

May 13, 2002

Mr. G. A. Kuehn, Jr.
Vice President SNEC and
Program Director SNEC Facility
GPU Nuclear, Inc.
Route 441 South
P.O. Box 480
Middletown, PA 17057-0480

SUBJECT: SAXTON NUCLEAR EXPERIMENTAL FACILITY - DISCUSSION TOPICS
FOR MAY 22, 2002, MEETING (TAC NO. MA8076)

Dear Mr. Kuehn:

We are continuing our review of your amendment request for Amended Facility License No. DPR-4 for the Saxton Nuclear Experimental Corporation Facility which you submitted on February 2, 2000, as supplemented. As part of our review, we have arranged a meeting with you that is open to public observation on May 22, 2002, to discuss details of our review of your application related to health physics issues. The details of the meeting were sent to you under separate cover. This is a follow up to our meeting of April 8, 2002.

To facilitate our discussions on May 22, 2002, please find enclosed comments and issues that were identified during our review of your License Termination Plan, response to requests for additional information and characterization information. The enclosure is not a request for additional information and may not contain all technical issues identified by the staff. Following our meeting, we may issue a request for additional information based on the outcome of the meeting.

If you have any questions regarding this review, please contact me at (301) 415-1127.

Sincerely,

/RA/

Alexander Adams, Jr., Senior Project Manager
Research and Test Reactors Section
Operating Reactor Improvements Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No. 50-146

Enclosure: As stated

cc w/enclosure: Please see next page

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**DISCUSSION ISSUES FOR MEETING BETWEEN THE NRC AND SNEC STAFFS
MAY 22, 2002**

1. Question 1/RAI3 - Classification of the area under the containment vessel.

SNEC needs to provide soil and ground water data for samples taken during the CV anchoring project and from the angle well to confirm the classification of this area.

2. Removal of all Concrete from Inside the Containment Vessel (CV) Liner.

In general, SNEC needs to revise the LTP to reflect the removal of concrete from the CV (e.g., survey design, characterization data, survey methods, etc.). The decision to remove all of the concrete from the CV liner will require revisions to the LTP (i.e., Section 2, "Site Characterization" and Section 5, "Final Radiation Survey Plan"). SNEC needs to revise the LTP as follows:

- a. Due to the CV concrete removal, SNEC needs to delete all of the survey units specific to the interior rooms (i.e., floors, walls, ceilings) of the CV that are currently described in the LTP. Table 5-2, "Initial Classification of Site Areas" needs to be revised accordingly.
- b. SNEC needs to describe the new survey units that will be created once all of the concrete is removed from inside of the CV liner. These new survey units will be comprised of the exposed steel liner. Characterization data needs to be provided, when available, for all survey units specific to the CV liner. Table 5-2, "Initial Classification of Site Areas" needs to be revised accordingly. Figures describing the new survey units and tables indicating the nature and extent of contamination will need to be provided for NRC staff review. Also, a description of the survey/sampling techniques to be used to conduct the final status survey (FSS) need to be provided.
- c. SNEC needs to explain the design of the FSS for the inside/outside of the CV liner. Removal of all concrete from the CV liner poses some new technical challenges to characterization and the conduct of the FSS. As there may be significant potential for the presence of activated steel in the CV liner, characterization data for the nature and extent of this and other radiological contamination needs to be provided. Also, the FSS design for CV liner surfaces covered by the steel reinforcement rings needs to be established.
- d. The original plan was to remove the CV dome after license termination. However, SNEC now plans to remove the CV dome prior to license termination. Therefore, SNEC needs to revise the LTP to explain that the CV dome will be removed prior to site release and describe how the CV lower half will be protected from recontamination. LTP Section 3, "Identification of Remaining Dismantlement Activities" and Section 4, "Remediation Plans" will need to be revised to include information specific to this significant change to the decommissioning process.

3. Review of Phase 1, 2, and 3 Characterization Data (few key issues).

a. General issues concerning the staff's review of the Phase 1, 2, 3 Characterization Data are as follows:

- i. SNEC provided minimal or no TRU/HTD radionuclide data for the structures and land/water areas characterized. Since the site used failed fuel assemblies containing MOX, such information is critical to understanding the nature and extent of such site contamination, as well as the design and conduct of the FSS.
- ii. SNEC needs to clarify the sample/measurement data. In some cases, sample activities for sediments are provided with no radionuclides identified. Confidence intervals for the data provided is rarely given. Analytical techniques used for identifying TRU have not been stated. The overwhelming majority of data is specific to Cs-137 only. The purpose for providing additional characterization data was to determine the nature and extent of those radionuclides specific to the suite identified in the LTP. Based on staff's review of the additional data submitted, SNEC has yet to resolve this issue.
- iii. The staff would also like to discuss the content of the LTP change pages provided with the characterization data sets.

b. Phase 1 Characterization (GPU letter dated 7/2/01)

Tables 2-6a, 2-23, and 2-24: In some cases the descriptive text needs to be clarified (e.g., Table 2-23, "Under Septic Tank Pad") and uncertainty stated (Table 2-23). Neither TRU/HTD radionuclide data nor maps showing sample locations (and survey units) were provided with these tables. Regarding Table 2-24, use of the term "Typical Sample Results" for the data provided is not clear to the staff.

c. Phase 2 Characterization (GPU letter dated 9/4/01)

The sample results tables provided in the Phase 2 Characterization indicate only "General Sample Locations." Consequently, the sampling locations for the data provided cannot be located on the maps provided or correlated to a specific survey unit. In order for the staff to assess the extent and nature of residual radionuclides in a survey unit, SNEC needs to provide some correlation between sample data and survey unit locations. For example, core bore locations should be identified on the maps provided, and the core bore type stated in the data tables (e.g., concrete).

In Tables 2-3a and 2-3c, SNEC needs to identify the type(s) of the scrape samples (e.g., paint, concrete, etc).

Since no maps providing the sample locations in Table 2-3i were provided, staff cannot determine their proximity to the SSGS tunnels. SNEC will need to provide such information in order for the staff to make the determine that the data provided is adequate to characterize any radionuclide contamination adjacent to SSGS tunnels.

SNEC needs to explain why no uncertainty information was provided for the sample data.

SNEC needs to explain why no TRU or HTD radionuclide information was provided with the sample data.

d. Phase 2/3 Characterization Data (GPU letter dated 1/11/02)

Staff has similar concerns to that expressed above for the Phase 2 characterization data provided in GPU letter dated 9/4/01.

SNEC needs to further justify the classification of the impacted section of the intake tunnel. Currently, the licensees are assigning this as a Class 3 area, additional data and/or rationale for not making this a Class 2 needs to be given.

Based on the results of the supplemental characterization, SNEC has changed the classification of the weir outfall from Class 1 to Class 2. This needs to be reflected in a revision to Table 5.2. In addition, the size of the survey unit needs to be clarified. The sediment data for the weir is in support of resolving RAI2/Q3.

4. Key Additional Issues Regarding the Current LTP:

In addition to the issues discussed above, staff has identified other LTP issues that need to be addressed by SNEC. Many of these concerns are presented below.

- a. Figures need to indicate specific survey units with appropriate sampling and measurement locations depicted, and correlated to the appropriate data and survey unit classification tables. Generic block diagrams showing general area classification is not adequate. Specifically, Figure 5-1, "SNEC Facility Site Area Grid Map," indicates that the entire licensed site is designated as Class 1, when in fact, there exist many survey units inside this area that are Class 2 or 3. Also, survey areas are often designated as containing multiple survey units, yet no information is provided (map or figure) to denote the boundaries of each survey unit within a specific survey area.
- b. The remaining portion of the CV tunnel that currently supports the Materials Handling Bay (MHB) has not been classified; the tunnel is an impacted area. As this portion of the CV tunnel cannot be demolished, unless the MHB is removed first, the licensees need to clarify the decommissioning sequence of events to justify not classifying the CV tunnel.
- c. Issues specific to the LTP, Rev. 0, February 2000.
 - i. Chapter 2, Section 2.4.1.5 Systems, page 2-11. Clarify where the complex site storm drain system is specified in Table 5-2, with appropriate characterization data.
 - ii. Chapter 2, Section 2.3.2 Additional Surveys, page 2-17. This section indicates that future work will be done to establish background radioactivity levels for site

specific materials such as structural steel. Please provide the sampling and survey information for the background levels if completed.

- iii. Chapter 3, Identification of Remaining Dismantlement Activities, page 3-1. Revise this section to discuss the CV concrete removal project.
- iv. Chapter 3, Section 3.4, 10 CFR 50.59 Review, page 3-3. The LTP needs to be revised to include the recent list of LTP areas that cannot be changed without NRC approval. Note: The list of LTP changes requiring NRC approval that is attached to the cover letter is incorrect and incomplete.
- v. Chapter 3, Tables 3.1 and 3.2, page 3-5. These tables should be revised to include the removal of concrete from the CV liner and corresponding person-rem estimate from this activity.
- vi. Chapter 5, Section 5.1.3, Summary, page 5-2. The LTP states "Where necessary, previous survey steps are re-evaluated and additional data is collected before applying statistical testing." Please clarify the method used to acquire and assess the collection of additional data. If stated elsewhere, refer to that section. This information is necessary to determine that the final status survey properly demonstrates compliance with the release criteria.
- vii. Chapter 5, Section 5.2.3.1.1, Dose Modeling, page 5-4. This section should describe how the dose from embedded piping in rooms will be considered in addition to the external exposure from Pathway 1.
- viii. Chapter 5, Section 5.2.5.3, Survey Data Assessment, page 5-15. The statement "...additional data are collected as necessary before further analysis are applied." needs to be clarified to show that the MARSSIM guidance is being properly implemented.
- ix. Chapter 5, Section 5.2.8, Survey Records and Documentation Data Assessment, page 5-20. The content of the final status survey report should be revised to include the guidance on report content contained in NUREG-1727.
- x. Chapter 5, Table 5-5, Footnote 9, page 5-24. Please provide your DQOs and final status survey design regarding subsurface sampling for NRC review.
- xi. Chapter 5, Section 5.4.4.1, Investigation Levels, page 5-30. Please clarify the statement in the last paragraph, "If any background reference area is determined to be inappropriate, it is adjusted as necessary and documented."
- xii. Chapter 5, Section 5.6, Survey Data Assessment, page 5-2. Same issue as that described for Chapter 5, Section 5.2.5.3, Survey Data Assessment, page 5-15, above.
- xiii. Chapter 5, Section 5.7.2, Final Survey Report, page 5-53. The content of the final survey report as explained in the LTP is not adequate. Specifically, the LTP indicates that the level of detail to be provided for much of the results and related

information will be submitted in summary form. According to MARSSIM (Section 5.5), "...to the extent possible, this report should be a stand-alone document with minimum information incorporated by reference." In addition, NUREG-17727 provides guidance on the content of the final survey report.