

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-352/84-35

Docket No. 50-352

License No. CPPR-106 Priority - Category B

Licensee: Philadelphia Electric Company
2301 Market Street
Philadelphia, Pennsylvania 19101

Facility Name: Limerick Generating Station

Inspection At: Limerick, Pennsylvania

Inspection Conducted: July 2-3 and 5-6, 1984

Inspectors: J. J. Kottan 8-1-84
for M. T. Miller date
Radiation Specialist
J. J. Kottan 8-1-84
J. J. Kottan date
Radiation Laboratory Specialist
for J. J. Kottan 8-1-84
B. H. Carson date
Radiation Specialist
Approved by: W. J. Paselak 8/3/84
W. J. Paselak, Chief, Effluents date
Radiation Protection Section

Inspection Summary:
Inspection on July 2-3 and 5-6, 1984 (Report No. 50-352/84-35)

Areas Inspected: Routine, announced preoperational inspection of the licensee's Chemistry, Radioactive Effluent Control and Radiation Protection Programs. Areas reviewed included: Status of previously identified items, organization and staffing, training and qualifications, facilities and equipment, and plans and procedures. The inspection involved 56 inspector-hours onsite by three NRC region-based inspectors.

Results: No violations were identified.

1.0 Individuals Contacted

Principal Licensee Employees

- *G. Leitch, Station Superintendent
- *D. Dubiel, Senior Health Physicist
- *J. Wiley, Senior Chemist
- *C. Endriss, Regulatory Engineer
- *A. MacAinsh, Quality Assurance Site Supervisor
- K. Eldrige, Physicist, Radioactive Materials and Radwaste Shipping
- E. Frick, Support Chemist
- F. Molohon, Physicist, Respiratory Protection
- T. Mscisz, Health Physics Supervisor
- G. Murphy, Support Health Physicist
- J. Rogan, Support Chemist (Corporate)
- J. Sabados, Supervisory Chemist
- D. Taylor, Nuclear Training Instructor
- *R. Titolo, Applied Health Physicist

The inspector also interviewed other licensee or contractor employees including members of the chemistry and radiation protection staffs.

*Denotes attendance at the Exit Interview on July 6, 1984.

2.0 Purpose

The purpose of this preoperational inspection was to determine if the licensee's Chemistry and Radioactive Effluent Control Programs adequately comply with the regulatory requirements and commitments made in the Final Safety Analysis/Report (FSAR) with respect to the following program elements:

- organization and staffing
- training and qualification
- facilities and equipment
- plans and procedures

In addition, the inspection was performed to review the status of previously identified items with regard to the Radiation Protection Program.

During the same inspection period a review of the licensee's preparation and procedures for performance of fuel transfer and inspection activities was conducted (See NRC Region I Inspection Report No. 50-352/84-30 for details).

3.0 Status of Previously Identified Items

- 3.1 (Closed) Inspector Follow-up Item (50-352/84-03-01;50-353/84-01-01): Vendor laboratory audit. The inspector reviewed Audit Report No. OP-273, dated February 22-24, 1984, of the licensee's vendor laboratory used for

the environmental monitoring program. Identified audit findings required timely corrective action by the vendor laboratory.

- 3.2 (Open) Inspector Follow-up Item (50-352/84-05-03): Health Physics facilities and equipment. The inspector toured the facility including, counting laboratory, health physics field offices, decontamination facilities and balance of plant. The inspector noted that Area Radiation Monitors and counting equipment had been installed and calibrated. (The adequacy of the equipment calibration will be reviewed during a subsequent inspection.)

The licensee had also acquired additional resources, namely personnel dosimetry, protective clothing and portable survey instrumentation. With regard to HP facilities the inspector noted that the field office instrumentation cage end access control station located in the turbine enclosure building were in the final stages of construction. This area will be reviewed during a subsequent inspection.

- 3.3 (Open) Inspector Follow-up Item (50-352/84-05-04): Permanent external exposure monitoring program. The inspector noted the licensee had approved several procedures to implement its personnel exposure monitoring program. This item is discussed in section 4.0 of this report.
- 3.4 (Open) Inspector Follow-up Item (50-352/84-05-11): General Employee Training (GET). The inspector reviewed the lesson plan manual and slide summary for the GET Basic Program and determined that information relative to termination exposure reports and emergency plan evacuation was not included.

The inspector also noted that the GET Basic Program had not been approved, but had been used to instruct approximately 500 workers. The licensee stated the above requirements would be included in the GET and would also be provided to those individuals who had already received the GET course. The licensee also stated the GET course would be approved prior to fuel movement.

4.0 External Personal Dosimetry

The External Personnel Dosimetry 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 20.105, "Permissible Levels of Radiation In Unrestricted Areas"
- 10 CFR 20.202, "Personnel Monitoring"

- 10 CFR 20.401, "Records of Surveys, Radiation Monitoring, and Disposal"
- Regulatory Guide 8.2, "Guide For Administrative Practices In Radiation Monitoring"
- Regulatory Guide 8.4, "Direct-Reading and Indirect-Reading Pocket Dosimeters"
- Regulatory Guide 8.7, "Occupational Radiation Exposure Records Systems"
- ANSI N-13.5-1972, "Performance Specifications for Direct Reading and Indirect Reading Pocket Dosimeters for X-and Gamma Radiation."

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

- discussions with the Senior Health Physicist and Support Health Physicist;
- review of vendor procedures and purchase order ME-33479, "Procurement of Personnel Dosimetry Service for Limerick Generating Station," dated January 19, 1984; and
- review of selected procedures including:
 - HP-603, Guidelines for Placement of Dosimetry on Plant Personnel
 - HP-610, Issuance and Control of Routine and Emergency Dosimetric Devices
 - HP-614, Quality Control Checks of Supplying TLD Vendor
 - HP-616, Use of Direct Reading Dosimeter, Revision 1
 - HP-617, Response Leak Rate and Calibration of Direct Reading Dosimeters
 - HP-619, Preparation, Administrative Review and Dissemination of Personnel Exposure Record Reports
 - HP-626, Personnel Exposure Records.

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

The licensee plans to implement restricted area access control on the refuel floor and has established an external dosimetry program. The inspector noted that the licensee will use a vendor supplied/processed system which provides a two element thermoluminescent dosimeter to estimate gamma and beta dose exposures.

The inspector determined the licensee has established an adequate quality assurance program for periodically checking the gamma response of the dosimeters, but procedures for determining the beta response factor had not been developed. The licensee stated that a beta response factor would

be determined on a quarterly basis using an independent vendor. However, the inspector noted that the planned use of a Strontium-90 source would not verify the adequacy of the personnel monitoring device to monitor beta radiation energies encountered in an operating plant.

With regard to personnel neutron dosimetry the licensee plans to measure the neutron flux using a neutron rem ball. The acceptability of the neutron flux to dose rate conversion will be evaluated after completion of the licensee; "Neutron Radiation Survey Test" (SUT-2). The surveillance test is scheduled to be completed prior to fuel load.

The above matters will be reviewed during a subsequent inspection prior to fuel load.

5. Chemistry and Radioactive Effluent Control Programs

5.1 Organization and Staffing

The inspector reviewed the licensee's chemistry organization with respect to staffing and structure. The positions of Senior Chemist, Supervisory Chemist, Support Chemist, Senior Technical Assistant, and In-Plant Technical Assistant have been staffed. The Senior Technical Assistant is also acting as the Out-of-Plant Technical Assistant. The In-Plant Technical Assistant position is filled by a contractor. In addition corporate support chemists are onsite and assisting in effluent and process monitor calibrations. The licensee currently has eight contractor technicians on site as well as PECO technicians at the "C" technician level. The inspector noted that chemistry staffing both at the management and technician level, are adequate for fuel loading.

5.2 Training and Qualification

The inspector reviewed the training program and qualification of the chemistry department staff. The inspector noted that training on certain specific chemistry instrumentation was given by vendor representatives. The inspector reviewed planned training to be given on the gamma spectrometer by the system vendor. The inspector reviewed chemistry management and technician qualification with respect to Regulatory Guide 1.8, "Personnel Selection and Training", which reference ANSI N18.1, "Selection and Training of Nuclear Power Plant Personnel." The inspector noted that the chemistry management personnel discussed in paragraph 4.1 and the contractor technicians appear to meet the ANSI N18.1 requirements. The licensee's "C" technician do not meet the ANSI N18.1 requirements.

5.3 Facilities and Equipment

The inspector toured the facility including the chemical laboratories and counting room, liquid and airborne effluent and process radiation monitors and selected ventilation systems. The inspector noted that the licensee has now occupied the chemistry laboratories and counting room,

and major instrumentation has been installed and is operational. Licensee personnel are familiarizing themselves with the instrumentation and are receiving training on the instrumentation. To date one of four detectors for the gamma spectrometer system has been calibrated. The process and effluent radiation monitors are installed and ready for calibration. The inspector also discussed process and effluent radiation monitor calibration with the licensee as well as air cleaning ventilation system testing. The inspector stated that these areas would again be examined during a subsequent inspection.

5.4 Plans and Procedures

The inspector discussed procedures with the licensee. The licensee has written most of the required chemical analysis procedures. The inspector noted that procedures in the areas of radiation monitor calibration, effluent sampling and analysis, in plant sampling and analysis, controlling releases and complying with effluent release limits, and routine surveillance have not been written. The inspector also discussed the use of vendor laboratories and methods of maintaining the quality of vendor results. The inspector stated that additional procedures in the above areas would be reviewed during a subsequent inspection.

6.0 Exit Interview

The inspector met with the licensee's representatives (denoted in paragraph 1) at the conclusion of the inspection on July 6, 1984. The inspector summarized the purpose and scope of the inspection and identified findings as described in this report.

At no time during this inspection was written material provided to the licensee by the inspector.