:15 a.m. November 26, 1984, was conducted to examine the licensee's radiation protection and radwaste management programs. Included were tours of the control room, solid and liquid radwaste handling areas, and solid radwaste storage areas. Calibration and functional checks of effluent monitors were reviewed. Inplant measurements made with an NRC survey instrument (Xetex 305B) were in general agreement with licensee readings. Training records and qualifications of the Chemistry and Health Physics (C&HP) staff were reviewed. Selected open items were also reviewed.

3. Licensee Action on Previous Findings

(Open) Open Item 346/84-24-01: Maintain a functional respirator fit test booth. Purchase of respirator fit test equipment has been approved and equipment ordered. This will be reviewed further during a future inspection.

(Closed) Open Item 346/84-08-01: Review Kaman calibration data. The calibration data was reviewed and is discussed in Section 9. Technical Specification 2.4.4.d appears to have been met.

(Closed) Open Item 346/84-08-03: Complete the PASS design change for the pressurized sample collection. The licensee completed this change in late April 1984. Sample flow lines were shortened to reduce exposure to the sample collector, as discussed in Inspection Report No. 50-346/84-08.

(Closed) Open Item 346/84-08-05: Revise Procedure AD 1850.04.08 to include the use of remote handling tools. The inspector reviewed Revision 9 of the above procedure, which satisfactorily addresses remote handling tool use. No problems were noted.

(Closed) Open Item 346/84-08-06: Submit a variance request for relief from isokinetic effluent sampling criteria per NUREG 0737 to NRR by May 31, 1984. The inspector reviewed this submittal forwarded to NRR on May 31, 1984. No further questions were raised; NRR is reviewing this matter.

(Closed) Open Item 346/82-01-21: Installation testing and procedures written for the primary coolant high range sample system. During a previous inspection, the inspector observed a senior C&HP tester successfully collect an unpressurized RCS sample with the Bechtel designed PASS equipment[1]. The inspector reviewed procedures written for sample collection, SP 103.00.1, Post Accident Sampling System Operation; no problems were noted.

(Closed) Circular 346/80-18-CC: 10 CFR 50.59 safety evaluations for changes to radioactive waste treatment systems. The licensee reviews proposed modifications to the radwaste system. Safety Evaluation Reports (SERs) are written for those changes not specified in the FSAR. Records of the evaluations are maintained by the licensee and were reviewed by the inspector. No problems were noted.

No violations or deviations were identified.

4. Organization and Management Controls

The inspector reviewed the licensee's organization and management controls for the radiation protection and radwaste programs including changes in the organizational structure and staffing, effectiveness of procedures and other management techniques used to implement these programs, experience concerning self-identification and correction of program implementation weaknesses, and effectiveness of audits of these programs.

No significant organizational changes have occurred during 1984. The Chemist and Health Physicist reports directly to the Station Superintendent as per Technical Specification (TS) 6.2.2; his qualifications, and those of the Chemistry and Health Physics management and professional staff, meet Technical Specification 6.3.1. Staffing remains stable; turnover is low.

The Chemist and Health Physicist has ultimate responsibility in this department; radiation protection, chemistry, radwaste, and environmental management and professionals report to him. The radiation protection and chemistry staff includes approximately twenty chemistry and health physics testers (five senior testers, nine testers, and six assistant testers) who

[1]Inspection Report No. 50-346/84-08

provide both health physics and radiochemistry coverage; the testers report to two foremen who in turn report to a health physics supervisor or a chemistry and radiochemistry supervisor. Chemistry and Health Physics testers meet ANSI N18.1-1971 criteria. Four assistant testers were hired in early 1984 to supplement this staff. The radwaste and decontamination group includes five HP servicemen who report to a supervisor. During outages, the C&HP and decon staffs are supplemented with vendor technicians[2]. Two non-supervisory HP specialists provide technical support for annual reporting requirements and generic issues. At least one tester is on duty per shift, as verified by the inspector during backshift tours. This staffing appears sufficient to cover routine jobs involving radiological controls on the backshifts.

No violations or deviations were identified.

5. Training

The inspector reviewed the training provided to the C&HP staff. In accordance with Procedure AD 1828.12.4, "Chemistry and Health Physics Training," C&HP testers have completed, or waived based on academic experience, HP fundamentals and chemistry courses. Some testers have completed an optional course, Basic Nuclear Technology, which addresses among other topics, plant systems. Selected supervisory, professional, and senior C&HP tester personnel have completed selected PWR Technology classes.

To maintain procedural awareness, revised procedures are routed to the C&HP testers twice a month as required reading. Sign-off sheets indicate the specific procedure has been reviewed. Discussions with selected C&HP testers verified this practice.

According to the nuclear training supervisor, the licensee has been actively recruiting for the past year to fill two instructor positions, one in chemistry and the other in health physics. These additions are intended to supplement the technical instruction staff.

No violations or deviations were identified.

6. Procedural Review

The inspector reviewed the following radwaste procedures for technical completeness and regulatory adherence. No problems were noted.

HP 1601.06.03	Venting Lines Containing Gaseous Activity
AD 1828.12.05	Chemistry and Health Physics Training
AD 1850.00.04	Radwaste Management
AD 1850.01.13	Radioactive Liquid Release
AD 1850.02.03	Solid Radwaste Processing and Handling
AD 8018.05.01	Liquid Setpoints

[2]Inspection Report No. 50-346/84-24

No violations or deviations were identified.

7. Solid Radioactive Waste

The inspector reviewed the licensee's solid radioactive waste management program, including: determination whether changes to equipment and procedures were in accordance with 10 CFR 50.59; adequacy of implementing procedures to properly classify and characterize waste, prepare manifests, and mark packages; overall performance of the process control and quality assurance programs; adequacy of required records, reports, and notifications; and experience concerning identification and correction of programmatic weaknesses.

Solid radioactive waste primarily consists of dry active waste (DAW) and spert resins. According to licensee representatives, no solidification processing has been conducted since 1981. DAW is shipped in metal LSA boxes to Barnwell, SC; a box compactor is used for volume reduction. Noting a higher percentage of DAW as disposable shoe covers, the licensee plans to switch to cloth booties after this outage. Liquid content reduction measures for DAW include drying damp cloth articles (e.g., mopheads, rags, etc.) by sealing them in plastic bags with grout or absorbent material for a few days. No significant problems were noted.

The licensee has developed a checklist to verify specific requirements of 10 CFR 61 have been satisfied; this is addressed in Procedure HP 1607.06.00, "Waste Classifications and Manifest Reporting - Resins." The inspector reviewed selected records for 1984 shipments; no problems were noted. Four radwaste procedures have recently been written for the Health Physics Manual and are under official review. These procedures address compacting operations, wet waste processing, packaging, and radwaste shipping.

The inspector observed LSA boxes being loaded for shipment. C&HP testers conducted the appropriate final surveys. Shipping papers were reviewed. No problems were noted.

No violations or deviations were identified.

8. Liquids and Liquid Radioactive Wastes

The inspector reviewed the licensee's reactor liquid and liquid radwaste management programs, including: determination whether changes to equipment and procedures were in accordance with 10 CFR 50.59; determination whether reactor liquids meet chemical and radiochemical requirements; determination whether liquid radioactive waste effluents were in accordance with regulatory requirements; adequacy of required records, reports, and notifications; determination whether process and effluent monitors are maintained, calibrated, and operated as required; and experience concerning identification and correction of programmatic weaknesses.

No unplanned releases occurred in 1984. All releases are made on a batch basis. Isotopic analyses of recirculated tank samples are used to calculate release concentrations; selected release permits reviewed were completed in accordance with Procedure AD 1850.01.13, "Radioactive Liquid

Releases." Setpoints were determined for each release based on the total MPC activity fraction in accordance with Procedure AD 8018.05.01, "Liquid Setpoints." No problems were identified with selected calculations reviewed. The inspector reviewed calibrations of radioactive effluent monitors of key release tanks; detector response to sealed sources was within tolerance ranges. Calculations were conducted in accordance with technical specifications.

Semiannual effluent reports for 1983 and through June 1984 were reviewed. Releases are well within technical specification limits; no trends or anomalies were reported.

No violations or deviations were identified.

9. Gaseous Radioactive Waste

The inspector reviewed the licensee's gaseous radwaste management program, including: determination whether changes to equipment and procedures were in accordance with 10 CFR 50.59; determination whether gaseous radioactive waste effluents were in accordance with regulatory requirements; adequacy of required records, reports, and notifications; determination whether process and effluent monitors are maintained, calibrated, and operated as required; and experience concerning identification and correction of programmatic weaknesses.

No unplanned releases occurred during 1984. Selected gaseous decay tank release records were reviewed; no problems were noted. Batch release calculations are based on grab sample concentrations determined by spectroscopic analysis. A weekly grab sample is collected from the station vent. Concentrations measured are assumed to represent the effluent discharged via that pathway for the week. A review of the semiannual effluent reports for 1983 and through June 1984 indicated release levels were well within technical specification limits; no significant trends or anomalies were reported.

Licensee representatives noted decreased concentrations of iodine-131 in containment purge releases during this outage; this may be attributed to charcoal filters installed in the purge line.

Calibration of the station vent monitor's noble gas channel was reviewed. This channel is routinely used to quantify unplanned releases if a representative grab sample is unavailable. According to licensee records, the vendor conducted a type calibration of a model detector with NBS traceable Xe-133 and Kr-85 gas concentrations. To correlate the response of the DBNPS detector to the gaseous calibration, both detectors were exposed to NBS traceable solid transfer sources of three different activities. Adjustments to achieve comparable responses were made. Licensee records for 1984 indicate one point solid source calibrations are conducted quarterly with a transfer source in accordance with Technical Specification 2.4.4.d. Responses were within specified tolerance ranges. Although the transfer sources provide traceability to a gaseous calibration, no known activity gases have been introducted into the detector to determine its response to fluid sources. This matter was discussed with the

Station Superintendent December 19, 1984, who stated a calibration of the normal range channel with plant gases would be completed by April 1, 1985; NBS traceability will be documented by spectroscopic analysis (Open Item 346/84-30-01).

Poor interface between the C&HP and I&C groups was again noted during this inspection; the I&C staff has the responsibility for effluent monitor calibrations and C&HP staff provides the technical expertise. This poor interface has resulted in continuing NRC review of fluid source calibration of effluent monitors without resolution of identified problems. This issue was first raised during a preoperational inspection and again during the health physics appraisal and subsequent routine inspections[3]. This matter was discussed at the exit meeting. In addition, inefficient document control and retrieval of the station vent monitor's calibration data were indicated. This data was unavailable during the onsite inspection. At the inspector's request, it was forwarded to the regional office for initial review after considerable search by licensee I&C and licensing representatives. This matter was also discussed with the Station Superintendent.

No violations or deviations were identified.

10. Vent Stack Monitor Sample Stream

During a previous inspection, licensee representatives stated the sample stream drawn from the stack into the monitor is exhausted outside the turbine building[4]. This matter was referred to the Meteorological and Effluents Treatment Branch of NRR for review in accordance with Standard Review Plan (SRP) 11.5. NRR's evaluation stated this sampling pathway is not consistent with Acceptance Criteria II.2.c of SRP 11.5, which indicates sample streams are to be directed back to the point of origin or to an acceptable radwaste system. This matter was discussed with the Station Superintendent who agreed to contact NRR regarding the sample stream return by June 1, 1985 (Open Item 346/84-30-02).

11. Exit Meeting

The inspector met with those noted in Section 1 on November 30, 1984, to discuss the scope and findings of the inspection. Further discussions were held December 19, 1984. In response to the inspector's comments, the licensee agreed to the following:

a. Calibrate both skids of the station vent monitor's normal range gas channels with gaseous activity by April 1, 1985 (Section 9).

b. Contact NRR regarding sample stream flow return as specified by Standard Review Plan 11.5 by June 1, 1985 (Section 10).

[3]Inspection Reports No. 346/77-07; 346/81-11; 346/82-20; and 346/84-08
[4]Inspection Report No. 50-346/84-08