



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NRC PDR

OCT 31 1978

Docket Nos. 50-387
and 50-388

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50-387
388

Mr. Norman W. Curtis
Vice President - Engineering
and Construction
Pennsylvania Power and Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Dear Mr. Curtis:

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION UNIT NOS. 1 AND 2 -
REQUEST FOR ADDITIONAL INFORMATION

As a result of our review of your application for operating licenses for the Susquehanna Steam Electric Plant we find that we need additional information in the areas of Accident Analysis, Effluent Treatment, Hydrology and Quality Assurance. The specific information required is listed in the Enclosure.

Please inform us of the date when this requested additional information will be available for our review.

Please contact us if you desire any discussion or clarification of the information requested.

Sincerely,

Olan D. Parr
Olan D. Parr, Chief
Light Water Reactors Branch No. 3
Division of Project Management

Enclosure:
As Stated

cc w/enclosure:
See next page

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Mr. Norman W. Curtis

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OCT 31 1978

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ENCLOSURE

REQUEST FOR ADDITIONAL INFORMATION

SUSQUEHANNA STEAM ELECTRIC STATION

DOCKET NOS. 50-387 AND 50-388

312.0 ACCIDENT ANALYSIS BRANCH

- 312.11
(2.1.1) 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.
- 312.12
(2.1.1) 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.)
- 312.13
(2.1.1) 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.
- 312.14
(6.1.2) 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.
- 312.15
(15.6.5) 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.
- 312.16
(15.6.5) Please indicate the length of main steam line between the outboard and inboard MSIVs.

321.0 Effluent Treatment Systems Branch

321.6 Your response to Question 321.5 on the solidification process control program and the parameters to be considered for the solidification of waste is not adequate. In accordance with BTP-ETSB 11-3, provide more detail concerning the process control program including the following:

- (1) Data concerning the expected waste types to be processed. The process control program should be based on tests performed with simulated waste formulations based on the expected inputs. You should discuss how the process control program considers the chemical constituents of the waste stream, the pH of the waste stream, boric acid content, solids content of the waste, concentration and type of radwaste, curing time, etc.
- (2) Data concerning the solidification agents (cement + silicate) to waste ratios to be used. The process control program should consider the correct ratios for the various input types and contaminant levels.
- (3) Data concerning the effects of various contaminants on the solidification process. Specifically, address oil and detergent content in wastes, lab chemicals, and non-depleted ion-exchange resins.
- (4) Discuss the experimental procedures to be used in your process control program. Discuss sampling of the waste input to the Solid Radwaste System as it relates to your process control program to assure a satisfactory solidified product. Where will the waste be sampled? Discuss how the results of the process control program will be analyzed and used as operational considerations.
- (5) We are not familiar with the material, "Safety Set." Provide a product description, including the chemical or physical method of solidifying surface liquid during expected process conditions.

371.0 HYDROLOGY - METEOROLOGY BRANCH - HYDROLOGY SECTION

- 371.19
(2.4.1) Provide a map of the site clearly showing the topography as altered by the plant. Note that FSAR Figure 2.4-1 is inadequate because it is very difficult to see the contours in the vicinity of the plant.
- 371.20
(2.4.2) Describe the "pressure resisting doors" used to prevent water from reaching safety-related equipment. Document that they are water tight for the maximum water level they must withstand. Indicate what procedures will be used to ensure that the doors will be properly closed during a flood. Alternately, if you can document that the maximum water level will be below the sill level of the doors to all safety-related buildings, it may not be necessary to keep the doors shut.
- 371.21
(2.4.8) You state, on page 2.4-29 of the FSAR, that "...all safety-related equipment [in the ESSW pumphouse] are located at higher elevation [than the 684.7 feet MSL you calculated as the maximum wind wave runup] and has suitable protection." What is the elevation of the safety-related equipment and what is the suitable protection?
- 371.22
(2.4.11) Please provide a copy of, or a better reference to the TAMS report referred to in your response to Q371.6.

371.23 (2.4.11) You state, on page 2.4-39 of the FSAR, that the river low level alarm is set at 488.5 feet MSL. From the stage discharge curve, FSAR Figure 2.4.6, that level corresponds to a discharge of about 5000 cfs. From the discharge-duration curve, FSAR Figure 2.4-30, the river discharge is below 5000 cfs about 40 percent of the time at Wilkes-Barre. Since the discharge-duration relationship at the site would not be very different than at Wilkes-Barre, it appears that the low level alarm would be activated quite often. What is the purpose of the alarm and what happens when it is activated?

371.24 (9.2.7) Indicate how you intend to ensure spray pond cooling capability beyond 30 days, especially if:

- (1) the Susquehanna River flow is below the level at which you can withdraw water in compliance with 18CFR Part 803.
- (2) the river stage is below that needed for the intake system to operate.

We note that on page 9.2-26 of the FSAR, you refer to Section 13.3 which in turn refers to your emergency plan. We were unable to find a discussion of makeup water to the spray ponds in that document.

371.25 You state on FSAR page 9.2-26, that at times of subfreezing temperatures, return flow to the spray pond will be first discharged directly into the pond, through a by-pass line, without passing through the spray network. Please indicate, on a diagram of the pond,

the location of the by-pass line and document that its location precludes short circuiting of hot water to the intake without significantly thawing the pond. Document that the return temperature will remain below the design maximum temperature at all times.

371.26
(9.2.7) On page 9.2-34 of the FSAR you refer to an Appendix D, which we have not been able to find in the FSAR. Please either direct us to its location in the FSAR, or if not in the FSAR, provide the document.

371.27 Model studies, performed during the Construction Permit (CP) review, indicated that the spray ponds, as designed, would be capable of providing cooling water at a temperature below the design maximum for the shutdown of both units during conditions specified in Regulatory Guide 1.27. The ability of the as built spray ponds to meet the design bases adopted at the CP must be confirmed by actual performance tests. Specifically, tests to confirm that the pond responds in a manner consistent with the model studies previously used to estimate pond performance, are needed. Commit to provide a detailed description of your test plan, procedures and analyses techniques for NRC staff review and approval prior to operation of Unit 1. The plan should recognize the availability of heat from Unit 1. Your schedule for the tests and analyses should allow for NRC staff review and approval prior to loading fuel for Unit 2.

421.0

QUALITY ASSURANCE - OPERATIONS.

421.1

The Quality Assurance Branch (QAB) has reviewed Pennsylvania Power and Light Company's (PP&L) Fire Protection Report (dated January 18, 1978) for Susquehanna Steam Electric Station (SSES) Units 1 and 2. This report was submitted in response to Mr. Boyd's letter of September 30, 1976. Based on our review of this information, we find that adequate information has not been submitted by PP&L to permit completion of the QAB review of the fire protection program.

Item 26 (pg. 3-48) of your submittal does not indicate what the management control of the QA organization consists of. The description for QA management should consist of (1) formulating and/or verifying that the fire protection QA program incorporates suitable requirements and is acceptable to the management responsible for fire protection through review, surveillance, and audits. Performance of other QA program functions for meeting the fire protection program requirements may be performed by personnel outside of the QA organization. The QA program for fire protection should be part of the overall plant QA program. These QA criteria apply to those items within the scope of the fire protection program, such as fire protection systems, emergency lighting, communication and breathing apparatus, as well as the fire protection requirements of applicable safety-related equipment.

421.2

We find that your response to Mr. Boyd's letter of September 30, 1976, does not describe sufficient detail to address the ten specific quality assurance criteria in Branch Technical Position ASB 9.5-1. In order for the QAB to fully evaluate your approach for meeting these criteria, additional detailed description is necessary. Examples of the detail we would expect PP&L to consider are provided in Attachment 6 of Mr. D. B. Vassallo's letter of August 29, 1977. If, however, you choose not to provide this detail, you may apply the same controls to each criterion that are commensurate with the controls described in your QA program for operations. These controls would apply to the remaining construction activities and for the operations phase of Unit Nos. 1 and 2. If you select this method, a statement to this effect would be adequate for our review of the fire protection QA program.

- 421.3
(17.2.1) Provide a description of how the QA Supervisor (located onsite) communicates with the offsite QA organizations relative to matters concerning QA/QC, and describe those conditions for determining when these actions should take place. The offsite/onsite interface should also be shown on the applicable organizational charts in the QA program description.
- 421.4
(17.2.1) Identify on organizational charts the reporting relationship of the Nuclear Review Board.
- 421.5
(17.2.1) FSAR Figure 17.2-2 has an organizational block listed as "others." Clarify what "others" are and describe their QA/QC functions, if any.
- 421.6
(17.2.1) Describe in more detail the specific responsibilities of the Nuclear Quality Assurance Staff in executing the SSES QA program.
- 421.7
(17.2.1) Describe in more detail those "quality activities" (ref. FSAR page 17.2-6) performed by the Manager, Power Production.
- 421.8
(17.2.1) Describe provisions which assure that the Vice-President, Systems Power and Engineering, maintains a continuing involvement in QA matters and how he communicates through intermediate levels of management. (e.g., review and concurrence of SSES operations, administrative control, and operational QA program).
- 421.9
(17.2.1) Clearly identify the individual/position responsible for having overall responsibility and authority for the SSES operational QA program.
- 421.10
(17.2.1) Describe the amount of nuclear quality assurance experience required for the position of Quality Assurance Manager. The amount of experience should be at least equal to the one year experience listed in paragraph 4.4.5 of ANSI/ANS-3.1-1978, "Selection and Training of Nuclear Power Plant Personnel."
- 421.11
(17.2.1) Describe the qualifications established for the QA Supervisor regarding quality assurance and quality control related experience.
- 421.12
(17.2.1) Describe measures which assure that personnel (including those outside the QA/QC organization) performing QA/QC functions have sufficient authority and organizational freedom to:
- a) Identify quality problems.
 - b) Initiate, recommend, or provide solutions through designated channels, and
 - c) Verify implementation of solutions.

This description should also include measures to assure that verification of conformance to established requirements is accomplished by individuals or groups who do not have direct responsibility for performing the work being verified.

- 421.13 Clarify whether the stop work authority vested in the Manager - NQA is
(17.2.1) delineated in writing.
- 421.14 Describe provisions which assure that management (i.e., above or outside
(17.2.2) the QA organization) annually assesses the scope, status, implementation, and effectiveness of the QA program to assure that the program is functioning adequately and complies with 10 CFR Part 50, Appendix B criteria, and that the results of this assessment are documented.
- 421.15 Table 17.2-1 of the FSAR addresses those Regulatory Guides and ANSI
(17.2.2) standards applicable to the operational QA program and the degree of compliance thereto. Since the docketing of your application (July 31, 1978), certain of these Regulatory Guides (RG) and ANSI standards have been upgraded and differ from the dates stated in Table 17.2-1. Therefore, update your application, and provide a specific commitment to comply with the regulatory positions of each of the following Regulatory Guides and ANSI standards: RG 1.28, Rev. 1; RG 1.33, Rev. 2; RG 1.38, Rev. 2; RG 1.39, Rev. 2; RG 1.116, Rev. 0-R; RG 1.123, Rev. 1; and ANSI N45.2.12, Draft 3, Rev. 4, 2/22/74 or ANSI N45.2.12, Draft 4, Rev. 2, 1/1/76, as supplemented by regulatory position 4 of Regulatory Guide 1.33, Rev. 2 (2/78). Any exceptions and/or alternatives to the above Regulatory Guides/ANSI standards should be described in sufficient supporting detail to allow for NRC evaluation and acceptance.
- 421.16 It is not clear as to your interpretation of the term "Commitment to
(17.2.2) the extent required by ANSI N18.7-1976" as used in FSAR Table 17.2.1. Please provide a more detailed explanation of what "Commitment to the extent required by ANSI N18.7-1976" means to PP&I and how it is to be used to assure consistent interpretation within PP&I.
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- 421.17 Describe those provisions which assure that the docketed QA program
(17.2.2) description, particularly the commitment to Regulatory Guides and ANSI standards, will be properly carried out and with the use of QA procedures.
- 421.18 Provide a summary description on how responsibilities and control
(17.2.2) of quality-related activities are transferred between PP&I and principal contractors during the phaseout of design and construction and during preoperational testing and plant turnover.

- 421.19 Describe measures to assure that appropriate 10 CFR Part 50 Appendix B
(17.2.2) requirements will be applied to the preoperational test program.
- 421.20 Describe provisions which assure that the NRC will be notified of
(17.2.2) changes to the accepted SAR QA program description prior to implementation and of changes to organizational elements within 30 days after announcement. (Note - minor editorial changes or personnel reassignments of a nonsubstantive nature do not require NRC notification.)
- 421.21 Identify those individuals evaluating the suppliers' capabilities to
(17.2.7) provide acceptable quality services and products prior to the award of procurement order or contract. (QA and Engineering should participate in the evaluation of those suppliers providing critical components.)
- 421.22 Clarify whether the purchase of spare or replacement parts of safety-
(17.2.7) related structures, systems, and components are subject to controls at least equivalent to those used for the original equipment.
- 421.23 Describe measures which assure that records are identifiable and
(17.2.17) retrievable.
- 421.24 Describe provisions to assure that the "offsite" QA organization:
(17.2.18)
- a. Conducts sufficient audits to verify the activities conducted by the "onsite" QA organization.
 - b. Reviews and concurs in the schedule and scope of audits performed by the onsite QA organization.