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Docket Nos.: 50-352/353

Mr. Edward G. Bauer, Jr.
Vice President & General Counsel
Philadelphia Electric Company
2301 Market Street
Philadelphia, Pennsylvania 19101

Dear Mr. Bauer:

Subject: Request for Additional Information - Limerick Environmental Review

Pursuant to our recent environmental site visit and earlier submittals of draft environmental questions, the Aquatic and Terrestrial Sections of the Environmental Engineering Branch, and the Hydrologic Section of the Hydrologic and Geotechnical Engineering Branch have requested the information delineated in Enclosure 1. Much of this material has already been telecopied to you. Several of the items contained in the enclosure represent modified forms of earlier draft questions. For convenience, the numbering system employed in the draft submittals has been preserved here. Accordingly, in cases where a draft question has been deleted or where a response has already been received, the appropriate indication is given.

Please provide us, within 7 working days from receipt of this letter, with the date(s) on which you plan to respond to the above. In cases where you have already provided responses (based on receiving our telecopied requests), please indicate so. Any questions concerning this information request should be directed to Dr. Harvey Abelson (301) 492-9774, the Licensing Project Manager.

Sincerely,

A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing

Enclosure:
As stated

cc: See next page

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Limerick

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E290. Terrestrial Resources & Noise

- E290.1
(ER Sec. 3.9.2
and 5.5) Are there any proposed or listed federally threatened or endangered species potentially occurring along the proposed Limerick transmission line corridors? If so, specify.
- E290.2
(ER Sec. 3.9.3) Provide a description of the grounding systems that will be used to reduce induced voltages and currents in conducting objects, such as metal fences, in the vicinity of the right-of-way.
- E290.3
(ER Sec. 2.1.1.2) Question answered in ER, Revision 5.
- E290.4
(ER Sec. 2.1.1.2) Question answered in ER, Revision 5.
- E290.5
(ER Sec.
2.2.1.1.1) Question answered in ER, Revision 5.
- E290.6
(ER Sec.
2.2.1.1.1) Question answered in ER, Revision 5; the applicant response referred only to plant communities on site; the staff question asked for plant communities within a 1 mile radius of the site. Please complete the response.
- E290.7
(ER Sec.
2.2.1.3.1) Question answered in ER, Revision 5.
- E290.8
(ER Sec.
2.2.1.4) Question answered in ER, Revision 5.
- E290.9
(ER Sec.
3.9.2.5) Question answered in ER, Revision 5.
- E290.10
(ER Sec.
3.9.2.5) Question answered in ER, Revision 5.
- E290.11
(ER Sec. 4.1.2) Question deleted.
- E290.12
(ER Sec. 4.2.1) Question answered in ER, Revision 5.
- E290.13
(ER Sec. 6.1) Question deleted.

- E290.14 Question answered in ER, Revision 5.
- E290.15
(ER Sec. 6) Provide a discussion on the potential environmental effects and/or hazards (excluding shocks) to biological systems from low-level electromagnetic fields generated from the transmission lines.
- E290.16 Provide a figure of the site and immediate vicinity showing salt drift deposition isopleths (lbs/Ac/yr) when both natural draft cooling towers are operating. Provide detailed information on the model used to predict the deposition including information on verification of the model.
- E290.16a What erosion control practices and revegetation efforts will be implemented during and after construction of the water pipeline from the Point Pleasant Pumping Station to Bradshaw Reservoir? Specifically address erosion control practices on steep slope areas upslope of state highway 32.
- E290.16b How often will the spray pond be operative once the plant begins generating electrical power?
- E290.16c At the Limerick site visit PECO personnel indicated that waterfowl are expected to frequent the spray pond. Describe the waterfowl monitoring program planned to document usage of the spray pond both before and after the plant begins operating.
- Noise Questions Related to Point Pleasant
- E290.17 What equipment is in operation during the intake back-flush operation?
- E290.18 Concerning the compressors at the pumphouse:
(1) What are their number, type, HP, and RPM rating?
(2) How are these compressors driven (diesel, electric motor, turbines) and what are the specs on their drive engines (frame type, HP, RPM)?
- E290.19 For the pumphouse transformers:
(a) what is the kVA rating?
(b) breakdown insulation level (BIL)
(c) type of cooling system
(d) if there is a three-phase transformer system, is each phase in a separate tank?
- E290.20 For the pumphouse pumps, what are the number, type, number of stages (if multi-stage) and HP or RPM of the pumps? What are the noise specs on the vertical motors that drive the pumps?
- E290.21 Provide general arrangement and structural drawings along with locations of the mechanical service system (HVAC system) in the pumphouse.

- E290.22 What noise control features were used to minimize noise emanating from the pumphouse? What are the dimensions of the pumphouse (length, width, and height) and the material from which the walls, ceiling, and floor are built? Where are the windows located and what are their dimensions?
- E290.23 What noise sources are present from the quarry located about 1000 ft. from the pumphouse?
- E290.24 Provide a copy of the ambient noise measurement study sponsored by the Applicant and done for the region near the pumphouse.
- E290.25 (A) Which noise sources are present during construction of:
(a) the intake
(b) the pumphouse, and
(c) pipeline in the region of the pumphouse?
- (B) Please provide overall sound power level and octave band sound pressure levels for those sources, if known, from manufacturers specifications.
- (C) Also state which sources are present during the different stages of construction.
- E290.26 Are any local or state standards governing the region about the pumphouse?
- E290.27 Provide the data as applicable above for the secondary pumping station located a few miles away, both in construction and operation phase.
- Noise Questions Related to Limerick Station Operation
- E290.28 What is the sound power level (by octave bands) for the cooling towers and each transformer; include directivity effects in answer?
- E290.29 Provide location data for each of the transformers within the switch-yards.
- E290.30 Provide information on the specifications for the sound absorption masonry used to quiet the main transformers. Provide information on expected sound power levels (by octave bands) including directivity effects (if relevant) as a result of installing sound absorption masonry.
- E290.31 Locate on a scale map houses or clusters of houses within a one mile radius of the cooling towers. Also locate any other potentially sound sensitive areas.
- E290.32 Provide a copy of the June 1973 data study on ambient noise.
- E290.33 Provide information on any local or other standards on noise for the Limerick site.

- E290.34
(ER Sec. 4.5) Provide the ... "plans for noise monitoring and update"...
(ER pg. 4.5-2) and any existing data from measurements made under
that plan.
- E290.35 Provide information on flow rate, power rating, location and number
of all circulating water pumps. Report pump location (i.e. direction
and distance) from the cooling towers.
- E290.36 Provide a copy of the July 1982 report on ambient noise measurements
authored by Neil Moiseev. This report is an update of the 1973 report.

Aquatic Resources:

- E 291.1
(2.4.6) Section-2.4.6 indicates that Philadelphia Electric Company has no plans for upstream development of compensating water storage capacity on the Schuylkill River. However, a request for a determination of need for such capacity has been submitted to the Delaware River Basin Commission. Indicate the status of this request and describe any determinations that have been made as a result.
- E 291.2
(2.4.7) The water quality data in Tables 2.4-12, 2.4-13 and 2.4-14 are for the period 1975-1978. Provide similar data for the period 1979 to the present, if available. Indicate the number of samples represented by the data in these tables. Also indicate whether the data represent grab samples or composite samples (i.e., depth and/or transect composites).
- E 291.3
(2.4.7) If water quality data for the period of 1979 to the present are available, discuss the trends, if any, evident in these data that would tend to support or contradict the conclusions drawn from the earlier data as to the conditions of the water bodies in question, the water quality stresses present and their status relative to applicable water quality standards.
- E 291.4
(T.3.3-1) Question Deleted.
- E 291.5
(T.3.3-1) Explain the meaning (e.g., name the sources responsible) of the 1 MGD miscellaneous consumptive losses given in Table 3.3-1. Indicate the fate (i.e., discharge points, treatment, if any, and receiving waters) of these losses.
- E 291.6
(3.4.2) A statement in Section 3.4.2 mentions use of a cooling tower bypass line for the circulating water. Indicate whether the cooling towers are expected to be operated all year round. Describe those conditions and their expected frequency and duration under which the towers would be bypassed.
- E 291.7
(3.4.3) Provide the basis for the expected 0.03% cooling tower drift rate, as opposed to the 0.20% rate guaranteed by the manufacturer.
- E 291.8
(3.4.4) Indicate the expected frequency and duration of discharges from spray pond.
- E 291.9
(3.6.2) Indicate what limitations, including monitoring, that are to be placed on discharges from the spray pond blowdown during and following chlorination to control algae.
- E 291.10
(3.6.1) Provide a more accurate estimate of and bases for the estimate of condenser tube corrosion products in the station blowdown.

- 291.11
(3.6.4) Indicate, with bases, the maximum expected total residual chlorine (TRC) in the station discharge, the expected duration of measurable (i.e., greater than 0.1 mg/l) TRC presence in the blowdown, the monitoring point and method of measurement.
- 291.12
(3.3) Provide a discussion of the expected volume, timing (onset and cessation dates), and duration of pumping water through the Point Pleasant Diversion/Perkiomen Creek system to the Limerick Generating Station for average and worst case years. Discuss the variability of flowrates in the PECO portion of the system for times when water is to be used at LGS and when flow would be maintained only for maintenance of aquatic life in Perkiomen Creek.
- 291.13 State, based on the results of available confirmed field monitoring programs, whether or not Corbicula sp. (Asiatic clam) is present in the vicinity of the Delaware River, Perkiomen Creek, and Schuylkill River intake structures. Provide the latest sample data of the monitoring program that was used to make the determination of presence or absence and provide a brief description of the monitoring program. If no recent monitoring has been conducted in the vicinity of the station that could reasonably be expected to detect these organisms this should be stated. If the species is present provide any available information on its density in the vicinity of the intake structures.
- E 291.14
(3.4) Section 3.4, Figure 3.4-9, indicate the purpose of the six five inch diameter conduits that are embedded in the Schuylkill River diffuser and channel stabilization structure.
- E 291.15
(3.4) Section 3.4, on page 3.4-7 the text states that there will be nine inches of water covering the Perkiomen Creek intake structure. Figure 3.4-14 shows seven inches of water covering the same intake structure. Resolve this inconsistency. Indicate in the text the conditions and assumptions under which this predicted measurement was made.
- E 291.16
(5.1.3) In Section 5.1.3.1.1, on page 5.1-6 it states that the area in the vicinity of Limerick Generating Station is lightly utilized for sport fishing. In section 2.1, table 2.1-43 the current and projected fishing pressure within ten miles downstream of the site is 146,000 and 255,000 hours per year, respectively. Provide a discussion as to how the conclusion was reached that the Schuylkill River is lightly utilized for sport fishing.
- E 291.17
(5.1.3) In section 5.1.3, page 5.1-4 the statement is made under the heading Schuylkill River that "the river near LGS is not of unique importance for the life-sustaining activities of resident aquatic organisms,...". The statement, in reference to the Perkiomen Creek, is again made in the next paragraph. In the following paragraph discussing the East Branch of the Perkiomen Creek the statement is not made. Explain what is meant by this statement and indicate why it is not applicable to the East Branch of the Perkiomen Creek.

- E 291.18
(5.1.3) In Section 5.1.3.1.1.b, the statement is made that entrainment of fish eggs and larvae is not expected to seriously alter species composition or density of important species near the station. No quantitative analysis is provided. Provide additional discussion that supports this conclusion.
- E 291.19
(5.1.3) Provide in Section 5.1.3.3 an estimate of the volume of sediment that will be washed from the East Branch of the Perkiomen Creek and discuss the fate of this sediment. Also provide in this section an assessment of the impact that this sediment will have on aquatic biota inhabiting areas of sediment deposition.
- E 291.20
(5.1.3) In Section 5.1.3.3, indicate on a map those stretches of the East Branch of the Perkiomen Creek streambed that will experience erosion, increased siltation, channel modification and bank flooding.
- E 291.21 On the absence of sufficient flow (3000 cfs) in the Delaware River it was our understanding that withdrawal from the Delaware River for the Limerick Plant would be curtailed. A DRBC minimum flow requirement for the East Branch Perkiomen Creek of half the maximum Limerick Plant diversion was mentioned during the site visit. Is there a minimum flow requirement for the East Branch Perkiomen Creek, and will it be maintained even if flow in the Delaware is below 3000 cfs and the Merrill Creek Project is not completed?
- E 291.22 Provide a discussion of control procedures, and other measures to be taken to prevent the growth of organisms in the spray pond. Organisms of principal concern are fish and Asiatic clams.
- E 291.23 Provide data, if available, for sampling by PECO or NWRA of Delaware River or Perkiomen Creek (including the East Branch) water for any pollutants that appear on the U.S. Environmental Protection Agency list of priority pollutants (e.g., trichloroethylene). Indicate or provide a reference for the limit of detectability, the accuracy and the precision of the analyses used.
- E 291.24 Provide a discussion of groundwater quality in the vicinity of the proposed Bradshaw Reservoir, including known problem areas with respect to human consumption, contamination by industrial or municipal sources (indicate the types of contamination and areas affected). Published reports addressing the above subjects may be substituted for the requested discussion.

Hydrologic Engineering Section
Hydrologic and Geotechnical Engineering Branch
Environmental Review Questions
Limerick Generating Station Units 1 & 2
Docket Nos. 50-352/353

E240.26
(3.4)

- A. It is our understanding that you plan to provide some erosion protection along East Branch Perkiomen Creek near the discharge of the line from the Bradshaw Reservoir. Do you plan to monitor the East Branch to check for additional downstream erosion and provide additional erosion protection if required? If so, please discuss?
- B. Do you plan to remove any of the fluvial deposits downstream of the discharge in East Branch Perkiomen Creek in order to lower the amount of suspended sediment flushed downstream when the diversion is initially operated? If so how far downstream of the discharge do you plan to remove these deposits? Estimate the amount of suspended sediment that will be carried downstream due to initial operation of the diversion facility and compare this value to what would normally be expected in the Creek for that time of year.

E240.27
(3.4)

- A. Please provide all velocity profiles that were taken under various flow conditions in the Delaware River along the centerline of the intake. Please provide a cross section profile of the bottom bathymetry across the entire width of the river at this point. Where velocity measurements exist across the entire width of the river, calculate the river discharge using the measurements and compare this value with the measured discharge at the Trenton gage.
- B. Provide a curve of velocity at the intake screen versus depth over the range of flows during which you plan to withdraw water, showing measured velocities as well as calculated velocities on this curve. Describe the assumptions and data used in your calculations.

E240.28
(3.4)

Please provide a discussion and/or analysis to support your conclusion that siltation will not be a problem at the Delaware intake.