U.S. NUCLEAR REGULATORY COMMISSION REGION I

Report No. 50-334/83-30

Docket No. 50-334

License No. DPR-66 Priority - Category C

Licensee: Duquesne Light Company Post Office Box 4 Shippingport, Pennsylvania 15077

Facility Name: Beaver Valley Power Station, Unit 1

Inspection At: Shippingport, PA

Inspection Conducted: November 28 - December 2, 1983

Inspectors: R.L. Numitz, Senior Radiation Specialist

R. L. Numet for M. T. Miller, Radiation Specialist

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

 $\frac{1|25|84}{date}$ $\frac{1|25|84}{date}$ $\frac{1/28/84}{date}$

Inspection Summary: Inspection on November 28 - December 2, 1983 Report No. 50-334/83-30

Areas Inspected: Routine, unannounced safety inspection of the licensee's Radiation Protection Program including: status of previously identified items; radiological controls organization; personnel selection, qualification and training; audits; ALARA; exposure control; in-plant radiation protection program implementation; radioactive waste management; and worker concerns. The inspection involved 80 inspector-hours onsite by two region-based inspectors.

Results: No violations were identified.

8402150314 84013 PDR ADOCK 05000334

Details

1. Persons Contacted

1.1 Duquesne Light Company

A. Bevan, Radiological Controls Foreman
M. Burke, Health Physics Specialist
D. Canan, Senior Health Physics Specialist
E. D. Cohen, Senior Health Specialist
J. M. Clark, Radiological Controls Foreman
*K. D. Grada, Superintendent Licensing
J. Kosmal, Radiological Operations Coordinator
W. S. Lacey, Station Superintendent
F. J. Lipchick, Senior Compliance Engineer
E. Schnell, Radiological Controls Foreman
J. D. Sieber, Manager - Nuclear Safety and Licensing
M. Somerville, Health Physics Associate
D. L. Swofford, Radiological Controls
R. M. Vento, Radiation Program Coordinator
K. J. Winter, Health Physics Specialist

1.2 Contractors

*A. Balchus, Millwright General Foreman, Schneider Power Corporation *S. Palombine, General Superintendent, Schneider Power Corporation

1.3 NRC

W. Troskowski, Senior Resident Inspector

*denotes those individuals not present during the exit interview on December 2, 1983.

Other licensee and contractor employees were also contacted during this inspection.

2. Purpose

The purpose of this inspection was to review the licensee's Radiation Protection Program with respect to the following elements:

Status of Previously Identified Findings Radiological Controls Organization Personnel Selection, Qualification and Training Audits ALARA Program Exposure Control In-Plant Radiation Protection Program Implementation Radioactive Waste Management Worker Concerns

3. Status of Previously Identified Items

- 3.1 (Closed) Follow-up Item (50-344/81-32-05): Establish and implement a formally documented training, qualification, and retraining program for contractor radiological control personnel. The licensee had documented and implemented a training program with acceptance criteria for use in qualifying contractor radiological control personnel. (Details section 5.0)
- 3.2 (Closed) Follow-up Item (50-334/81-32-07): Licensee to take action to ensure outage work is adequately pre-planned for purposes of ALARA. (Details section 7.0)
- 3.3 (Closed) Follow-Up Item (50-334/83-11-01) Determine if airborne effluent monitoring systems are capable of collecting representative samples (Details section 10.1).

4. Radiological Controls Organization

The inspector reviewed the licensee's Radiological Controls Organization with respect to criteria contained in the following:

- Technical Specification 6.2, "Organization,"
- Station Administrative Procedure, Chapter 6, "Radiological Control Group Administration," dated November 14, 1983,
- Radiological Control Manual, Appendix 1, "Radcon Administrative Guide," Part III, "Organization and Responsibilities."

Examination of the licensee's performance in this area was based on review of applicable documents and discussion with licensee Radiological Controls personnel.

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

5. Personnel Selection, Qualification and Iraining

The inspector reviewed the selection, qualification and training of contractor Radiological Controls personnel with respect to criteria contained in the following:

- Technical Specification 6.3, "Facility Staff Qualifications,"
- ANSI N18.1, 1971, "Selection and Training of Nuclear Power Plant Personnel."

The following licensee documentation was reviewed:

- Contractor Radiological Controls Technician Procedure Qualification Package,
- Radiological Controls Foreman Qualification Guide,
- Contractor Radiological Controls Technician Attendance Records.

The licensee performance in this area was verified through discussions with cogrizant licensee personnel and review of documentation.

Within the scope of this review, the following matters were identified.

- the training and retraining program for contractor Radiological Controls Technicians was not under the direction of the Director Nuclear Division Training. Technical Specification 6.4.1 specifies that the training and retraining of the facility staff is to be under such direction;
- the training and retraining program for licensee and contractor Radiological Controls Technicians was not formally established;
- the program to train Radiological Controls Technicians was not formally established,
- the program to train Radiological Controls Technicians (both contractor and permanent), in new procedures and procedure changes, was not formally established.

The above matters will be reviewed during a subsequent inspection (50-334/83-30-01).

Licensee representatives indicated the above matters will be reviewed and corrective action, as necessary, taken.

Inspector review and discussions indicated that the licensee appeared to be providing adequate informal training of contractor and permanent Radiation Protection Technicians.

6. Audits

The inspector reviewed licensee audits in the area of Radiological Controls with respect to criteria contained in the following:

Technical Specification 6.5, "Review and Audit"

The licensee's performance relative to this criteria was determined by reviews of the following audits and corrective action documentation:

- BV-1-82-12, "Radiological Controls," dated April 12, 1982
- BV-1-82-29, "Radcon," dated August 25, 1982
- BV-1-82-39, "Radcon," dated November 18, 1982
- BV-1-82-40, "Effluent Monitoring-ORC," dated January 6, 1983
- RV-1-83-05, "Solid Waste Management," dated March 23, 1983
- BV-1-83-30, "Radiological Control," dated August 25, 1983
- BV-1-83-40, "Effluent Monitoring-ORC," dated October 10, 1983
- BV-1-81-4, "Training," dated May 5, 1981
- BV-1-82-10, "ORC Audit of BVPS Training," dated May 17, 1982
- BV-1-83-16, "Training Entire Facility Staff," dated June 15, 1983

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

The licensee's radiological audits appeared adequate and effective.

7. ALARA Program

Selected aspects of the licensee's ALARA Program were reviewed against criteria contained in:

- Regulatory Guide 8.8, "Information Relevant to Ensuring that Occupation Radiation Exposures in Nuclear Power Station will be As Low As is Reasonably Achievable,"
- Regulatory Guide 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposures As Low As is Reasonably Achievable."

The licensee's performance relative to these criteria was determined from interviews with the Radiological Program Coordinator, and two Senior Health Physicist Specialists/ALARA. Additionally, the following documents were reviewed:

 Nuclear Division Directive 20, "Occupational Radiation Exposure Reduction,"

Procedure 8.8.1, "Radiological Work Permit,"

5

Procedure 8.8.5, "ALARA Review".

The inspectors also noted that a draft implementing procedure for the corporate ALAR, program was in the approval process with final approval expected by December 31, 1983 and full station implementation by April, 1984.

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

- the licensee's ALARA Program did not provide for the following:
 - criteria for initiating ALARA reviews of long term or repetitive tasks
 - (2) criteria for use of engineering controls to reduce personnel exposure to airborne radioactivity;
 - (3) describe a methodology for performing on-going job reviews; and
 - (4) address a means to determine the effectiveness of the program.

In response, the licensee indicated that full implementation of the Corporate ALARA Program procedure would address these concerns. These items will be examined during a subsequent inspection (50-334/83-30-02).

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

3. Exposure Control

The exposure control program was reviewed against criteria contained in:

- 10 CFR 20.101, "Radiation dose standards for individuals in restricted areas,"
- 10 CFR 20.102, "Determination of prior dose,"
- 10 CFR 20.103, "Exposure of individuals to concentrations of radioactive materials in air in restricted areas,"
- 10 CFR 20.203, "Caution Signs, Labels, Signals and Controls,"
- 10 CFR 20.401, "Records of Surveys, Radiation Monitoring, and Disposal,"
- 1C CFR 20.407, "Personnel Monitoring Reports."

The licensee's performance relative to these criteria was determined from:

6

- discussions with the Radiological Controls Manager, members of his staff, and members of the Corrorate Radiological Safety Programs Department;
- direct observations during plant tours;
- examination of records relating to air samples, MPC hour determinations, and personnel monitoring exposure reports;
- review of Radiation Work Permits for at power containment entries and supporting records; and
- review of an evaluation of noble gas beta particle energies versus various shield densities.

Within the scope of this review, the following matter was identified:

- Licensee personnel periodically enter noble gas atmospheres to perform work. However, the licensee could not provide a complete evaluation to demonstrate that personnel skin dose, resulting from beta radiation exposure during these entries, was being properly monitored or that the beta radiation was effectively shielded by protective clothing worn.

Licensee representatives indicated that the beta radiation was shielded by protective clothing and that an evaluation of this would be documented. This matter is unresolved (50-334/83-30-03).

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

9. In-Plant Radiation Protection Program Implementation

The implementation of the in-plant radiation protection program was reviewed against criteria contained in:

- 10 CFR 20.201, "Surveys,"
- 10 CFR 20.203, "Caution Signs, Labels, Signals and Controls,"
- 10 CFR 20.401, "Records of Surveys, Radiation Monitoring, and and Disposal,"
- Technical Specification 6.11, "Radiation Protection Program,"
- Technical Specification 6.12, "High Radiation Area," and
- Radiological Control (Rad Con) Manual, Chapter 1, "Standards and Requirements."

The licensee's performance relative to these criteria was determined from:

- interviews with the Radiological Controls Manager, the Radiological Controls Foreman and other members of his staff; and Nuclear Shift Supervisor;
- review of selected Rad Con Chapter 3 Procedures including:
 - (1) Procedure 7.7.1, "Area Contamination Survey,"
 - (2) Procedure 7.7.2, Area Radiation Survey,"
 - (3) Procedure 7.7.3, "Air Sampling, Field Evaluation and Sample Assessment of Radioactive Particulates, Iodines and Noble Gases,"
 - (4) Procedure 8.8.1, "Radiological Work Permit," and
 - (5) Procedure 9.9.2, "Radiation Area Control,"
- review of Radiation Work Permits and supporting records,
- review of routine and special surveillance surveys,
- direct observations during plant tours, and
- review of survey meter qualification list and key sign-out record.

Within the scope of this review. the following item was identified:

The applicable Rad Con Procedures and Technical Specification 6.12 requires keys for locked high radiation areas be maintained under the administrative control of the shift Supervisor on duty and/or a facility health physics supervisor. In addition, keys shall be issued to individuals qualified in radiation protection procedures. The inspector noted that high radiation areas (> 1 R/hr) were locked and that the keys were located in a key cabinet within the Shift Supervisor's Office, however, the following conditions existed:

- personnel had been issued keys without verification of the individual's training to use survey meters. A listing of meter qualified personnel in the Control Room was outdated four months;
- the number of available keys was not known by the Shift Supervisor; nor were the keys inventoried to determine if all keys were accountable; and

the key cabinet was not locked on one occassion.

Licensee representatives stated that they would examine their administrative control of locked high radiation area keys. This item will be reviewed during a subsequent inspection (50-334/83-30-04).

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

10. Radioactive Waste Management

10.1 Nadioactive Waste Storage/Handling

The licensee's radioactive waste storage and handling was reviewed against criteria contained in the following:

- 10 CFR 20.203, "Caution Signs, Labels, Signals and Controls,"
- Regulatory Guide 8.8, "Information Relevant to Ensuring that Occupational Radiation Exposure at Nuclear Power Plants will be As Low As is Reasonably Achievable."

The licensee's performance in this area was based on discussions with licensee personnel and plant tours by the inspector.

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

- The licensee is experiencing a shortage of storage space for radioactive waste. Consequently, drums of waste are being stored in hallways of the Auxiliary Building and in various cubicles. In one instance, a 1.5 R/hr drum was stored in a locked cage in close proximity to a traveled personnel walkway. The drum, and other materials in the area, produced a dose rate of about 30 mrem/hr at the walk way.

Licensee representatives indicated that the drums would be shielded and that the storage of waste, to minimize radiation exposure, would be reviewed. Licensee representatives also indicated a new building, which will be used to store radioactive waste, was in-planning.

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

The licensee's actions to improve radioactive waste storage for purposes of minimizing radiation exposure to personnel will be reviewed during subsequent inspections.

10.2 Effluent Monitoring

The inspector reviewed the capability of the licensee's airborne radioactivity effluent monitors to collect representative samples. The review was with respect to criteria contained in the following:

- 10 CFR 20.106, "Radioactivity in effluents to unrestricted areas,"
- ANSI N13.1, 1969, "Guide to Sampling Airporne Radioactive Materials in Nuclear Facilities,"
- ANSI N13.10, 1974, "Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents."

The licensee's performance in this area was based on discussions with cognizant licensee personnel, review of documentation, and independent inspector observations of plant effluent monitoring systems.

Within the scope of this review, the following matter was identified:

- The licensee was unable to provide evidence that the effluent monitoring systems, which monitor airborne radioactivity released from the plant, were capable of collecting representative samples. Review of the Ventilation Vent Monitoring System, and the Process Vent Monitoring System indicated that certain portions of the systems were not constructed in accordance with ANSI N13.1.

Licensee representatives indicated the following actions would be taken:

- The SPING Sampling Systems for the three ventilation effluent pathways will be evaluated to ensure they were designed in accordance with ANSI N13.1, 1969 and ANSI N13.10, 1974. This action will be completed by March 1, 1984.
- Procedures will be developed and approved for the test sampling and analysis of the ventilation effluent monitoring systems. This action will be completed by May 1, 1984.
- Particulate and iodine samples will be drawn at the sample probe location for one of the SPING Systems to determine if there are significant sample losses at the detector.
- From the period of May 1 through September 1, 1984, particulate and iodine samples will be taken concurrently at the three normal ventilation effluent sampling locations (SA-2 and SA-10) and at the three SPING Systems.
- The data from these locations will be compared and a summary evaluation report provided to the Regional Administrator, NRC Region I; by December 31, 1984. This matter is unresolved (50-334/83-30-05).

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

11. Worker Concerns

11.1 General

On September 29, 1983, an individual contacted the NRC to express concerns pertaining to the adequacy of the licensee's Radiation Protection Program.

On October 3, 1983, the individual was contacted and interviewed by a representative of NRC Region I. At that time, a review of the licensee's Radiation Protection Program with respect to the allegations was initiated.

11.2 Review of Allegations

The following provides the allegations and the inspector's findings:

11.2.1 Allegation 1

The individual's termination radiation exposure report apparently showed he had received 20 mrem and that no thermoluminescent dosimeter (TLD) was issued to him during the monitoring period.

Findings (Allegation 1)

The individual worked at the site during the period May 19, 1983 to June 21, 1983. The licensee's dosimetry personnel processed the termination report, for this work period, on August 30, 1983.

The termination report depicted two periods, May 19 to June 30, 1983 and July 1 to August 29, 1983. The exposure received during the former period, as determined by dosimeter read-out, was 20 millirem. The report stated "No TLD Issued" for the latter period.

Licensee representatives stated that the contractor formally notified the licensee of this individual's termination on August 29, 1983. For records purposes, licensee dosimetry personnel added the second period to indicate that no dosimetry had been provided to the individual subsequent to final reading of his thermoluminescent dosimeter (TLD) on June 30, 1983 and formal notification of the workers termination.

Based on the above, this matter is resolved.

Licensee representatives stated that action would be taken to ensure that contractors provide timely notification of worker terminations for purposes of timely generation and transmittal of termination reports.

11.2.2 Allegation 2

The individual and other workers were instructed to go into containment on June 18, 1983 with no work scheduled.

Findings (Allegation 2)

The inspector reviewed the work schedule and scope for each job assigned to the group this individual was working with on June 18, 1983. The inspector also discussed the jobs with contractor personnel, examined on-the-job work performance audits performed by licensee budget and planning personnel, and discussed the work with licensee ALARA personnel.

Based on the discussions, and review of documentation numerous tasks were scheduled and were performed by the group this individual was assigned to on June 18, 1983.

The review of security access data for the individual indicated he spent two hours in containment on June 18, 1983.

The inspector did note that new workers were directed on occassion to observe on-going work in order to become familiar with the tasks (snubber removal) being performed. Licensee ALARA personnel were unaware of this practice but indicated that 1) the work locations had been shielded to the extent practicable and that, 2) tours by ALARA personnel of the work locations did not identify unnecessary personnel in work locations reviewed.

Based on the above, this matter is resolved.

The licensee's ALARA program is discussed in section 7 of this report.

11.2.3 Ailegation 3

Personnel were being exposed to an "unknown milky substance" on the floor near a worker change area on the 767 foot elevation of the Auxiliary Building.

Findings (Allegation 3)

The inspector reviewed Radiological Controls Technician's and Foreman's Log Books and reviewed surveys performed in the area for the period May 19 through June 21, 1983. No indication of an unknown milky substance was identified.

The 767 foot elevation of the Auxiliary Building was toured periodically during the inspection. White boric acid crystals were noted of the floor near the Boric Acid Batch Mixer. The inspector smear checked the crystals and found no radioactive contamination. No other substance, as described, was identified.

Licensee representatives indicated that the deaerator is periodically blown-down on this elevation. Slight traces of oil from the deaerator, when mixed with water, appears milky. The oil is not contaminated.

Based on the above, this matter is resolved.

11.2.4 Allegation 4

Radioactive trash, which may cause a contamination problem, was monitored and sorted near a worker change area.

Findings (Allegation 4)

The licensee monitors, sorts, and separates low level radioactive contaminated trash on the 767 foot elevation of Au iliary Building. During outages, change areas for personnel entering containment, are set up near the sorter.

The inspector reviewed all radiation, contamination and airborne radioactivity surveys performed for a six month period which covered preoutage, ongoing outage, and post-outage conditions on the elevation. The review did not identify any significant radiation, contamination, or airborne radioactivity hazards, as evidenced by surveys.

The trash was being sorted on a monitoring and sorting table equiped with a ventilation system which used a HEPA filter system to filter exhaust air.

Based on the above, this matter is resolved.

Licensee representatives indicated a new building is in-planning. The new building, among other items, will be used to house the trash sorter.

12. Exit Interview

The inspector met with licensee representatives (denoted in section 1) at the conclusion of the inspection on December 2, 1983. The inspector summarized the purpose, scope and findings of the inspection. At no time during this inspection was written material provided to the licensee by the inspectors.