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TO: Mr Regan

FROM: Pa Pwr & Light Co
Allentown, NJ
N W Curtis

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DESCRIPTION
Ltr re our 11-3-76 ltr...trans the following:

PLANT NAME: Susquehanna 1 & 2

ENCLOSURE
Response to four questions on the Susquehanna-Siegfried, 500 KV line...w/attch Pa Dept of Enviro Resources approval for the crossing of the Lehigh River Gorge as previously requested in our 10-6-76 ltr.....

DO NOT REMOVE
ACKNOWLEDGED

SAFETY FOR ACTION/INFORMATION ENVIRO 11-23-76 ehf

ASSIGNED AD:	<i>Vassallo</i>	ASSIGNED AD:	<i>V. Moore</i>
BRANCH CHIEF:	<i>Parr</i>	BRANCH CHIEF:	<i>Regan</i>
PROJECT MANAGER:	<i>Mincey</i>	PROJECT MANAGER:	<i>Bajwa</i>
LIC. ASST.:	<i>Rushbrook</i>	LIC. ASST.:	<i>Duncan</i>

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<input checked="" type="checkbox"/> REG FILE	SYSTEMS SAFETY	PLANT SYSTEMS	SITE SAFETY &
NRG PDR	HEINEMAN	TEDESCO	ENVIRO ANALYSIS
<input checked="" type="checkbox"/> I & E (2)	SCHROEDER	BENAROYA	DENTON & MULLER
OELD		IAINAS	
GOSSICK & STAFF	ENGINEERING	IPPOLITO	ENVIRO TECH.
MIPC	MACCARRY	KIRKWOOD	ERNST
CASE	KNIGHT		BALLARD
HANAUER	STHWEL	OPERATING REACTORS	SPANGLER
HARLESS	PAWLICKI	STELLO	
			SITE TECH.
PROJECT MANAGEMENT	REACTOR SAFETY	OPERATING TECH.	GAMILL
BOYD	ROSS	EISENHUT	STEFF
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HOUSTON	ROSZTOCZY	BAER	
PETERSON	CHECK	BUTLER	SITE ANALYSIS
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TIC:	REG. VIE	MURKINSON (ORNL)	
NSIC:	LA PDR		
ASLR:	CONSULTANTS		
ACRS CYS HOLDING: <i>EN</i>			



So your children can tell their children.

NOV 18 1976

Regulatory Docket File

Division of Reactor Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Docket Nos. 50-387
50-388

ATTENTION: MR. WILLIAM H. REGAN, JR.
CHIEF ENVIRONMENTAL PROJECTS BRANCH #3

SUSQUEHANNA STEAM ELECTRIC STATION
AMENDMENT NO. 5, QUESTIONS & RESPONSES - #2
ER 100450 FILE 991-2
PIA-147



Dear Mr. Regan:

In response to your letter dated November 3, 1976 the Pennsylvania Power and Light Co. is answering four questions on the Susquehanna-Siegfried 500 KV line as indicated in Amendment No. 5. Also, attached is the Pennsylvania Department of Environmental Resources approval for the crossing of the Lehigh River Gorge as previously requested in your letter of October 6, 1976, question No. 4.

Very truly yours,

(S) ~~N. W. Curtis~~

N. W. Curtis
Vice President-Engineering & Construction

JSF:CAW



Page 10



Question 1

The length of alternative A of the Susquehanna Siegfried line is presented as 53.8 miles in Table 3.9A2, however, the statement describing the alternative at the top of page 10.9-6 suggests a length of 54.8 miles.

- (1) Provide the length in miles of alternatives A, B and C.
- (2) Provide the amount of total right-of-way acres for alternatives B and C.

Response 1

1. The 53.8 miles shown in Table 3.9-A2 is correct. The percentage shown on page 10-9.6 of Amendment 5 was incorrectly calculated and should be indicated as 94.0%, leaving 6% still to be obtained. As of June 1, 1976 approximately 50.6 miles of right-of-way had been obtained.

- (1) The lengths in miles of the three alternatives are:

Alternative A - 53.8 miles

Alternative B - 50.7 miles

Alternative C - 51.2 miles

- (2) The amount of total right-of-way acres for the three alternatives are:

Alternative A - 1236.5 Acres

Alternative B - 1067.8 Acres

Alternative C - 1172.3 Acres



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Question 2

On page 10.9-4 construction costs are presented for the three alternative routes. Provide a breakdown of these costs by category (such as labor and material, labor for clearing, and access road construction). If there are major differences in costs within each category, provide the basis for these differences.

Response 2

The following are breakdowns for construction costs for each of the three alternatives:

	ALTERNATIVES		
	<u>A</u>	<u>B</u>	<u>C</u>
Material	\$15,626,000	\$15,662,000	\$14,985,000
Labor	8,305,000	8,959,000	8,519,000
Clearing	1,447,000	1,372,000	1,387,000
Access Roads	502,000	344,000	475,000
Total Construction Cost	\$25,880,000	\$26,337,000*	\$25,366,000

*There is also an additional exposure of at least \$1,558,000 in System Generation Operation Cost due to delayed in-service date of Route B. See costs of Alternate Routes on Page 10.9-5.

The basic difference in material and labor costs between the alternatives is due to the difference in the length of the line to be built. The labor for alternatives B and C has been increased by 5% to account for overtime required to accelerate construction. Overtime work is necessary to achieve the best possible dates shown in Table 10.9-5. Additional overtime work beyond that estimated could not significantly reduce the delays.

Alternative B has \$690,000 material and \$441,500 labor added to cover the additional cost of placing the structures adjacent to the existing 230 KV towers of the Siegfried-Harwood-Susquehanna 230 KV line. This would be done to reduce the appearance impact of the new line and would average one extra structure per mile.

Clearing costs on B and C would be less than A because of shorter length of line and because part of the area on Route B was previously cleared to accommodate the existing line being paralleled. The estimated cost of access roads on routes B and C is less than on Route A because of shorter line length. The estimated cost of access roads on Route B are less than on A or C because existing access roads along the line being paralleled would be used.

Question 3

On page 10.9-4 right-of-way costs (not previously acquired) are presented for alternatives A, B and C. In order to provide a comparison of the total right-of-way costs between each alternative, provide an estimate of the total current market value of each right-of-way alternative. If current market value is not available, estimate that value based on original purchase price plus a local inflation factor for land value. Provide basic input data and assumptions used.

Response 3

The Table below is an expansion of the table on page 10.9-4 to indicate the addition of previously acquired right-of-way for each alternative.

	<u>ALTERNATIVE ROUTE A</u>	<u>ALTERNATIVE ROUTE B</u>	<u>ALTERNATIVE ROUTE C</u>
Construction Costs	25,880,000	26,337,000	25,366,000
Right-of-Way (previously acquired-estimated current market value)*	2,316,522	586,095	1,659,991
Right-of-Way (not previously acquired-estimated current market value)	<u>390,000</u>	<u>2,350,000</u>	<u>1,321,000</u>
Sub-total	28,586,522	29,273,095	28,346,991
Abandoned Right-of-Way (estimated current market value)*	<u>0</u>	<u>1,730,427</u>	<u>656,531</u>
Total Cost	28,586,522	31,003,522	29,003,522

*Calculated as of June 1, 1976 by adding 8% per year from the time each original grant was obtained. The 8% factor was established by reviewing the trend of increasing Real Estate and Right-of-Way prices in the areas involved.

The table on page 10.9-4 compared future costs of each alternative, considering the cost of all previously acquired rights-of-way as a sunken cost, since it is already included in the rate base. If the cost of previously acquired rights-of-way are considered in the comparison, we believe it would be more appropriate to use original cost rather than estimated current market value, since it is an actual embedded cost. Also, if alternative B were chosen, then 1029.6 acres of right-of-way on alternative A, which originally cost \$1,382,216 would be abandoned with no other foreseeable use. Likewise, if alternative C were chosen, 123.0 acres originally costing \$517,199 on alternate A would be abandoned with no other foreseeable use. Therefore, the unretrievable value of abandoned right-of-way must also be included if the value of the right-of-way previously acquired is considered. To be consistent, if estimated current market value is applied to previously acquired rights-of-way then it must also be applied to abandoned rights-of-way.



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It is an established PP&L policy to obtain right-of-way by easement rather than by Fee Purchase. Only 4.4% of the parcels on route A were purchased in fee, and some of these are common to all three routes. Therefore, little, if any, of the investment in right-of-way is recoverable if route A is not used. There is no other foreseeable use of this right-of-way.

In the event that PP&L were to not use the easements obtained, it could not, except in rare instances, sell the easement rights back to the property owner. The property owner, under the terms of the grants PP&L obtains, has full use of the right of way involved as long as his use does not interfere with PP&L use of the rights granted. No house, barn or other structure or inflammable or explosive materials of any kind shall be built or stored on the right-of-way, but in spite of this restriction, it is our experience that property owners do not want to buy back the rights except in rare instances where there is a particular need to use the land in question.



Question 4

On page 10.9-5 the cost of possible delay is discussed. A cost of \$779,000 per month increase is presented due to replacement of Montour power with more expensive fossil fuel generation. Provide a detailed discussion of how the figure of \$779,000 per month was derived, together with the assumptions used including the amount of assumed restriction on Montour.

Response 4

At the outset it should be stated that the "Increase in System Generation Oper. Cost" shown in the table on p. 10.9-5 is predicated on beginning construction on Alternative A or C or beginning right-of-way acquisition on Alternative B by January 1, 1977. A delay of four months on Alternative A could be tolerated with no effect on the critical date. However, delays beyond January 1, 1977 on Alternatives B or C would result in additional operating costs of \$779,000 for each month of delay.

If the Susquehanna-Siegfried line is temporarily delayed, the output of Montour will be restricted to avoid transmission facility overloads which would occur during a forced outage of the Susquehanna-Harwood 230 KV tower line. The output of Montour would be restricted prior to the disturbance in order to avoid the severe overloads and resulting damage which would occur immediately after the forced outage. The transmission facilities which would be overloaded are the Frackville-Siegfried 230 KV line, Lackawanna-Peckville 230 KV line and Blooming Grove-Bushkill 230 KV line. Since these lines are part of a 230 KV bulk power network which transmits power from Montour (northern portion of PP&L) to loads in the vicinity of Lehigh and Northampton Counties (eastern portion of PP&L), the amount of overload on these lines will vary with the hourly changes in electric customer load. The historical load duration curve was projected to the expected 1980 load levels to determine the number of restricted hours of operation and the average amount of generation restriction. The output of Montour would be reduced an average of 225 MW for approximately 6,133 hours per year (511 hours per month).

The loss of energy production due to this restriction would have to be replaced by other higher cost fossil generation. This energy replacement would be produced by the member companies of the Pennsylvania-New Jersey-Maryland (PJM) Interconnection which includes PP&L. The cost of replacing this generation was determined by using a production cost computer program to simulate the planned 1980 system. The fuel cost escalation rate for the various PJM generators was assumed to be 6 to 7% depending on fuel type. The PJM load growth rate as forecasted by the PJM companies was 5.6%. In 1980, the average cost of energy replacement during peak load periods was calculated to be \$32.0 per megawatt-hour. The average cost of non-peak energy replacement was calculated to be \$22.3 per megawatt-hour. Since the peak load hours of restriction are relatively small, the conservative non-peak energy replacement cost of \$22.3 per megawatt-hour was used to determine the cost of replacement energy.



As indicated in Table I, this replacement cost would be \$2,564,000 per month. In 1980, the cost of generating this energy at Montour SES is expected to be \$15.52 per megawatt-hour, based on an escalation rate of 7%. If Montour generation was not restricted, the cost of producing this energy, as shown in Table I, would be \$1,785,000 per month. Therefore, the net cost due to restrictions on Montour SES would be \$779,000 per month.

TABLE I

Replacement Cost	= \$22.3/MWH * 225 MW * 6,133 hr/12 mo. = \$2,564,000/mo.
Montour Production Cost	= \$15.52/MWH * 225 MW * 6,133 hr/12 mo. = \$1,785,000/mo.
Net Restriction Cost	= \$ 779,000/mo.

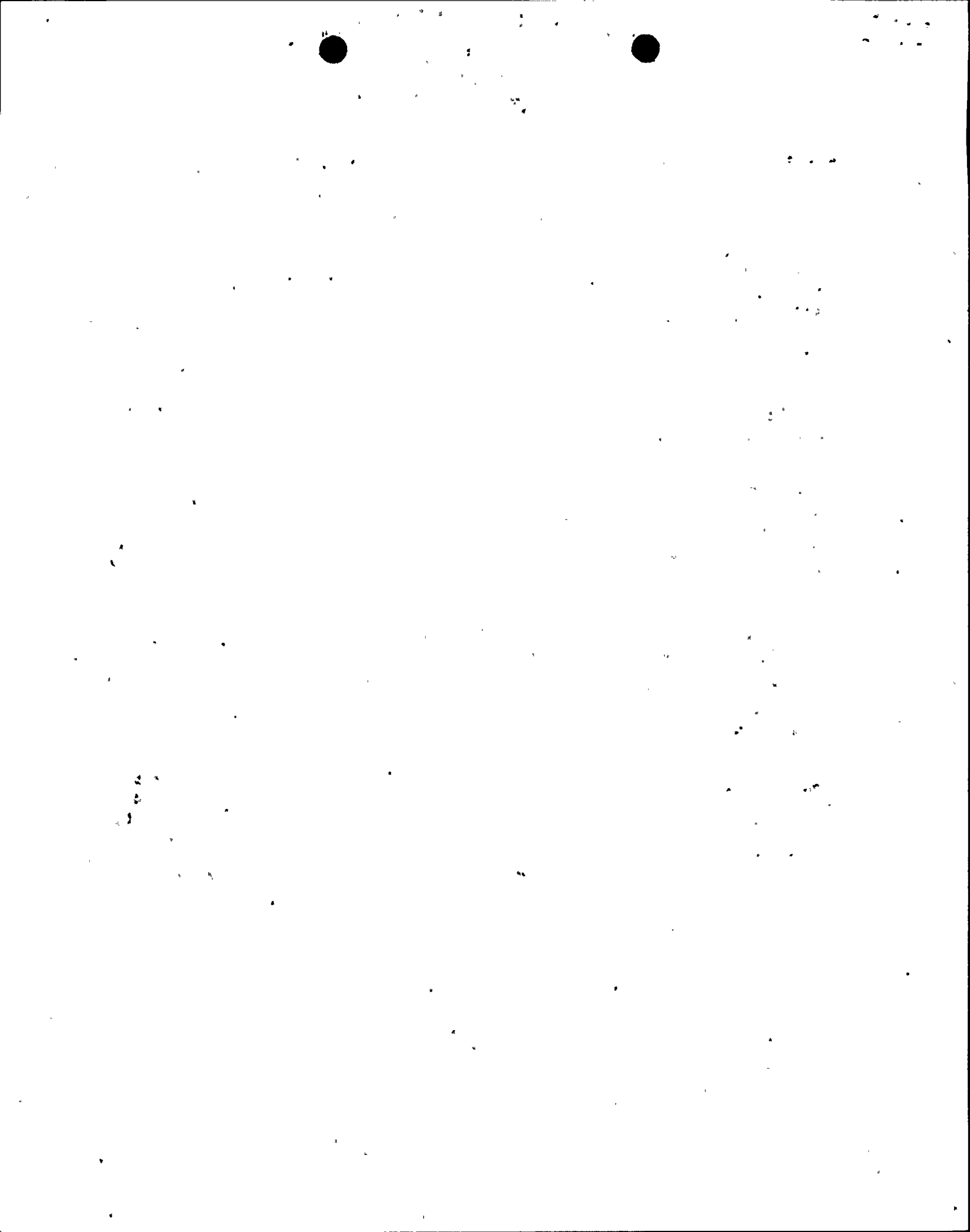
Question 4* Section 4.2.4.2 Mitigative Measures

Provide documentation for the statement that the Pennsylvania Department of Environmental Resources "has reviewed and concurred" with the crossing location at Lehigh River Gorge.

Response 4*

Attached is the Pennsylvania Department of Environmental Resources approval of the Lehigh River Gorge crossing location.

*Note: This Question, No. 4 is from the NRC October 6, 1976 letter to PP&L and this response updates PP&L's previous response in letter PLA-138 to the NRC October 15, 1976.



COMMONWEALTH OF PENNSYLVANIA



DEPARTMENT OF ENVIRONMENTAL RESOURCES

In reply refer to
RM-R

The Secretary

P. O. BOX 1467

HARRISBURG, PENNSYLVANIA 17120

November 10, 1976

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NOV 16 1976

TRANS. ENCL. DIV.

T. C. Miles, Project Engineer
Pennsylvania Power and Light Company
Two North Ninth Street
Allentown, Pennsylvania 18101

Dear Mr. Miles:

Thank you for your consideration involving the scenic quality of the proposed Lehigh Gorge State Park as it relates to the present location of the Susquehanna-Bossards 500 KV Line right-of-way.

Our review of your proposed right-of-way alignment across the Lehigh River indicates the corridor chosen represents the best location under the circumstances. We believe this location will minimize transmission line affect upon the proposed State Park and its related activities. Therefore, we concur with the proposed 500 KV Line location and crossing as it relates to the proposed Lehigh Gorge State Park in Carbon and Luzerne Counties.

As a result of the corridor change, we have found it necessary to reduce our proposed Park boundary line involving the former Carbon County Home (presently owned by the Pennsylvania Power and Light Company). We will, however, continue to include Leslie Run as an access point and, therefore, will still need the lands as shown in cross hatch on the attached map.

As discussed in the field meeting with Mr. Larry Sharer, we do request that certain considerations be observed in the actual construction and management of the power line. These considerations would be directed toward reducing the visual impact of the line upon the Park visitors, whether viewed from the River or the abandoned railroad grade. Some of these considerations would include minimal clearing in favor of slow and low growth vegetation.

We thank you for your continued helpful cooperation.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Maurice K. Goddard".

MAURICE K. GODDARD