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Docket Nos.: 50-387
and 50-388

Mr. Norman W. Curtis
Vice President - Engineering
and Construction
Pennsylvania Power and Light Company
Two North Ninth Street
Allentown, Pennsylvania 13101

Dear Mr. Curtis:

Subject: Susquehanna Steam Electric Station, Units 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 area of hydrologic engineering and geotechnical engineering. The specific information required is listed in the Enclosure.

If you desire any discussion or clarification of the information requested, please contact R. M. Stark, Licensing Project Manager, (301-492-7238).

Sincerely,

Original signed by
Robert L. Tedesco

Robert L. Tedesco, Assistant Director
for Licensing
Division of Licensing

Enclosure:
As stated

cc w/encl.: See next page

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SURNAME	RMStark	BJYoungblood	RLTedesco			
DATE	12/4/80	12/8/80	12/8/80			

DEC

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

cc: Mr. Earle M. Mead
Project Engineering Manager
Pennsylvania Power & Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Jay Silberg, Esq.
Shaw, Pittman, Potts &
Trowbridge
1800 M Street, N. W.
Washington, D. C. 20036

Mr. William E. Barberich,
Nuclear Licensing Group Supervisor
Pennsylvania Power & Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Edward M. Nagel, Esquire
General Counsel and Secretary
Pennsylvania Power & Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Bryan Snapp, Esq.
Pennsylvania Power & Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Robert M. Gallo
Resident Inspector
P. O. Box 52
Shickshinny, Pennsylvania 18655

John L. Anderson
Oak Ridge National Laboratory
Union Carbide Corporation
Bldg. 3500, P. O. Box X
Oak Ridge, Tennessee 37830

Gerald R. Schultz, Esq.
Susquehanna Environmental Advocates
P. O. Box 1560
Wikes-Barre, Pennsylvania 18703

Mr. E.B. Poser
Project Engineer
Bechtel Power Corporation
P. O. Box 3965
San Francisco, California 94119

Matias F. Travieso-Diaz, Esq.
Shaw, Pittman, Potts &
Trowbridge
1800 M Street, N. W.
Washington, D. C. 20036

Dr. Judith H. Johnsrud
Co-Director
Environmental Coalition on
Nuclear Power
433 Orlando Avenue
State College, Pa 16801

Mr. Thomas M. Gerusky, Director
Bureau of Radiation Protection
Department of Environmental
Resources
Commonwealth of Pennsylvania
P. O. Box 2063
Harrisburg, Pa 17120

Ms. Colleen Marsh
Box 538A, RD#4
Mountain Top, PA 18707

Mrs. Irene Lemanowicz, Chairperson
The Citizens Against Nuclear
Danagers
P. O. Box 377
RD#1
Berwick, PA 18503

Mr. J.W. Millard
Project MAnager
Mail Code 394
General Electric Company
175 Curtner Avenue
San Jose, California 95125

Plant Name: Susquehanna SES
Docket Numbers: 50-387/388
Subject: Request for Additional Information -
Round Two Geotechnical Engineering Questions
Prepared By: O. Thompson, Hydrologic and Geotechnical Engineeering
Branch, Division of Engineering, NRR

362.19 (Section 2.5.4.5.3) Provide a summary of the field tests which show that the properties of the sand-cement-flyash backfill met specifications given in Section 2.5.4.5.3 of the FSAR. In your response, list the field tests performed, describe the frequency of testing and provide a statistical analysis of strength test results using a format similar to Figure 2.5-60.

362.20 (Section 2.5.4.5.3) Provide a description of the bedding requirements for seismic Category I pipelines and conduits. Provide a description of the quality control procedures adopted to ensure that these requirements were met. Summarize relevant field test results using a format similar to Figure 2.5-60.

362.21 (Section 2.5.4.6, 2.5.4.10, and 2.5.5.1) FSAR Figure 2.5-38 shows rock and groundwater contours for the spray pond. On the west side of the pond, at rock contour El 650 the estimated groundwater contour is El 670. Explain the apparent discrepancy between the design groundwater level of El 665 and the predicted ground water level of El 670 in an area where the pond base is supported on about 17 ft. of granular, glacial soils. Provide an additional liquefaction analysis for this part of the spray pond. Revise the relevant sections of the FSAR, including 2.5.4.10.2 (third last paragraph) as necessary, based on your response to this item.

362.22 (Section 2.5.4.13) RSP

Update Table 2.5-8 of the FSAR to include settlement readings on the ESSW pumphouse from October 1978 to the present. Also, provide a list of unusual occurrences, such as the occurrence of the OBE or rapid lowering of the groundwater level, which have the potential for causing settlement of the pumphouse. We require that settlement monitoring of the pumphouse continue on at least an annual frequency for a period of at least four years, and after an unusual occurrence that has the potential for causing settlement of the pumphouse. Discuss the technical specifications for settlement monitoring, including limits of acceptable settlement and action plans if these limits should be exceeded.

362.23 (Section 2.5.4.14)

Provide a discussion of the cracking of the spray pond liner that occurred during liner construction. Describe the location, depth and length of typical and extreme cracks. Describe the corrective measures that were adopted. Provide your evaluation of the cause(s) of cracking, including your opinion regarding the influence of hydrostatic uplift or soil settlement as contributing factors.

362.24 (Section 2.5.5.4)

Excavated material reportedly was temporarily stored at the spray pond location during construction. Provide a brief description of material handling procedures which shows that there are no safety-related cut slopes or embankments comprised of dumped material. Alternatively, show that compaction criteria were met for such dumped soil materials.

362.25 (Q.362.8)

We understand from your submittals and response to Q.362.8 that the backfill against seismic Category I structures is lean concrete

(sand-cement-flyash). Thus, we conclude that all seismic Category I pipes and conduits are supported on lean concrete where they enter or leave structures, and therefore there should be no concern with differential settlement at the interface between structure-supported and ground-supported parts of pipelines or conduits. Please confirm that this is correct.

Hydrologic Engineering Question and Position (Q-2)
Susquehanna Steam Electric Station
Units 1 and 2
Docket Numbers 50-387/388

371.29 (2.4.13) Determine if a groundwater dewatering system is installed, being constructed or planned at the site. Responses to items (1) through (3) are necessary only if a dewatering system is, or will be, built.

(1) Provide a description of the dewatering system, including as-built drawings showing the locations of structures, components and features of the system. Provide available information related to the design of all system components such as pumps, lateral interceptors, drainage blankets, and pervious fills.

(2) Determine the extent that the dewatering system is relied upon to reduce inleakage into safety-related buildings. Document the internal water levels that cause failure of safety-related equipment.

(3) Determine if credit is given to the system for reduction of active and/or passive loads on safety-related structures or components, or on any non-safety component whose failure could affect safety-related features.

371.30 - (2.4.13 and 2.5.5.2) You state on page 2.5-120 that seepage from the spray pond will be monitored using observation wells and refer to subsection 2.4.13.4. That subsection, however, does not contain the referenced discussion. It is our position that the possibility of groundwater levels above your design elevation of 665 feet MSL be addressed by a monitoring program and technical specifications. Therefore, provide the following information:

1. Provide a description of your proposed monitoring program, including maps and cross-sections showing the locations and depths of the observation wells in relation to the spray pond. Discuss the data collection program you propose, including methods of collection, schedules, and documentation. Provide details of your proposed program (described in FSAR Section 2.5.5.2.2.1) to measure actual seepage by measuring pond levels, precipitation and evaporation.

2. Discuss technical specifications and limiting conditions of operation necessary to ensure that the general health and safety of the public is not endangered if the design groundwater level below the spray pond is exceeded.