

**ORISE**  
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

August 10, 2005

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

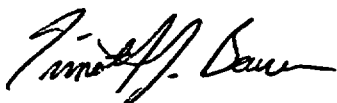
**SUBJECT: DOCUMENT REVIEW—FINAL STATUS SURVEY REPORTS, SAXTON  
NUCLEAR EXPERIMENTAL CORPORATION, SAXTON,  
PENNSYLVANIA (DOCKET NO. 50-146; TASK 1)**

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 14, 22, 26, and 27, 2005. These documents describe the final status survey results for the following SNEC-designated areas: OL3 Open Land Areas, OL3 Paved Surfaces and Concrete, Open Land Area OL7 [Paved Surfaces and Concrete], Open Land Area OL7 Soils, Penelec Switch Yard Control Building, and Remediated Soils.

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

TJB:ar

Enclosure

cc: A. Adams, NRC/NRR/OWFN 12G13      A. Boerner, ORISE/ESSAP  
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Rec'd 10/13/05  
R. 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 14, 22, 26, and 27, 2005. These documents described the final status survey (FSS) results for the following SNEC-designated areas: OL3 Open Land Areas, OL3 Paved Surfaces and Concrete, Open Land Area OL7 [Paved Surfaces and Concrete], Open Land Area OL7 Soils, Penelec Switch Yard Control Building, and Remediated Soils. The FSSRs were reviewed for completeness and conformance to the SNEC License Termination Plan (LTP, GPU 2004) and the MARSSIM (NRC 2000). Comments noted during the reviews are identified below.

***OL3 Open Land Areas (GPU 2005a)***

1. Section 6.1.1, Page 6 of 20—The actual scan MDC is noted as being greater than the administrative limit (AL) and as such it must be shown that the scan sensitivity is adequate for the bounded area determined using the statistical sample size. ESSAP recommends a more detailed explanation be provided following the methodology discussed in Section 5.0, Appendix 5-2 of the LTP under the heading "Elevated Measurement Comparison (EMC)." This comment also applies to Sections 6.2.1, 6.3.1, 6.4.1, 6.5.1, and 6.6.1.
2. Section 6.1.2, Page 7 of 20 and Section 6.5.1, Page 12 of 20—These sections state that no biased samples were required when in actuality elevated areas were identified and samples collected as discussed in Sections 6.1.1 and 6.5.1. ESSAP recommends correcting the text to reflect the scan findings.
3. Section 7.2, Page 16 of 20—In discussion of survey unit OL3-5, the FSSR states that the sample taken at the location identified during surface scans did not have activity greater than the survey unit average and therefore the EMC was not performed. This statement is incorrect. The EMC should be performed when the activity exceeds the DCGL<sub>w</sub>, or in this case the AL. This methodology is discussed in Section 5.0, Appendix 5-1 of the LTP. ESSAP recommends correcting the text to match the LTP discussion.
4. Section 7.4.2, Page 18 of 20— This section describes the Quality Control (QC) split gamma spectrometry analyses on soil samples. SNEC noted that the results provided in Table 9 had good agreement. 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 samples, the same conclusion must be obtained for QC samples. ESSAP recommends SNEC modify this section to indicate the conclusion that all results were less than the AL, rather than in good agreement.

5. Section 8.0, Page 19 of 20—The first item in this section states that the “average residual radioactivity in the soils is less than the derived surrogate DCGL<sub>w</sub> in all three survey units.” First, the average should be compared to the AL rather than the DCGL<sub>w</sub>. Second, there were six survey units. This comment also applies to the second item in this section.
6. Appendix A, Section 2.1.5, Page 3 of 9—The actual scan MDC is inappropriately compared to the “effective administrative” DCGL<sub>w</sub> for Cs-137. It should be compared to the AL.
7. Appendix A, Attachment 3-1—Were the two instrument/probe combinations noted as having an instrument conversion factor/efficiency less than 205.6 cpm/μR/hr used during the FSS? Refer to Appendix A, Section 2.1.2, Page 3 of 9 for this requirement.

### ***OL3 Paved Surfaces and Concrete (GPU 2005c)***

1. Section 5.0, Table 1, Page 6 of 15—Please discuss, providing appropriate references (e.g. LTP), the applicability of using the Sign Test for non-radionuclide-specific measurements. This approach contradicts Section 4.4 of the Penelec Switch Yard Control Building FSSR (GPU 2005f).
2. Section 7.4.2, Page 14 of 15— This section describes the fixed point QC measurement results. SNEC noted that the results provided in Table 5 had good agreement. 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. ESSAP recommends SNEC modify this section to indicate both data sets have the same conclusion and are within the 20% requirement.
3. Section 8.0, Page 15 of 15— The first item in this section states that the “average residual radioactivity in the asphalt and concrete surfaces is less than the derived surrogate DCGL<sub>w</sub> in both survey units.” The average should be compared to the AL rather than the DCGL<sub>w</sub>. This comment also applies to the second item in this section.
4. Appendix A, Section 2.1.2, Page 3 of 10—The SNEC Calculation Sheet notes that the instrument efficiency should not be less than 23.9%. The reviewer assumes that the text is referring to total efficiency which is the product of instrument and surface efficiency. This stated value of 23.9% would be appropriate for a Ludlum model 43-68B detector for Cs-137. Attachment 3-2 shows a total efficiency of 21.7% for detector serial number 92501. Was this detector used for the FSS?

### ***Open Land Area OL7 [Paved Surfaces and Concrete] (GPU 2005d)***

1. Section 5.0, Table 1, Page 5 of 15—Please discuss, providing appropriate references (e.g. LTP), the applicability of using the Sign Test for non-radionuclide-specific measurements. This approach contradicts Section 4.4 of the Penelec Switch Yard Control Building FSSR (GPU 2005f).

2. Sections 6.2 and 6.3—Please discuss, providing appropriate references (e.g. LTP), the applicability of using NaI scans and direct measurements of asphalt surfaces.
3. Section 7.4.2, Page 14 of 15— This section describes the fixed point QC measurement results. SNEC noted that the results provided in Table 5 had good agreement. 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. ESSAP recommends SNEC modify this section to indicate both data sets have the same conclusion and are within the 20% requirement.
4. Section 8.0, Page 15 of 15— The first item in this section states that the “average residual radioactivity in the asphalt and concrete surfaces is less than the derived surrogate DCGL<sub>w</sub> in both survey units.” The average should be compared to the AL rather than the DCGL<sub>w</sub>. This comment also applies to the second item in this section.
5. Appendix A, Attachment 3-1—Were the two instrument/probe combinations noted as having an instrument conversion factor/efficiency less than 205.6 cpm/μR/hr used during the FSS? Refer to Appendix A, Section 2.1.2, Page 3 of 10 for this requirement.

#### ***Open Land Area OL7 Soils (GPU 2005e)***

1. Section 7.4.2, Page 12 of 13—This section describes the QC split gamma spectrometry analyses on soil samples. SNEC noted that the results provided in Table 5 had good agreement. 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 samples, the same conclusion must be obtained for QC samples. ESSAP recommends SNEC modify this section to indicate the conclusion that all results were less than the AL, rather than in good agreement.
2. Section 8.0, Page 13 of 13—The first item in this section states that the “average residual radioactivity in the soils is less than the derived surrogate DCGL<sub>w</sub> in all three survey units.” The average should be compared to the AL rather than the DCGL<sub>w</sub>. This comment also applies to the second item in this section.
3. Appendix A, Attachment 3-1—Were the two instrument/probe combinations noted as having an instrument conversion factor/efficiency less than 205.6 cpm/μR/hr used during the FSS? Refer to Appendix A, Section 2.1.2, Page 3 of 9 for this requirement.

#### ***Penelec Switch Yard Control Building (GPU 2005f)***

Section 8.0, Page 17—The first item in this section states that the “mean gross activity concentration on surfaces within all PSYCB...survey units is less than the applicable DCGL<sub>w</sub>.” The mean should be compared to the AL rather than the DCGL<sub>w</sub>. This comment also applies to the second item in this section.

***Remediated Soils (GPU 2005g)***

The Survey Request Continuation Sheets for Survey Request (SR) numbers SR-0186 and SR-0190 provided in the attachments of the FSSR are not signed and dated.

## REFERENCES

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

GPU Nuclear, Inc. FSS Report – OL3 Open Land Areas. 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 – OL3 Paved Surfaces and Concrete. Saxton, Pennsylvania; July 27, 2005c.

GPU Nuclear, Inc. FSS Report – Open Land Area – OL7. Saxton, Pennsylvania; July 26, 2005d.

GPU Nuclear, Inc. FSS Report – Open Land Area – OL7 Soils. Saxton, Pennsylvania; July 22, 2005e.

GPU Nuclear, Inc. FSS Report – Penelec Switch Yard Control Building. Saxton, Pennsylvania; July 14, 2005f.

GPU Nuclear, Inc. FSS Report for Survey of Remediated Soils. Saxton, Pennsylvania; July 14, 2005g.

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