ORISE
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

August 19, 2005

Mr. Thomas Dragoun
NRR/DRIP
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

SUBJECT: DOCUMENT REVIEW—FINAL STATUS SURVEY REPORTS, SAXTON NUCLEAR EXPERIMENTAL CORPORATION, SAXTON, PENNSYLVANIA (DOCKET NO. 50-146; TASK 1)

Dear Mr. Dragoun:

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) has reviewed Saxton Nuclear Experimental Corporation (SNEC) final status survey reports submitted to the U.S. Nuclear Regulatory Commission (NRC) on July 22 and 27, 2005. These documents describe the final status survey results for the following SNEC-designated areas: SSGS Seal Chamber Roofs and SSGS Structural Surfaces for the Basement, Firing Aisle, and Seal Chambers.

Comments identified are enclosed for your consideration. If you have any questions, please contact me at (865) 576-3356 or Alex J. Boerner at (865) 574-0951.

Sincerely,

Timothy J. Bauer
Health Physicist
Environmental Survey and
Site Assessment Program

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Enclosure

cc: A. Adams, NRC/NRR/OWFN 12G13
S. Adams, NRC/NRR/OWFN O12E5
E. Abelquist, ORISE/ESSAP
A. Boerner, ORISE/ESSAP
File/0968

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Distribution approval and concurrence:	Initials
Technical Management Team Member	AJB

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A. Adams

Comments on
Final Status Survey Reports
Saxton Nuclear Experimental Corporation
Saxton, Pennsylvania

August 2005

Saxton Nuclear Experimental Corporation (SNEC) submitted final status survey reports (FSSR) to the U.S. Nuclear Regulatory Commission (NRC) on July 22 and 27, 2005. These documents described the final status survey (FSS) results for the following SNEC-designated areas: SSGS [Saxton Steam Generating Station] Seal Chamber Roofs and SSGS Structural Surfaces for the Basement, Firing Aisle, and Seal Chambers. The FSSRs were reviewed for completeness and conformance to the SNEC License Termination Plan (LTP, GPU 2004a) and the MARSSIM (NRC 2000). Comments noted during the reviews are identified below.

SSGS Seal Chamber Roofs (GPU 2005a)

1. Section 7.4.2, Page 14 of 16—This section describes the fixed point QC measurement results. SNEC noted that the results provided in Table 7.4-1 had good agreement and supported the same conclusion. However, according to SNEC Procedure E900-IMP-4520.04, *Survey Methodology to Support SNEC License Termination* (GPU 2005b), Section 4.6.2.4 indicates that for static measurements, QC measurements must have the same conclusion and must be within 20% of the original result. The following QC measurements shown in Table 7.4-1 do not meet the 20% requirement: SS17-2 1, SS18-2 6, and SS18-2 14. ESSAP recommends SNEC re-evaluate the QC measurements using the two times background provision discussed in Procedure E900-IMP-4520.04.

2. Section 8.0, Page 15 of 16—The first item in this section states that the "average residual radioactivity on the surfaces is less than the derived surrogate DCGLw in all the survey units." The average should be compared to the administrative limit (AL) rather than the $DCGL_W$. This comment also applies to the second item in this section.

3. Appendix A, Attachment 2-1—Were the three instrument/probe combinations noted as having an instrument conversion factor/efficiency less than 208,302 cpm/mR/hr used during the FSS? Refer to Appendix A, Section 2.2.2, Page 3 of 10 for this requirement.

4. Appendix A, Attachment 5-1—Were the two instrument/probe combinations noted as having an instrument conversion factor/efficiency less than 208 cpm/μR/hr used during the FSS? Refer to Appendix A, Table 4, Page 3 of 10 for this requirement.

SSGS Structural Surfaces – Basement (GPU 2005c)

1. General—Was the Surface Contamination Monitor (SCM) data corrected for background contributions? If so, where were the background measurements using the SCM performed?

2. General—Section 6.1.1 states that "all SCM surveys indicated activity less than the 75% administrative limit for a minimum 1 square meter grid averaging. One square meter averages are applied to the SCM data since this is the minimum size of an area for emc testing per the SNEC LTP." This approach is inappropriate and is not consistent with the approach presented in the Penelec Line Shack FSSR (GPU 2004b) nor consistent with standard hand-held surveys. The SCM data should be filtered to identify all elevated activity greater than the AL occurring in areas greater than or equal to 100 cm^2. For areas less than or equal to 1 m^2 in area, the 1 m^2 area factor (AF) should apply.

3. General—Section 6.8.1 states that 56% of the area was scanned using the SCM. The FSSR discusses that this is adequate scan coverage for a Class 2 area. Section 6.8.2 notes that the "survey unit did not receive fixed point direct static measurements. As discussed in Section 5.0, the SCM is equivalent to continuous static measurements of the entire surface scanned." It is ESSAP's opinion that the FSSR has not adequately discussed the differences between a statistically determined number of direct measurements, performed using a random-start systematic pattern, and limited area scan using the SCM which collects a great number of statistically poorer direct measurements. SNEC should provide a technical basis that answers the following question: Is an SCM survey of 56%, or in general less than 100%, of a Class 2 or 3 survey unit equivalent or superior to N number of direct measurements to determine the average for comparison to the AL?

4. Section 6.2, Page 12 of 31—The text in this section describes the FSS results for the survey unit designated SS14-2. Table 6.2-2 provides concrete sample results for SS14-2; however, the data is not discussed in the text. This comment similarly applies to Sections 6.3, 6.4, and 6.5.

5. Section 7.4.2, Page 29 of 31—This section describes the fixed point QC measurement results. SNEC noted that the results provided in Table 7.4-2 had good agreement and supported the same conclusion. However, according to SNEC Procedure E900-IMP-4520.04, *Survey Methodology to Support SNEC License Termination* (GPU 2005b), Section 4.6.2.4 indicates that for static measurements, QC measurements must have the same conclusion and must be within 20% of the original result. The following QC measurements shown in Table 7.4-2 do not meet the 20% requirement: SS14-2 10, SS14-3 1, SS14-3 4, and SS14-4 5. ESSAP recommends SNEC re-evaluate the QC measurements using the two times background provision discussed in Procedure E900-IMP-4520.04.

6. Section 8.0, Page 30 of 31—The first item in this section states that the "average residual radioactivity on the surfaces is less than the derived surrogate DCGLw in all the survey units." The average should be compared to the AL rather than the $DCGL_W$. This comment also applies to the second item in this section.

7. Appendix A, Section 4.9, Page 6 of 12—This section references the use of the "2 sigma plus the mean" sample result as input for calculating guideline values. Concerns regarding this calculational approach were discussed in Site-Specific Decommissioning Inspection Report No. 2 (ORISE 2003). This comment also applies to Appendix B.

SSGS Structural Surfaces – Firing Aisle (GPU 2005d)

1. General—See Basement Comments #1, #2, #3, and #6 for application to this FSSR.

2. Section 7.4.1, Page 8 of 10—This section states that the "QC rescans did not identify any activity above alarm points and so are in agreement with the primary scans." It is ESSAP's opinion, based on preceding sections in the FSSR, that this statement does not apply to SCM surveys.

3. Section 7.4.1, Page 8 of 10—Since the SCM data collected was used to quantitatively assess the residual surface activity, it is ESSAP's opinion that the QC comparison should have been performed per Section 4.6.2.4 of SNEC Procedure E900-IMP-4520.04, *Survey Methodology to Support SNEC License Termination* (GPU 2005b) titled *Static Measurements* and documented in Section 7.4.2, *Fixed point measurements*, of the FSSR.

SSGS Structural Surfaces – Seal Chambers (GPU 2005e)

Section 8.0, Page 16 of 17—The first item in this section states that the "average residual radioactivity on the surfaces is less than the derived surrogate DCGLw in all the survey units." The average should be compared to the AL rather than the $DCGL_W$. This comment also applies to the second item in this section.

REFERENCES

GPU Nuclear, Inc. (GPU). Saxton Nuclear Experimental Corporation Facility License Termination Plan. Saxton, Pennsylvania; Revision 3, February 2004a.

GPU Nuclear, Inc. Final Status Survey Report, Saxton Nuclear Experimental Corporation, Penelec Line Shack. Saxton, Pennsylvania; June 2004b.

GPU Nuclear, Inc. FSS Report – SSGS Seal Chamber Roofs. Saxton, Pennsylvania; July 27, 2005a.

GPU Nuclear, Inc. SNEC Procedure E900-IMP-4520.04, *Survey Methodology to Support SNEC License Termination*, Revision 11. Saxton, Pennsylvania; May 24, 2005b.

GPU Nuclear, Inc. FSS Report – SSGS Structural Surfaces – Basement. Saxton, Pennsylvania; July 22, 2005c.

GPU Nuclear, Inc. FSS Report – SSGS Structural Surfaces – Firing Aisle. Saxton, Pennsylvania; July 22, 2005d.

GPU Nuclear, Inc. FSS Report – SSGS Structural Surfaces – Seal Chambers. Saxton, Pennsylvania; July 22, 2005e.

Oak Ridge Institute for Science and Education (ORISE). Final Site-Specific Decommissioning Inspection Report No. 2 for the Saxton Nuclear Experimental Corporation, Saxton, Pennsylvania (Docket No. 50-146; Task 3). Oak Ridge, TN; September 25, 2003.

U.S. Nuclear Regulatory Commission (NRC). Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). Washington, DC; NUREG-1575; Revision 1, August 2000.