U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-146/90-01

Docket No. 50-146

License No. DPR-4 Priority _____ Category D

Licensee: Saxton Nuclear Experimental Corporation/GPUN Corporation
1 Upper Pond Road
Parsippany, New Jersey 07054

Facility Name: Saxton Reactor

Inspection At: Saxton, Pennsylvania

Inspection Conducted: July 10-12, 1990

Inspectors: _____ 7/25/90
J. Roth, Project Engineer Date
Effluents Radiation Protection Section,
Facilities Radiological Safety and
Safeguards Branch, Div. of
Radiation Safety and Safeguards

Approved by: _____ 7/25/90
R. Bores, Chief, Effluents Date
Radiation Protection Section,
Facilities Radiological Safety and
Safeguards Branch, Div. of
Radiation Safety and Safeguards

Inspection Summary: Inspection conducted on July 10-12, 1990 (Inspection Report No. 50-146/90-01).

Areas Inspected:

Special, announced inspection by one region-based inspector to review actions taken by the licensee to decontaminate several buildings on site and to review the results of a final release survey conducted by the licensee and reported to the NRC by letter dated April 26, 1990.

Results:

No significant contamination was observed in the remediated buildings. The inspector identified several areas in the final survey report which required additional information for review by the NRC prior to initiating a confirmatory survey. The licensee committed to providing this information in a revised survey report by August 15, 1990.

DETAILS

1.0 Individuals Contacted

1.1 Saxton Nuclear Experimental Corporation (SNEC)

B. Good, General Manager, SNEC
J. Hildebrand, Vice President, SNEC
E. Pagan, Licensing Engineer, General Public Utilities
R. Rolph, Radiation Safety Officer, SNEC

1.2 Commonwealth of Pennsylvania, Department of Environmental Resources

R. Hysong, Health Physicist
M. Murphy, Nuclear Engineer
M. Reilly, Chief, Division of Environmental Radiation

U.S. NRC

J. Minns, Health Physicist, NRR
L. Person, Project Manager, NMSS
J. Roth, Project Engineer, Region I

2.0 Background

By memorandum dated June 6, 1990, from Mr. S. H. Weiss, Director, Non-Power Reactor, Decommissioning and Environmental Project Directorate, Region I was requested to provide technical assistance in the review of the "Final Release Survey of SNEC (Saxton Nuclear Experimental Corporation) Support Buildings" submitted by the licensee by letter dated April 26, 1990. This review was to determine if the information in the final release report supported release of the buildings for unrestricted use and if the information was sufficient to justify scheduling an NRC confirmatory survey. This inspection was conducted to examine the subject buildings and review the contents of the final survey report with licensee representatives.

3.0 Facility Tour

All areas and buildings on site were examined by the inspector to determine status and condition with regard to decommissioning and decontamination activities. The Control and Auxiliary Building (C&A Building) , the Pipe Tunnel, the Radwaste Disposal Facility (RWDF), the Filled Drum Storage Area and the Containment Vessel were examined. All of the above areas except for the Containment Vessel were to be released for unrestricted use on the basis of the subject survey report. It was noted by the inspector that considerable effort had been expended by the licensee to decontaminate the buildings. However, it was noted that walls in the C&A Building and the RWDF were still painted and there was no indication in the survey report that this paint had been sampled for contamination. Licensee

representatives stated that paint chips will be analyzed for radioactive contamination. Floor plates used to hold inside partition walls were observed in the C&A Building. Since these plates could be a source of retained contamination, they will be removed by the licensee prior to any NRC confirmatory survey. The inspector also noted that most of the floor, wall and ceiling grid (one meter by one meter) markings had been removed or worn off. Licensee representatives stated that these markings would be replaced prior to any NRC confirmatory survey.

Cursory radiation surveys conducted by the inspector during examination of these buildings indicated a maximum radiation level on contact of about 22 microR per hour and an average radiation level about five to seven microR per hour at one meter from any surface. ldings. These measurements were made using a Ludlum Model 19 MicroR Me, .

During examination of the containment vessel, the inspector observed that most of the equipment and piping associated with reactor operation was still in place. Licensee representatives indicated that decommissioning of this facility was not scheduled to start until about the 1996-1997 time period. The inspector stated that the licensee should consider initiation of a characterization study within the next year in order to determine the radiological status of each piece of equipment, piping, ventilation system, and jumper cables remaining. This would be needed to determine the best method to facilitate decommissioning and decontamination of the containment vessel. Licensee representatives stated that they expected to initiate this characterization study within the next two years.

4.0 Final Release Survey Report Review

4.1 Site Survey History

The reactor facility was constructed between 1960 and 1962, was operated between May, 1962 and May 1972 by the Saxton Nuclear Experimental Corporation (SNEC), a wholly owned subsidiary of the General Public Utilities (GPU) and was decommissioned (core removed) and partially decontaminated between 1972 and 1974. In 1981 GPU initiated actions to release the SNEC facility and site for unrestricted use. This is expected to be a four-phased plan.

Phase 1 - Removal of water from the basement of the Radwaste Building. This was completed in 1987.

Phase 2 - Decontamination and survey of the outbuildings. This was completed in 1989 and is the subject of this report.

Phase 3 - Characterization, decommissioning, decontamination and survey of the containment vessel. This is expected to start in about two years.

Phase 4 - Characterization, decontamination, as necessary, and survey of the site (e.g., soil, other buildings not associated with the reactor facility, etc.). This has not been scheduled.

All of the above activities are expected to be completed prior to the year 2007 which is the expiration year for the current license.

4.2 Report Review

As a result of a page-by-page review of the survey document, the following major observations were made. In addition, many minor comments were also made.

4.2.1 It was noted that detailed descriptions and the status of each structure on site (e.g., Pennelec warehouses, transmission buildings, the pad for the safety injection/ refueling tank, and remedial work done on the filled-drum storage area) were not provided.

4.2.2 It was noted through discussions with licensee representatives that survey probe geometry factors were not provided in sufficient detail for the reader to determine that the geometry factor for the scans was 20 cm^2 and for contact readings was 16 cm^2.

4.2.3 Figure 1 on page 5 did not show that the pipe tunnel extends under the fence toward the containment vessel. This portion of the tunnel has not been decontaminated. As a result, the licensee was requested to provide positive assurance that ground water coming through the concrete block wall installed at the fence line would not be contaminated. The licensee expects to install a monitoring well on the yard side of the wall and will monitor this well for residual contamination until the remainder of the tunnel has been decontaminated.

4.2.4 There was no indication in the survey report with regard to licensee plans for the concrete rubble to remain on site following demolition of the buildings. This information will be provided in the revised report.

4.2.5 If the licensee intends to leave the concrete rubble on site, then the pathway analysis must be modified to include the residual contamination, if any, in the analysis. The pathway analysis included in the report only accounts for residual contamination in the soil which might be mixed with some of this rubble. The licensee stated that the pathway analysis would be modified.

4.2.6 It was noted that a detailed analysis of the concrete and soil which would provide information on all radionuclides present was not provided in the report. This will be provided.

4.2.7 The inspector noted that individual alpha survey results were not reported. Beta-gamma activity was reported only as less than 5000 dpm/100 cm^2. The licensee committed to revise the report to provide actual alpha and beta-gamma maximum and average survey results for each block surveyed.

4.2.8 In order to update the Region I files on this facility, the licensee was requested to and committed to providing the Region I office with at least one copy of each of the references specified on page 33 of the survey report.

4.2.9 The licensee was also requested to provide additional detail in the report so that the sequence of decommissioning actions of the site could be determined. This additional detail will be an expansion of the information provided in Section 4.1 of this report.

5.0 Licensee Discussions

Discussions were held throughout the inspection with the licensee representatives identified in Section 1. The Commonwealth of Pennsylvania representatives were present during the detailed review of the survey report. In order to expedite the scheduling of the NRC confirmatory survey, the licensee committed to provide NRR with a modified survey report which incorporated, as a minimum, the comments indicated in Section 4.0 of this report by August 15, 1990.