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C301-97-2027
August 21, 1997

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Subject: Saxton Nuclear Experimental Corporation Facility
Operating License No. DPR-4
Docket No. 50-146
SNEC Facility Response to the Second and Third Requests for Additional Information Regarding TSCR 59

Enclosed is the SNEC Facility response to the Requests for Additional Information dated July 10, 1997and August 6, 1997. It is being submitted to supplement the previous responses to questions, address the recent questions on the Offsite Dose Calculation Manual and incorporate editorial comments (capitalization of definitions and the correction to a 10 CFR 20 reference in Section .1302) committed to by teleconference. A revised Technical Specification is included which reflects the changes made.

For additional information regarding this submittal, contact William Heysek of the TMI Licensing and Regulatory Affairs Department at (717) 948-8191.

Sincerely,

A009 1/1

G. A. Kuehn
Vice President SNEC

280028

WGH
Attachments

1. Oath/Affirmation Page for the Second and Third RAIs for Technical Specification Change Request 59, 1 page
2. Certificate of Service for the Second and Third RAIs for Technical Specification Change Request 59, 1 page
3. Response to the Second RAI for Technical Specification Change Request 59, 6 pages
4. Response to the Third RAI for Technical Specification Change Request 59 Regarding the ODCM, 2 pages
5. Proposed Revised Technical Specifications- complete document
6. SNEC Facility Updated Safety Analysis Report, supplemental section , 34 pages

cc: NRC Project Manager, NRR- A. X. Adams Jr.
NRC Project Scientist, Region I- T. F. Dragoun
File 96516

C301-97-2027
Attachment 1

SAXTON NUCLEAR EXPERIMENTAL CORPORATION

SAXTON NUCLEAR FACILITY

Operating License No. DPR-4
Docket No. 50-146
Response to the Second and Third Request for Additional Information Regarding
Technical Specification Change Request 59

COMMONWEALTH OF PENNSYLVANIA)
) SS:
COUNTY OF DAUPHIN)

This information is being provided in regard to the second and third NRC Requests for Additional Information for Technical Specification Change Request 59. As such it is submitted in support of Licensee's request to change Appendix A to Operating License No. DPR-4 for Saxton Nuclear Experimental facility.

I, G. A. Kuehn Jr., being duly sworn, state that I am the Vice President Saxton Nuclear Experimental Corporation (SNEC) and Program Director SNEC Facility; that on behalf of SNEC I am authorized by SNEC to sign, and file with the Nuclear Regulatory Commission, this Application to revise Appendix A and to amend the facility license; that I signed this Application as Vice President of SNEC and Program Director SNEC Facility; and that statements made and the matters set forth therein are true and correct to the best of my knowledge, information and belief.

SAXTON NUCLEAR EXPERIMENTAL
CORPORATION

BY: _____
Vice President, SNEC &
Program Director, SNEC Facility

Sworn and Subscribed to before me
this 21st day of August 1997.

_____
Notary Public

Notarial Seal
Suzanne C. Miklosik, Notary Public
Londonderry Twp., Dauphin County
My Commission Expires Nov. 22, 1999
Member, Pennsylvania Association of Notaries

C301-97-2027
Attachment 2

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF
SAXTON NUCLEAR EXPERIMENTAL CORPORATION

LICENSE NO. DPR-4
DOCKET NO. 50-146

CERTIFICATE OF SERVICE

This is to certify that a copy of response to the second and third requests for additional information regarding Technical Specification Change Request No. 59 to amend Appendix A and Operating License DPR-4 for the Saxton Nuclear Experimental Corporation facility as revised, have, on the date given below, been filed with executives of Liberty Township, Bedford County, Pennsylvania; Bedford County, Pennsylvania; and the Pennsylvania Department of Environmental Protection, by deposit in the United States mail addressed as follows:

Mr. Donald Weaver, Chairman
Liberty Township Supervisors
R.D. #1
Saxton, PA 16678

Mr. Richard Rice, Chairman
Bedford County Commissioners
County Courthouse
203 South Juliana Street
Bedford, PA 15522

Director, Bureau of Radiation Protection
PA Department of Environmental Protection
Rachael Carson State Office Bldg., 13th Floor
P.O. Box 8469
Harrisburg, PA 17105-8469
Attn: Kenneth Singh

SAXTON NUCLEAR EXPERIMENTAL CORPORATION

BY: _____
Vice President, SNEC &
Program Director, SNEC Facility

DATE: 8/21/97

Response to the Second RAI for Technical Specification Change Request 59

1 Your answer number 1 of May 30, 1997, discussed the containment vessel (CV)/ decommissioning support building (DSB) ventilation system. This system acts as an engineered safety feature (ESF) in that credit was taken for operation of the system in the decommissioning accident analysis. Because of this, we require greater detail on the design and operation of the system than was given in your answer. Please provide detailed information on the design of the system including system diagrams. For example, how was the system capacity and stack height determined? Please provide additional detail of the operation of the system. For example, how will the system be operated to ensure a controlled air release path when the CV or DSB are opened for component removal? Will system performance be affected by the method used to reseal the CV after component removal? Do you plan to add a section concerning this ESF to the Updated Safety Analysis Report (USAR)?

Response: The CV/DSB ventilation system design information is provided below and will be included in the revision to the Updated Safety Analysis Report (USAR). We understand, based on discussions with you, that you did not intend that the ventilation system be considered an engineered safety feature (ESF) in the sense of Regulatory Guide 1.52, "Design, Testing, and Maintenance Criteria for Post Accident Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants", as there is no possibility of a reactor accident at the SNEC facility. Rather, your concern is that as the ventilation system is relied upon in our accident analyses and that you need more information on its design and operation provided in the USAR.

In designing the system, referenced accident analyses were performed to demonstrate that the addition and operation of the system would not cause off-site doses to exceed the applicable limits due to the operation of the system. Since the motive force to cause a release without the system operating is greatly reduced or nonexistent depending on the accident, in general, operation of the system is not required to meet these limits in the event of an accident.

When activities that could generate a measurable release of airborne radioactivity are planned inside the CV and or DSB, the ventilation system is required to be in operation. Administrative procedures require that airflow be managed to ensure it is routed from low contamination areas to high and through the ventilation system.

The openings planned for the CV dome to allow removal of the reactor vessel, steam generator and pressurizer will be open only for the time needed to remove these components. During that time, airflow will be verified in the proper direction and other potential airborne generating activities will be suspended in the CV and DSB. Ventilation system performance will not be affected by the method used to re-seal the CV openings following component removal.

Containment Vessel Decommissioning Ventilation System Design

Since the original, permanent plant ventilation systems are no longer functional, a temporary ventilation system has been installed.

1. Function

   a. Provide for worker comfort by minimizing CV temperature extremes.
   b. Minimize potential for confined space restrictions by providing sufficient air volume changes.
   c. Reduce CV interior Radon concentrations which build-up from naturally occurring Radon and accumulate in the CV.
   d. Provide sufficient face velocity at the CV/DSB opening to meet the Containment Integrity requirements.
   e. Provide for filtration and quantification of radioactive airborne effluent releases.

2. General Description

   The system consists of ductwork installed inside the CV to provide suction from above and below the operating floor (818' elev.); outside the CV, a high efficiency particulate air (HEPA) filter and housing, a 6500 CFM nominal flow fan unit, an effluent radiation monitor, and associated ductwork, controls, instrumentation and alarms are installed. Refer to the attached figure.

3. Components

   a. 6500 - CFM nominal flow fan, 230V/480V/3ph/60Hz, 10BHP motor.
   b. 6500 - CFM pre-filter/HEPA filter housing with six 24" x 24" pre-filters and six 24" x 24" Nuclear Grade HEPA filters rated for >99.97% removal efficiency.
   c. Effluent radiation monitor, Eberline Model AMS-3 provided with isokinetic sampling of the air stream.
   d. Smoke detectors, one installed in each CV suction duct.
   e. HEPA filter differential pressure instrumentation.
   f. Alarms and indication for:
      (1.) Low HEPA Filter Differential Pressure
      (2.) Smoke/Fire
      (3.) Radiation Monitor Alarm
      (4.) Low Shed Temperature
      (5.) Radiation Monitor Failure

      Note: Alarms 2, 3 and 5 provide for automatic trip of the ventilation fan.

4. Design

The ventilation system consists of one exhaust fan drawing air from the upper and lower portion of the CV. The exhaust fan is a centrifugal unit that is provided with pre-filters and HEPA filters for the removal of airborne particulates in the exhaust air. There are no radioactive gases remaining at the facility. To provide indication and monitoring of radioactive releases, a radiation monitor, with isokinetic sampling, is installed downstream of the HEPA filter unit. The filtration unit was designed and constructed in accordance with ANSI N509 and tested per ANSI N510. The exhaust fan and filtration units are located outside the CV on the north side and are ducted to the CV using the existing 17- inch CV ventilation penetration. The duct penetration is thoroughly sealed to prevent exfiltration of airborne radioactive materials. The make-up air for the exhaust comes from the Decommissioning Support Building (DSB) through the roll-up doors or gravity type (counter-balanced) wall louvers. The approximate face velocity at the planned opening between the DSB and the CV is 45 feet per minute (fpm). This flow arrangement provides for ventilation of the DSB and CV from low to high contamination areas and provides sufficient face velocity at the planned DSB/CV opening to meet the containment integrity goals i.e. prevent the inadvertent release of radioactive contamination or airborne radioactivity.

The flow path of the air is from the DSB wall louvers (or roll-up doors), through the DSB, through the planned CV/DSB opening and across the CV operating floor. From the operating floor, the air will sweep across the CV storage well/spent fuel pool opening to be exhausted through exhaust registers attached to a plenum which runs from elevation 832' to 811'- 6". A duct connection is provided inside the CV on the inlet plenum to allow connection of a flexible duct hose for local ventilation needs. The plenum then connects to the existing 17 inch CV ventilation penetration. Outside the CV, the 17 inch penetration is provided with an isolation damper and is connected to the filtration unit. Air flows from the filtration unit to the fan and is exhausted via a short stack. The stack height and arrangement was selected based on industrial safety considerations and to prevent th intrusion of debris. The stack height is not relevant to radioactive release criteria for this situation.

The system capacity was sized to provide sufficient face velocity at the planned CV/DSB opening to ensure airflow into the CV and to provide adequate turnover of the CV air volume per industry standards. The face velocity of approximately 45 fpm and CV air change rate of approximately three CV volumes per hour meet these goals.

The alarms provide indication locally and at the GPU Energy Dispatch Facility, which is manned 24 hours a day. Administrative controls are provided to ensure proper notification and actions are taken in the event of an alarm.

5. Surveillances

The following surveillances/tests are required when the system is operational:

a. Annual verification of HEPA filter efficiency in accordance with ANSI N510.
b. Semi-Annual calibration of the radiation monitor in accordance with established procedures.
c. Annual calibration of HEPA filter differential pressure instrumentation with established procedures.
d. Quarterly functional checks of all alarms in accordance with procedures.
e. Weekly functional check of the effluent radiation monitor in accordance with procedures.

2 In your proposed definitions, you have defined the terms exclusion area, site boundary, and unrestricted area. Please compare your definitions with those in 10 CFR Parts 20 and 100. Is there any relation to the term "restricted area" as defined in 10 CFR Part 20? Discuss how you will ensure that no members of the public enter your defined "site boundary" without your knowledge or permission. Explain how unrestricted areas can exist within the site boundary.

Response: There is no direct relationship between the terms exclusion area, site boundary, and unrestricted area as defined in the proposed Saxton Nuclear Experimental Corporation (SNEC) Facility Technical Specifications (TSs) and the SNEC Off Site Dose Calculation Manual (ODCM) and the term restricted area as used in 10 CFR Part 20. The term "UNRESTRICTED AREA" was used in the proposed TSs and the ODCM. As discussed with your staff during the phone conference on the SNEC ODCM, these terms are unique to the area of radioactive effluents and are defined in that narrow scope. The regulatory definitions of 10 CFR Parts 20 and 100 are not changed by our use of these terms as related to the radioactive effluent program. Please note that we have proposed new language in the TS definitions to clarify this.

The property contained within the proposed "SITE BOUNDARY" is controlled by the parent company of SNEC, GPU, Inc. (except as noted below). Residential development of this industrial property is prohibited and access may be controlled by means of a fence, warning signs and other physical controls. General entry into the site boundary by members of the public is not prohibited at all times. Rather, as required, we have the ability to control (prohibit) access.

Since the proposed "SITE BOUNDARY" for the SNEC Facility includes a portion of public property, namely the Raystown branch of the Juniata River, it is necessary to have a portion of "UNRESTRICTED AREA" within the "SITE BOUNDARY". Note that due to the nature of this "UNRESTRICTED AREA", the use of the property for agricultural purposes or for the establishment of a residence, activities which are of principal concern in terms of radioactive effluents, is not possible.

3 To allow flexibility, the concept was developed that allowed the exclusion area to change size dependent on need as long as the exclusion area remained at least the minimum size shown in Figure 1 of the Technical Specifications (TSs) and extended no further than the security fence. Part of this concept was posting at the site what constituted the exclusion area at a particular point in time. Please include this in your proposed definition of exclusion area.

Response: The "EXCLUSION AREA" definition has been revised to include the provision for posting the area.

4 In answer number 15 of your letter of May 30, 1997, you state that you will continue the practice of conducting an initial radiological survey at each initial entry after the CV is secured. Your proposed TS states that a radiological survey will be performed if the CV has been secured for a period greater than 24 hours. Please explain this apparent inconsistency. Also, considering the increase in activities that will accompany dismantling of the CV, please justify not conducting a radiological survey on each day's initial entry into the CV.

Response: Section B.1.c.2) of the current TSs contains wording stating that a radiological survey will be performed if the CV has been secured for a period of greater than 24 hours. The section was renumbered as 3.2.1 in the proposed revised TS and was changed only to delete the parenthetical phrase which addressed the "breather pipe". In the response to Question 15 of the April 8, 1997 Request for Additional Information, GPU Nuclear stated it would continue to conduct an initial radiological survey at each initial entry after the CV is secured. The increased work scope and the potential to change radiological conditions within the CV during decommissioning merits performance of a survey on each day's initial entry into the CV. To rectify the inconsistency between Section 3.2.1 condition of 24 hours and "initial entry", the wording of Section 3.2.1 has been revised as follows:

3.2.1 At least two individuals, one of which must be knowledgeable in radiation monitoring and the radiological hazards associated with the facility, shall perform radiological surveys necessary to support the initial entry into the CV for the day.

5 In answer number 16 of your letter of May 30, 1997, you discuss the reasoning for having a Radiation Safety Officer or a Group Radiological Controls supervisor present for radioactive waste management activities. However, your current TS B.1.c.2 addresses entry and/or maintenance or characterization activities within the CV. You are proposing eliminating this wording. Please justify this change.

Response: The revised wording below is located in Section 3.2.2 of the proposed TS. It identifies those activities at the site which will require the presence of the RSO or a GRCS on site:

3.2.2 The RSO or a GRCS shall be present on site whenever CV entry, PRODUCTION ACTIVITIES, maintenance, characterization and/or RADIOACTIVE WASTE MANAGEMENT ACTIVITIES are being performed in Radiologically Controlled Areas (RCA's).

6 In answer number 19 of your letter of May 30, 1997, you proposed modified wording for TS 3.5.1.5. However, your updated TSs submitted with your letter does not include the modified wording. Please correct your proposed TSs.

You also discussed amending your USAR but did not indicate when this would be accomplished. Because your proposed TSs are dependent on the USAR, please submit the amended USAR.

Response: The previously proposed modified wording has been included on page 7 of the proposed revised TSs.

The USAR is amended with the addition of the pages provided as Attachment 5 of this submittal.

7 In answer number 26 of your letter of May 30, 1997, you proposed scheduling meetings quarterly and holding meetings three times per year. The TS should only focus on the requirement for holding meetings with wording that ensures that the meetings will be held at a regular interval throughout the year.

Response: The wording of TS section 3.5.5.3 has been revised to focus on the requirement to hold meetings. The proposed modified wording, that follows, has been included in the attached page 11 of the proposed revised TSs.

3.5.5.3 Meetings shall be held at least three times per year.

8 In answer number 33 of your letter of May 30, 1997, you state that if a process control program is needed, either a previously approved NRC process control program (PCP) will be used or a new program will be submitted to NRC. Please add a requirement to this TS to submit the PCP to NRC for approval before use at Saxton. This would also pertain to a previously approved program to ensure that the program is applicable to activities at Saxton.

Response: A process control program previously approved by the NRC would be used at the Saxton facility if it was appropriate to our needs. It would be used intact and unchanged from the previously approved version. Such programs are frequently used for generic waste processing tasks as employed by contractors at different work sites. These repetitive applications of a single, previously NRC approved process do not require re-approval. Therefore we propose retaining the current TS wording.

Response to the Third RAI for Technical Specification Change Request 59 Regarding the ODCM

1. Technical Specification 1.0.15. Your definition of Site Boundary is not consistent with NRC guidance in NUREG-1301 or 10 CFR Part 20. Please provide and justify a revised definition or provide justification for your proposed definition.

Response: As discussed with your staff during the phone conference on the SNEC ODCM, this term is unique to the area of radioactive effluents and is defined in that narrow scope. Please note that we have proposed new language in the TS definitions to clarify this. It will also be clarified in the SNEC ODCM.

The property contained within the proposed site boundary as it applies to effluent controls is controlled by the parent company of SNEC, GPU, Inc. (except as noted below). Residential or agricultural development of this industrial property is prohibited and access may be controlled by means of a fence, warning signs and other physical controls. General entry into the site boundary by members of the public is not prohibited at all times. However, we have the ability to control (prohibit) access. The revised definition is consistent with the guidance in NUREG 1301.

> The SITE BOUNDARY used as the basis for the limits on the release of gaseous effluents is the line formed by a 200 meter radius from the center of the containment building.

2. Technical Specification 3.6.2.1. For your radioactive effluent controls program please provide justification for the use of "... 10 times the concentrations specified in 10 CFR 20 Parts 20.1001 – 20.2402, Appendix B, Table 2, Column 2;". A submission that has this justification is attached as an example.

Response: Technical Specification 3.6.2.1 establishes programmatic limitations on the instantaneous concentrations of radioactive material released in liquid effluents to the Juniata River conforming to ten times the effluent concentration limits (ECLs) of 10CFR20.1001-20.2402, Appendix B, Table 2, Column 2. The basic requirements for Technical Specifications concerning effluents from nuclear power reactors are stated in 10 CFR 50.36a. These requirements indicate that compliance with effluent technical specifications (which have incorporated the requirements of Appendix I to 10 CFR 50 and are implemented by the SNEC ODCM) will keep average annual releases of radioactive material in effluents and their resultant committed effective dose equivalents at small percentages of the dose limits for individual members of the public specified in 10 CFR 20.1301. These 10 CFR 50.36a requirements further indicate that operational flexibility is allowed, compatible with considerations of health and safety, which may temporarily result in increases higher than such small percentages but still within the dose limits specified in 10 CFR 20.1301. It is further indicated in 10 CFR 50.36a that when using operational flexibility, best efforts shall be executed to keep levels of radioactive materials as low as reasonably achievable (ALARA) within the numerical limits set forth in 10 CFR 50, Appendix I.

Historically, nuclear power plant limits for instantaneous concentrations were based on the limits specified in the "old" 10 CFR 20.106, which references Appendix B, Table II MPCs. These referenced concentrations are specific values that relate to an annual dose to an individual member of the public of 500 mrem. As stated in the introduction to Appendix B of the "new" 10 CFR 20, the liquid ECLs provided in Appendix B, Table 2, Column 2, are based on an annual dose of 50 mrem. The use of an instantaneous concentration limit equal to ten times the ECLs will allow the same degree of operational flexibility that was allowed by the previous limits, while incorporation of the 10 CFR 50 Appendix I and 40 CFR 190 dose limits into the Technical Specifications and the SNEC ODCM will assure compliance with the ECL equivalent annual dose of 50 mrem.