U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-440/85027(DRSS)

Docket No. 50-440 License No. CPPR-148

Licensee: Cleveland Electric Illuminating Company
Post Office Box 5000
Cleveland, Ohio 44101

Facility Name: Perry Nuclear Power Plant, Unit 1

Inspection At: Perry Site, Perry, Ohio

Inspection Conducted: August 5-9, 1985

Inspectors: D. E. Miller for — Date 8/29/85

C. F. Gill — Date 8/29/85

Approved By: L. R. Greger, Chief — Date 8/29/85
Facilities Radiation Protection
Section

Inspection Summary

Inspection on August 5-9, 1985 (Report No. 50-440/85027(DRSS))
Areas Inspected: Routine, announced inspection of the radiation protection and radwaste programs including: solid radwaste, liquid radwaste, organization and management controls, training and qualifications, internal and external exposure control, ALARA, transportation activities, and control of radioactive materials. Also reviewed were open items, certain IE Circulars and Information Notices, and status of certain preoperational tests. The inspection involved 78 inspector-hours onsite by two NRC inspectors.
Results: No violations or deviations were identified.

DETAILS

1. Persons Contacted

*T. Barton, Contract Engineer, Nuclear Design and Analysis Section (ND&AS)
*R. Bowers, Corporate Health Physicist, Reliability and Design Assurance Section
*J. Cotlam, Systems Test Engineer, Nuclear Test Section (NTS)
H. Dieckmann, HVAC Engineer, ND&AS
G. Dunn, Specialist, Chemistry Unit
*W. Elgin, Licensing Engineer, Nuclear Licensing and Fuel Management Section (NLFMS)
*D. Green, Senior Project Engineer, ND&AS
J. Holton, Lead HVAC Engineer, GAI
*J. Hughes, Associate Engineer, ND&AS
*S. Kensicki, Technical Superintendent
*A. Lambacher, Supervisor, Nuclear Quality Assurance Department
*N. Lehman, Staff Analyst, Perry Plant Technical Department (PPTD)
*B. Liddell, Operations Engineer, PPTD
S. Martin, Unit Supervisor, Compliance
P. Moskowitz, Supervisor, Health Physics Unit (HPU)
B. Nelson, HVAC Test Engineer, NTS
*E. Root, Element Supervisor, NTS
*C. Shuster, Manager, Nuclear Quality Assurance Department
*F. Sondgeroth, Senior Engineer, ND&AS
*R. Stratman, General Supervising Engineer, Radiation Protection Section
E. Traverso, Supervisor, Chemistry Unit
*J. Traverso, Health Physics Engineer, ND&AS
*F. Whittaker, Radiation Protection Coordinator, HPU
L. VanDerHorst, Plant Health Physicist, HPU
*S. Wojton, Senior Engineer, ND&AS

*J. Grobe, Senior Resident Inspector, NRC

The inspectors also contacted several other licensee personnel and contractors during the inspection.

*Denotes those present at the exit meeting.

2. General

This preoperational inspection, which began at 1:00 p.m. on August 5, 1985, was conducted to examine progress made in development of the licensee's radiation protection and solid, liquid, and gaseous radwaste programs. Also reviewed were open items, certain IE Circulars and Information Notices, and status of certain proeoperational tests.

3. Licensee Actions on Previous Inspection Findings

(Closed) Open Item (440/85022-15): Verification of shielding installation in accordance with NUREG-0737 Task Action Item II.B.2. The inspectors selectively reviewed shielding installations. They appear to be in

accordance with construction plans. The licensee will perform shielding surveys during startup to verify shielding effectiveness. No problems were noted.

(Closed) Open Item (440/85006-01): Prepare documents which demonstrate compliance with commitments to NUREG-0737 Items II.B.3 and II.F.1, Attachments 1, 2, and 3. A selective review of licensee prepared documents indicates compliance with the above listed NUREG-0737 items is being tracked and documented in an adequate manner. The licensee has met with NRR regarding requests for concurrence concerning several specific aspects of the licensee's commitments. Further inspection of licensee compliance will include review of the associated system preoperational tests and SER followup Open Items No. 440/85022-16, No. 440/85022-21, and No. 440/850022-22.

(Closed) Open Item (440/85006-02): Posting, physical protection, and relocation of containment and drywell high range monitors. The licensee has changed the mounting bracket locations of one drywell and both containment high range direct radiation monitors as committed. The work order contains an instructional sign at one containment monitor warning against placing materials near the detector that could act as shielding.

(Closed) Open Item (440/85006-03): Spinster carbon qualification. The inspectors reviewed the material receipt documentation, qualification test records, and storage of ESF and non-ESF HVAC filtration system charcoal. No problems were found with the records or the storage. The carbon shipments reviewed were certified acceptable less than one year ago and adequately stored; therefore, there appears no need for a laboratory retest at this time. Inspector concerns regarding longer term storage, batch traceability, and segregation of ESF and non-ESF carbon were discussed at the exit meeting. The resultant licensee commitments appear to adequately address the inspectors' concerns.

(Open) Unresolved Item (440/85006-04): Resolve the use of silicone sealant on ductwork with NRR. The licensee has contacted NRR concerning this issue and significant progress has apparently been made towards resolution. This unresolved item remains open pending final NRR resolution of the technical adequacy of the use of silicone sealants on ESF and non-ESF ductwork.

(Closed) Open Item (440/85006-05): Review the validity of the annulus exhaust gas treatment system duct and housing leakage tests after completion of housing drain modifications. The housing drain modifications are completed and the leakage retests have been scheduled.

(Closed) Open Item (440/85006-06): Evaluate means to prevent potential fire protection system leakage from damaging air cleaning filters. The inspectors informed the licensee of an incident at Hatch, Unit 1 (LER 85-018-00) where inadvertently flooded ductwork leaked water onto an Analog Transmitter Trip System (ATTS) panel. This introduced moisture into the ATTS panel which, in turn, resulted in the malfunction of a safety relief valve and the High Pressure Coolant Injection System. According to licensee personnel: (1) the fire protection deluge sprinkler

systems for HVAC filtration system charcoal adsorber beds have a valving arrangement which includes drains to remove normal valve leakage before the filters could be damaged; (2) an inadvertent deluge initiation or deluge initiation due to a fire would result in a water flow pressure switch on the deluge valve activating an alarm in the control room and opening the normally closed filter housing drain line solenoid valve; (3) proper operation of this filter housing drain valve should prevent water from affecting any other safety-related equipment since the drain valve must be closed manually; and (4) the Periodic Test Instructions for the deluge valves include instructions for checking the operation of the drain valves and reclosing the valves as part of the test of the water flow pressure switch. Inspector concerns regarding the apparent need for additional procedural assurance of proper drainage were discussed at the exit meeting. The resultant licensee commitments appear to adequately address the inspectors' concerns.

4. Organization and Staffing

Since previously reported in Inspection Report No. 440/85006, several health physics related organizational changes have been made, including:

- D. Byard, former Health Physics Supervisor, has terminated employment with the utility.

- F. Wittaker, Jr., Radiation Protection Analyst, has been temporarily assigned to the vacated Health Physics Supervisor position.

- C. Reiter, formerly assigned to the Radwaste Unit, has been reassigned to the Health Physics Unit as the Acting Radwaste Shipping Coordinator. This is also a reassignment of responsibilities from the Radwaste to the Health Physics Unit.

- Two inexperienced radiation protection technicians have been hired. There is no specific ANSI N18.1-1971 requirements for the positions they hold.

Licensee administrative procedure PAP-0107, "Radiation Protection Section Organization," states that as the RPM, the Plant Health Physicist has direct recourse to the Plant Manager in order to resolve questions related to the conduct of the radiation protection program. The inspectors discussed this direct access prerogative with the General Supervising Engineer, Radiation Protection Section, and the Technical Superintendent who are intermediate supervisors between the RPM and the Plant Manager. Both intermediate supervisors stated that the direct access route is practically available and may be used without violation of reporting protocol; also, both stated that the RPM, is a voting member of the Plant Operations Review Committee (PORC) which provides direct access to the Plant Manager and an avenue to influence PORC reviews and decisions. The Plant manager was not onsite during the inspection. The RPM stated that no meetings with the Plant Manager are scheduled, but that no problems are encountered when direct contact is made. Implementation of procedure PAP-0107 will be reviewed during future routine inspections.

During future preoperational inspections, the inspectors will continue to review health physics unit organization, staffing, and management controls to assess readiness for fuel load. Also, the licensee's methods of indentification and correction of weaknesses will be reviewed.

No violations or deviations were identified.

5. External Exposure Control and Personal Dosimetry

The inspectors reviewed the licensee's planned external exposure control and personal dosimetry programs, including: facilities, equipment, personnel, and procedures; adequacy of the dosimetry program to meet routine and emergency needs; ALARA considerations; required records, reports, and notifications; effectiveness of proposed management techniques used to implement these programs and planned methods of self-identification and correction of program implementation weaknesses.

During the inspector's review of the licensee's program, the following procedures were selectively reviewed. No deviations from regulatory requirements were identified. Some revisions are in process to incorporate specific technical specification requirements.

OM1A:	PAP-0512	Revision 0	Radiation Work Permits
OM1A:	PAP-0514	Revision 0	External Exposure Control
OM11A:	HPI-B1	Revision 1	Personnel Dosimetry, Records and Reports
OM11A:	HPI-B3	Revision 1	Processing of Personnel Dosimetry
OM11A:	HPI-B4	Revision 0	Lost, Damaged or Off-Scale Dosimetry and Exposure Calculations
OM11A:	HPI-B5	Revision 0	Neutron Dose Assessment
OM11A:	HPI-J15	Revision 2	Calibration and Drift Check of Self-Reading Dosimeters

The licensee will use vendor supplied TLDs. The licensee intends to maintain NRC-5 equivalent records; the vendor reports will not be considered NRC-5 equivalent. The licensee plans a monthly badge exchange for most employees. Pocket dosimeters will be issued to individuals with a semi-annual exchange for calibration and drift check. For other than visitors and some contractors, the licensee plans to keep the issued pocket dosimeter and TLD with the person's identification badge which will be picked up and returned to the Primary Access Control Point when entering or leaving the protected area. Secondary access areas may be used for future extended outages. The dosimetry will be maintained at these secondary access areas. Visitor dosimetry will be maintained at the Health Physics Unit facilities.

The licensee's procedures and facilities/equipment for quality assurance testing of dosimetry are not ready for review. These matters remain to be reviewed before fuel load.

No violations or deviations were identified.

6. Solid Radioactive Waste Packaging and Shipping

The inspectors reviewed the licensee's preoperational solid radioactive waste management program, including: determination whether changes to equipment and procedures will be made in accordance with 10 CFR 50.59; adequacy of implementing procedures to properly classify and characterize waste, prepare manifests, and mark packages; adequacy of preparations for required records, reports, and notifications; and plans for identification and correction of programmatic weaknesses.

. Organizational Responsibilities

The Radwaste Unit, formerly a unit of the Radiation Protection Section, has been functionally transfered to the station's operating department. The Radwaste Unit is responsible for radwaste processing and packaging.

The Chemistry Unit is responsible for the Process Control Program, including test solidifications of wet wastes.

The Health Physics Unit is responsible for sample collection, isotopic identification, isotopic quantifications, and preparation of shipping papers.

. Solid Radwaste Packaging

Compactable dry active waste will be compacted in 55-gallon drums using a commercially purchased compactor. There are no firm plans for use of larger volume compactors.

The licensee does not plan to use the installed solidification system because of operational problems. The licensee has contracted with a vendor for onsite cement solidification in liners. Arrangement of vendor equipment within licensee facilities, and piping to transport wet wastes to the equipment, is in the design stages. When the plans are final, the inspectors will review the proposed arrangement and piping to determine if radiological considerations have been adequately addressed during facility change and 10 CFR 50.59 reviews.

. Radioactive Material Packaging and Shipping Procedures

The inspector reviewed the following radioactive material packaging and shipping procedures to determine if they are compatible with regulatory requirements. No significant problems were noted.

OM1A	PAP-1304	Revision 0	Radioactive Shipment Criteria
OM1A	PAP-1305	Revision 0 (Draft)	Shipment of Limited Quantity Radioactive Material
OM1A	PAP-1306	Revision 0	Shipment of Low Specific Activity Radioactive Material
OM1A	PAP-1307	Revision 0	Shipment of Radioactive Material, N.O.S.

OM1A	PAP-1308	Revision 0	Shipment of Radioactive Empty Packages
OM1A	PAP-1309	Revision 0	Shipment of Radioactive Waste for Disposal
OM1A	PAP-1310	Revision 0	Packaging Radioactive Material for Shipment
OM1A	PAP-1311	Revision 0	Shipment of Highway Route Controlled Quantity

Remaining to be reviewed before fuel load is the liquid waste processing system preoperational test.

No violations or deviations were identified.

7. Calibration of Effluent and Process Monitors

The inspectors reviewed plans and procedures for performance of calibrations of effluent and process monitors which are being performed prior to preoperational testing of the systems.

The inspectors reviewed the following initial calibration procedures for the General Electric and Victoreen monitors. The methods and extent of calibrations appear satisfactory.

D17-5	Revision 1	GE Liquid Gamma Radiation Channels
D17-7	Revision 2	GE Containment Ventilation Exhaust RMS Electronic Alignment
D17-11	Revision 0	GE Off-Gas Post Treatment Radiation Channels
D17-18	Revision 0	Victoreen Beta Channel Calibration
D17-19	Revision 0	Victoreen Gamma Channel Calibration
D17-22	Revision 0	Victoreen Process and Effluent Monitor Gas Calibrations

The inspector selectively reviewed calibrations of liquid and noble gas monitors that had been performed using the above procedures. No significant problems were identified. The above initial calibration procedures will not be used for routine operational calibrations. The licensee stated that routine calibration procedures are being written. These procedures are to reference solid source secondary calibrations performed during the initial calibrations. The initial calibrations use liquid radioactive sources for calibration of liquid process and effluent monitors, and Xe-133 and Kr-85 calibrations on gaseous effluent and process monitors. The initial calibration procedures establish the traceability of solid source calibrations to the fluid calibrations. Procedures for operational calibrations will be reviewed during future routine operational radwaste inspections.

The licensee intends to use the vendor's calibration and associated solid "transfer" sources as the initial calibration of the Kaman mid and high range noble gas effluent monitors. The inspectors reviewed the documentation of the vendor's calibration and traceability of the "Customer Standard Transfer Source" to the original noble gas, and

radioactive fluid energy response, calibrations. The calibration method appears to meet the requirements for calibration presented in Table II.F.1-1 of NUREG-0737. The preoperational test of these monitors will be reviewed when completed by the licensee.

No violations or deviations were identified.

8. IE Circulars and Information Notices

The inspectors reviewed licensee actions taken in response to the following selected IE Circular and Information Notices. The actions are considered adequate.

- IE Circular No. 81-07: Control of Radioactively Contaminated Material. The licensee has revised an administrative procedure to incorporate the contamination guidance presented in the IE Circular. No problems were noted.

- IE Information Notice 85-42: Loose, Phosphor in Panasonic 800 Series Badge TLD Element. The TLDs used at PNPP are of a different type and manufacturer than those described in the notice.

- IE Information Notice 85-06: Contamination of Breathing Air Systems. The licensee has committed to: install check valves in service air lines to avoid cross-contamination; implement specific procedural changes; and avoid using the service air system for breathing air whenever condensate, fuel pool, or reactor water cleanup filters are being backwashed or an off-gas system purge is in progress. No problems with the licensee's corrective actions were noted.

The licensee has enhanced their review of IE Bulletins, Circulars, and Information Notices. After review and preliminary response/action, they are sent to the Reliability and Design Assurance Review Group for acceptability review. The Corporate Health Physicist is a member of the review group. The inspectors noted that the quality of licensee's review and associated corrective measures has improved.

Several Bulletins and Circulars, in the licensee's review process, remain to be reviewed by the inspectors before fuel load.

No violations or deviations were identified.

9. Exit Interview

The inspectors met with licensee representatives (denoted in Section 1) at the conclusion of the inspection on August 9, 1985. Discussed were the scope and findings of the inspection. The inspectors also discussed the likely information content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee did not identify any such documents/processes as proprietary. In response to certain items discussed by the inspectors, the licensee:

a. Acknowledged the inspectors' concern regarding the potential need to retest "spinster" carbon and stated: (1) prior to initial loading, charcoal batch samples will be laboratory retested if the original certification occurred at least 18 months before, and (2) after initial loading, the first carbon laboratory retest will be within 18 months, even if the technical specifications are not implemented for the entire period. (Section 3)

b. Acknowledged the inspectors' concern regarding the batch traceability and segregation of ESF and non-ESF carbon and stated: (1) to avoid loss of batch traceability, clear tape will be placed over loose container batch stickers and (2) charcoal will be assigned to specific systems by batches to maintain batch traceability and as a mechanism to prevent the use of non-ESF carbon in ESF filtration systems. (Section 3)

c. Acknowledged the inspectors' concern regarding the apparent need for additional procedural assurance of proper drainage of HVAC filter housing deluge water and stated the Off Normal Instruction for Fire Protection, ONI-P54, will be revised to address: (1) verification of open drain lines upon deluge system initiation and (2) other available means of additional drainage, such as removing other filter housing drain caps and connecting these drains to the appropriate floor or equipment drain. (Section 3)