January 17, 2001

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 - REQUEST FOR ADDITIONAL INFORMATION, RE: LICENSE TERMINATION PLAN (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. During our review of your amendment request, questions have arisen for which we require additional information and clarification. Please provide responses to the enclosed request for additional information within 60 days from the date of this letter. In accordance with 10 CFR 50.30(b), your response must be executed in a signed original under oath or affirmation. Following receipt of the additional information, we will continue our evaluation of your amendment request.

To allow the NRC to more effectively schedule NRC resources to complete the review of your License Termination Plan, please provide a schedule for supplying information on the development of the phased ground water monitoring program, radiological characterization of land areas surrounding the Containment Vessel, and characterization and remediation plans for the former Saxton Steam Generating Station by January 31, 2001.

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

Sincerely,

/RA/

Alexander Adams, Jr., Senior Project Manager
Events Assessment, Generic Communications and
Non-Power Reactors Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No. 50-146

Enclosure: Request for Additional Information

cc w/enclosure:
Please see next page

Saxton Nuclear
Experimental Corporation

Docket No. 50-146

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County Court House
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Mr. Larry Sather, Chairman
Huntingdon Country Commissioners
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Saxton Community Library
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Saxton, PA 16678

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Hopewell Township Supervisors
ATTN: Sally Giornesto, Secretary
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Mr. Don Weaver, Chairman
Liberty Township Supervisors
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If you have any questions regarding this review, please contact me at (301) 415-1127.

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Alexander Adams, Jr., Senior Project Manager
Events Assessment, Generic Communications and
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REQUEST FOR ADDITIONAL INFORMATION

SAXTON NUCLEAR EXPERIMENTAL CORPORATION
GPU NUCLEAR
LICENSE TERMINATION PLAN, SAXTON, PENNSYLVANIA
DOCKET NO. 50-146, LICENSE NO. DPR-4

The staff has completed its review of your responses dated September 18, 2000, to NRC's first request for additional information (RAI) dated August 18, 2000. The NRC staff requires further information and/or clarification on your answers to the following questions from the first RAI. The staff understands that the responses to the questions in the first RAI that are acceptable to NRC will be incorporated into the LTP when it is revised.

1. Question 6 from the first RAI. The NRC staff recognizes GPU Nuclear's concern for angle drilling to characterize soil/rock beneath the CV's concrete base to minimize potential damage to the CV steel liner below grade as a result of angle drilling, and to maintain the integrity of the CV liner while decommissioning activities are in progress in the CV. The NRC staff understands that GPU Nuclear: (1) intends to evaluate whether the area underneath the CV should be characterized to determine the nature and extent of potential subsurface soil/rock contamination at the time known contaminated soil adjacent to the CV is remediated; and (2) proposes to consider that if all residual radioactivity is removed by excavation before reaching the CV concrete base, then the area beneath the CV concrete base should be considered as non-impacted [defined in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) as an area without residual radioactivity from licensed activities] which requires no surveys or sampling in the final status survey.

   The NRC staff believes that insufficient information has been provided to conclude that the area beneath the CV concrete base is non-impacted for two reasons. First, Section 2.2.4.2 of the LTP (and Table 2-16) indicates that subsurface soil contamination resulting from leakage of piping, tanks, and components in soil adjacent to the CV requires remediation in these impacted areas due to residual radioactivity concentrations that exceed the proposed derived concentration guideline (DCGL) for Cs-137 in soil (efforts are underway to characterize the area surrounding the CV since it has not yet been characterized due to prevailing soil conditions and ground water near the surface of the CV). Depending on the area's initial impacted classification level (and subsequent successful remediation), the area immediately adjacent to this area would be expected to be, in the least conservative case, a Class 3 buffer zone which requires the appropriate scan coverage and number of samples. As described in MARSSIM, the buffer zone would exist surrounding a Class 1 or 2 area/survey unit. It is not clear whether the boundary of this buffer zone or similarly classed area/survey unit would overlap into the area adjacent to or underneath the CV because the extent and depth of contamination is unknown. Second, potential surface/subsurface soil contamination near the CV may reach the area underneath the CV by movement or through water infiltration of radionuclides along the exterior of the CV.

   The NRC staff requests that with the limited radiological characterization and ground water information, GPU Nuclear initially classify the area beneath the CV concrete base as impacted considering the proximity and residual radioactivity concentrations of known

subsurface soil contamination, or demonstrate that the mechanism described above is not likely or probable.

Based on the teleconference conducted on December 6, 2000, the NRC staff understands that GPU Nuclear proposes to install at least one bedrock monitoring well (during the spring or early summer 2001) hydraulically down gradient but adjacent to the CV. This monitoring well will be installed so that its screened interval will range from 5 feet above to 5 feet below the CV concrete base. GPU Nuclear intends to add this monitoring well to their modified schedule for sampling radionuclides and measuring water levels. Please confirm GPU Nuclear's proposed plan to add this monitoring well, as discussed on December 6, 2000, and provide this detailed plan to the NRC for review.

The NRC staff acknowledges that when the radiological characterization, remediation plan, FSS design, sampling methodology, and remediation of the CV, and soil beneath the CV is complete, the results and data will be provided by GPU Nuclear for NRC's review.

2. Question 7 from the first RAI. The NRC staff acknowledges GPU Nuclear's plan to continue sample collection in concert with gamma logging, since gamma logging is considered acceptable for screening purposes. However, the following statement is unclear: "But, in areas where sampling is impossible or obviously inaccurate (i.e., rubble, gravel, or muck), gamma logging must be relied upon." The NRC staff recognizes that certain surveys or other measurement techniques/methodologies (i.e., in situ gamma spectroscopy) may be impractical in inaccessible or not readily available areas. However, it is common practice that rubble, gravel, muck or other media samples are collected in areas where such surveys are not feasible. These samples are analyzed isotopically for quantitative purposes under an approved and audited quality assurance program. Please clarify this statement.

3. Question 9 from the first RAI. The types of laboratory analyses (gross and isotopic) and concentrations for transuranic (TRU) (isotopic plutonium, uranium, cerium, and Am-241) and hard-to-detect (HTD) (C-14, Fe-55, I-129, Ni-63, Tc-99) radionuclides indicate the absence of TRU radionuclides in the ground water samples analyzed. The composite ground water sample concentrations provided are within the U.S. Environmental Protection Agency's maximum contaminant level (MCL) for activity concentrations for gross alpha emitters of 15 pCi/l as prescribed in 40 CFR Part 141 - National Primary Drinking Water Standard. The composite ground water samples for HTD radionuclides were reported at less than the minimum detectable concentration (MDC). The staff suggests that GPU Nuclear continue with the same regimen of sample analyses (gross alpha/beta and further isotopic analysis for TRU and HTD radionuclides) in the proposed phased onsite ground water monitoring program.

GPU Nuclear has addressed several issues pertaining to their justification that current monitoring wells are representative and appropriate for measuring potentially contaminated ground water onsite. However, the NRC staff believes that additional data still needs to be provided and that the data should address both potential onsite and offsite ground water contamination. For example, the following items should be

determined and provided to the NRC: (1) current water level configuration maps representing the shallow water bearing unit (wells screened in the fill, boulder, and the upper weathered bedrock) and the bedrock water bearing unit (wells screened in the bedrock at a depth approximately equal to the base of the CV); (2) ground water flow patterns for both water units delineating discharge points; (3) ground water flow rates with and without dissolved radionuclides; (4) whether radionuclide contaminated ground water has either reached surface water discharge points or moved beyond the SNEC property; and (5) hydrogeologic cross sections delineating the lithology, and potentiometric surfaces across the site.

GPU Nuclear and NRC staff have discussed, during a site inspection meeting on November 14, 2000, and during a teleconference on December 6, 2000, the ground water issues and the need for shallow and bedrock wells located between the site and the Raystown Branch of the Juniata River (the potential ground water discharge point) and for background monitoring wells in both water units. Based on these discussions, the NRC staff understands that GPU Nuclear is proposing to develop a phased approach to resolve ground water issues. Phase I includes the installation of seven wells, three nests of a shallow and a bedrock well and one additional bedrock well. GPU Nuclear intends to monitor these new wells in addition to all existing wells at its site and provide an evaluation of the aforementioned hydrogeologic issues. Additional monitoring wells may be necessary depending upon the results of Phase I.

Please confirm GPU Nuclear's proposed plan to develop a phased ground water monitoring program, as discussed on November 14, and December 6, 2000, and provide this detailed plan and schedule to the NRC for review.

4. Question 15 from the first RAI. Table 5-10 "Typical Detection Sensitivities," page 20: The column label in the table for "Instrument Efficiency" indicates the total efficiency for surface contamination detectors planned for use in the final status survey. The total efficiency (ε_T) is the product of the instrument (ε_i) and source (ε_s) efficiencies. The NRC staff recommends that GPU Nuclear add a footnote to this table to illustrate that these two distinct parameter values will be evaluated as adequately addressed in Question 24 of the first RAI. The NRC staff considers a source efficiency (ε_s) value of 0.5 for beta emitters with maximum energies above 400 keV, and an ε_s value of 0.25 for alpha- and beta-emitters with maximum energies between 150 keV and 400 keV to be acceptable estimates (absent site-specific information) of the ε_s values for alpha/beta surface contamination detectors for an *a priori* static and scan MDCs in the final status survey design. The NRC staff acknowledges GPU Nuclear's commitment to determine an appropriate ε_s value for surface contamination detectors and calculate the actual scan and static MDCs for implementation in the final status survey. The staff suggests that the equation given to calculate the static MDC (Section 5.5.2.4.4, page 5-38) include the ε_i, ε_s, and detector area parameters. The definition of K following the static MDC equation given and last sentence that reads: "The value of K may include..." would be deleted as appropriate. Please revise this table accordingly.

5. Question 23 from the first RAI. In Section 5.5.2.2 (page 30 of the response) the energy units for Tc-99 should be corrected. The maximum beta energy for Tc-99 is about 85 keV or 0.085 MeV. Please revise this accordingly.

Additional information is needed concerning the Saxton Steam Generating Station (SSGS). In a letter dated December 4, 2000, from G.A. Kuehn, Jr. to the NRC, GPU Nuclear indicates preliminary characterization had found contamination in two sumps in the SSGS footprint that is well in excess of the proposed DCGL values. The letter further states that these sump areas will be remediated as necessary. However, the letter does not describe the planned remediation nor does it identify which DCGL values (i.e., those proposed for soil or building surfaces) are exceeded.

6. As part of the staff's review of the DCGL values proposed in the LTP, please provide: (1) a brief discussion of the methodology used to determine the nature, areal extent, and depth of radiological contamination in the area of the SSGS; (2) the identified radionuclides, concentrations and estimates of standard deviation, and sample locations; (3) minimum detectable concentrations, analytical method (i.e., gamma/alpha spectroscopy, radiochemical analysis, etc.) used to quantify the identified radionuclides; (4) quality assurance practices implemented; and (5) based on the developed characterization information, the specific DCGL values and type (i.e., surface or volumetric) that will be considered in remediating radiological contamination in the former SSGS footprint.

   Please note that the proposed DCGL values for remediating building surface contamination may not be appropriate in this situation if volumetric contamination exists, which is likely given the nature of the contamination. Further, the proposed DCGL values for remediating contaminated soil may not be appropriate given the difference in the contaminated medium and potential exposure pathways. Accordingly, GPU Nuclear will need to justify the DCGL values for the former SSGS remediation in terms of the nature of the contamination (i.e., surface or volumetric), contaminated medium (i.e., concrete or soil), and potential exposure routes.

7. To support the staff's development of an environmental assessment, the staff needs specific information concerning the presence of any non-radiological contamination (e.g., hazardous wastes, toxic wastes, asbestos, etc.) in the former SSGS, its disposition, and GPU Nuclear's involvement with other State or Federal agencies in addressing such contamination.