

SSES-FSAR

QUESTION 312.1

Section 2.1.2 of the FSAR indicates that PP&L owns the entire plant exclusion area. State whether or not this includes the mineral rights. In the event the mineral rights are owned by others indicate the authority to control all activities within the exclusion area.

RESPONSE:

See revised Subsection 2.1.2.1.

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QUESTION 312.2

It is noted that the city of Hazleton, Pennsylvania, about 15 miles southeast of the plant is listed as the nearest population center. Indicate the projected 40 year growth of Berwick, Pennsylvania (current population of about 12,000), and whether it may become the new population center as defined in 10CFR Part 100 during the lifetime of the nuclear facility.

RESPONSE:

See revised Subsection 2.1.3.5.

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QUESTION 312.3

Figure 2.1-2 of the FSAR shows an existing cemetery within the property line of the nuclear plant. Describe the current use of this land and indicate your control in the event of an emergency. Indicate if the cemetery is within the exclusion area.

RESPONSE:

The cemetery, as shown in Figure 2.1-2, is not within the exclusion area.

The Susquehanna SES Emergency Plan provides information on control of this area in the event of an emergency.

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QUESTION 312.4

Provide a revised figure 2.1.2 which includes a distance scale.

RESPONSE:

The axes of this Figure provide this information in feet.

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QUESTION 312.5

Provide a basis for the selected severity value of railway tank car ruptures, i.e., 12 percent of accidents leading to Regulatory Guide 1.78 volume limits. Clarify the statement "...two percent of accidents, severe enough to create a full tank rupture would be expected in less than 10 percent." Since reference 2.2-11 dates back to 1972, indicate the expected rail car accident frequency change, if any, which may occur if the rail car accident statistics were updated to the present time.

RESPONSE:

See revised Subsection 2.2.3.1.3.

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QUESTION 312.6

- (1) Indicate the nature of the firefighting equipment and operations which will be used to mitigate the effects of the potential radiant heat associated with an oil fire at the river.
- (2) Provide an estimate of the potential duration of smoke and radiant heat in the event of an oil fire at the river following an oil pipeline rupture.

RESPONSE:

See revised Subsection 2.2.3.1.4.

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QUESTION 312.7

List all plant structures, systems, and components, as outlined in Regulatory Guide 1.117, in terms of the protection provided against the design basis tornado missiles. Describe their approximate locations and the barriers (thickness, material) which may exist between them and potential tornado missiles.

RESPONSE:

As stated in Subsections 3.5.1.4 and 3.3.2, Table 3.3-2 lists the systems that are protected against tornadoes and the enclosures which provide this protection. The enclosing structures are described in detail in Section 3.8. See section 3.13 for any exceptions to Regulatory Guide 1.117 (June 1976).

QUESTION 312.8

- (1) Provide an estimate of the free air space volumes that are serviced by the control room and secondary ventilation emergency HVAC systems. Also indicate the normal outside air intake rate for each of these HVAC systems.
- (2) Table 6.4-1 of the FSAR lists the control structure isolation damper closure times. Indicate the total time between a chlorine detector signal generation and the closure of the isolation dampers.
- (3) Describe briefly the measures to be taken in precluding potentially contaminated air in the H&V equipment room (FSAR Figure 9.4-1M) from leaking into the control room and control structure HVAC ductwork, thus creating a source of unfiltered infiltration into the habitability zones. Discuss the leakage characteristics of the H&V equipment room with respect to adjacent zones, and indicate provisions for controlling duct work leakage paths e.g. pilot traverse holes, hatches, joints.
- (4) Since the control room and secondary envelope HVAC systems are included in the habitability zone, some air exchange between the two systems can be anticipated either through leakage paths or due to door openings. Describe the leak paths across the ventilation barrier between the control room and the secondary envelope.
- (5) Discuss briefly the need for including extraneous zones (for example, the cable spreading rooms and the relay rack rooms) within the habitability zone.

RESPONSE:

FSAR Subsections 6.4.2.1, 6.4.2.3 and 6.4.2.4, Table 6.4-1 and Appendix 15B have been revised to include the requested information.

Since the chlorine detection system has been deleted, reference to the system is removed from the FSAR.



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QUESTION 312.9

Indicate if the last sentence in the first paragraph of FSAR Subsection 15.6.2.5 is correct.

RESPONSE:

FSAR Subsection 15.6.2.5 has been revised to correct a typographical error in the last sentence.

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QUESTION 312.10

The last paragraph of FSAR Subsection 6.2.3.2.3 "Containment Bypass Leakage" indicates that the total design bypass leakage rate is 56.6 scfh and that this value was assumed in the accident dose evaluation presented in Chapter 15. However, in FSAR Subsection 15.6.5.5.1.2 it is stated "It was assumed that no activity will bypass the SGTS filter."

Explain this apparent discrepancy.

RESPONSE:

This discrepancy has been resolved as described in the response to Question 021.03.

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QUESTION 312.11

Table 2.2-1 in the FSAR states that two pipelines in the vicinity of site are used for petroleum. Indicate if these lines are used for high flammability petroleum products such as gasoline.

RESPONSE:

See revised Table 2.2-1

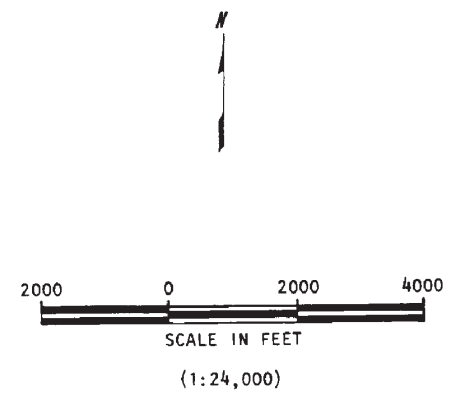
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QUESTION 312.12

None of the maps in the FSAR clearly show the exclusion area boundary. Provide a full scale section of the USGS map of the Berwick, PA quadrangle which clearly shows the exclusion area as well as the plant boundary. (FSAR Figure 2.1-1 is too small to provide sufficient detail.)

RESPONSE:

See the SSES Emergency Plan or the Technical Specifications for a depiction of the exclusion area.



- LEGEND:**
-  STATION BOUNDARY LINE
  -  EXCLUSION AREA BOUNDARY
  -  CENTER POINT OF EXCLUSION AREA (N341,175; E2,441,970.5)

**REFERENCE:**  
 THE BASE MAP IS TAKEN FROM PART OF  
 THE U.S. GEOLOGICAL SURVEY, BERWICK,  
 PA. 7 1/2 MINUTE QUADRANGLE (TOPOGRAPHIC).  
 PHOTOREVISED 1969.

FSAR REV.65

SUSQUEHANNA STEAM ELECTRIC STATION UNITS 1 & 2 FINAL SAFETY ANALYSIS REPORT
STATION EXCLUSION AREA

FIGURE 312.12-1, Rev 47  
 AutoCAD: Figure Fsar 312\_12\_1.dwg

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QUESTION 312.13

Although it is not mentioned in FSAR Section 2.1.3.4 Low Population Zone, Figure 2.1-1 shows a race track or an athletic field approximately 1 1/4 miles southwest of the reactor site. Indicate the use of this facility, the peak attendance and frequency of use.

RESPONSE:

Perluks Park and Race Track located approximately 1-1/4 miles southwest of the Susquehanna SES is not currently is use, and future use of the facility is undetermined.

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QUESTION 312.14

It is stated that you will comply with ANSI N101.2. What is your intended degree of compliance with Regulatory Guide 1.54, "Quality Assurance Requirements for Protective Coatings Applied to Water-Cooled Nuclear Power Plants?" If there are any coating materials not qualified according to Reg. Guide 1.54, provide estimates of their quantities to show that these quantities are insignificant.

RESPONSE:

See Section 3.13 and Subsection 6.1.2.

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QUESTION 312.15

In reference to Question 021.30, provide a graph which shows the secondary containment pressure following a loss of coolant accident during the switch over from the normal ventilation system exhaust to operation of the standby gas treatment system.

RESPONSE:

Subsection 6.2.3.2.1 of the FSAR has been revised to provide a reference to Figure 6.2-60 entitled "Secondary Containment Pressure Transient Post - LOCA."



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QUESTION 312.16

Please indicate the length of main steam line between the outboard and inboard MSIVs.

RESPONSE:

See Subsection 5.4.5.2.

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QUESTION 312.17

Provide the structural composition of all walls and roofs of buildings enumerated in Table 3.3-2 of the FSAR housing safety-related equipment, as well as the building locations. Discuss the sizes and orientations of any openings in these buildings.

RESPONSE:

See PLA-581, N. W. Curtis to B. J. Youngblood, dated December 9, 1980.

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QUESTION 312.18

Describe the extent to which the control room air intake and diesel generator exhaust tubes are protected from tornado-generated missiles.

RESPONSE:

See PLA-582, N. W. Curtis to B. J. Youngblood, dated December 9, 1980.

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QUESTION 312.19

Provide the descriptions and locations of all safety-related equipment not contained within reinforced concrete buildings or structures.

RESPONSE:

See Subsection 3.3.2.4.

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QUESTION 312.20

Discuss the capability of the plant safety-related structures, systems, and components to withstand at least missiles C and F of the Revision 0 to SRP 3.5.1.4 (specified below:)

	Missile	Fraction of Total Tornado Velocity
C.	Steel rod, 1 inch diameter x 3-feet long, weight - 8 lbs.	0.6
F.	Utility pole, 13-1/2 inch diameter, 35-feet long, weight - 1490 lbs.	0.4

RESPONSE:

See revised Subsection 3.5.2.2.

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QUESTION 312.21

In Section 15.B.2 "Control Room Dose Model," the text indicates that geometrical considerations lead to the use of Halitsky's model for atmospheric dispersion instead of Murphy's model for atmospheric dispersion, as described in SRP 6.4. Please provide a detailed justification of this substitution including a relative comparison between the two models.

RESPONSE:

An expanded explanation of the use of the Halitsky method of building wake X/Q calculation has been included in FSAR Section 15.B.2.

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QUESTION 312.22

List in Tables 15.6-18 and 15.6-19 the actual numerical values of X/Q used in the calculation of LOCA consequences listed in 15.6.5 and give the basis for their selection.

RESPONSE:

The numerical values of X/Q used in the calculation of LOCA consequences listed in Subsection 15.6.5 are already given in Tables 15.0-3 and 15.0-4. Subsection 15.0.3.6 which references Section 2.3 provides short-term site-specific X/Qs as required by Regulatory Guide 1.70. In addition, Table 15.6-22 which tabulated the assumptions used in the LOCA analysis, also specifies that the X/Qs may be found in Tables 15.0-3 and 15.0-4. Tables 15.6-18 and 15.6-19 contain dose consequences only and were never intended to contain X/Qs, thus no FSAR change is necessary.

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QUESTION 312.23

In FSAR Section 6.2.3.2.1, the applicant stated that with only one SGTS train, the secondary containment would be drawn down to a negative 0.25" WG pressure within 60 seconds. In staff question 312.15, the staff asked for a secondary pressure curve following the LOCA to determine if the proposed SGTS design could meet the commitment to draw down the secondary containment within the required time using the design flow rates. Instead of providing the draw down curve for the rated system flow, the applicant provided two draw down curves at flow rates less than the design flow, neither of which meets the 60-second criteria committed to. The response to Q312.15 is therefore not satisfactory.

The applicant has not demonstrated the ability of the SGTS using its rated flowrate to achieve a negative pressure of 0.25" WG in the secondary containment within 60 seconds following a LOCA, as the applicant has stated in FSAR Section 6.2.3. To resolve this concern, the applicant should provide a secondary containment pressure curve following the LOCA assuming the SGTS is operating at its rated flow.

RESPONSE:

See revised Subsection 6.2.3.2.1 and Figure 6.2-60.



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QUESTION 312.24

It is not clear from the FSAR and associated amendments that the dose contribution from MSIV leakage is calculated correctly. In Amendment 1 (8/78) the applicant indicates that the MSIV-LCS is not operational for 20 minutes following the postulated accident, yet the accident analysis in Chapter 15 of the FSAR assumes that all MSIV leakage is filtered. This implies that the main steam line isolation valve leakage control system (MSIV-LCS) is assumed operational from the start of the accident. Based upon this finding, the current FSAR analysis for the MSIV leakage dose contribution following a postulated LOCA is unacceptable and the applicant should provide an analysis for the MSIV leakage offsite dose contribution paying strict attention to the actual operation time of the MSIV-LCS given in the FSAR.

RESPONSE:

See revised Subsection 15.6.5.5.1.2.

NOTE:

MSIV-LCS information maintained here for historical purposes. The MSIV-LCS has been deleted. The function is now performed by the Isolated Condenser Treatment Method (Section 6.7).