U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-387/84-23
50-388/84-29

Docket No. 50-387
50-388

License No. NPF-14
NPF-22 Priority -- Category C
C

Licensee: Pennsylvania Power and Light Company

2 North Ninth Street

Allentown, Pennsylvania 18101

Facility Name: Susquehanna Steam Electric Station Units 1 and 2

Inspection At: Berwick, Pennsylvania

Inspection Conducted: June 20, 1984

Inspectors: J. J. Kottan
J. J. Kottan, Radiation Laboratory Specialist
7-2-84
date

J. C. Jang
J. C. Jang, Radiation Specialist
7-2-84
date

Approved by: for J. M. Costello
W. J. Pasciak, Chief, Effluents Radiation Protection Section, Radiation Protection Branch
7-5-84
date

Inspection Summary:

Areas Inspected: Routine announced inspection of the licensee's bioassay whole body counting program. Areas reviewed included: results of the whole body counting phantom analysis comparison, procedures, and QA and calibration data. The inspection involved 8 inspector hours onsite by two NRC regionally based inspectors.

Results: Of the areas inspected no violations were identified.

DETAILS

1. Individuals Contacted

Principal Licensee Employees

* D. Thompson, Assistant Superintendent of Plant
* M. Buring, H.P. Supervisor
* R. Prego, QA Supervisor - Operations
* J. Todd, Compliance
P. McGlynn, H.P. Specialist, Internal Dosimetry and Respiratory Protection
J. Newman, H.P. Technician 1

*denotes those present at the exit interview.

2. Purpose

The purpose of this inspection was to verify the capability of the licensee to adequately perform radiological bioassay using a whole body counting system. A whole body counting phantom containing radioactive sources traceable to the National Bureau of Standards (NBS) was submitted to the licensee for analysis. The phantom duplicated the nuclides and the organ burdens that the licensee might encounter during normal operation. The phantom was analyzed using the licensee's normal methods and equipment.

3. Results Comparison

The licensee currently has a moving bed whole body counting system. The NRC phantom was counted in this system by the licensee with the sources in the lung and then in the GI tract area. The lung results are based on an average of five measurements and the GI tract results are based on an average of two measurements. Table I contains the results of the intercomparison. Based on the intercomparison results, no violations were identified in this area.

4. Procedures and Data

The inspector reviewed the licensee's procedures for the operation and calibration of the whole body counting system. The quality assurance (QA) program for the whole body counting system was also reviewed. The licensee's procedures contain detailed instructions for performing gain checks, source checks, and calibration checks at specified frequencies. Also included in the procedures are acceptance/rejection criteria for the various checks and requirements for use of quality control charts. The inspector reviewed the data for 1984 to date and noted that all QA checks were performed in accordance with procedural requirements. No violations were identified in this area.

5. Exit Interview

The inspector met with the licensee representatives denoted in Paragraph 1 at the conclusion of the inspection on June 20, 1984. The inspector discussed the purpose, scope, and findings of the inspection.

TABLE 1

Type of Counting System: Moving Bed

Isotope	Organ	NRC Value	Licensee Value	Licensee Value / NRC Value
		RESULTS IN TOTAL NANOCURIES		
Co-60	Lung	96	103	1.07
Cs-137	Lung	99	124	1.25
Co-60	GI Tract	86	109	1.26
Cs-137	GI Tract	89	134	1.50