May 4, 2000

Ms. Sherry Lewis U.S. Nuclear Regulatory Commission Mail Stop TWFN, 7F-27 11545 Rockville Pike Rockville, MD 20852-2738

SUBJECT: DOCUMENT REVIEW—SAXTON NUCLEAR EXPERIMENTAL CORPORATION FACILITY LICENSE TERMINATION PLAN, GPU NUCLEAR INC., SAXTON PENNSYLVANIA (DOCKET NO.50-146, RFTA NO. 00-005)

Dear Ms. Lewis,

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) has reviewed the subject document. The review concentrated on the License Termination Plan (LTP) relative to the proposed final status survey procedures and was conducted in accordance with NUREG-1575 and Draft Regulatory Guide DG-4006. Comments are enclosed for your consideration.

Please direct any questions you have to me at (865) 576-5321 or Tim Vitkus at (865) 576-5073.

Sincerely,

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Phyllis C. Weaver Project Leader Environmental Survey and Site Assessment Program

PCW:klp

cc: R. Clement, NRC/NMSS/TWFN/T8F37
J. Halvorsen, NRC/NMSS/TWFN/8A23
W. Beck, ORISE/ESSAP
E. Abelquist, ORISE/ESSAP
T. Vitkus, ORISE/ESSAP
File/0762

P. O. BOX 117, OAK RIDGE, TENNESSEE 37831-0117

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COMMENTS ON THE SAXTON NUCLEAR EXPERIMENTAL CORPORATION FACILITY LICENSE TERMINATION PLAN GPU NUCLEAR, INC. SAXTON, PENNSYLVANIA

General Comments

The Final Status Survey (FSS) plan section of the document, provides a generic overview of the FSS process. Limited site-specific information has been included. ESSAP recognizes that at this phase in the project, not all necessary information is available to design the FSS in accordance with NUREG-1575 and DG-4006 guidance. It is ESSAP's understanding that site characterization and remediation, from which much of the information will be generated, remains to be completed. However, the licensee should revise the document and provide input that describes how generated data will be used in implementing FSS guidance. For example, how will multiple DCGLs be integrated into the FSS design; will information be provided on relative ratios among the various radionuclides, if the surrogate approach for modifying DCGLs will be used or will gross surface activity DCGLs be developed; and how will the unity rule be applied for radionuclide-specific measurements? Also, ESSAP notes that an agreement between the regulator and the licensee of applicable Data Quality Objectives should be reached prior to implementing the planned final status survey.

The plan should also provide sufficient information to independently evaluate impacted versus nonimpacted status of each area into individual survey units. ESSAP suggests that the licensee provide justification for classifying impacted areas into Class 1, 2, or 3 survey units. A suggested approach would be to include in or with Table 5-2 the proposed survey units, a summary of the activity, and the radionuclide variability for each survey unit. See specific Comment #6 for additional explanation.

Specific Comments

- 1. Section 2.3, Pages 2-16 and 2-17: How will the off-site background data presented here be used in the final survey design? NUREG-1575 recommends that background reference areas be selected from non-impacted site locations having similar physical, chemical, and biological characteristics as the survey units. It is also useful if the licensee would identify which statistical test will be applied to evaluate each survey unit's compliance with the release criteria.
- 2. Tables 2-2 through 2-5, Page 2-25: From Table 2-1 the predominant radionuclide inventory includes Am-241, Co-60, Cs-137, Ni-63, H-3, Pu-241, and Sr-90. However, in Tables 2-2 through 2-5, Co-60 and Cs-137 are almost exclusively reported. Please clarify the radionuclides of concern for each area of the site. See general comment section and specific Comment #3 below.

- 3. Section 5.2.1: Ni-63 was identified in Section 2, Table 2-1 as a predominant radionuclide, however, it is not mentioned in this section.
- 4. Sections 5.2.3.2.1, 5.2.3.2.3 and 5.2.3.2.4; Page 5-5 to 5-8: Because there are several references to developing site-specific DCGLs, it is not clear to the reviewer as to how the screening values in the specific design of the final survey are intended to be used. Please clarify if the licensee intends to use the screening values for planning surveys and demonstrating compliance with the release criteria. It is also not clear to the reviewer how the unity rule or the use of surrogates will be implemented (refer to general comments). At what point in the process will surrogate DCGLs and gross activity DCGLs be calculated and under what conditions will site-specific DCGLs be needed?
- 5. Section 5.2.3.2.4 last paragraph; Page 5-8: What are the DQOs for exposure rate reference areas and how will these be utilized in the final survey design? Will there be a separate release criterion for exposure rates?
- 6. Table 5-2 Page 5-11; and Section 5.2.4.2: Does the previous characterization information or site history provide adequate data to support the classification of the dump site as a Class 3 survey unit? In addition, it is recommended that additional justification be provided to support the classification of remaining site areas as Class 2 or Class 3. Clarification is also requested as to how non-impacted areas, in particular the non-impacted area illustrated on Figure 5-1, can be surrounded by Class 1, 2, and 3 areas?
- 7. Section 5.4, Table 5-5: The footnote designations used in the table are labeled with numbers, but within the table the footnotes are shown as letters. ESSAP suggests the use of one type of designation to eliminate confusion. It is ESSAP's opinion that the lower level of zero percent scan coverage, shown for a Class 3 area, is not appropriate. ESSAP suggests that the plan be revised to reflect a minimum recommended scan coverage of "judgmental, up to 10%." Also, if preliminary information suggests that there may be locations above the DCGL, then the survey unit should not be designated a Class 2 area, rather it would be more appropriately considered Class 1 and surveyed accordingly.
- 8. Section 5.4.3: Please provide clarification on the following statement "When instrumentation and techniques used for scan measurements are capable of providing data of sufficient quality as static measurements, they may be used in place of a static measurements." Under what conditions will the use of scan measurements be applicable over static? Please provide justification as to the applicability of this technique and how will the data be evaluated to demonstrate compliance with the release criteria?
- 9. Section 5.4.4; Tables 5-7 and 5-8: Please provide clarification for the reclassification of a Class 2 or Class 3 survey unit. How will the determination be made if all or a portion of survey unit is reclassified? Will remediation of the elevated activity be a consideration prior to reclassifying a unit? Please clarify the methods that will be used if an area must be upgraded to a higher classification.

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10. Section 5.5.2.4.1: The document does not include sufficient instrument calibration information. It is important to this document to identify specific information as to how the anticipated radionuclide mixture ratios and various energies will be accounted for during calibration. (Please refer to the general comment).

It is also noted that the scan MDC equation is not consistent with the approach recommended in NUREG-1575. The instrument efficiency, ϵ_i , should be the new count rate per 2π surface emission, and ϵ_s is the 2π surface emission rate per the surface activity.

- 11. Section 5.5.2.4.2 and 5.5.2.5: Please provide the basis for using a β - γ surrogate for the purpose of detecting alpha activity. (Refer to general comments and Comment #4). In Table 5-10, what is the calibration source/variables used to determine the α efficiency and β efficiency. For instance, Tc-99 would be approximately 12% for β . Additionally, provide justification for the α detection efficiency with the 43-68 calibrated to Cs-137.
- 12. Section 5.5.3.4.1: It is not clear to the reviewer that there will be an effort to investigate cracks and crevices unless there has been remediation. Please clarify the intent of the use of "where no remediation has occurred." Does the historical site assessment preclude any need to investigate inaccessible area? Do available records indicate that no spills or clean ups occurred which preclude any detailed look at particular areas around the site? How will these assumptions be validated?
- 13. Section 5.5.3.4.7: The document indicates that there are Class 1 areas with subsurface contamination. How does the licensee intend to perform final status surveys of survey units that may potentially have subsurface contamination? In particular, how will the licensee ensure that measurements do not exceed the $DCGL_{EMC}$? Please clarify whether these areas will be remediated prior to the final status survey.
- 14. Section 5.6.4: At what point in the final status survey process will a decision rule be selected i.e., which statistical test will be applied?
- 15. Page 5-64; Table 5-16: Please clarify the intent of the table. Decision errors are an essential part of the DQO process. Specifically, the α error is established based on input from the regulator with the default value, per DG-4006, being 0.05. The decision errors and the relative shift, Δ/σ , are used to determine the number of measurements necessary to satisfy the selected statistical test. Based upon the selection of the appropriate statistical test, the number of samples can be optimized if the Δ/σ is > 1. The decision error must be agreed upon by the regulator and requires concurrence to modify; therefore, the option to increase α as a function of DCGL/ σ is not necessarily appropriate.
- 16. Page 5-67 (Selecting a minimum number of samples): It is not the intent of MARSSIM to design the survey to match a predetermined sample size. The formal process of establishing DQOs is to develop a survey design that optimizes the power of the statistical test for each individual survey unit.

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