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SR. VICE PRESIDENT
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August 15, 1983

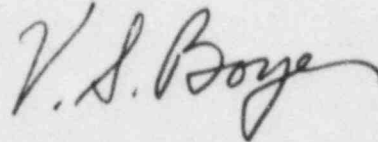
Mr. Darrell G. Eisenhut, Director
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: NUREG 0974: Draft Environmental Statement
Related to the Operation of Limerick
Generating Station, Units 1 and 2,
Docket Nos. 50-352 and 50-353

Dear Mr. Eisenhut:

We have reviewed the subject DES and our comments
are enclosed.

Sincerely,



Encl.

See attached service list

8308170021 830815
PDR ADOCK 05000352
D PDR

C002

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cc: Judge Lawrence Brenner (w/enclosure)
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Atomic Safety and Licensing Board Panel (w/enclosure)
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COMMENTS
ON
NUREG-0974
DRAFT ENVIRONMENTAL STATEMENT
RELATED TO THE OPERATION OF
LIMERICK GENERATING STATION
UNITS 1 AND 2
DOCKET NOS. 50-352 AND 50-353

CHAPTER/SECTION

COMMENT

SUMMARY AND CONCLUSION

Page v	Item (2), second paragraph, third sentence, should read ". . . using water from the Schuylkill River, Perkiomen Creek, and the Delaware River."
Page viii	Item (4)(u): See comments below on pages 5-77, 5-93, and 5-94.

FOREWORD

No Comment

INTRODUCTION

Page 1-1	Section 1, second paragraph, first sentence: Suggested rewording, "The generating system consists of two boiling water reactors, two steam turbine-generators, heat-dissipation systems, and associated auxiliary facilities and engineering safeguards."
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PURPOSE AND NEED FOR ACTION

No Comment

ALTERNATIVES TO PROPOSED ACTION

No Comment

PROJECT DESCRIPTION AND AFFECTED ENVIRONMENT

- Page 4-4 Table 4.1: We believe that two of the values in this table are in error. For makeup from the Delaware/Perkiomen during June through October, the range should be 52.1-57.4 and the average should be 55.7 ft³/sec based on the values as given in EROL Table 3.3-1.
- Page 4-7 Section 4.2.4, Cooling System, first paragraph: The following should be added to the third sentence ". . .with two units operating and when the downstream river water temperature is less than 15°C. . .". The statement should also note that water may be withdrawn from the Schuylkill River regardless of temperature during April, May, and June, provided the river flow is above 1791 ft³/sec.
- Page 4-12 Main Stem of Perkiomen Creek Intake, last sentence of the first paragraph: This should be corrected to state that the system will be activated manually from a control panel located at the pumphouse. There are no automatic means to activate the system.
- Page 4-14 Section 4.2.6.2, Cooling Water Systems: While the DES indicated a value for average concentration factor for the June-through-October period of about 3.7, our expectation of the range of average concentration factors is 2.9 to 3.4.
- Page 4-18 Section 4.2.7, This discussion should be updated to be consistent with Rev. 14 to the EROL submitted July, 1983. Therefore, the third paragraph, first sentence, "23km (14.5 miles)" should be changed to "22km (13.5 miles)". Seventh sentence, "or Tubular steel poles" should be added after "Wide flange steel towers".
- Page 4-53 Table 4.13, footnote giving source: as stated on page 4-51 the source of this data is the staff not the "ER-OL" as shown.
- Page 4-54 Last paragraph, first sentence, "(Table 2.1-A)" should be "(Table 2.1-19)".

ENVIRONMENTAL CONSEQUENCES AND MITIGATING ACTIONS

- Page 5-9 Third paragraph, first sentence; We believe "and" should be inserted after the phrase "do not exceed one unit" and before "would".
- Page 5-18 Section 5.3.3.2, Wedgewire Screen Bypass Velocities at Point Pleasant: The ASLB in its Partial Initial Decision, dated March 8, 1983, cited Applicant's testimony and exhibits regarding velocities under Findings, items 35 and 66. At flows of 3,000 cfs the river velocity is at or in excess of 1 fps. It is requested that the second sentence be corrected by the deletion of the words "0.77 fps, with the most likely velocity about". At flows of 2,500 cfs the river velocity is 0.8 fps. It is requested that the third sentence be corrected by the deletion of the words "at least 0.64 fps, with the most likely value."
- Section 5.3.3.3, Sedimentation and Erosion in Perkiomen Creek, first paragraph: The statement that Delaware River water will enter the East Branch Perkiomen Creek through a 48 inch diameter pipe is incorrect. As shown on EROL Figure 2.4-7d, this pipe is 42 inches. Only the first 12,187 feet of the pipeline, as it leaves Bradshaw Reservoir, is 48 inch. The remaining 23,110 feet of the pipeline is 42 inch.
- Page 5-25 Next to last paragraph, first sentence; We believe that the word "not" should be inserted between "will" and "adversely".
- Page 5-28 and
Page 5-91 Section 5.5.1.4, Pipeline Corridor Maintenance and 5.14.1 Terrestrial Monitoring: The DES expresses concern about the erosion potential of the slope adjacent to State Highway 32 at Point Pleasant once construction of buried pipeline is complete. It should be noted that this pipeline was to be installed to serve the public water supply needs of Bucks and Montgomery Counties prior to Applicant becoming involved as a water customer of the Neshaminy Water Resources Authority and that this pipeline is not owned and will not be constructed or operated by Applicant. The NWRA has considered short and long term impacts and is subject to all conditions in the permits it has received related to this work from the DRBC, DER and COE.

Page 5-37

Section 5.8, First paragraph: The salary of the work force given in EROL (8.1-4) is \$44 million in 1990 dollars. The DES estimates \$24.8 million in 1982 dollars. (This would be a compound escalation rate of 7.4%)

Section 5.8, Third paragraph: The public utility realty tax of \$27 million per year in 1990 dollars is given in EROL (8.3-3). The DES estimates a value of \$9 million per year in 1982 dollars. (This would be a compound escalation rate of 14.7%)

The use of these two disparate rates is inconsistent.

Page 5-52

Table 5.8, The fourth and fifth columns for the last two entries on this page are incorrect. For the next to the last entry 1983 (partial) Sample type "Direct Radiation" under "Analysis" column should read "Gamma dose" and under "Frequency of Analysis" should read "monthly". The last entry Sample type "Air (particulate and iodine)" under "Analysis" should be added "Radioiodine (I-131)" and under "Frequency of Analysis" should be added "___" (See EROL Table 6.1-45).

Page 5-56

Table 5.9, Seventh entry from top of page: The Sector for the Poplar substation, code "31D2" is "NW" not "NNW" as shown.

Page 5-77

Section 5.12.2.1: The Bradshaw Reservoir design engineer has been directed to implement the ventilating louvre modification recommendation.

Page 5-90

Figure 5.8: The location of residences C and D are inaccurately shown on this figure. There are no residences between the plant and the river. Refer to EROL Table 2.1-37.

Page 5-93

Section 5.14.4.1, Point Pleasant Pumphouse: A commitment is acknowledged for construction of physical barriers (walls) if necessary.

Page 5-94

Section 5.14.4.2, Noise Monitoring, Bradshaw Reservoir: The Bradshaw Reservoir design engineer has been directed to implement the noise monitoring program.

EVALUATION OF THE PROPOSED ACTION

Pages 6-2, 6-3,
and 6-4

The reduction in generating costs of \$34 million unit/year presented in Table 6.1 and discussed in Section 6.4.2 underestimate the operating savings attributable to Limerick.

Our estimate of these savings are presented in EROL Table E320.1-1 (Revision 11, March 1983). As shown in this table, during the first complete year of one unit operation (1986), the savings are estimated to be \$188.8 million per unit/year and during the first complete year of two unit operation (1989) to be \$258.2 million per unit/year. These estimates are escalated dollars based on a 70% capacity factor.

If these dollars are brought back to 1985 costs (at 8%/year), the savings for 1986 and 1989 are approximately \$175 million and \$190 million, respectively. Even if a 55% capacity factor is used, the estimated resultant savings are \$143 million per unit/year for 1986 savings and \$152 million per unit/year for 1989 savings in 1985 dollars using the same method of calculation.

The energy savings of \$34 million per unit/year presented in Table 6.1 of the DES is based on replacement of Limerick by "... installed fossil units on the applicant's system. . ." (Section 6.4.2).

The calculated cost differential appears to be based on our coal costs. This is not realistic. Any installed coal units on our system will have little, if any, replacement energy available since these units will be operated at, or near, base load even with the Limerick units in service.

Therefore, replacement of the Limerick energy with our installed fossil units will be bounded in cost by replacement with all oil generation on the high side and our oil generation and some coal interchange on the low side.

For the purpose of verifying our calculations, the approximate value of these savings can be estimated by the following calculation. Using the DES basis of the 10 million MWh/year and either all oil replacement, or 50% oil and 50% coal replacement; the fuel savings are approximately:

	10 Million MWh/Year	
	100% Oil @ \$5.30/Mbtu	50% Oil @ \$5.30/Mbtu 50% Coal @ \$2.00/Mbtu
Fossil Fuel Costs*	\$556,500,000	\$383,250,000
Limerick Fuel Costs**	\$ 88,000,000	\$ 88,000,000
Net Savings	\$468,500,000	\$295,250,000
		*@ 10,500 btu/kWh **@ 8.8 mills/kWh

Thus, on a one unit basis at 55% capacity factor (5 million MWh per year) the above calculation shows fuel savings of approximately \$148 million/unit/year to \$234 million/unit/year. Using the same method of approximation at a 70% capacity factor, the 10 million MWh/year would increase to approximately 12.9 million MWh/year. The 50% oil/50% coal savings would then increase to approximately \$190 million/unit year.

Our more detailed calculations shown in EROL Table E320.1-1 and described earlier are within the bounds of this approximate calculation.

Page 6-3

Table 6.1 Benefit - cost summary for Limerick: The table indicates that the effect on historic and archeological resources of Limerick are moderate. This classification appears to be inconsistent with the discussion in Section 5.7 and based upon that discussion Applicant believes that the classification should be 'small' or 'none'. Additionally to update the discussion in Section 5.7, it should be noted, regarding work by the NWRA at their Point Pleasant pumping station, the Corps of Engineers did include in their permit a condition that work shall be performed in accordance with the "Memorandum of Agreement". Construction work started in January 1983 and as required an archeologist is on site.

LIST OF CONTRIBUTORS

No Comment

LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF
THIS ENVIRONMENTAL STATEMENT ARE BEING SENT

No Comment

RESERVED FOR NRC STAFF RESPONSES TO COMMENTS ON THE DRAFT
ENVIRONMENTAL STATEMENT

No Comment

APPENDIX A

No Comment

APPENDIX B

No Comment

APPENDIX C

No Comment

APPENDIX D

Page D-2

The dose assessment presented is an extremely conservative treatment of the expected effects of gaseous and particulate effluent releases. While the analysis does serve a purpose in showing that even with the most conservative assumptions the plant meets the criteria of 10 CFR Part 50, Appendix I, these results should not be used for any purpose in which realistic calculations are required. This should be made clear in this Appendix.

The most conservative aspect of the assessment is the assumption that all releases in those sectors downwind of the natural draft cooling towers should be treated as ground-level releases, rather than using the wake split approach of Regulatory Guide 1.111, Rev. 1. While it is a well-known fact that large structures such as cooling towers do produce a wake area of increased turbulence during some meteorological conditions, the staff has treated the effluent as if it were brought entirely to the ground during all meteorological conditions. This assumption is clearly ultra-conservative for the following reasons:

- 1) Cooling tower wake effects do not exist during low wind speed conditions.
- 2) Hyperbolic cooling towers do not produce sharp downdrafts at moderate to high wind speeds causing 100% ground level releases. Rather, enhanced turbulence results.

These phenomena have been documented in wind tunnel studies and field tests performed for the Rancho Seco and Paradise plants in 1971.

APPENDIX E

No Comment

APPENDIX F

No Comment

APPENDIX G

No Comment