

COMMONWEALTH OF PENNSYLVANIA  
BEFORE THE PENNSYLVANIA PUBLIC  
UTILITY COMMISSION

**In the Matter of: Application of** :  
**PPL Electric Utilities Corporation** :  
**Filed Pursuant to 52 PA. Code** :  
**Chapter 57, Subchapter G, for** :  
**Approval of the Siting and** : **Docket No. A- 2008-2022941**  
**Reconstruction of the Proposed** :  
**Coopersburg #1 and #2 138/69 kV** :  
**TAP in Upper Saucon Township,** :  
**Lehigh County and Springfield** :  
**and Richland Townships, Bucks** :  
**County, Pennsylvania** :

**Petition of PPL Electric Utilities** :  
**Corporation for a Finding that a** :  
**Building to Shelter Control** :  
**Equipment at the Substation to be** : **Docket No. P-2008-2038262**  
**Constructed in Springfield** :  
**Township, Bucks County,** :  
**Pennsylvania is Reasonably** :  
**Necessary for the Convenience** :  
**or Welfare of the Public** :

Direct Testimony and  
Exhibits of

**Mark Gallagher**

on Behalf of  
the Board of Supervisors of Springfield Township, Bucks County, Pennsylvania

**AUGUST 18, 2008**

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## Introduction

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**Q. Please state your name and business address.**

A. My name is Mark Gallagher. My business address is 1108 Old York Road #1, Ringoes, NJ 08551.

**Q. By whom are you employed and in what capacity?**

A. I am Vice President of Princeton Hydro. In this capacity, I am in charge of all wetland and terrestrial ecology projects, as well as Phase I Environmental Investigations.

**Q. What is the purpose of your testimony in this case?**

A. I have been asked by the Board of Supervisors of Springfield Township, Bucks County, Pennsylvania (“Springfield Township”), to review the environmental studies and related documents provided by PPL Electric Utilities Corporation (“PPL”) associated with PPL’s planned construction of a new electric transmission line and substation. The substation would be located on an 85-acre parcel of land in Springfield Township. The seven-mile transmission line would run from PPL’s existing substation in Coopersburg Borough, Lehigh County, to the new substation and then continue to PPL’s existing substation in Quakertown Borough, Bucks County. Approximately 2.6 miles of the transmission line would be located within Springfield Township. PPL has referred to its proposed transmission line route as the “Cross Country Route” and I will use that same name for it.

My work in this case encompasses reviewing available information concerning the potential environmental impacts associated with the Cross Country Route and proposed Springfield substation, as well as two alternative transmission line routes: (1) a route largely following the path of the existing transmission line that connects

1 Coopersburg and Quakertown, which follows Route 309 for much of its length; and (2) a  
2 route that would largely follow an existing right of way held by the Southeastern  
3 Pennsylvania Transportation Authority (“SEPTA”).

4 **Q. What are your qualifications to provide this testimony in this case?**

5 A. I have a BS in Biology from Moravian College and a MS degree in Plant Ecology from  
6 Rutgers University. I have been working as an environmental consultant since 1985 and  
7 have been a partner with Princeton Hydro since its inception in 1998. I have testified  
8 before numerous municipal boards in both New Jersey and Pennsylvania regarding  
9 development projects of various types. I have also prepared permit applications for the  
10 US Army Corps of Engineers, Pennsylvania Department of Environmental Protection and  
11 the New Jersey Department of Environmental Protection. I have also provided reviews of  
12 development projects for municipalities including Tinicum Township and Nockamixon  
13 Township in Bucks County, PA. A copy of my curriculum vitae is attached as  
14 Appendix A.

15 **Q. Do you have any experience that is particularly relevant to the issues in this case?**

16 A. Yes, I do. As previously stated I am a consultant for Tinicum Township and  
17 Nockamixon Township and have had the opportunity to review numerous development  
18 projects in this part of Bucks County. I have been working with Tinicum Township with  
19 regard to the Tinicum Creek and Tohickon Creek for almost 20 years. I was the principal  
20 in charge of the preparation of the Lower Tohickon Creek Rivers Conservation Plan, the  
21 upper Tohickon Creek Rivers Conservation Plan and the Tinicum Creek Headwater  
22 Protection Plan. I am currently working on a project for EPA regarding the relationship  
23 of groundwater discharge to the baseflow of headwater streams areas of diabase geology.

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## Summary

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**Q. What documents have you reviewed in forming your opinions in this case?**

A. I have reviewed the following documents: Coopersburg #1 and #2 138/69 kV Tap Reconstruction Exhibits and Appendices in Support of the Certification Application; Phase 1 and 2 Bog Turtle Report, Prepared by Mellon Biological Services, dated July 21, 2008; Wildlife and Plant Survey Report Prepared by Mellon Biological Services, dated July 30, 2007; Endangered Species Report, Wildlife Report Wetland Report, Prepared by Mellon Biological Services, dated August 1, 2008; Woodland Design Associates, Inc. Jurisdictional Wetland Determination Report, Cherry Road, Dated December 17, 2004; Woodland Design Associates, Inc. Jurisdictional Wetland Determination Report, Lands of David N. Clark dated August 22, 2007; PPL internal correspondence, PPL correspondence (including those of its consultants) to state agencies; Phase I Environmental Site Assessment Report for the 45 acre Creticos Property Located on Hickon Road in Springfield Township, Bucks County, Pennsylvania, Penn E&R dated November 8, 2006.

**Q. Have you relied on information other than documents in forming your opinions?**

A. Yes, I had the opportunity to inspect accessible sections of each of the three transmission lines investigated by PPL.

**Q. What planning assumption did you use in conducting your analysis?**

A. My analysis is based on the assumption that there is a need for PPL to construct a new transmission line and/or substation. I understand that Springfield Township witness Peter Lanzalotta has concluded that there is no need to construct this line or substation to

1 provide safe and reliable service in Southern Lehigh and Northern Bucks Counties. If the  
2 Commission agrees with Mr. Lanzalotta, then I am advised by counsel that it would not  
3 be necessary for the Commission to address environmental and land use issues.

4 Nevertheless, my testimony is being presented in case the Commission disagrees with  
5 Mr. Lanzalotta and finds that there is a need for PPL to construct a new transmission line  
6 and/or substation in this area.

7 **Q. Please summarize your conclusions.**

8 A. My conclusions can be summarized as follows:

- 9 • PPL did not adequately consider and evaluate the environmental impacts  
10 associated with the Cross Country Route.
- 11 • PPL did not adequately consider and evaluate the environmental impacts  
12 associated with the Route 309 alternative route or the SEPTA alternative  
13 route.
- 14 • PPL's environmental study is conclusory in nature and does not represent  
15 an unbiased evaluation and comparison of environmental resources and  
16 impacts associated with the three route alternatives.
- 17 • PPL did not conduct any field investigation of the Route 309 alternative or  
18 the SEPTA alternative. If it had, it would have recognized that the maps  
19 and other data it relied on were out of date and no longer represented the  
20 actual environmental resources associated with those alternative routes.
- 21 • PPL did not use the most recent aerial mapping data available. If it had, it  
22 would have further confirmed that the data it relied upon were out of date  
23 and no longer represented the actual environmental resources associated  
24 with those alternative routes.
- 25 • PPL improperly elevated the interests of landowners over the interests of  
26 the natural environment by agreeing with landowners to change the path  
27 of the Cross Country Route. In several instances, landowners asked PPL  
28 to locate the line in environmentally sensitive areas on which the  
29 landowners could not build. While this may have preserved more of the  
30 landowners' developable land, it also created serious environmental  
31 impacts that could have been avoided.



1 **Q. Have you prepared maps that show the environmental resources that are likely to**  
2 **be affected by the various alternatives?**

3 A. Yes, I have. I used electronic aerial mapping files provided by the Delaware Valley  
4 Regional Planning Commission (“DVRPC”); electronic mapping files provided by PPL  
5 that show the Cross Country Route, Route 309 alternative, and SEPTA alternative; and  
6 geographic information system (“GIS”) software and base maps to overlay this  
7 information and show municipal boundaries and other relevant features. I have produced  
8 one map which is provided as Exhibit MG-1 (the map includes 8 photographs).

9 **Q. How is the rest of your testimony organized?**

10 A. My testimony will summarize my expert report. I will discuss my major conclusions and  
11 some of the key findings of my analysis, but I will refer to the report for much of the  
12 detail behind those conclusions.

### 13 **Review of PPL Reports and Scope of Investigation**

14 **Q. Have you reviewed PPL’s environmental studies for the Cross Country Route,**  
15 **proposed substation site, and any alternatives?**

16 A. I have reviewed the documents PPL included in its application and in discovery. These  
17 include: Application Exhibit B (Study Area Environment), Application Exhibit C (Siting  
18 Analysis), Application Appendix A (Environmental Inventory Guidelines), Application  
19 Appendix D (Wildlife and Plant Survey Report), Application Appendix G (County, State  
20 and Federal Governmental Agency Requirements), Phase 1 and 2 Bog Turtle Report,  
21 Prepared by Mellon Biological Services, dated July 21, 2008; Endangered Species  
22 Report, Wildlife Report Wetland Report, Prepared by Mellon Biological Services, dated

1 August 1, 2008; Woodland Design Associates, Inc. Jurisdictional Wetland  
2 Determination Report, Cherry Road, Dated December 17, 2004; Woodland Design  
3 Associates, Inc. Jurisdictional Wetland Determination Report, Lands of David N. Clark  
4 dated August 22, 2007.

5

6 **Q. What do you conclude about the scope and content of these documents?**

7 A. I conclude that these reports do not provide enough information to objectively conclude  
8 that the project would have minimum adverse environmental impact on sensitive natural  
9 resources, when compared to the available alternatives. The reports provide only very  
10 general descriptions of the natural resources present in each of the three routes. PPL's  
11 reports lack an appropriate level of detail that would be needed to accurately characterize  
12 and assess the natural resources present in and along each of the alternative routes  
13 considered by PPL. Essentially the documents are conceptual in nature and do not  
14 objectively and realistically convey either (1) the natural resources associated with each  
15 of the routes or (2) the impacts to natural resources associated with the Cross Country  
16 Route or the alternatives.

17 **Q. Do you discuss these deficiencies in detail in your report (Exhibit MG-2)**

18 A. Yes, I do. A full discussion of these deficiencies can be found on pages 22-30 of Section  
19 V of Exhibit MG-2.

20 **Q. What should PPL have done that it did not do?**

21 A. In my experience, an environmental analysis for a project of this magnitude should  
22 provide a detailed inventory of the environmental resources likely to be affected for each

1 alternative considered. In order to prepare an accurate inventory, some field investigation  
2 is necessary. PPL did not conduct a field investigation of the Route 309 or SEPTA  
3 alternative routes. Instead it relied on mapping data that appears to date from the 1980s.  
4 PPL did not rely on more current mapping data, such as the data I obtained from the  
5 DVRPC, and did not verify the mapping data with a field investigation. As a result, its  
6 environmental inventory of the alternative routes is not accurate and very misleading.

7 **Q. As far as you can tell, did PPL base its route selection – even in part – on an**  
8 **objective comparison of environmental impacts?**

9 A. No. PPL selected the Cross Country Route before it conducted any meaningful  
10 environmental analysis of that route or the alternatives.

11 **Q. In your opinion, is that consistent with the standard practice in the industry?**

12 A. No, it is not consistent with the way an environmental assessment is normally conducted.  
13 An environmental review should be part of the decision-making process, not something  
14 that is done after-the-fact to justify the decision that was made. In this case, PPL  
15 purchased land for the substation and purchased most of the easements for the Cross  
16 Country Route before it conducted most of its environmental analysis. In fact, it even  
17 filed its application with the Commission before it completed one important piece of that  
18 review – its initial bog turtle study. (Bog turtles are listed as threatened species and the  
19 Cross Country Route is going through area that has been identified as potential bog turtle  
20 habitat.) PPL did not complete that study until July 2008.

21 **Q. In the PPL reports you reviewed, was there a comparison of alternative locations for**  
22 **the proposed substation?**

1 A. No. Even though PPL considered other substation locations, I have not found any reports  
2 that review the various substation alternatives side-by-side and consider their relative  
3 environmental impacts.

4 **Impacts of Cross Country Route Compared to Alternatives**

5 **Q. Did you review the impact that the alternative routes would have on the**  
6 **environment compared to the impact the cross country route would have?**

7 A. Yes.

8

9 **Q. Were you able to perform an adequate review of the environmental impacts each of**  
10 **the routes would have on the environment based on the materials provided by PPL?**

11 A. No.

12

13 **Q. Why were you unable to perform an adequate review of the environmental impacts?**

14 A. PPL performed an environmental assessment by using general digital GIS data only for  
15 the two alternate routes. While PPL did obtain site-specific information for the proposed  
16 Cross Country Route, site-specific information was not obtained for either of the alternate  
17 routes. Therefore, PPL's application lacks sufficient detail to make an appropriate  
18 comparison of the environmental impacts related to each of the three routes.

19

1 **Q. Did you review the environmental impacts that would likely result from PPL**  
2 **connecting the HV transmission line from the 309 Route or the SEPTA Route to the**  
3 **proposed substation site?**

4 A. Yes. However, PPL has not defined the exact location that it would utilize to connect the  
5 alternate routes to their proposed substation. PPL suggests that significant woodland  
6 disturbance would occur to make this 1.86 mile connection for the 309 Route or 2.1 mile  
7 connection for the SEPTA Route, but has not delineated what land area these connections  
8 will traverse. In addition, there are two existing routes that are previously disturbed  
9 routes which connect to both the 309 Route and SEPTA Route and the proposed  
10 substation site. These existing routes contain existing transmission lines and could be  
11 used to avoid additional disturbance. It appears that if either of these two routes were  
12 used there would be no additional disturbance to connect from either the 309 Route or the  
13 SEPTA Route to the proposed substation.

14

15 **Q. Were you able to determine whether PPL considered the existing environmental**  
16 **disturbances with respect to the 309 Route and the SEPTA Route?**

17 A. No. It appears that PPL's use of existing GIS maps resulted in the misrepresentation of  
18 impacts as it relates to wetlands and forest located proximate to the 309 Route and the  
19 SEPTA Route. The use of GIS maps without site specific information to perform a  
20 "detailed" impact analysis does not allow for the verification of the accuracy of the  
21 mapping or any characterization regarding habitat quality. For instance, the GIS maps  
22 depict wetlands within the SEPTA Route. However, a site specific analysis reveals that

1 most of the existing rail and rail bed would be considered non-wetland because it has  
2 been stone filled to support the track. Furthermore, the maps used by PPL to determine  
3 environmental impacts related to wetlands along the 309 Route and the SEPTA Route are  
4 outdated having been produced in the 1980s.

5

6 **Q. Have you prepared a table summarizing the environmental impacts for the**  
7 **proposed route and the two alternate routes?**

8 A. Yes. It is in exhibit MG-2 on pages 36-38 of my report. This exhibit describes the  
9 impacts each of the routes will have on the natural resources, including the contiguous  
10 forest habitat, bird habitats, vernal habitats, high quality forested wetlands, high quality  
11 surface waters, wetlands, water quality impacts and others. Many of the suggested  
12 impacts asserted by PPL are significantly inflated as both Route 309 and the SEPTA  
13 Route already possess extensively impacted areas that will not be disturbed further.

14

15 **Q. Did you review the Mellon Report provided by PPL regarding forest fragmentation**  
16 **for the proposed cross country route?**

17 A. Yes. The Mellon Report indicates that the forests through which the Cross Country route  
18 is proposed, will fragment habitat that supports a variety of area sensitive species. The  
19 report states that intrusion into large unfragmented habitat should be avoided if possible.  
20 According to PPL, the cross country route will require approximately 46 acres of  
21 vegetation management or forest clearing. Over half of the cross country route is  
22 forested, while the alternate routes have already been mostly deforested. The absence of

1 trees along the two corridors is apparent in Exhibit MG-1 and the photographs provided  
2 in Exhibit MG-2.

3 **Q. What are the adverse impacts that result from forest fragmentation?**

4 A. Large habitat patches are critical for maintaining viable populations of area-sensitive  
5 species while fragmented patches of forest habitat support fewer species and smaller  
6 populations of species that are sensitive to habitat change.

7

8 **Q. Did your review of PPL's application reveal whether PPL considered the impacts of**  
9 **forest fragmentation?**

10 A. The current PUC submission fails to indicate that the impacts to forest communities were  
11 ever considered when selecting the location of the proposed line.

12

### 13 **Compliance with Statutes and Regulations**

14 **Q. Did you review any state or federal statutes or regulations to determine whether**  
15 **PPL's cross country route complies with such statutes or regulations?**

16 A. Yes. I first reviewed Pennsylvania Department of Environmental Protection's  
17 (PADEP's) and the US Army Corps of Engineer's (COE's) permitting requirements as  
18 they relate to a project of this type. Due to the magnitude of the wetlands impacted by  
19 the proposed cross country route, the COE will require an Individual Wetland Permit.  
20 This means that the project will have more than a minimal adverse impact to the "waters

1 of the United States,” including wetlands. PPL did not discuss this requirement in its  
2 application.

3

4 **Q. Are there regulations that specify the process that is required to obtain an**  
5 **Individual Wetland Permit?**

6 A. Yes. PPL will be required to illustrate that they designed the route to avoid waters of the  
7 U.S. and for those waters they could not avoid, that they made attempts to mitigate  
8 disturbance. In addition, PPL will have to show that there is no practical alternative that  
9 would have less adverse impact on the aquatic ecosystem. I have provided a more  
10 detailed description of the federal regulations on page 17 of Exhibit MG-2.

11

12 **Q. Are there any other federal statutes or regulations that you believe PPL will be**  
13 **required to abide by if the cross country route is approved?**

14 A. Yes. PPL will be required to establish water quality consistency standards that are  
15 contained in the Clean Water Act. The cross country route is likely to cause degradation  
16 of surface water resources and therefore it is unlikely that PPL will be able to meet the  
17 standards required by the Clean Water Act.

18

19 **Q. Are there any state statutes or regulations that you believe PPL will have to comply**  
20 **with in addition to the PUC application process?**

1 A. Yes. The PADEP will require PPL to obtain a permit pursuant to Chapter 105, 25 PA  
2 Code. This project will require more than a general permit due to it impacting more than  
3 10 acres of wetlands. This greater than 10 acres figure is contained within Table 2 of  
4 PPL’s Mellon Biological Services report. PPL will be required to obtain a joint permit  
5 pursuant to Chapter 105. A full list of the requirements contained within Chapter 105  
6 and required by PADEP as part of an environmental assessment are listed on page 19 and  
7 20 of Exhibit MG-2.

8

9 **Q. Are there any state statutes or regulations pertaining to endangered and/or**  
10 **threatened species that PPL will be required to comply with?**

11 A. Yes. Chapter 105 of 25 PA Code provides that the presence of endangered or threatened  
12 species in or proximate to a project site will result in the designation of the wetlands as  
13 being “exceptional.” There are a number of threatened and/or endangered species  
14 specified in the Mellon report provided by PPL in or proximate to the project site. PPL  
15 has failed to address how it will avoid impacting these species. PPL writes in its  
16 application that any conflicts with the above species of concern will be resolved prior to  
17 the start of construction, but does not specify what measures will be taken to protect said  
18 species.

19 **Consistency with Local Ordinances and Comprehensive Plans**

20 **Q. Have you had an opportunity to review Springfield Township’s Comprehensive**  
21 **Plan in relation to PPL’s application?**

22 A. Yes.

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**Q. Does PPL’s proposal to install the HV transmission line via the cross country route and to install the proposed substation on the Hickon Road property satisfy the purposes and goals of Springfield Township’s Comprehensive Plan?**

A. No. The goal of the comprehensive plan with regard to natural resources is as follows: “Protect significant natural features and natural resources such as floodplains, woodlands, steep slopes, wetlands, sensitive geological formations, sensitive wildlife habitat, and bodies of water.” The Comprehensive Plan also sets forth the following specific objectives: “Minimize negative environmental impacts related to development and growth; Prioritize the Cook's Creek Watershed for preservation and protection; Maintain the natural biodiversity within the township that provides a healthy living environment for plants and animals; Preserve natural corridors throughout the township to allow for the movement of wildlife and link habitat areas.” In choosing the cross country route, it appears that PPL ignored the purposes and goals set forth in Springfield Township’s Comprehensive Plan as this route will have the greatest adverse environmental impact of the three listed routes.

**Q. Have you had an opportunity to review Springfield Township’s Zoning Ordinance in relation to PPL’s application?**

A. Yes.

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1 **Q. Does PPL’s proposal to install the HV transmission line via the cross country route**  
2 **and to install the proposed substation on the Hickon Road property comply with the**  
3 **provisions of the Springfield Township’s Zoning Ordinance?**

4 A. No. PPL’s proposal violates many of the natural resource protection standards contained  
5 within Section 508 of the Township’s Zoning Ordinance. Specifically, Springfield’s  
6 Zoning Ordinance requires 100% protection of the 100-year floodplains, wetlands and  
7 streams and watercourse. In order to develop or fill wetlands, a special exception must  
8 be obtained from the Township’s Zoning Hearing Board.

9

10 **Q. Has PPL selected the most appropriate zoning district for the siting of the**  
11 **transmission line?**

12 A. No. A portion of the transmission line crosses Springfield Township’s Resource  
13 Protection District. The purpose of this district is “to protect areas consisting largely of  
14 natural features such as mature forest, steep slopes, scenic areas, wetlands, streams,  
15 floodplains and ponds including those identified in the latest version of the Bucks County  
16 Natural Resources Plan. Intensities are such as to ensure that these resources are  
17 preserved, while providing for residential development with suitable sewage disposal.”  
18 PPL’s proposal is in direct conflict with the purposes of the Resource Protection District.  
19 In addition, PPL’s proposed route crosses Springfield Township’s Floodplain Protection  
20 Overlay area which has been recognized in order to protect key areas that greatly affect  
21 the water quality of the Township water supply and to protect against flood-related  
22 damage.

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## Consistency with County and Regional Plans

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**Q. Did you have an opportunity to review the Bucks County Natural Resources Plan in relation to PPL’s application?**

A. Yes. The Bucks County Natural Resources Plan, like Springfield’s Zoning Ordinance recommends 100% protection of wetlands and floodplains and further recommends a 100 foot wetland margin.

**Q. Did you review any other county plans in relation to the area that is proposed to be disturbed?**

A. Yes. I reviewed the Bucks County Natural Areas Inventory which identifies and prioritizes the most significant remaining natural features in Bucks County. The inventory also identifies the most important threats to the conservation of natural resources and biological diversity in Bucks County and includes incompatible land use resulting in destruction or degradation of habitat, fragmentation, altered hydrology, pollution and invasive exotic species. PPL’s application fails to adequately discuss the destruction or degradation of habitat, the forest fragmentation, the altered hydrology, the pollution or the addition of invasive species that will be associated with the construction of the cross country route that were in the Bucks County Natural Areas Inventory.

**Q. Did you review any regional plans in relation to the area that is proposed to be disturbed?**

1 A. Yes. I reviewed the Upper Tohickon Rivers Conservation Plan. The proposed cross  
2 country route traverses the Upper Tohickon Creek watershed. This plan identifies the  
3 necessary steps to preserve the watershed based upon the community's expressed desire  
4 to preserve the scenic rural character of the area. Water quality was voted as the most  
5 important issue facing the stream. The plan also describes the richly diverse ecological  
6 environment that is present in this area.

7

8 **Q. What steps or methods are recommended by the Upper Tohickon Rivers**  
9 **Conservation Plan to preserve this environment?**

10 A. The Plan recommends that municipalities enforce their existing regulations related to  
11 natural features including: flood plain areas, steep slopes, ground water recharge,  
12 wetlands, forests, hydric soils, ponds, lakes, streams, riparian buffers, agricultural soils,  
13 native plant species and endangered plant species. In addition, the Plan recommends that  
14 municipalities establish additional regulations to ensure these natural features are  
15 preserved.

16

17 **Q. What impact, if any, do you anticipate the installation of the cross country route**  
18 **having on the Tohickon Creek watershed?**

19 A. The high quality of the Tohickon Creek is directly related to the extensive presence of  
20 natural forest and riparian forest buffer cover. The impacts associated with PPL's  
21 proposed stream crossings and the impacts to riparian forests are completely contrary to

1 the recommendations set forth in the Rivers Conservation Plan. The impacts associated  
2 with the installation of the Cross Country Route will detrimentally impact the high  
3 quality of these headwater streams.

## 4

### 5 **Conclusions Concerning Environmental Impacts**

6 **Q. Do you have any specific concerns regarding the environmental impacts that will**  
7 **result from the construction and maintenance of the proposed cross country route**  
8 **and substation?**

9 A. I am concerned that the forested stream channels will be detrimentally affected.  
10 Specifically, I am concerned that the cross country route proposal will result in replacing  
11 the pollution sensitive communities dominated by mayflies and stoneflies that are typical  
12 of high quality headwater streams with more disturbance-tolerant groups. The high  
13 quality of the Upper Tohickon Creek will be compromised by the installation of the  
14 proposed line.

15

16 **Q. Do you have any other concerns regarding specific environmental impacts that may**  
17 **result from the installation and maintenance of the cross country route and**  
18 **proposed substation?**

19 A. Yes. It is my opinion that the installation of the cross country route will result in the  
20 increase of invasive species. Invasive plants species gain a foothold where native  
21 vegetation is frequently disturbed. Invasive plants spread rapidly, alter vegetation  
22 structure, and further degrade habitat quality. The impacts associated with the Cross

1 Country Route will likely result in the conversion of extensive areas of forest, including  
2 forest interior habitat, to 100 foot wide swaths of managed meadow or scrub/shrub  
3 communities much of which will likely be dominated by non-native invasive species.  
4 Based on inspection of other power line corridors managed by PPL in Springfield  
5 Township, the dominance of undesirable invasive species is probable.

6 The installation of the cross country route will also result in an increase in aquatic  
7 invasive species. Specifically, it is likely that common reed, purple loosestrife and  
8 Japanese Knotweed would invade the disturbed area and would likely spread into other  
9 suitable adjacent habitat. The presence of these species is readily apparent in existing  
10 PPL transmission line corridors (Exhibit MG-2, Figures 11 and 12).

11  
12 **Q. Do you believe that PPL's application accurately reflects the environmental impacts**  
13 **that will result from the installation of the cross country route and proposed**  
14 **substation?**

15 A. No. Information provided by PPL subsequent to the filing of its application suggests that  
16 the numbers pertaining to certain environmental impacts are incorrect. For instance, the  
17 Mellon report dated July 21, 2008 indicates a much greater impact to the natural  
18 resources than is stated in PPL's application. Analysis of the Mellon report's delineation  
19 of disturbed wetlands for the cross country route suggests that PPL underestimated the  
20 amount of wetlands being disturbed by more than 7 acres.

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## Potential Mitigation Measures

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2 **Q. If the PUC were to approve the cross country route against your advice, do you have**  
3 **any recommendations or conditions that should be imposed to ensure the least**  
4 **amount of environmental disturbance to this area?**

5 A. Yes. I reiterate my position that this route is the most environmentally detrimental of the  
6 three routes, but recognize the possibility that this route may be accepted by the PUC. If  
7 it is chosen, I have provided a list of mitigation measures that should be imposed to  
8 possibly reduce the environmental harm to the area. This list is contained on page 40 of  
9 Exhibit MG-2.

10

## Conclusion

11 **Q. Does this conclude your direct testimony?**

12 A. Yes, it does.

**Mark Gallagher**  
Vice President



**Education:**

M.S. Botany and Plant Physiology.  
Rutgers University. 1984.

B.S. Biology, Moravian College.  
Bethlehem, Pennsylvania. 1977

**Certifications:**

OSHA Health and Safety for  
Hazardous Waste Site Investigation,  
No. 300590

NJDEP Qualified Ornithologist as  
per NJAC7:1E-4.4(a)6

**Professional Affiliations:**

Society of Wetland Scientists  
Society for Ecological Restoration  
Mid Atlantic Invasive Species  
Society  
American Water Resource Assoc.  
Hunterdon Land Trust, Technical  
Advisory Board,

**Awards:**

Firman E. Bear Chapter, Soil and  
Water Conservation  
Society/Pinlands Nursery  
Environmental Excellence Award  
for SV Farming Restoration Project

**Fields of Competence:**

Investigation and analysis of terrestrial and wetland ecosystems; vegetation community mapping; inventories and wetlands delineations; development of plans for restoration, enhancement and creation of estuarine and freshwater wetlands; threatened and endangered species inventories and habitat assessments.

**Professional Experience:**

Mr. Gallagher is the Vice President of Princeton Hydro and is in charge of all wetland and terrestrial ecological oriented projects and Phase I Environmental Investigations. He is responsible for the supervision of a broad variety of environmental assessment activities, primarily those involving wetlands and wildlife habitat elements. He is experienced in the preparation of state and federal permit applications, the preparation of environmental impact statements, and the design and implementation of wetland mitigation plans. He also oversees the preparation of all Phase I Environmental Assessments at Princeton Hydro. Mr. Gallagher has provided expert testimony before numerous local and regional planning authorities. He has acquired comprehensive familiarity with pertinent administrative and policy directives of regulatory agencies such as the U.S. Army Corps of Engineers, and the U.S. Fish & Wildlife Service.

Prior to forming Princeton Hydro, Mr. Gallagher served as a director, group manager and scientist at several environmental consulting firms in New Jersey and Pennsylvania. His experience in these positions emphasized wetland delineations and evaluations, vegetation and wildlife surveys, endangered species habitat suitability assessments and the preparation of wetland mitigation plans, environmental assessments and environmental impact statements. Mr. Gallagher's specific project

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experience has included surveying and assessing the suitability of habitats at various development sites for threatened and endangered species. Specifically, he provided this service for the Burlington County (NJ) Solid Waste Facility, a 2,000 acre landfill site in Benecia, California and a proposed mine site in southeastern Kentucky. He also designed mitigation plans for the creation or enhancement of wetlands in Cape May, Camden, Hudson, Burlington, Middlesex, Mercer, Somerset, Sussex and Union counties (NJ) for U.S. Army Corps of Engineers 404 and NJ Department of Environmental Protection Permits. Mr. Gallagher has also developed mitigation plans related to Pennsylvania Department of Environmental Protection Joint Permits. These include the following; the design and construction management of a 6.5-acre wetland construction project at a major development site in Chester County, PA, as well as additional wetlands in Buckingham Township, Warminster Township and Upper Uwchlan Township. He is currently, working on several mitigation projects for the proposed widening of the Garden State Parkway.

Mr. Gallagher provided construction management to implement a mitigation project that he designed for the restoration/creation of 25+ acres of wetland in a gravel/clay mine that included the restoration of an eight-acre wetland that supports swamp pink, a plant protected by the Federal Endangered Species Act. This mine restoration effort was complicated by the presence of acid producing clays. He is currently overseeing the implementation of his design for the restoration of another acid mine in Hainesport, NJ. An integral component of this design entails the creation of a 25-acre lake with an emergent wetland fringe and the restoration of approximately 12 acres of upland. Mr. Gallagher also designed a thirteen-acre estuarine wetland on the Newark Bay in Elizabeth, NJ that included the creation of intertidal and subtidal habitat as well as nesting habitat for the least tern, a threatened species in NJ. Recently he developed the design for a 14-acre estuarine wetland mitigation project that was constructed at the Bayonne Golf Club in Bayonne, NJ. This unique project was designed to fill in an extensive area of mudflat to an elevation suitable to establish vegetation. As part of this project he prepared a Biological Assessment regarding the impacts of the use of amended dredged material as a landfill cap on peregrine falcon. This wetland project was given the Environmental Excellence award from the New Jersey Business and Industry Association. He is currently working on expanding the extent of this restoration effort to include several hundred acres of shallow water habitat along the Hudson River.

Mr. Gallagher also participated in Princeton Hydro's design of the 8+ acre Somerset County Wetland Mitigation Bank in Neshanic, NJ. This project recently was awarded a Firman E. Bear Chapter, Soil and Water Conservation Society award for Ecological Excellence. Currently, he is working on the 30+ acres estuarine wetland restoration project on the Raritan River in Woodbridge New Jersey as part of a Brownfield Redevelopment project that requires the resolution of natural resource damage claim.

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Mr. Gallagher has prepared the waterfront development application for the redevelopment of the Port Reading Facility in Woodbridge, NJ. The proposed redevelopment of this site for a port facility required the creation of approximately 3 acres of created/restored intertidal wetland designed to enhance the local fishery. In addition, this project was designed to balance the Brownfield redevelopment with a Greenfield element in which an additional 12.1 acres of wetlands was restored through the creation of a wetland mitigation bank. Mr. Gallagher has written numerous environmental impact assessments/statements for a wide range of projects, including residential development projects, commercial projects, redevelopment projects and waterfront projects. He is currently working on several large Portfield waterfront development projects in the Port of NJ/NY and along the Raritan River. He has also worked on various aspects of numerous residential developments throughout New Jersey and Eastern Pennsylvania.

He has also designed planting plans for golf course ponds and stormwater quality management facilities. He was involved in the development of a multiple award winning stormwater detention facility in Middletown Township, PA that was designed to mimic the functions associated with floodplain forests. He is currently working on a similar design for Janssen Pharmaceutica in Hopewell Township. He also designed a wetland at the Buckingham Township Municipal Building that was designed to polish stormwater runoff from a water quality oriented stormwater facility. This wetland is used as a study area for the nearby elementary school.

Mr. Gallagher has assisted Tinicum Township for the past 15 years regarding issues and projects associated with Tinicum Creek, an Exceptional Value watercourse in upper Bucks County, PA. He also managed the preparation of the recently completed Tohickon Creek Watershed Conservation Plan. Mr. Gallagher recently participated in a US Environmental Protection Agency funded project that evaluated the contribution that wetlands in upper Bucks County Pennsylvania played in aquifer recharge. As part of this study aerial photography was used to map wetlands and to categorize them with regard to their hydrogeomorphic classification.

Mr. Gallagher provided expert testimony regarding the potential impacts to natural resources, including wetlands and wildlife, associated with various types of development projects throughout New Jersey as well as Pennsylvania, New York, Kentucky and Indiana. Mr. Gallagher is currently the Township Environmental Consultant for the Borough of High Bridge, NJ as well as Nockamixon Township and Tinicum Township in Pennsylvania.

Mr. Gallagher has presented technical papers at various conferences/seminars; most recently at the AWRA Regional Conference in Newark Delaware and at the 2008 Schuylkill Watershed Congress. He was a participant in a symposium on Native Wildflowers sponsored by the New York Botanical Garden in which he presented a talk on Wetland Restoration and Creation at The Arnold Arboretum in Boston, MA, The New York Botanical Garden in New York City and the National Wildlife Federation in Reston, VA. He has presented a talk entitled "Bioengineering

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Solutions for Eroded Shorelines", at the Lake Management Seminar held at Rutgers University for the past seven years and also participates in the yearly Pond Management course offered by Rutgers University.

Mr. Gallagher has contributed to several projects involving environmental assessment of hazardous sites, including a U.S. Army material storage facility in Maryland, several hazardous waste storage/treatment facilities in northern California and at Superfund sites in Bergen, and Ocean counties, NJ. He evaluated the impact of a proposed landfill on a large wetland system in Minnesota as part of a Remedial Investigation/Feasibility Study (RI/FS). He prepared and managed the implementation of a wetland restoration plan for two wetland areas that required remediation at a Superfund site in North Dartmouth, MA. He managed the re-vegetation of constructed wetlands at a Superfund site in Woburn, MA and at the Naval Radio Transmitting Facility in Driver, VA. He also designed and provided construction oversight for the restoration of a stream and riparian forest at Glover Archbold National Park in Washington, DC.

While a graduate student at Rutgers University, Mr. Gallagher conducted his thesis research on the physiological ecology of three tree species in the New Jersey Pine Barrens. He served as a research and teaching assistant at that institution in biology, plant physiology and ecology.

#### **Publications and Presentations:**

Michael Rehman, Mark Gallagher, Geoff Goll, P.E., John Miller, P.E., CFM. Riparian Wetland Creation/Establishment in an Agricultural Landscape. July 1, 2008. 2008 AWRA Summer Specialty Conference; Riparian Ecosystems and Buffers: Working at the Water's Edge. Virginia Beach, Virginia.

Mark Gallagher. Integration of Natural Elements into the Design of Stormwater Facilities. Presented at the Schuylkill Watershed Congress: March 1, 2008

Mark Gallagher, Princeton Hydro, LLC., Diana Raichel, Princeton Hydro, LLC., Pete Sawchuck, Key Environmental, Glenn Stock, ProLogis. The Redevelopment of the Port Reading Coal Terminal; Balancing Brownfield and Greenfield Initiatives. Presented at AWRA Regional Conference, Newark Delaware. November 7, 2007

Mark Gallagher, Invasive Species Control through Habitat Restoration, Nuisance and Exotic Species in the Monmouth Coastal Watersheds Region, presented at Monmouth University Urban Coast Institute, Coastal Watershed Seminar Series. November 28, 2006

Mark Gallagher and John A. Miller, P.E., CFM. The Somerset County Wetland Mitigation Bank: Creating an Amenity to the Park System and Meeting Land Use Requirements. American Water Resources Association 2006 Annual Water Resources Conference. Baltimore, Maryland. November 9, 2006.

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Stephen J. Souza, Ph.D., Mark Gallagher and Stuart Appel, RLA. January/February 2006. The Pennswood Village Stormwater System. Stormwater. *www.stormh2o.com*

Stephen J. Souza, Ph.D., Stuart Appel, RLA, Mark Gallagher, October 2005. Pennswood, An Integrated Stormwater Solution. Presentation, Villanova Stormwater Conference.

Mark Gallagher, Heather Cook, J.P Bell and Linda McNeill, October 2005. The Tincum Creek Headwater Protection Plan. Presentation, Villanova Stormwater Conference.

J.P. Bell, John Miller, P.E., CFM and Mark Gallagher Fall 2005. Mapping Category 1 Streams or “So which streams get a buffer?” Delaware Township Hunterdon County, Project. Aquaduct, Newsletter of the New Jersey Chapter – American Water Resources Association.

Mark Gallagher, September 2004. Somerset County Wetlands Mitigation Bank. Aquaduct, Newsletter of the New Jersey Chapter – American Water Resources Association.

Gallagher, Mark, March 2004. New Jersey’s Stormwater Rules...Do They Protect All Streams Equally? Aquaduct, Newsletter of the New Jersey Chapter – American Water Resources Association.

Gallagher, Mark, April 2004. Recent Changes in Wetlands Regulations that Can Impact Property Transactions. Presentation to the Mercer County Real Estate Brokers.

Gallagher, Mark, 2003. Presentation of the Tincum Creek Headwater Protection Plan. Public Meeting to present result of Growing Greener Grant, Nockamixon Township Building.

Ash, John, Mark Gallagher, Paul Malmquist, Keithe Merl and Ralph Golia. January 24, 2003. Wetlands Study Results for Tincum Creek Watershed Bridgeton, Nockamixon, & Tincum Townships, Bucks County, Pennsylvania. Prepared for Bridgeton, Nockamixon and Tincum Joint Groundwater Committee and United States Environmental Protection Agency.

Gallagher, Mark. Stabilizing Lake Edges and Shorelines, Lake Management Course, Office of Continuing Education, Rutgers University January 1998 -2007

Gallagher, Mark. Designing Pond Edges and Shorelines. Office of Continuing Education, Rutgers University October 2001-2004

Gallagher, Mark 2000. Stream Restoration and Shoreline Stabilization. Office of Continuing Education, Rutgers University October, 2000.

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Gallagher, Mark and William Young, 1999. Development of an Estuarine Wetland System at the Orion Site in Elizabeth, NJ, 8<sup>th</sup> Annual Pinelands Nursery Native Plant Symposium.

Gallagher, Mark, 1999. Shoreline Stabilization of Ponds and Streams, Golf Course Superintendents Symposium. Office of Continuing Education, Rutgers University February, 1999.

Gallagher, Mark, William Bamka, Jeffery L. Beacham, Thomas Champion. 1995. Restoration of a wetland supporting a threatened species, *Helonias bullata*, impacted by mining activities. Presented at the Society of Wetland Scientists, 10<sup>th</sup> Annual Meeting, Boston, Massachusetts.

Gallagher, Mark, William Bamka, Edmundo Cintra and Carl Tammi. 1995. The Use of Innovative Design Components for the Restoration of Palustrine Wetlands at a CERCLA Site in Massachusetts. Presented at the Society of Wetland Scientists, 16<sup>th</sup> Annual Meeting, Boston, Massachusetts.

Beacham, Jeffrey L., Thomas Champion, Peter Walls, Mark Gallagher, Thomas Frazer. 1994. "Restoration of a Threatened Wetland Ecosystem". Abstract: Society for Ecological Restoration Annual Conference, Lansing, Michigan.

Gallagher, Mark. January 1994. Restoring a Swamp Pink Wetland Impacted by Mining. 3<sup>rd</sup> Annual Pinelands Nursery Native Plant Symposium.

Gallagher, Mark, Jeffery L. Beacham and Thomas Frazer. April 1993. The Initial Steps in the Restoration of a Population of Swamp Pink (*Helonias bullata*), a threatened species, Impacted by Mining Activity. Symposium on the Reintroduction of Rare and Endangered Plants, sponsored by the Center for Plant Conservation, St. Louis, Missouri.

Beacham, Jeffery L., Mark Gallagher, Thomas Champion and Peter F. Walls. November 1992. SV Farming Corporation: Wetland Restoration Study and Design. Prepared by SEC Donohue with assistance from Coastal Environmental Services.

Gallagher, Mark and Steward T.A. Pickett. 1984. "Diurnal and Seasonal Water Relations of *Quercus ilicifolia* and *Q. marilandica* in the New Jersey Pine Barrens", Abstract. *Bull. N.J. Academy of Sci.*, 28:23.

Gallagher Mark. 1984. "Water Relations of *Quercus marilandica*, *Quercus ilicifolia* and *Pinus rigida* from Plains and Tall Forest Populations in the New Jersey Pine Barrens", Master's Thesis, Rutgers University, New Brunswick, New Jersey.

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