

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-334/80-22

Docket No. 50-334

License No. DPR-66 Priority - Category C

Licensee: Duquesne Light Company

435 Sixth Avenue

Pittsburgh, Pennsylvania 15219

Facility Name: Beaver Valley, Unit 1

Inspection at: Shippingport, Pennsylvania

Inspection conducted: July 28-August 1, 1980

Inspectors: J. A. Serabian
D. A. Serabian, Radiation Specialist

8-11-80
date signed

date signed

date signed

Approved by: P. J. Knapp
P. J. Knapp, Chief, Radiation Support
Section, FF&MS Branch

8-15-80
date signed

Inspection Summary:

Inspection on July 28-August 1, 1980 (Report No. 50-334/80-22)

Areas Inspected: Routine, unannounced inspection by a regional based inspector of the radiation protection program during the refueling outage including: advanced planning and preparation; training; exposure control; respiratory protection program; posting, labeling, and control; surveys; and plant tours. Also, licensee actions on previous inspection findings were reviewed. Upon arrival at 6:55 a.m., and at other times during the inspection, areas where work was being conducted were examined to review radiological procedures and practices. The inspection involved 30 inspector-hours onsite by one NRC regional based inspector.

Results: Of the seven areas inspected, no items of noncompliance were found in six areas, one item of noncompliance was identified in one area (Infraction - failure to complete Form NRC-4 prior to exceeding 1.25 rem/qtr.)(Paragraph 6).

DETAILS

1. Persons Contacted

- *Mr. J. Werling, Station Superintendent
- *Mr. J. Kosmal, Radiation Control Supervisor
- *Mr. D. Kochman, Radiation Control Engineer
- Mr. D. Blair, Radiation Control Engineer
- Mr. F. Schnell, Radiation Control Foreman
- Mr. Burke, Associate Engineer
- *Mr. R. Hansen, Maintenance Supervisor
- *Mr. F. Lipchick, Senior Compliance Engineer
- Mr. D. Engelmores, Building Maintenance Supervisor
- Mr. J. Vesello, Training Supervisor

The inspector also interviewed other licensee employees including members of the health physics staff (station and contractor) and maintenance personnel.

In addition, the following NRC personnel were contacted.

- *Mr. D. Beckman, Senior Resident Inspector
- Mr. J. Hegner, Resident Inspector

*Denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Noncompliance (50-334/78-11-02): Failure to perform surveys pursuant to 10 CFR 20.201. Through review of Radiation Work Permits (RWP) and air sample results and tours of controlled areas, the inspector verified that surveys to determine concentrations of airborne radioactivity were being conducted.

(Closed) Unresolved Item (50-334/78-22-02): Assurance of Grade "D" breathing air quality. Through discussion with licensee representatives, review of test results and review of breathing air equipment technical specifications, the inspector determined that Grade "D" air (from the service air system) is available.

3. Procedures

The inspector reviewed the following radiation protection procedures from the Beaver Valley "Radiation Control Manual" against the requirements set forth in Technical Specification 6.8, "Procedures", Regulatory Guide 1.33, 1972, "Quality Assurance Program Requirements", and Technical Specification 6.11, "Radiation Protection Procedures".

- Chapter 1, "Standards and Requirements, Revision 8"
 - . II.D., "Personnel Radiation Exposure Monitoring"
 - . II.F., "Exposure Control, Administrative"
 - . II.G., "Other Exposure Controls (ALARA)"
 - . III.A., "Contamination Limits"
 - . III.D., "Contaminated Material Packaging and Labeling"
- Chapter 2, "Radiation Exposure Control Monitoring", Revision 1
 - . B., "Radiation and High Radiation Areas"
 - . Radcon Procedure (RCP) 5.3, "Bioassay Sampling"
 - . RCP 8.1, "Radiological Work Permit"
 - . RCP 8.3, "Containment Radiation Barrier Key Control - Shutdown and Major Maintenance"
 - . RCP 9.6, "Contamination Control Practices"
 - . RCP 9.7, "Contamination Containment Walk-In Test-Type Enclosures"
 - . RCP 10.1, "Respiratory Equipment"
 - . RCP 10.2, "Respiratory Equipment: Training, Fitting and Testing"
 - . RCP 10.3, "Radcon Respiratory Equipment - Chemox"
 - . RCP 10.4, "Full Face Respirators - Inspection, Repair, Storage"
 - . RCP 10.5, "Air Supplied Hoods - Inspection, Repair, Storage"
 - . RCP 10.6, "Sodium Chloride Test System"
 - . RCP 10.7, "35% Oxygen Airline Equipment for Use in Containment"

The inspector noted that, according to the "Radiation Control Manual", Chapter 2, Section B., "Radiation and High Radiation Areas", areas in excess of 100 mRem/hr at 18 inches from a local radiation source must be posted as a High Radiation Area. The inspector informed a licensee representative that the regulatory requirements define a High Radiation Area as an area

accessible to personnel in which radiation existed at such levels that a major portion of the (whole) body could receive a dose in excess of 100 mRem in any one hour. (The inspector noted that this general definition is also included in the aforementioned procedure.) During facility tours, the inspector reviewed High Radiation Area posting and control and identified no areas which were not in accordance with the regulatory requirements.

The inspector also reviewed maintenance and operations procedures "Repair and Replacement of Flux Mapping System Components", Revision 1, and "Flux Mapping System Thimble Retraction and Installation", Revision 0, and noted that health physics precautionary notes had been incorporated.

No items of noncompliance were identified in this area.

4. Advanced Planning and Preparation

To augment its staff for the refueling outage, the licensee contracted for the services of an outside health physics firm. At the time of the inspection, approximately 33 contractor health physics technicians were onsite. The inspector noted that pursuant to Technical Specification 6.4, "Training", (which endorses ANSI N18.1-1971) those technicians in responsible positions must have two years of experience in health physics. The inspector reviewed the resumes of 11 of the 33 contractor technicians onsite who were assigned to responsible positions. All of the individuals reviewed had met the experience requirement.

Through observation of work activities, discussion with licensee representatives and review of radiological survey records, the inspector noted that the licensee has been conducting general decontamination both before and after maintenance activities. The inspector also noted that the licensee has also evaluated maintenance activities prior to the commencement of work so that an ALARA review (and installation of shielding if necessary) can be conducted for activities involving areas of relatively high radiation dose rates. It was also observed that engineering controls, such as portable air filtration systems, were in use. Licensee representatives stated that such a system had been used during steam generator entries and that, additionally, a tent was erected for control and confinement of high levels of contamination.

No items of noncompliance were identified in this area.

5. Training

The licensee conducts general radiation worker training courses as implemented through the Radiation Control Manual, Chapter 1, Section 2.b. The inspector reviewed the training records of 11 individuals who had been involved with steam generator work to determine if the training required

by 10 CFR 19.12, "Instructions to Workers", had been conducted. Workers in the field were interviewed to determine if the individuals had been apprised of the radiological conditions associated with their specific work assignments. The inspector verified that the licensee had conducted the required training and had briefed the individuals of the specific radiological job conditions.

No items of noncompliance were identified in this area.

6. Exposure Control

The inspector reviewed the licensee's exposure control and personnel monitoring program against requirements contained in the following:

- 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 20.104, "Exposure to Minors"
- Technical Specification 6.12, "High Radiation Area"

The inspector selected exposure records of all (ten) individuals whose external whole body dose was in excess of 1.25 Rem (but less than 3 Rem) during the first calendar quarter of 1980. Most of the radiologically significant work of the 1980 refueling outage occurred during this period. The inspector noted that only ten of approximately 430 individuals who had been subject to radiation exposure during this period had received doses greater than 1.25 Rem.

During the review of exposure records, the inspector identified one instance in which the licensee's equivalent Form NRC-4 had not been completed prior to the individual exceeding 1.25 Rem. (The individual received 1.41 Rem.) A notation had been made on the equivalent Form NRC-4 to limit the individual to 1.25 Rem/qtr.; however, when the exposure history for the individual was received from his previous employer, the exposure control form (i.e., the equivalent Form NRC-4) was not completed.

Title 10 CFR 20.101, "Radiation Dose Standards for Individuals in Restricted Areas", Section (a), limits the occupational whole body radiation dose to 1.25 Rem per calendar quarter. Section (b) states that a radiation dose up to 3 Rems per calendar quarter is allowed if the information contained on the Form NRC-4, or equivalent, is obtained and the

calculation of prior occupational dose (and the remaining allowable dose) must be performed as required on the form. The inspector noted that the failure to limit the individual's occupational radiation dose to 1.25 Rem in accordance with 10 CFR 20.101(a), when the specifications of Section (b) were not met, constitutes an instance of noncompliance (50-334/80-22-01).

The inspector further noted that, in this instance, with regard to exposure control, the licensee had, through another administrative procedure, controlled the individual's dose until receipt of the individual's prior exposure history.

During review of the remaining nine Form NRC-4 (equivalent), the inspector noted that, while the information required had been collated in each individual's file, there were eight instances in which the Form NRC-4 equivalent contained omissions or referred to other documents. A licensee representative stated that a relatively high turnover of clerks, who normally process the dose information, had probably contributed to the lapses and that increased training and auditing of this area would be conducted in the future.

The inspector reviewed the licensee's "Maximum Permissible Concentration Log", which is used to track MPC-hours in conjunction with the 40-hour control measure specified by 10 CFR 20.103 (b)(2). Over the period of review (March, 1978 to July, 1980), the log indicated that there were no instances in which the 40-hour control measure was exceeded. The highest value listed was approximately 23 MPC-hours.

The inspector reviewed RCM Form 8.4, "Containment Radiation Barrier Key Log Sheet", which is maintained pursuant to Technical Specification 6.12. The inspector noted that, for the period of review (July 26 to July 31, 1980), all High Radiation Area Keys had been accounted for.

7. Respiratory Protection Program

The inspector reviewed the licensee's respiratory protection program (which included procedure review, interviews of personnel, inspection of the respirator cleaning facility, and review of breathing air quality specifications) against procedural and technical requirements contained in the following:

- 10 CFR 20.103, "Exposure of Individuals to Concentrations of Radioactive Materials in Air in Restricted Areas", Section (c); and
- Regulatory Guide (R.G. 8.15), "Acceptable Programs for Respiratory Protection", October 1976.

The inspector's review entailed verification of the following:

<u>Section (R.G. 8.15)</u>	<u>Requirement</u>
c.4.a	Air sampling program sufficient to evaluate the hazard.
c.4.b	Written procedures to ensure proper training of personnel using respiratory protection equipment.
c.4.c.	Written procedures for maintenance of respiratory protective equipment.
c.4.f.	Bioassays to evaluate individual exposures.
c.5.	Use of certified respiratory protective equipment as per 30 CFR Part 11.
c.8.a.	Respirable air of approved quality provided.
c.8.c.	No credit taken for use of sorbents against radioactive materials.
c.8.d.	High efficiency filter media in air-purifying respirators.
c.8.i.	Facelets not used.

No items of noncompliance were identified in this area.

8. Posting, Labeling, and Control

The inspector toured the facility on July 28, 1980, and at subsequent times during the inspection. Posting, labeling, and radiological area control were reviewed against requirements contained in the following:

- 10 CFR 20.203, "Caution Signs, Signals, and Controls"
- Technical Specification 6.11, "Radiation Protection Program"
- Technical Specification 6.12, "High Radiation Area"

The inspector observed that radioactive material storage appeared satisfactory and that radioactive materials containers appeared to be adequately identified and labeled in accordance with 10 CFR 20.203(f). Radiation and High Radiation Areas appeared to be posted and controlled as required. The inspector performed independent radiation dose rate measurements, at

random, to verify that the areas were posted as required and that posted dose rates were not discrepant with measured dose rates.

The inspector reviewed maintenance activities against requirements specified by the following Radiation Work Permits (RWP).

<u>RWP No.</u>	<u>Activity</u>
B006911	Changeout Gasket - Torque Flange
B006459	Installation of Steam Water Deflectors, Steam Chimneys, and Drain Pipes
B006838	Remove/Repair RV-551-B

No items of noncompliance were identified in this area.

9. Surveys

The inspector reviewed the licensee's survey program against the requirements of 10 CFR 20.201(b). Surveys made to support the RWPs listed in Paragraph 8 were examined. In addition, surveys in support of the following RWPs (associated with steam generator work) were also examined.

<u>RWP No.</u>	<u>Activity</u>
B006423	Prepare Area for Breach of and Work on "C" Steam Generator
B006449	Eddy Current Testing of 1 "C" Steam Generator
B006456	Disassembly of Tent, Scaffolding, etc., Clean-up and Decon of S/G Area

The inspector concluded that airborne radioactivity surveys and radiation surveys had been performed so as to determine compliance with 10 CFR 20.103 and 10 CFR 20.101, respectively.

No items of noncompliance were identified in this area.

10. Exit Interview

The inspector met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on August 1, 1980. The inspector summarized the scope and findings of the inspection as presented in this report. Regarding the procedure pertaining to High Radiation Area posting, a licensee representative indicated that the procedure would be revised by September 1, 1980, to eliminate the 18 inch criterion for posting.