Pa. Department of Environmental Resources
Bureau of Radiation Protection
Division of Nuclear Safety

Report No. 50-387/PA-92-01;50-388/PA-92-01

Docket No. 50-387; 50-388

License No. NPF-14; NPF-22

Licensee: Pennsylvania Power and Light Company
P.O. Box 467
Berwick, PA 18603

Facility Name: Susquehanna Steam Electric Station

Inspection At: Salem Township, Pennsylvania

Inspection Conducted: August 12, 1992

Inspector: David E. Ney — August 27, 1992
D. Ney, Nuclear Engineer — Date

Approved by: W P Dornsife — 8/28/92
W. Dornsife, Director — Date
Bureau of Radiation Protection

Areas Inspected: Announced inspection of the licensee's low level radioactive waste shipment preparation, including: packaging/package inspection, labeling, marking, placarding, vehicle inspection, radiation and contamination surveys.

Results: No violations or deviations were identified. However, a concern was identified pertaining to sample analysis dose rate verification in which the calculated contact dose of the radwaste liner based on sample analysis and the measured contact dose did not fall within the established acceptance criteria.

DETAILS

1. PERSONNEL CONTACTED

1.1 LICENSEE PERSONNEL

* M. Peal, Supervisor, Nuclear Compliance
* D. Hagan, Supervisor, Effluents Management
* C. Lewis, Radwaste Specialist
* P. Jager, Radwaste Foreman
* T. Dalpiaz, Manager, Nuclear Plant Services

1.2 NUCLEAR REGULATORY COMMISSION (NRC)

* J. Noggle, Radiation Specialist,
  Facilities Radiation Protection Section

* W. Pasciak, Chief,
  Facilities Radiation Protection Section

1.3 PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES (PADER)

* R. Janati, Acting Chief,
  Nuclear Safety Section, Division of Nuclear Safety

* Denotes those present at the exit interview on August 12, 1992

Other licensee employees were interviewed during this inspection.

2. SCOPE OF THE INSPECTION

This inspection was conducted in accordance with the Memorandum of Understanding (MOU) between the Commonwealth of Pennsylvania and the U.S. Nuclear Regulatory Commission. The State inspector reviewed the licensee's low level radioactive waste shipment preparation according to the attached inspection checklist.

The waste prepared for shipment contained dewatered bead resin and was determined to be LSA, Class A. It was stabilized in a Polyethelene High Integrity Container (HIC). The HIC was placed inside a Scientific Ecology Group (SEG), NRC certified, Type A cask.

The inspector witnessed loading of the HIC into the cask; placement of security seals; cover placement and bolt down with QC verification of bolting pattern and torque. The inspector reviewed the certificate of compliance (COC) for the cask and the cask loading and closing procedure. The inspector also examined the cask and determined it to be in satisfactory material condition.

The inspector performed an independent radiological survey of the shipping cask with the HIC inside. The highest reading detected was 3.55 mR/hr on the cask surface and 0.273 mR/hr at 2 meters. The highest removable contamination detected from smear samples taken at representative locations around the outer surface of the cask was 5 counts per minute (cpm) above background or approximately 0.17 dpm/cm2.

The inspector witnessed the licensee performing radiological surveys and contamination smears of the HIC and the cask. A visual inspection of the vehicle was performed to ensure that the vehicle was in acceptable condition for transport.

The licensee identified a discrepancy between the calculated value of the liner contact dose rate and the measured value. This discrepancy did not fall within the NRC or the licensee acceptance criteria. The calculated dose rate is determined by the isotopic analysis of the waste sample and subsequent computer analysis. The measured value is determined by measuring the liner contact dose rate. A significant difference was also identified between the total activity based on the sample analysis and the total activity obtained using the measured dose rate (dose to curie method). At the time of the inspection, the exact cause of these discrepancies was unknown. This issue was determined to be programmatic in nature and will be pursued by NRC Region 1.

The licensee decided to suspend the shipment pending further analysis and evaluation. Therefore, the inspector did not verify the accuracy of the shipping documentation.

3.0 EXIT MEETING

An exit meeting was held with the licensee representatives (denoted in section 1.0) at the conclusion of the inspection on August 12, 1992. The inspector summarized the scope and findings of the inspection.

PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF RADIATION PROTECTION
DIVISION OF NUCLEAR SAFETY
LOW LEVEL RADIOACTIVE WASTE SHIPMENT
INSPECTION REPORT

REVISION 1

50-387/PA-92-01;
Report No. 50-388/PA-92-01

A. General Information

1. Date of Inspection 8/12/92
2. Name of Shipper PP&L
3. Name of Carrier Hittman Transport Services
4. Destination Barnwell, S.C.
5. Verify Advanced Notification to the Consignee NA

[Fissile materials, and Type B or highway route controlled quantities - 49 CFR 173.22(c)]

6. Verify Advanced Notification to the State(s) NA

[(Type B packages only - 10 CFR 71.97)]

7. Package(s) Used

X Cask #14-215
X HIC #92-29
___ Liner
___ Drums
___ Boxes
___ Other (Specify)

8. Number of Packages one

9. Method of Shipment

A. X Exclusive Use

B. ___ Non-Exclusive Use

10. Transport Vehicle

X Open
___ Closed

B. Shipping Documentation Checklist

1. NA Shipping papers present [49 CFR 172.200, 201, 202, 203]
2. NA Proper shipping name and hazard class [172.202(a)]
3. NA Proper I.D. number [172.202(a)]
4. NA Waste Description ___ and total quantity by weight (lbs) [172.202(a)] ___, volume (cu. ft.) [172.202(a)] ___, activity (Ci) [172.203(d)] ___.

5. NA Radionuclides identified [10 CFR 20.311(b) & 49 CFR 172.203(d)]

6. NA Total quantity of radionuclides H-3, C-14, Tc-99 and I-129 shown [10 CFR 20.311(b)]

7. NA Waste classified and characterized properly [61.55, 61.56 and BTP]
(Perform a review of documentation for classification and characterization to determine if classification is correct and reasonable)

8. NA Description of chemical/physical form [172.203(d)]

9. NA Category of label applied to each package [172.203(d)]

10. NA T.I. assigned to each package bearing Y-II or Y-III [172.203(d)]

11. NA Shipper's certification [172.204(a)]

12. NA Instructions to carrier provided [173.441(c), 173.425(b)] (exclusive use only)

C. Packaging/Package Inspection

a. Packaging Compliance

NA Are authorized packages used? [173.415, 173.416]

Package types used:

NA LSA-strong tight [173.425(b)]

DOT-7A, Type A

NA Performance test records on file? [173.415(a)]

NRC Certified

X Current NRC COC's on file? [10 CFR 71.12(c)]

NA Registered with NRC NMSS as user? [71.12(c)]

(Prior to the licensee's first use of the package)

b. Security Seals and Package Integrity

X Security seals [173.412(b)] (LSA-Exclusive use, closed vehicle exempt)

X Lids secure [173.475(c)]

X No visible damage or leakage [173.425(b)]

X Packages surveyed for radiation [173.441] and contamination [173.443]

D. Labeling, Marking and Placarding Checklist

a. Labeling

NA Packages labeled W-I, Y-II, Y-III [172.403(b), (c)] (LSA - Exclusive use exempt)

NA "Contents" and "Activity" entered [172.403(g)]

NA Transport Index affixed on Y-II, Y-III labels [172.403(g)]

b. Marking

X Packages marked properly, i.e., proper shipping name, identification number, DOT Spec. number, NRC COC number, consignee or consignor's name and address, etc. [172.301, 304, 306]

X Type A/type B package marked "Type A" or "Type B" [172.310(a)]

X Gross weight marked if package exceeds 110 pounds [172.310(a)]

X Waste class marked A-B-C stable/unstable [10 CFR 20.311(d)(2)]

X LSA - Exclusive use package marked "RADIOACTIVE-LSA" [173.425(b)]

c. Placarding

X Placards on each end and sides of vehicle for Y-III, LSA exclusive use and highway route controlled quantity [172.504(a), 506, 507, 173.425(b)]

Vehicle Inspection Checklist

X Verify that vehicle was monitored and inspected by the licensee upon arrival.

X Shipment blocked, braced, tied down in vehicle [173.425(b)]

X Ensure that the licensee surveys the shipment adequately using proper instruments. Review the licensee's survey map(s) to verify that all the required readings are performed and they are in reasonable agreement with inspector's.

F. Radiation/Contamination Survey [49 CFR 173.441, 173.443]

a. Exclusive Use Vehicles

.06 Not exceed 2 mR/hr in any occupied position in the vehicle

.273 Not exceed 10 mR/hr at 2 meters (6.6 ft) from the vehicle

3.22 Not exceed 200 mR/hr on outer surface (including upper or lower) of the vehicle

NA Not exceed 1,000 mR/hr on the external surface of the package (closed transport vehicle)

3.55 Not exceed 200 mR/hr on the external surface of the package (open transport vehicle)

b. Non-Exclusive Use Vehicles

NA Not exceed 10 mR/hr at 1 meter (3.3 ft) from package

NA Not exceed 200 mR/hr on the external surface of the package

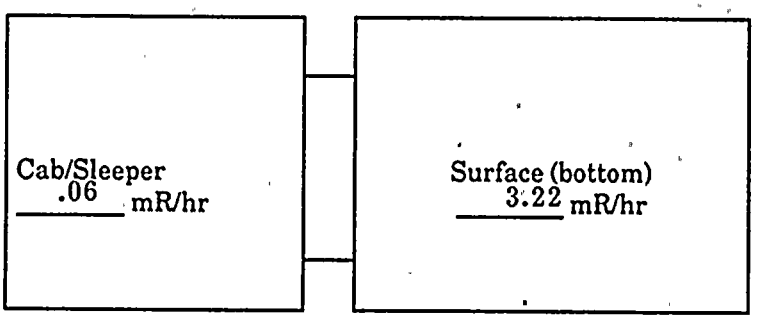
c. Highest Contamination Detected

Not exceed 22 dpm/cm² (beta & gamma)
(Wipe sample for 300 cm²)

Highest Contamination Detected	45	CPM
Background Reading	40	CPM
Difference/Above Background	5	CPM
Divide by Instrument Efficiency (0.10)	50	
Divide by (300 cm²)	0.17	DPM/CM²

RADIATION/CONTAMINATION SURVEY (transport vehicle)

Surface 2.14 mR/hr
2 meters .273 mR/hr



Surface 3.28 mR/hr
2 meters .050 mR/hr

Surface 3.55 mR/hr
2 meters .0545 mR/hr

G. Results of Inspection

I. Violations/Non-Compliance

None

II. Comments

A concern was identified pertaining to the calculated contact dose of the radwaste liner and the measured contact dose which did not fall within the established acceptance criteria.

Instruments Used

	Instrument(s) Type	Serial No.	Calibration Expiration Date
Dose Rate Instrument	ESP-2 Eberline HP-270	00311	8-20-92
Contamination Instrument	ESP-2 Eberline HP-210	00311	8-20-92

Inspector's Name

David E. Ney