

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report Nos. 50-334/88-18  
50-412/88-14

Docket Nos. 50-334  
50-412

License Nos. DPR-66 Category C

Licensee: Duquesne Light Company  
P.O. Box 4  
Shippingport, Pennsylvania 15077

Facility Name: Beaver Valley Power Station, Units 1 and 2

Inspection At: Shippingport, Pennsylvania

Inspection Conducted: May 9-13, 1988

Inspector: RL Nimitz  
R. L. Nimitz, Senior Radiation Specialist

6/20/88  
date

Approved by: M. M. Shanbaky  
M. M. Shanbaky, Chief  
Facilities Radiation Protection Section

6/20/88  
date

Inspection Summary: Combined NRC Inspection on May 9-13, 1988 (Combined  
Inspection Report Nos. 50-334/88-18; 50-412/88-14

Areas Inspected: Routine unannounced Radiological Controls Inspection of the following: licensee action on previous findings; organization and staffing; audits; ALARA; external and internal exposure controls; start-up testing; and housekeeping.

Results: One apparent violation was identified (failure to implement Radiation Protection procedures, details section 8).

## DETAILS

### 1.0 Individuals Contacted

#### 1.1 Duquesne Light Company

- \*W. S. Lacey, General Manager, Nuclear Operations
- \*T. P. Noonan, Plant Manager
- \*J. A. Kosmal, Manager, Radiological Control
- \*F. J. Lipchick, Senior Licensing Supervisor
- \*D. O. Girdwood, Director, Radiological Operations, Unit 1
- \*E. D. Cohen, Director, Radiological Operations, Unit 2
- \*R. M. Vento, Director, Radiological Engineering
- \*D. G. Blair, Director, Radiological Health Services
- \*D. C. Hunkele, Director, QA Operations
- \*C. R. Davis, Director, QA Engineering/Procurement

#### 1.2 NRC

- J. E. Beall, Senior Resident Inspector
- \*S. M. Pindale, Resident Inspector

\*Denotes those individuals attending the exit meeting.  
Other licensee personnel were also contacted.

### 2.0 Purpose and Scope of Inspection

This inspection was a routine unannounced radiological controls inspection. The following areas were reviewed:

- o licensee action on previous findings
- o organization and staffing
- o audits
- o ALARA
- o external exposure controls
- o internal exposure controls
- o start-up testing
- o housekeeping

### 3.0 Licensee Action on Previous Findings

#### 3.1 (Closed) Violation (50-334/88-03-02)

Personnel did not adhere to radiation protection procedures. The licensee implemented the corrective actions described in his April 4, 1988, letter to NRC Region I. This item is closed.

#### 3.2 (Closed) Inspector Follow-Up Item (50-334/88-03-01; 50-412/88-02-01)

Licensee to revise procedures to enhance radiological controls for diving. The licensee revised applicable procedures to enhance radiological controls for diving.

#### 4.0 Organization and Staffing (Unit 1 and Unit 2)

The inspector reviewed the Radiological Controls Organization and staffing. The review was with respect to criteria contained in Technical Specifications and applicable licensee administrative and radiological controls procedures.

Within the scope of this review, no violations were identified. The following was noted:

- The upward reporting chain of the Radiological Controls Manager was recently changed from the General Manager Corporate Nuclear Services to the General Manager Nuclear Operations. The Manager Radiological Controls is at the same organizational level as the Plant Manager. The reporting chain meets applicable criteria for independence described in Regulatory Guide 8.8, "Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations will be As Low As Is Reasonably Achievable."
- Position responsibilities for members of the Radiological Controls Organization are provided in appropriate procedures.
- The licensee provided adequate numbers of trained staff to support start-up and power operation of Beaver Valley Unit 2.

Within the scope of this review, the following item was brought to the licensee's attention:

- Appropriate procedures have not been updated to reflect the recent organization changes. The licensee was aware of this matter and was in the process of updating appropriate procedures.

#### 5.0 QA Audits

The inspector reviewed the QA Program in the area of Radiological Controls. The review was with respect to criteria contained in the following:

- Technical Specification 6.5.2.8, Audits
- Procedure QAI No. 18.1.1, Audit Schedule
- Procedure QAI No. 18.2.2, Planning of Audits
- Procedure QAI No. 18.2.3, Report of Audits
- Procedure QAI No. 18.3.2, Quality Assurance Surveillance

Evaluation of the licensee's performance in this area was based on discussions with personnel and review of the following audits:

- Audit BV-C-87-16, Radiological Control - Calibration and Documentation
- Audit BV-1-86-42, Radiological Control - Calibration and Documentation
- Audit BV-1-87-27, Radiological Control - Monitoring and Control
- Audit BV-1-86-26, Radiological Control - Monitoring and Control
- 1988 Training Audit

Within the scope of this review, no violations were identified. Audits were comprehensive in the area of review of procedure compliance, however they were limited in technical depth and scope to verify program adequacy. The following areas for improvement were identified:

- Consider using Technical Specialists to augment the Radiological Controls Audit Team. Team members possessed minimal experience and training in the area of radiological controls.
- Consider expanding the scope of Radiological Controls Audits. Radiological Controls Audits were considered procedure compliance oriented and provided little comparison of licensee practices, methods and performance with current industry practices, standards, or performance.

Licensee QA personnel indicated the above two matters would be reviewed.

#### 6.0 Self Assessment, Surveillance and Corrective Action Program

The inspector examined licensee's self assessment, surveillance and corrective action programs in the area of radiological controls.

Evaluation of licensee performance in this area was based on discussions with personnel and review of documentation.

Within the scope of this review, no violations were identified. The following was noted:

- The licensee performed a self-assessment of the Radiological Controls Program and other station programs using INPO performance objectives and criteria for operating and near-term operating plants. The licensee's self-assessment was considered a good initiative. Areas for improvement were identified along with responsible individuals and improvement item completion dates.
- The Radiation Protection Manager (RPM) is provided a daily status of several key performance indicators including the number of individuals contaminated, the number of individuals exceeding administrative dose guidelines and the number of individuals not properly using radiation work permits. This allows the RPM to quickly identify any adverse trends.
- A weekly audit is performed of radiation work permit compliance.
- An internal quarterly audit of the implementation of the Radiological Surveillances Program is performed.

Within the scope of this review, the following areas for improvement were identified:

- Inspector review of internal assessments found several examples of supervisors not signing off to acknowledge assessment findings.
- Some internal assessments did not identify what, if any, corrective actions were taken for identified deficiencies.
- The forms used by the Radiological Controls Group during self-assessment were not controlled or incorporated into applicable procedures. Approved forms specified in procedures were not being used.

The inspector concluded that the licensee's self-assessments were a good initiative. However, improved administrative control of findings to insure they were properly documented and closed out was needed. Also, there was no apparent trending of self-assessment findings to identify apparent adverse trends.

Licensee personnel indicated the above matters would be reviewed.

#### 7.0 External Exposure Controls

The inspector reviewed selected aspects of the External Exposure Control Program. The review was with respect to applicable criteria contained in Technical Specifications, licensee procedures and regulatory requirements.

The following matters were reviewed:

- posting, barricading and access control (as appropriate) of radiation and high radiation areas
- high radiation area access key control including key audits
- use of Radiation Work Permits
- use and checking of appropriate radiation survey instrumentation.

Within the scope of this review, no violations were identified. Licensee External Exposure Controls were found to be adequate. Key controls and audits were adequate.

The following matters were brought to the licensee's attention:

- Some minor inconsistencies in posting multiple accesses to the Radiological Controlled Area were noted. The inconsistencies were immediately corrected.
- The licensee allows self-monitors to check-out and use radiation survey meters for self-monitoring purposes. The meters are issued by radiation protection personnel. The licensee did not have administrative controls in place which would insure self-monitors are

only issued survey meters that they are authorized to use and had received specific training thereon. The licensee immediately initiated action to establish administrative controls to address this matter.

- Key control and audit forms used by Radiation Protection personnel were incorporated into procedures. The high radiation area key audit forms used by control room operations personnel were not incorporated into procedures. The licensee instituted a review of this matter.

#### 8.0 Internal Exposure Controls

The inspector reviewed selected aspects of the Internal Exposure Control Program. The review was with respect to criteria contained in applicable regulatory requirements and licensee procedures. The following matters were reviewed:

- posting of airborne radioactivity areas
- whole body count results and airborne radioactivity intake estimates for personnel for 1987 and 1988
- licensee corrective action taken for airborne radioactivity intakes greater than 40 MPC-hours in one week
- generation and maintenance of airborne radioactivity exposure records

Within the scope of this review the following matters were identified:

- The licensee continues to experience problems with personnel terminating and leaving the station without receiving prescribed termination whole body counts. Since September 1987 approximately 114 personnel have terminated without receiving prescribed whole body counts. The licensee is reviewing this matter.
- The licensee continues to have a problem with control of airborne radioactivity samples. Because some samples were discarded without receiving the prescribed second alpha count, personnel were assigned alpha MPC-hours (i.e. that may be attributable to naturally occurring alpha activity in the air rather than from plant related activity).
- Inspector review of 1987 and 1988 whole body count data and discussions with personnel indicated only one individual had received an apparent intake of airborne radioactive material in excess of 40 MPC-hours in one week. The inspector reviewed the circumstances surrounding the event and licensee corrective actions as follows:

On February 7, 1988, at about 1955, four individuals were hydrolyzing the Unit 1 Refueling Canal. The individuals wore full face respiratory protective equipment (HEPA filters). The individuals finished the first phase of hydrolyzing at about 2055 that day. A breathing zone air sample collected by one of the workers was field counted at about the same time. This field count indicated about 2400 net counts per minute (ncpm) at about 8:40 P.M. Although licensee procedures (RP 7.3, Air Sampling, Field Evaluation and Sample Assessment Section 3.4.5.1) requires that Rad Con Supervision and/or the Nuclear Shift Supervisor be notified if the field count is greater than 500 ncpm, no notification was made. This notification, per RP 7.3, Section 3.4.5.1, is necessary to determine if there is need for immediate corrective actions (e.g., evacuation, isolation of a system or area, etc.).

A second crew of personnel entered and hydrolyzed the Refueling Canal at about 2340 on February 7, 1988.

On February 29, 1988, the licensee discovered that no evaluations had been made or corrective actions taken when the air sample indicated field evaluation results greater than 500 ncpm on February 7, 1988.

Subsequent licensee review indicated the following:

- The sample was gamma scanned on February 11, 1988 and found to indicate 100X MPC. No action was taken following the scan.
- One worker, who had worn a full face respirator with HEPA filter during the hydrolyzing, had an expired respiratory fit test. The licensee initially assigned 100 mpc-hrs to this worker.

The licensee whole body counted the workers. No intake of airborne radioactive materials was identified.

The inspector reviewed this event with respect to 10 CFR Part 2 relative to non-issuance of a Notice of Violation. The following was noted:

Item 1

A worker was issued and wore a full face respirator despite the fact that his fit test had expired.

The inspector's time limitations prevented a complete review of licensee corrective action. Therefore this item is unresolved pending the review of the circumstances and adequacy of licensee corrective actions to prevent recurrence. (50-334/88-18-01)

Item 2

Radiation protection personnel did not notify supervision when the field evaluation results of the air sample indicated greater than 500 ncpm on February 7, 1988.

Inspector review of this matter on May 13, 1988, with respect to 10 CFR Part 2 criteria for non-issuance of a violation, indicated that the licensee had recognized the need to reinstruct Radiological Controls technicians in the specifics of properly responding to high air sample analyses results. However, as of May 13, 1988, (about 2½ months after the problem was identified) no reinstruction of Radiological Controls technicians had been performed. The inspector noted that the licensee was planning to incorporate this matter in Radiological Control technician continuing retraining in the future.

The inspector concluded that the licensee's corrective actions to preclude recurrence, were not timely and generic to provide effective actions to prevent recurrence. Therefore, the licensee does not appear to meet all 10 CFR Part 2, Appendix C, criteria for non-issuance of a Notice of Violation. Consequently, this is an apparent violation of Technical Specification 6.11 which requires that radiation protection procedures be adhered to. (50-334/88-18-02)

9.0 ALARA

The inspector examined selected aspects of the ALARA Program. The review was with respect to applicable licensee procedures and NRC regulatory guidance.

The following matters were reviewed:

- total accumulated station exposure for 1987 and 1988
- ALARA goals
- ALARA Program implementation
- ALARA performance during recent Unit 1 refueling outage

Evaluation of licensee performance in the area was based on discussion with cognizant personnel and review of documentation.

Within the scope of this review, no violations were identified. The following was noted:

- Licensee ALARA pre-planning and performance for the Unit 1 Reactor Vessel baffle flow modification was commendable.

Within the scope of this review, the following matters were brought to the licensee's attention:

- o The inspector discussed with the licensee's ALARA Coordinator the difficulty which was encountered in performing ALARA pre-planning and goal establishment for planned work due to the lack of accurate person-hour estimates for the amount of time personnel were actually going to spend working in a radiation area on a particular task. As a result, the ALARA Coordinator has used previous task exposure totals, in part, as ALARA exposure goals for planned tasks. This apparent problematic weakness will be reviewed during a future inspection.
- o The licensee does not have a defined program to review on-going work to insure that the work is being performed within established ALARA goals and that appropriate action is taken when accumulated exposure or person-hour work estimates will be challenged.

Although no apparent examples were identified where applicable goals were unknowingly exceeded. Lack of an on-going job ALARA Review Program is considered a weakness. The licensee indicated this matter would be reviewed.

Station exposure for 1987 was 209 person-rem as compared to an industry average of 368 person-rem.

#### 10.0 Start-up Testing (Unit 2)

The inspector reviewed licensee completed shield surveys. The review was with respect to criteria contained in Beaver Valley Unit 2 FSAR, Chapter 14.2, "Initial Test Programs," and Procedure IST-2.43.02, "Plant Radiation Survey and Verification of Shielding Effectiveness."

Within the scope of this review, no violations were identified.

No deficiencies or unacceptable conditions were noted. Properly calibrated survey meters were used to perform surveys. Survey results were reviewed and approved.

#### 11.0 Housekeeping (Unit 1 and Unit 2)

The inspector toured the station during the inspection and reviewed housekeeping.

Housekeeping in Unit 2 was found acceptable. Several areas for improvement were identified in Unit 1. These included overflowing protective clothing containers, trash thrown behind structural beams, and balls of tape laying on the floor. A large strip of duct tape was found draped across small plastic tubing of the Unit 1 Post-Accident Sample Station. These areas were brought to the licensee's attention.

## 12.0 Exit Meeting

The inspector met with licensee representatives (denoted in Section 1 of the report) on May 13, 1988. The inspector summarized the purpose scope and findings of the inspection. No written material was provided to the licensee.