

CAPTION SHEET

CASE MANAGEMENT SYSTEM

1. REPORT DATE: 00/00/00	:	
2. BUREAU: FUS	:	
3. SECTION(S):	:	
5. APPROVED BY:	:	4. PUBLIC MEETING DATE:
DIRECTOR:	:	00/00/00
SUPERVISOR:	:	
6. PERSON IN CHARGE:	:	7. DATE FILED: 06/17/05
8. DOCKET NO: A-110500 F0357	:	9. EFFECTIVE DATE: 00/00/00

PARTY/COMPLAINANT: 138/69 KV TAP & 2ND CIRCUIT, SCHUYLKIL

RESPONDENT/APPLICANT: PPL ELECTRIC UTILITIES CORP

COMP/APP COUNTY: SCHUYLKILL

UTILITY CODE: 110500

ALLEGATION OR SUBJECT

LETTER OF NOTIFICATION OF PPL ELECTRIC UTILITIES CORPORATION FILED PURSUANT TO 52 PA CODE CHAPTER 57 SUBCHAPTER G WITH RESPECT TO THE ORWIGSBURG # 2 138/69 KV TAP LOCATED IN THE BOROUGH OF ORWIGSBURG, SCHUYLKILL COUNTY, COMMONWEALTH OF PENNSYLVANIA.

DOCUMENT  
FOLDER

DOCKETED  
JUN 21 2005

Morgan, Lewis & Bockius LLP  
1701 Market Street  
Philadelphia, PA 19103-2921  
Tel: 215.963.5000  
Fax: 215.963.5001  
www.morganlewis.com

Morgan Lewis  
COUNSELORS AT LAW

ORIGINAL

DOCUMENT  
FOLDER

Anthony C. DeCusatis  
215.963.5034  
adecusatis@morganlewis.com

June 17, 2005

DOCKETED  
JUN 21 2005

VIA FEDERAL EXPRESS

James J. McNulty  
Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, PA 17120

Re: **Letter Of Notification Of PPL Electric Utilities Corporation Filed Pursuant To 52 Pa. Code Chapter 57 Subchapter G With Respect To The Orwigsburg #2 138/69 kV Tap – Add Second Circuit, Located In The Borough of Orwigsburg, Schuylkill County**

A-110500 FO 357

Dear Secretary McNulty:

Enclosed for filing in the above-captioned matter are an original and six (6) copies of PPL Electric Utilities Corporation's ("PPL") Letter of Notification requesting approval to add a second circuit to the existing Orwigsburg 138/69 kV Tap Line. This Letter of Notification is filed pursuant to the Commission's regulations at 52 Pa. Code Section 57.72(d).

Copies of the Letter of Notification have been served upon the parties listed on the attached Certificate of Service. The enclosed documents are to be deemed filed on the date shown above, which is the date they were deposited with an overnight express delivery service as shown on the delivery receipt attached to the mailing envelope.

RECEIVED

JUN 17 2005

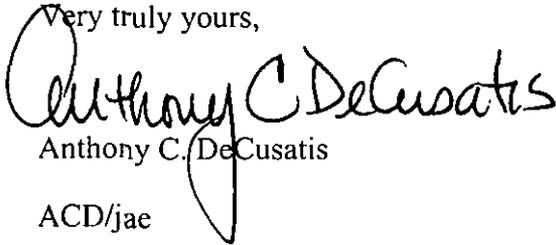
PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

Philadelphia Washington New York Los Angeles San Francisco Miami Pittsburgh Princeton  
Chicago Palo Alto Dallas Harrisburg Irvine Boston London Paris Brussels Frankfurt Tokyo

James J. McNulty  
June 17, 2005  
Page 2

Also enclosed is an additional copy of the Letter of Notification, which we request that you date stamp as evidence of filing and return to us in the stamped, self-addressed envelope provided for that purpose.

Very truly yours,

  
Anthony C. DeCusatis

ACD/jae

c: Darren Gill

**ORIGINAL RECEIVED**

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

JUN 17 2005

**DOCUMENT**  
**FOLDER**  
PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

Re: Letter of Notification of PPL Electric  
Utilities Corporation Filed Pursuant To 52  
Pa. Code Chapter 57 Subchapter G With  
Respect To The Orwigsburg #2 138/69 kV  
Tap Located In The Borough Of Orwigsburg,  
Schuylkill County

:  
:  
:  
: Docket No. A-110500 F0357  
:

**DOCKETED**  
JUN 21 2005

**LETTER OF NOTIFICATION**

1. This Letter of Notification is filed pursuant to 52 Pa. Code §57.72(d)(1)(vi) to request the approval of the Pennsylvania Public Utility Commission ("Commission") to add a second circuit to the existing Orwigsburg 138/69 kV Tap Line in the Borough of Orwigsburg, Schuylkill County, in order to improve reliability and increase operating flexibility. Subject to the Commission's siting approval, as requested herein, the construction of this project will begin in February 2006 to support the required in-service date in May 2006. Accompanying this Letter of Notification is a separately bound volume containing Exhibits A-C and Appendices A-C, which provide additional information about the project. This Letter of Notification and the accompanying Exhibits and Appendices, which are incorporated herein by reference, contain all of the information required by 52 Pa. Code § 57.72(d)(4).

2. The applicant is PPL Electric Utilities Corporation ("PPL"), Two North Ninth Street, Allentown, Pennsylvania 18101, a public utility incorporated in Pennsylvania for the purpose of supplying light, heat and power to the public by means of electricity in all or portions of twenty-nine counties in eastern-central Pennsylvania.

3. PPL's attorneys are:

David B. MacGregor  
Anthony C. DeCusatis  
Morgan, Lewis & Bockius LLP  
1701 Market Street  
Philadelphia, Pennsylvania 19103  
215.963.5034 (T) 215.963.5001(Fax)

Paul E. Russell  
PPL Electric Utilities Corporation  
Two North Ninth Street  
Allentown, Pennsylvania 18101  
610.774.4254 (T) 610.774.6726 (Fax)

PPL's attorneys are authorized to receive all notices and communications regarding this Letter of Notification.

4. The existing Orwigsburg 69-12 kV Substation contains two 10 MVA transformers that are supplied by PPL's single-circuit Frackville-Orwigsburg 138/69 kV transmission line via the existing Orwigsburg 138/69 kV Tap. Under this configuration, one fuse protects both transformers, as shown in the functional diagram provided as Figure 1 in Exhibit A. The two transformers at the Orwigsburg Substation are 64 and 76 years old, respectively, require substantial maintenance and do not have sufficient capacity to meet the summer peak load on the substation that is projected for 2006. Therefore, PPL proposes to replace the existing 10 MVA transformers with two 25 MVA transformers. In conjunction with the substation modification, PPL also proposes to add a second circuit to the existing Orwigsburg 138/69 kV Tap such that each transformer at the substation will be served by a separate tap line and will be protected by a separate fuse. These changes will increase reliability and improve operating flexibility. The increase in transformer size will allow one transformer to carry the entire load of the substation. The additional transmission line and fuse will enable one-half of the substation to remain in service in the event one of the transformers were to fail. It also will allow one-half of the substation to be removed from service for maintenance without the need to install a temporary

mobile substation. Figure 2 in Exhibit A shows the proposed transmission line and substation modifications.

5. As previously explained, the proposed transmission line project involves the addition of a second circuit to the existing Orwigsburg 138/69 kV Tap Line. The proposed tap will be approximately 160 feet long. One additional pole, approximately 60 feet tall, will be installed on PPL property. The proposed second circuit will consist of three power conductors of 4/0 AWG 6/1 standing ACSR.

6. The project will be designed, constructed, operated and maintained in a manner that satisfies or surpasses National Electrical Safety Code ("NESC") standards and all applicable legal requirements. The proposed project will not create an unreasonable risk of danger to the public health or safety. Descriptions of NESC standards and PPL's design criteria and safety practices are set forth in Appendix A. Minimum conductor-to-ground clearances for the Orwigsburg #2 138/69 Tap Line are explained in Exhibit B.

7. All of the necessary right-of-way for this project is already owned by PPL. No additional right-of-way is required.

8. The project described herein is proposed to begin in February 2006 in order to support a proposed in-service date in May 2006. The estimated cost to add a second circuit to the Orwigsburg 138/69 kV Tap is \$28,500.

9. The proposed addition of a second circuit to the Orwigsburg 138/69 kV Tap Line will have few, if any, impacts because of its short overall length and because only one new structure must be constructed, which will be located on PPL's existing property where a

transmission line already exists. No railroads, communications towers, pipelines, or other utilities will be affected by the proposed reconstruction. The nearest airport is over 13 miles away and will not be affected. This project was reviewed with the Borough of Orwigsburg and Schuylkill County, and neither has any objection.

10. A project review by the Pennsylvania Historical and Museum and Commission has determined that this project will have no effect on archeological resources. There are no places of historic or cultural interest that will be affected by the project.

11. The project will not affect any unique geological, scenic or natural areas. No National Natural Landmarks, parks, or recreational facilities are located near the project area. The line modifications will not cross any wetlands or other aquatic resources. No tree clearing is required. In conducting the work necessary for this project, PPL will employ, as appropriate, the mitigating measures set forth in its “Program for Vegetation Management” and “Specifications for Soil Erosion and Sedimentation Control for Transmission Line Rights-of-Way.” In addition, PPL has coordinated with various state and federal agencies and determined that no threatened or endangered plant or animal species will be affected by the project. PPL’s environmental assessment of the proposed relocation is set forth in Exhibit C.

12. *A copy of this Letter of Notification is being served in accordance with the provisions of 52 Pa. Code §57.72(d)(3).*

13. *As soon as practicable after the filing of this Letter of Notification, PPL will publish notice of the filing in newspapers of general circulation in the area of the proposed project. Such notice will contain: (a) the date this Letter of Notification was filed with the Commission; (b) a brief description of the project and its location; (c) locations where the*

complete Letter of Notification may be reviewed by the public; and (d) an instruction that the interested parties should contact, within 15 days, James J. McNulty, Secretary, at the Commission's Harrisburg address.

14. This Letter of Notification is filed on the date set forth below. As provided in 52 Pa. Code § 57.72(d)(5), the Commission will review and, by order, approve or disapprove this Letter of Notification. If the Commission approves this Letter of Notification, the proposed project will be constructed as proposed herein without the formal application process set forth at 52 Pa. Code §57.71 *et seq.* If the Commission does not approve this Letter of Notification, the Commission's Order shall direct PPL to file for approval to construct the proposed project pursuant to the Commission's formal certification regulations.

WHEREFORE, PPL respectfully requests that the Commission approve the addition of the Orwigsburg #2 138/69 kV Tap Line as proposed herein.

Respectfully submitted,

---

David B. MacGregor  
Anthony C. DeCusatis  
Morgan, Lewis & Bockius LLP  
1701 Market Street  
Philadelphia, PA 19103

Paul E. Russell  
PPL Electric Utilities Corporation  
Two North Ninth Street  
Allentown, PA 18101

Attorneys for PPL Electric Utilities  
Corporation

Dated: June \_\_, 2005

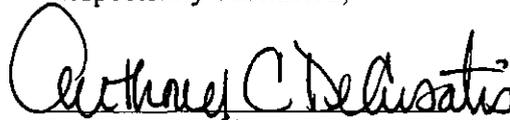


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Respectfully submitted,



David B. MacGregor  
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Morgan, Lewis & Bockius LLP  
1701 Market Street  
Philadelphia, PA 19103

Paul E. Russell  
PPL Electric Utilities Corporation  
Two North Ninth Street  
Allentown, PA 18101

Attorneys for PPL Electric Utilities  
Corporation

Dated: June 17, 2005



BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION

ORIGINAL

Letter of Notification of PPL Electric :  
Utilities Corporation Filed Pursuant to :  
52 Pa. Code Chapter 57 Subchapter G :  
With Respect to the Orwigsburg # 2 : Docket No.  
138/69 kV Tap Located in the Borough : A-110500 FO357  
of Orwigsburg, Schuylkill County :

RECEIVED

JUN 17 2005  
PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**CERTIFICATE OF SERVICE**

I hereby certify that I have, this 17 day of June, 2005, served true and correct copies of the Letter of Notification and accompanying Exhibit Nos. A, B and C upon the persons and in the manner listed below.

**BY CERTIFIED MAIL/RETURN RECEIPT REQUESTED**

**(GOVERNMENTAL AGENCIES)**

Pennsylvania Historical and Museum Commission  
Bureau for Historic Preservation  
Division of Archaeology and Protection  
P.O. Box 1026  
Harrisburg, PA 17108-1026  
Attn: Mr. Douglas C. McClearn, Chief

DOCKETED  
JUN 21 2005

Commonwealth of Pennsylvania  
Department of Transportation  
Commonwealth Keystone Building  
400 North Street, 8th Floor  
Harrisburg, PA 17120  
Attn: The Honorable Allen D. Biehler, Secretary

DOCUMENT  
FOLDER

Department of Environmental Protection  
P.O. Box 2063  
Market Street State Office Building  
Harrisburg, PA 17105-2063  
Attn: Office of Field Operations

Schuylkill County Commissioners  
Schuylkill County Courthouse  
401 North Second Street  
Pottsville, PA 17901

Attn: Mr. Frank Staudenmeier  
Chairman

Schuylkill County Planning and Zoning Commission  
Schuylkill County Courthouse  
401 North Second Street,  
Pottsville, PA 17901

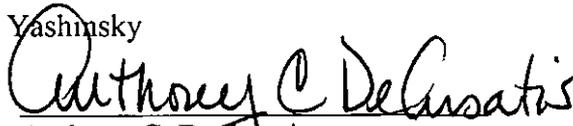
Attn: Mr. Charles M. Ross  
Executive Director

Orwigsburg Borough  
Borough Hall  
209 North Warren Street  
Orwigsburg, PA 17961

Attn: Mr. Charles J. Sterner  
Council President

Orwigsburg Borough Planning and Zoning  
Lehigh Engineering  
P.O. Box 1200  
Pottsville, PA 17901

Attn: Mr. Thomas Yashinsky

  
Anthony C. DeCusatis  
Counsel for PPL Electric Utilities  
Corporation

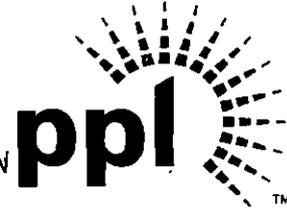
June 17, 2005

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RECEIVED

JUN 17 2005

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU



Before the  
Pennsylvania Public Utility Commission

**Orwigsburg #2**  
**138/69 kV Tap**

DOCUMENT  
FOLDER

DOCKETED  
JUN 21 2005

## Letter of Notification

Application Docket No. A-110500 FO 357

Submitted by: PPL Electric Utilities Corp.

## SUMMARY

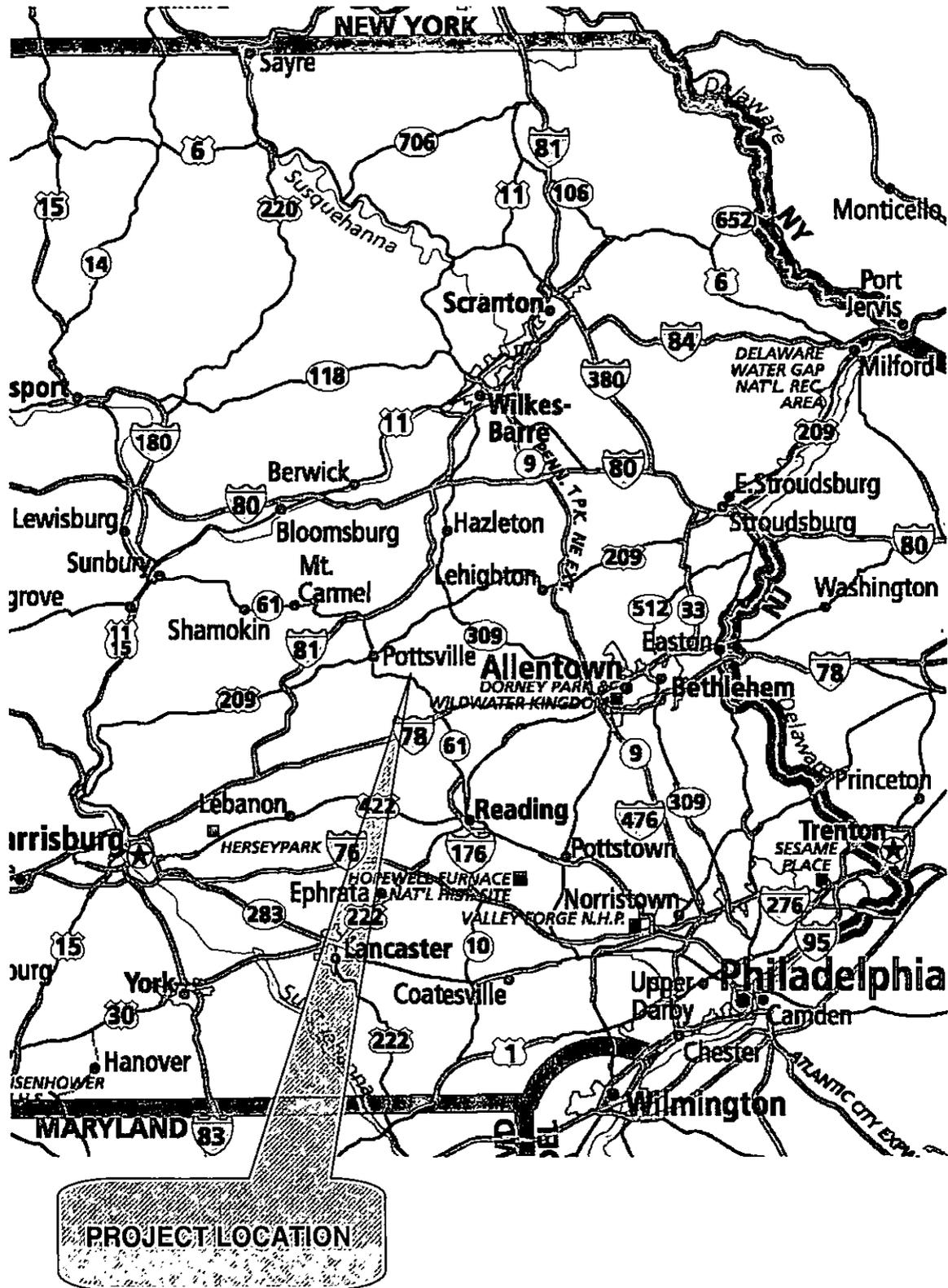
This filing is submitted by PPL Electric Utilities Corporation (PPL) pursuant to the Pennsylvania Public Utility Commission's (PUC or the Commission) regulations at 52 Pa. Code §§57.71 through 57.77 for PUC approval to add a second 138/69 kV circuit to the existing Orwigsburg 138/69 kV Tap. The proposed second circuit is required to meet the increasing demand for electricity and improve reliability. It will also allow substation maintenance to be performed during normal working hours with no interruption of service.

The estimated cost to design and construct the Orwigsburg 138/69 kV Tap is \$28,500. Construction is scheduled to begin in February 2006 to support the project's in-service date of May 2006.

This document, which describes the need for the project and discusses the engineering and siting analysis for the proposed construction, consists of the following exhibits and appendices:

- Exhibit "A" - Necessity Statement
  - Exhibit "B" - Engineering Description
  - Exhibit "C" - Environmental Assessment
- 
- Appendix A - PPL Design Criteria and Safety Practices
  - Appendix B - Magnetic Field Management at PPL
  - Appendix C - List of Involved Governmental Agencies, Municipalities, and Other Public Entities

# LOCATION MAP



**Exhibit A**

**EXHIBIT "A"**  
**ORWIGSBURG #2 138/69 kV TAP**  
**NECESSITY STATEMENT**

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**TABLE OF CONTENTS**

<b><u>SECTION</u></b>	<b><u>TOPIC</u></b>	<b><u>PAGE</u></b>
A.	INTRODUCTION.....	1
B.	EXISTING SYSTEM.....	1
C.	DEFINITION OF THE PROBLEM.....	2
D.	PROPOSED SOLUTION.....	2
E.	FUNCTIONAL ALTERNATIVE.....	3

**LIST OF FIGURES**

FIGURE 1	EXISTING SUBSTATION ARRANGEMENT.....	4
FIGURE 2	FUTURE SUBSTATION ARRANGEMENT.....	5

**MAP**

MAP 1	PPL TRANSMISSION FACILITY MAP	EXHIBIT "A" MAP POCKET
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**EXHIBIT "A"**  
**ORWIGSBURG #2 138/69 kV TAP**  
**NECESSITY STATEMENT**

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**A. INTRODUCTION**

PPL is requesting PUC approval to add a second circuit to the existing 138/69 kV Orwigsburg Tap. The proposed Orwigsburg #2 138/69 kV Tap will be approximately 160 feet long and extend from the existing Frackville-Orwigsburg 138/69 kV line to the Orwigsburg 69-12 kV Substation. The line will be designed and constructed to operate at 138 kV although, initially, it will operate at 69 kV. The proposed line is required to meet the increasing demand for electricity and improve reliability in the Orwigsburg area. It will also allow substation maintenance to be performed during normal working hours with no interruption of service.

The estimated cost to design and construct the proposed tap is \$28,500. Installation is scheduled to begin in February 2006 to support the project's required in-service date of May 2006. The required in-service date is defined as the date the proposed facility needs to be placed in service to prevent overloads that have the potential to damage existing facilities and, thereby, cause the interruption of service to customers.

A PPL system map showing the existing transmission line facilities with a design voltage of 35 kV or greater is included in the Exhibit "A" map pocket. This filing addresses only the existing and proposed 138 kV regional transmission system in the Orwigsburg area.

**B. EXISTING SYSTEM**

Presently, the two transformers at the Orwigsburg Substation are supplied by the existing single-circuit Frackville-Orwigsburg line via the existing Orwigsburg 138/69 kV Tap.

Under this arrangement, one fuse protects both transformers. Figure 1 on page 4 is a functional diagram of the existing substation arrangement.

**C. DEFINITION OF THE PROBLEM**

The two 10 MVA transformers currently in service at the Orwigsburg substation were manufactured in 1941 and 1929, respectively. Recently, it was discovered that these units were beginning to leak oil and would need re-gasketing. In its present configuration, the failure of either transformer will blow the one existing fuse and remove the entire substation from service. During periods of high demand, such a failure would interrupt approximately 17 MW of load, which represents approximately 4,000 customers. These customers would remain without service until repairs could be made. Such a failure would create an additional problem beginning in the summer of 2006, when, based on current projections, total summer peak load on the substation will exceed the substation's emergency rating.

**D. PROPOSED SOLUTION**

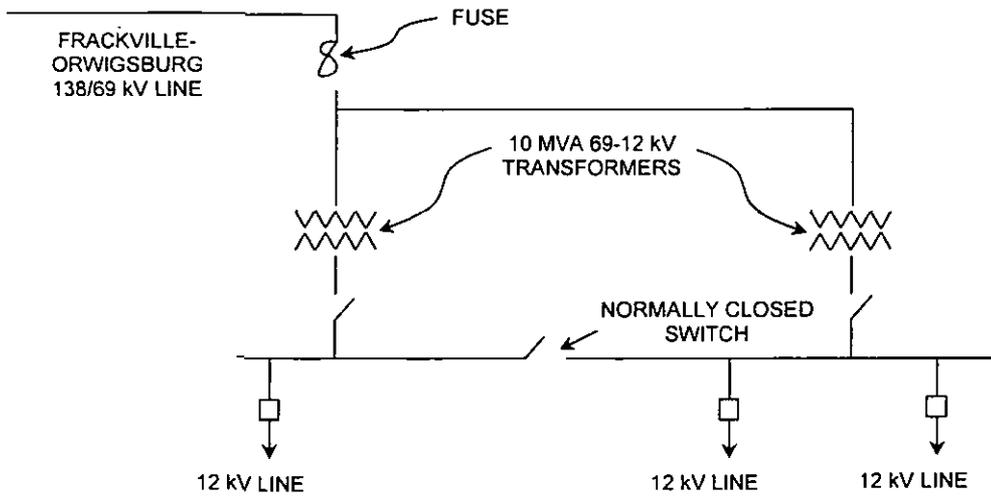
In order to alleviate the problems discussed above, the Company plans the following system modifications and additions. First, the two 10 MVA transformers at Orwigsburg substation will be replaced by two 25 MVA transformers, thereby increasing the capability of the substation by 2.5 times. Second, a second 138/69 kV circuit will be added to the existing Orwigsburg 138/69 kV Tap. These changes will increase reliability and improve operating flexibility. The increase in transformer size will allow one transformer to carry the entire load of the substation. The additional transmission line will keep half of the substation in service in the event of the failure of one of the transformers, thereby lowering the number of customers interrupted. It also allows one-half of the substation to be taken out of service for maintenance without necessitating the installation of a mobile substation, which would cost about \$60,000. Further, the duration of any outage that might occur will be shorter because the portion of the substation that is interrupted can be restored by manually closing a switch. The total

estimated cost of this solution is \$825,000, which includes the estimated \$28,500 cost for installation of the second proposed tap on the Frackville-Orwigsburg line. Figure 2 on page 5 depicts the proposed system modifications.

**E. FUNCTIONAL ALTERNATIVE**

The Company could simply replace the 10-MVA transformers at the Orwigsburg Substation with 25-MVA transformers and operate the substation with one transformer in service and the other as an on-site spare. In that configuration, a transformer failure would still interrupt the entire substation, and all customers would remain without service until repairs could be made. Although the spare transformer would be on site, it would still need to be tested before it was energized, which would add to the restoration time. The estimated cost of this alternative is \$770,000. PPL rejected this alternative because the proposed project, as described above, provides significant additional reliability and operating flexibility at a relatively small additional cost.

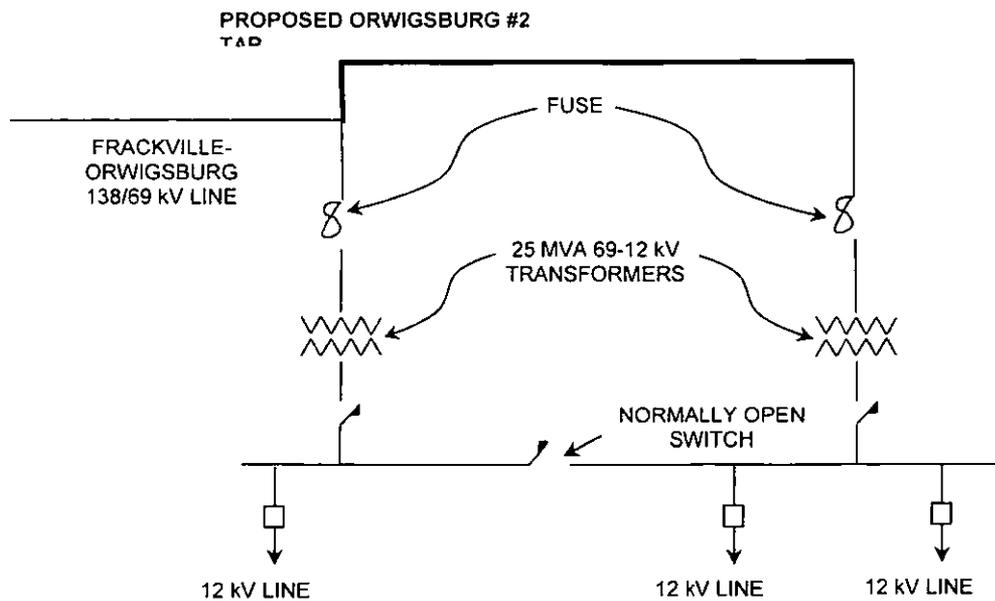
**FIGURE 1 – EXISTING SUBSTATION ARRANGEMENT**

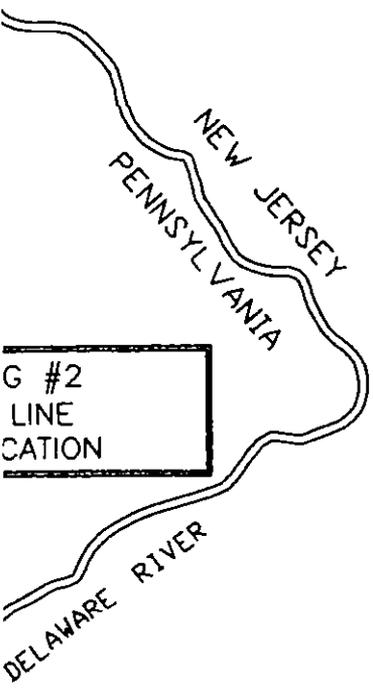


LEGEND

-  Non load break disconnect
-  Load break disconnect
-  Transformer
-  Fuse
-  Circuit Breaker

**FIGURE 2 – FUTURE SUBSTATION ARRANGEMENT**





**OVERSIZED  
DOCUMENT(S)**



ACCT- 805201		ELECTRICAL SYSTEM MAP	
SCALE- NONE			
BY-			
REVIEWED		ORWIGSBURG #2 138/69KV LINE	
APPROVED ORIGINALLY BY		DATE	
G. HAKUN III		7/17/85	
PP&L DRAWING NO.		SHEET NO.	REV.
D191830		1	30

APPROVED  
C

D  
E  
F  
F  
PC FORMAT

**Exhibit B**

**EXHIBIT "B"**  
**ORWIGSBURG #2 138/69 kV TAP**  
**ENGINEERING DESCRIPTION**

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**TABLE OF CONTENTS**

<b><u>SECTION</u></b>	<b><u>TOPIC</u></b>	<b><u>PAGE</u></b>
A.	DESCRIPTION OF PROPOSED LINE .....	1
B.	MAGNETIC FIELD MANAGEMENT.....	3
C.	RIGHT-OF-WAY STATUS.....	3

**LIST OF TABLES**

TABLE 1	DESIGN MINIMUM CONDUCTOR CLEARANCES.....	2
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**MAP**

MAP 1	PLOT PLAN EXHIBIT.....	EXHIBIT "B" MAP POCKET
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**EXHIBIT "B"**  
**ORWIGSBURG #2 138/69 kV TAP**  
**ENGINEERING DESCRIPTION**

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**A. DESCRIPTION OF PROPOSED LINE**

PPL proposes to add a second 138/69 kV circuit to the existing Orwigsburg 138/69 kV Tap. The proposed line will supply electricity directly to a second transformer in PPL's Orwigsburg 69-12 kV Substation. The project is located in Orwigsburg Borough, Schuylkill County. A plot plan for the transmission line project is provided in the Exhibit "B" map pocket.

The proposed tap will be approximately 160 feet long. One additional pole, approximately 60 feet tall, needs to be installed. The proposed line will consist of three power conductors. The conductors will be 4/0 AWG 6/1 stranding ACSR.

The proposed line will be designed to, and generally exceed, National Electrical Safety Code (NESC) standards. Design specifications and safety rules practiced by PPL are included in Appendix A. The minimum ground clearance for the proposed tap is 25 feet, which will exceed by 4 feet the NESC required ground clearance of 21 feet. The 30-foot minimum ground clearance recommended in PPL's Magnetic Field Management Plan cannot be obtained on this project due to the limited height of the substation deadend structure, which is a function of the age of the substation. The designed minimum conductor clearances and conductor thermal ratings are as follow:

**TABLE 1**  
**DESIGN MINIMUM CONDUCTOR CLEARANCES**  
**FOR 4/0 AWG 6/1 STRANDING ACSR\***

<u>Condition</u>	<u>Transmission Single-Circuit Design Clearance-to-Ground</u>
Normal load average weather (16°C ambient temperature)	26.5 feet
Predicted extreme thermal load (125°C conductor temperature)	25.0 feet
Predicted extreme weather conditions (1/2-inch ice, 8 lbs. wind, -18°C)	26.3 feet

\*Clearances based on a maximum tension of 2000 pounds and a ruling span of 110 feet.

**CONDUCTOR THERMAL RATING**  
**4/0 AWG 6/1 STRANDING ACSR**  
**(257°F) 125°C MAXIMUM CONDUCTOR TEMPERATURE**

Condition	<u>Ambient Temperature °C</u>	<u>Wind Speed Knots</u>	<u>Ampacity Amps</u>
Summer Normal	35	0	382
Winter Normal	10	0	435
Summer Emergency	35	1 1/2	513
Winter Emergency	10	1 1/2	574

**B. MAGNETIC FIELD MANAGEMENT**

PPL's Magnetic Field Management Program, summarized in Appendix B, is applied to new and reconstructed transmission line projects. To reduce magnetic field exposures, the program generally prescribes the use of a line design that provides five feet higher ground clearance and reverse phasing of new double circuit lines where it is feasible to do so at low or no cost. The implementation of additional modifications will be considered, provided those modifications can be made at low or no cost.

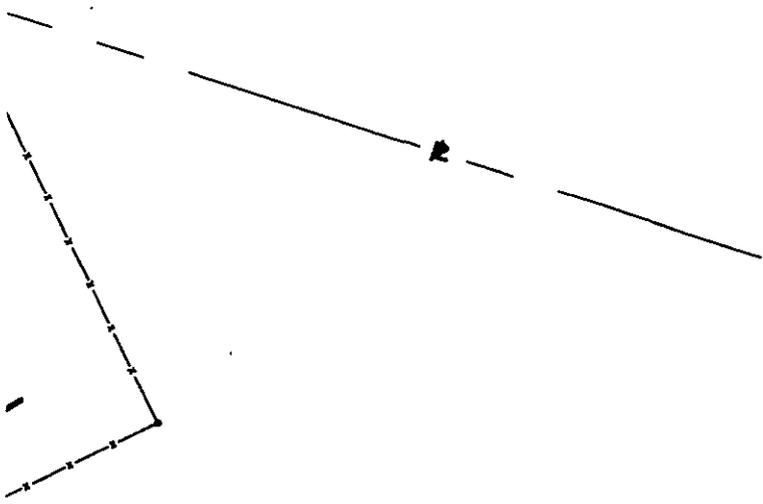
For this project neither five feet higher ground clearance nor reverse phasing is possible given the configuration of the existing facilities which dictate the configuration of the proposed tap line. Extensive modifications to both the substation and the existing transmission line would be required to implement either of those mitigation techniques, which is not feasible within the low or no cost criteria of PPL's Magnetic Field Management Plan.

**C. RIGHT-OF-WAY STATUS**

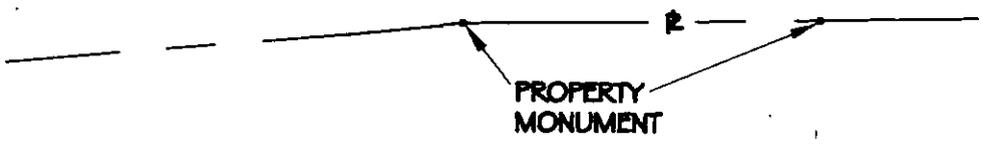
The entire project is being constructed on PPL property. No additional right-of-way is required.

F  
LECKNER

OVERSIZED  
DOCUMENT(S)



PROPOSED ORWIGSBURG #2 138/69KV TAP



PROPERTY  
MONUMENT



ACCT- 161619		ORWIGSBURG 69-12KV SUBSTATION PROJECT PLOT PLAN EXHIBIT			
SCALE- NONE					
BY- CDW					
REVIEWED		APPROVED	DATE		
			PPL ELECTRIC UTILITIES		
			PPL DRAWING NO.	SHEET NO.	REV.
				1	0

VIEWED

Exhibit C

**EXHIBIT "C"**  
**ORWIGSBURG #2 138/69 kV TAP**  
**ENVIRONMENTAL ASSESSMENT**

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**TABLE OF CONTENTS**

<b><u>SECTION</u></b>	<b><u>TOPIC</u></b>	<b><u>PAGE</u></b>
A.	INTRODUCTION.....	1
B.	LAND USE.....	1
C.	CULTURAL RESOURCES.....	2
D.	NATURAL FEATURES.....	2
E.	THREATENED AND ENDANGERED SPECIES.....	2

**EXHIBIT "C"**  
**ORWIGSBURG #2 138/69 kV TAP**  
**ENVIRONMENTAL ASSESSMENT**

---

**A. INTRODUCTION**

PPL proposes to construct a second 138/69 kV transmission line to serve the existing Orwigsburg 69-12 kV Substation. The project involves the installation of one pole and approximately 160 feet of wire. This short tap line will be designed for 138 kV operation although, initially, it will be operated at 69 kV. The entire project will be constructed on the property owned by PPL as the site for the existing Orwigsburg 69-12 kV Substation.

The project was reviewed with the Borough of Orwigsburg and Schuylkill County, and neither the Borough nor the County has any objection.

**B. LAND USE**

The substation is located along Lincoln Mill Road in the Borough of Orwigsburg. The site is bordered on the south by an industrial park. The areas to the east, west and north are mostly wooded with a few scattered homes. Because of the small project size and its location on PPL property, no impacts to the area are anticipated.

No railroads, communication towers, pipelines or other utilities will be affected by the proposed project. The nearest airport is more than 13 miles away and will not be affected.

**C. CULTURAL RESOURCES**

This project was reviewed with the Pennsylvania Historical and Museum Commission (PHMC). PHMC has determined that due to the absence of historical sites and the small project size no further archaeological investigations are required.

The following lists were reviewed for the presence of historical districts and structures in the area:

- National Historic Landmarks in Pennsylvania
- National Register Historic Districts in Pennsylvania
- National Register Individual Properties and Historic Districts in Pennsylvania
- National Register/Listed and Eligible Properties in Pennsylvania

Orwigsburg Borough Hall is the closest historic structure. It is located approximately 0.7 miles from the project. The Hall will not be affected because of its distance from the project.

**D. NATURAL FEATURES**

The proposed project will not affect any unique geological, scenic, or natural areas. No National Natural Landmarks, parks, recreational facilities, or natural areas are located near the project area. Tree clearing is not required. The line will not cross any wetlands or other aquatic resources. PP&L will employ its "Specification for Soil Erosion and Sedimentation Control on Transmission Line Rights-of-Way" as appropriate.

E. THREATENED AND ENDANGERED SPECIES

PPL has coordinated with the relevant state and federal agencies to obtain information regarding endangered and threatened species that could occur in the study area. The United States Department of the Interior's Fish and Wildlife Service reports that the project area is within the known range of the bog turtle (*clemmys mohlengergii*). Bog turtles are known inhabitants of certain types of wetlands. However, since no wetlands are present within the project area, there will not be any impacts to the bog turtle. All other agencies report that, except for occasional transient species of wildlife, no threatened or endangered plant or animal life is found in the project area.

**Appendices**

**LIST OF APPENDICES**

- APPENDIX A - PPL Design Criteria and Safety Practices
- APPENDIX B - Magnetic Field Management at PPL
- APPENDIX C - List of Involved Governmental Agencies, Municipalities, and Other Public Entities

## APPENDIX A

### PPL DESIGN CRITERIA AND SAFETY PRACTICES

The National Electrical Safety Code (NESC) is a set of rules to safeguard people during the installation, operation, and maintenance of electric power lines. The NESC contains the basic provisions considered necessary for the safety of employees and the public. Although it is not intended as a design specification, its provisions establish minimum design requirements. PPL Electric Utilities Corp. (PPL) has developed design specifications and safety rules which meet or surpass all provisions specified by the NESC.

#### Engineering Design Criteria and Parameters

The NESC includes loading requirements and clearances for the design, construction, and operation of power lines. The "loads" on conductors and supporting structures are the mechanical forces that develop from the weight of the conductors, the weight of ice on the conductors, plus wind pressure on the conductors and supporting structures. Loading requirements are the loads on the conductors and structures that are anticipated assuming certain ice and wind conditions. Loading requirements always contain "safety factors" to allow for unknown or unanticipated contingencies. The clearances and loading requirements contained in the NESC were developed to ensure public safety and welfare.

PPL transmission line design standards meet or surpass the NESC standards. For example, the relative order of grades of construction for conductors and supporting structures is B, C, and N; Grade B being the highest. According to the NESC standards, construction Grades B, C, or N may be used for transmission lines (except at crossings of railroad tracks and limited access highways where Grade B construction is specified). However, PPL designs all of its transmission lines for Grade B construction. The use of Grade B design and construction specifies such things as larger-minimum crossarm dimensions, larger-minimum conductor size, and increased safety factors.

Another example is the design parameters utilized to account for ice and wind loadings on the overhead ground wire (OHGW) and power conductors. The NESC standard ice and wind design magnitudes for the PPL territory are 0.5 inch thickness of radial ice combined with four pounds per square foot horizontal wind pressure (equivalent to 40-mile per hour wind velocity). The conductor sags and tensions used in line designs are the result of various ice and wind combinations, depending on the elevation at the line location and line design voltage. The conductor sags and tensions used in the design of all PPL transmission lines are at least 0.5-inch ice combined with eight pounds wind pressure (equivalent to 57 miles per hour wind velocity). This means that PPL lines are designed to operate safely and reliably during inclement weather even more severe than assumed by the NESC. In addition, PPL transmission lines are designed with more clearance to the ground than required by the NESC. The tables below compare PPL and NESC ground clearances for lines of various voltages.

**138 kV**

<u>Surface Underneath Conductors</u>	<u>Vertical Clearance to Ground</u>	
	<u>NESC Standard</u>	<u>PPL Design</u>
Roads, streets, alleys	21 Ft.	30 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	21 Ft.	30 Ft.
Spaces accessible to pedestrians only	17 Ft.	30 Ft.
Railroad tracks	31 Ft.	35 Ft.

## 230 kV

<u>Surface Underneath Conductors</u>	<u>Vertical Clearance to Ground</u>	
	<u>NESC Standard</u>	<u>PPL Design</u>
Roads, streets, alleys	23 Ft.	32 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	23 Ft.	32 Ft.
Spaces accessible to pedestrians only	19 Ft.	32 Ft.
Railroad tracks	31 Ft.	36 Ft.

## 500 kV

<u>Surface Underneath Conductors</u>	<u>Vertical Clearance to Ground</u>	
	<u>NESC Standard</u>	<u>PPL Design</u>
Roads, streets, alleys	28 Ft.	53 Ft.
Other land traversed by vehicles (such as cultivated field, forest, etc.)	28 Ft.	53 Ft.
Spaces accessible to pedestrians only	24 Ft.	53 Ft.
Railroad tracks	38 Ft.	53 Ft.

A relay protection system is used to protect the public safety and welfare as well as equipment and the transmission system. Relay protection is installed for all transmission lines to automatically de-energize the line in the unlikely event that the line or supporting structure fails and the line contacts the ground.

### Periodic Maintenance Program on All Transmission Lines

To ensure continued public safety and integrity of service, a periodic maintenance and inspection program is implemented for every transmission line. The program is administered through the use of helicopter patrols, with supplemental foot and structure climbing patrols. A

number of helicopter patrols are performed on all lines annually. The two-man helicopter crew flies parallel, to the left, and above the line so that the observer can look for signs of line damage or deterioration and observe clearances between vegetation and conductors. The observations are included in a report that is forwarded to the appropriate department for corrective action.

Foot and structure climbing patrol programs for a transmission line begin approximately three to five years after the line is energized, unless a helicopter patrol reports a need for earlier action. The frequency of foot patrols varies from once every year to once every several years depending on line type and age.

An assigned foot patroller checks right-of-way conditions, including access roads, bridges, pole washouts, tower footers, vegetation height and clearance to conductors, pole and tower deterioration and, with the use of binoculars, insulators, and condition of hardware. Identified problems are included in a report that is forwarded to the appropriate department for corrective action.

A scheduled line outage is required to perform an overhead patrol because of "hands-on" inspection of hardware. Overhead patrols are conducted on a schedule determined by line age, operating record, and observed general condition. The necessary repairs are also done during the inspection outage.

### Personnel Safety Rules

The following are a few of the PPL safety rules that demonstrate the Company's concern for employee safety:

- Work procedures have been developed to allow work to be performed on energized facilities in a safe manner. When lines or apparatus are removed from service to be worked on, the Energy Control Process system is applied. This system provides that a red tag must be physically placed on the control handle of the de-energized equipment. The red tag may be removed only after proper authorization to energize the equipment. Various other tags are used for limited operations and informational purposes. Employees will not apply or remove a tag or change the status of tagged equipment unless authorized.

- Temporary safety grounds are used on de-energized facilities for employee safety during maintenance, construction, or reconstruction work. Safety grounds are wires connecting the de-energized facility to an electrical ground. If the facility should be energized, the safety grounds will divert the current directly to ground and reduce the likelihood of personal injury. The conductor size and attachment clamps of temporary safety grounds must be capable of conducting anticipated fault currents. Rubber gloves, rubber sleeves, and additional rubber protective equipment are used as required when applying or removing temporary safety grounds to or from the lines or apparatus to be grounded. An approved nonconductive working stick of sufficient length to allow workers to maintain the following required minimum clearances is used to test that the line has been de-energized and to apply temporary safety grounds:

<u>Voltage-kV</u>	<u>Minimum Clearance</u>
138	3'-7"
230	5'-3"
500	11'-3"

Before applying grounds, a test is done to confirm that the line is de-energized. The voltage test device is checked before and after use to assure reliability. When ground pins are used to establish proper ground points, they are driven to a depth of not less than four feet as near vertical as possible.

- Poles or structures are inspected and examined for structural integrity before climbing. If there is any reason to believe that a pole is unsafe, it is stabilized before work is performed. Appropriate safety gear in the form of body belts, safety straps, hard hats, gloves, etc., is worn by linemen during line work activity.



**MAGNETIC  
FIELD  
MANAGEMENT**  
PPL Electric Utilities  
Corporation

**APPENDIX B**

**DECEMBER 2004**

## TABLE OF CONTENTS

INTRODUCTION .....	1
DEVELOPMENT OF PPL EU's MAGNETIC FIELD MANAGEMENT PROGRAM.....	6
VARIABLES THAT AFFECT MAGNETIC FIELDS .....	6
Effect of Phase Current on Magnetic Fields .....	6
Effect of Conductor Configuration on Magnetic Fields .....	7
Effect of Distance from the Magnetic Field Source .....	7
SUMMARY OF PPL EU's MAGNETIC FIELD MANAGEMENT PROGRAM.....	8
MAGNETIC FIELD MANAGEMENT PROGRAM GUIDELINES .....	9
Overhead Lines .....	9
New or Rebuilt Transmission Lines .....	9
Reconductoring or Adding Additional Circuits to Existing Transmission Lines .....	14
Distribution Lines .....	14
Underground Transmission Lines .....	15
CHARTS.....	16

# INTRODUCTION

At PPL Electric Utilities Corp. (PPL EU), magnetic field management means investigating and implementing methods at low or no cost to reduce magnetic fields in new or rebuilt transmission and distribution lines. This document explains PPL EU's Magnetic Field Management Program, which is part of PPL EU's larger Electric and Magnetic Fields (EMF) policy.

## **PPL EU's View**

Some people are worried that electric and magnetic fields are harming their health. Others think the scientific research does not show a problem at all, and still others believe there's just too much scientific uncertainty to draw any conclusions.

Here's what we do know now. Various panels of scientists that have reviewed the EMF research generally have drawn two main conclusions. First, the large body of evidence does not demonstrate that EMF are harmful. Second, additional research is recommended to explore questions raised in some studies.

Given these conclusions, PPL EU is taking a reasoned approach in responding to the EMF issue. PPL EU's approach to the EMF issue consists of five elements:

- Providing EMF information to customers and employees
- Providing magnetic field measurements
- Establishing and implementing a magnetic field management program to reduce magnetic fields in new or rebuilt facilities when it can be done at no, or low, cost
- Integrating EMF in the public involvement process that PPL EU undertakes in the siting of transmission lines
- *Have supported additional research*

## **EMF Are All Around Us**

Electric and magnetic fields occur in nature and in all living things. The earth, for instance, has a magnetic field, which makes the needle on a compass point north.

Electric fields and magnetic fields of a different type also surround every wire that carries electricity. In everyday life, these EMF arise from several basic sources, including power lines, electrical appliances, home and building wiring, other utility lines and cables, and currents flowing on water pipes. Though they often occur together, EMF are made up of two separate components:

### **Electric Fields**

Electric fields are produced by the voltage—or electrical pressure—on a wire. The higher the voltage, the higher the electric field. As long as a wire is energized—has voltage present—an electric field is present (see Figure 1). In other words, an appliance, or an electric power line, doesn't actually have to be turned on to create an electric field. It just has to be plugged in.

Electric fields diminish with distance and can be blocked or partially shielded by objects such as trees and houses.

### **Magnetic Fields**

Magnetic fields are created by the current or flow of electricity through a wire. Generally speaking, the higher the current, the higher the magnetic field. Because they only occur when current is flowing, magnetic fields are present only when the power is turned on (see Figure 1). Magnetic fields also diminish with distance, but—unlike electric fields—are not blocked by common objects. In recent years, public and scientific interest has turned toward the magnetic field component of EMF because of some scientific studies regarding these fields.

Figure 1

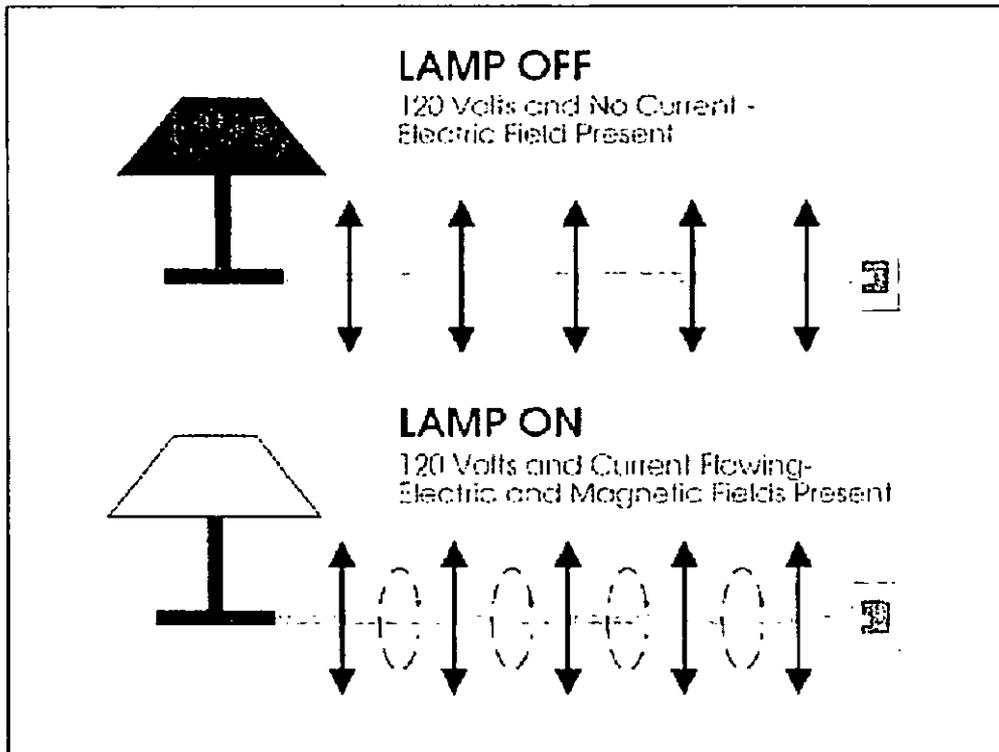


Figure 2

Magnetic field strengths decrease with distance Magnetic fields are measured in milligauss		Source: "EMF In Your Environment", U.S. Environmental Protection Agency 1992		
		At 6 inches	At 1 foot	At 2 feet
Clothes dryer		2 to 10	* to 3	*
Microwave oven		100 to 300	1 to 200	1 to 30
Toaster		5 to 20	* to 7	*
Power drill		100 to 200	20 to 40	3 to 6
Can opener		500 to 1500	40 to 300	3 to 30
Mixer		30 to 600	5 to 100	* to 10
Hair dryer		1 to 700	* to 70	* to 10
Color television		Data not available	* to 20	* to 8

FIGURE 2 \* The magnetic field measurement at this distance from the operating appliance could not be distinguished from background measurements taken before the appliance had been turned on.

### Measuring Magnetic Fields

Magnetic fields usually are measured in a unit called a milligauss. Magnetic field levels found in the living areas of homes typically range from less than 1 milligauss to about 4 milligauss according to the U.S. Environmental Protection Agency. They can be higher in some cases. The levels next to appliances can exceed 1,000 milligauss (1 gauss). Figures 2 and 3 show how the strength of the field falls off as you move away from the source, just as the heat of a campfire grows weaker as you walk away from it. For overhead power lines, the strength of the magnetic fields is dependent upon a number of factors that will be explained later. Those factors produce a magnetic field that drops off rapidly as you move away from the power line.

Figure 3

Sample Magnetic Field Levels in Milligauss				
Type of Overhead Power Line	Distance from the line			
	Under the line	50 ft.	100 ft.	200 ft.
220 kV and 500 kV	5-400	5-250	1-75	0.5-20
69 kV and 138 kV	3-80	0.5-2.5	0.1-10	0.1-3
12 kV and below	0.4-20	0.1-1	-	-

The magnetic field values provided in this table represent a general range of values associated with the types of overhead power lines listed and are provided for illustration. There will be circumstances in which there will be magnetic field levels above or below the range of values provided due to variations in such factors as height of the wires, current flow and so on.

## **DEVELOPMENT OF PPL EU's MAGNETIC FIELD MANAGEMENT PROGRAM**

One element of our response to EMF concerns expressed by some of our customers is PPL EU's Magnetic Field Management Program. The program was initiated in March 1991 because PPL EU believes it makes good sense, as a matter of policy, to respond to the concerns expressed by some of our customers and to reduce magnetic fields in new and rebuilt facilities where it can be done with either no-cost or low-cost design changes.

This document updates the original program which has been revised several times since 1991. These guidelines were developed by PPL EU's EMF Working Group.

### **VARIABLES THAT AFFECT MAGNETIC FIELDS**

Magnetic fields from transmission and distribution lines are a function of a number of design variables. The following parameters affect the magnetic field levels produced by transmission and distribution lines:

- Current
- Height of conductors above ground
- Configuration of conductors
- Distance from the line

### **EFFECT OF PHASE CURRENT ON MAGNETIC FIELDS**

At power frequencies (i.e., 60 hertz), the magnetic field level is a function of the current or flow of electricity through a wire. Keeping all other parameters the same, the magnetic field is proportional to the current. Hence, if the current increases by 25 percent, the resulting magnetic field level will increase by 25 percent.

The overall load current on any line varies with the demand for power. It's usually highest during daytime hours and lowest at night. There also are weekly, monthly, seasonal and yearly variations.

The difference in the currents between each phase in a multiphase line also can affect the magnetic field. This difference is called phase unbalance. For a constant load, a statistical analysis of this phase unbalance can be made to determine its effect on the magnetic field. Close to the line, there is very little effect. However, the phase unbalance slows the rate at which the magnetic field decreases with distance from the line.

### **EFFECT OF CONDUCTOR CONFIGURATION ON MAGNETIC FIELDS**

In the transmission and distribution of power, utilities like PPL EU presently use both three-phase and single-phase lines. Each phase on a three-phase power line has either a single conductor or a bundle of two or more conductors. In a three-phase system, the ground-level magnetic field is a result of the fields produced by the currents in each of the phases. Placing the three phases as close together as possible (compaction) creates some field cancellation, and the ground-level magnetic field is reduced. However, appropriate phase separation is required for the reliable operation of the line. In addition, the arrangement of the phases can create some; field cancellation and reduction of the ground-level magnetic field.

### **EFFECT OF DISTANCE FROM THE MAGNETIC FIELD SOURCE**

Magnetic field strength diminishes with the vertical and lateral distances from the magnetic field source. Increasing the height of the conductors above ground is useful for magnetic field reduction at ground level, but may result in increased structure costs and increased aesthetic impact of the structures. Another possible method of increasing the distance to the magnetic field source is to increase the right-of-way requirements. By keeping buildings off increased rights of way, thereby requiring the public to live and work further away from lines, exposure to magnetic fields produced by the lines can be reduced. Increases in right of way are not always practical and may increase costs significantly, however.

## **SUMMARY OF PPL EU's MAGNETIC FIELD MANAGEMENT PROGRAM**

Under its Magnetic Field Management Program, PPL EU has changed the way it builds and rebuilds some of its transmission and distribution lines. These design changes reduce magnetic field levels (assuming balanced circuit loadings and phase currents) by up to 69 percent in most of the company's new transmission lines. These guidelines now are being applied to new and reconstructed transmission facilities, based on this program.

The distribution component of the program focuses on 12 kV lines, the company's standard distribution voltage. It concentrates on the three-phase, primary 12 kV lines, since these are the most heavily loaded facilities and often are located in densely populated areas. The guidelines in this program are being applied to these three-phase, primary 12 kV lines.

A maximum 3-5 percent change in estimated cost was used as the limit for the guidelines since this value is consistent with low cost, is within estimating accuracy and is likely to have little impact on overall line costs.

The magnetic field calculations used in this document for the design of PPL EU's overall magnetic field management plan assume balanced load conditions among the phases and a fixed level of current, not necessarily representative of specific transmission or distribution lines. These levels were calculated using the Electric Power Research Institute's ENVIRO computer program. Under actual operating conditions, the magnetic field levels that result may vary due to such things as actual load per circuit, overall current on each phase conductor and the electrical configuration and operation of each line.

# MAGNETIC FIELD MANAGEMENT PROGRAM GUIDELINES

The guidelines for magnetic field management are noted below, with discussion points for each.

## OVERHEAD LINES

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### NEW OR REBUILT TRANSMISSION LINES

1. **Balance transmission circuit loads and phase currents as much as possible.**
  - PPL EU should continue to make every effort to balance loadings between the two circuits of a double circuit line when planning new or rebuilt facilities to maximize the effects of reverse phasing.
  - PPL EU should continue the practice of balancing single-phase loads across the three phases of the distribution system. (Unbalanced phase currents on the distribution system are reflected through to the transmission system.)
    - Unbalanced phase currents result in higher magnetic fields that do not drop off as quickly with distance as do the fields resulting from balanced phase currents.
    - For a 5 percent phase current unbalance, the magnetic field 50 feet from the centerline of a single circuit 138 kV line could be more than twice the value than if the same line had balanced phase circuits.
  - Balanced phase currents on each three-phase distribution circuit also reduce magnetic fields from the distribution circuits themselves. In addition, they reduce magnetic fields on the transmission system from which the distribution system circuits are supplied and connected through substations.
  - Apart from magnetic field considerations, balanced phase currents on each three-phase distribution circuit also reduce line losses and improve the system voltage.

2. **Continue with the present practice of using long-span construction as the PPL EU 138/69 kV standard**

- Structure designs for short-span and long-span construction are illustrated on Charts I and II, respectively.
  - Short-span design does not significantly reduce magnetic fields when compared to long-span design even though it is more compact than long-span design. Comparison of the magnetic field values from Chart III indicates essentially the same values. Therefore, short-span design should not be used solely to reduce magnetic fields.
  - PPL EU will continue to use long-span construction for 138/69 kV double-circuit lines and for single-circuit/future-double-circuit lines.
  - For single-circuit/future-double-circuit lines, PPL EU will continue to install two conductors on the top positions and one in the middle position as shown in Chart IV.
    - This arrangement minimizes magnetic fields as shown in Chart V by placing the three initial conductors higher on the structure, which increases the ground clearances, and by placing the conductors in a triangular configuration.

3. **Compact design structures are not a low-cost alternative and should be used for magnetic field reduction only in special applications.**

Chart VI illustrates the compact design structure.

- The compact design increases the initial installation costs by 79 percent when compared to the long-span design but reduces the magnetic field from 9 mG to 3 mG (about 67 percent) at the edge of the 100-foot-wide right of way as shown on Chart III.

4. **Reverse phase new or rebuilt double-circuit transmission lines for all voltage levels.**

- Reverse phasing was adopted by PPL EU in March 1991 for double-circuit 138/69 kV transmission lines and in April 1992 for all other double circuit transmission lines. Reverse phasing is shown in Chart VII. Reverse phasing will reduce the magnetic fields when the current flow on both circuits is in the same

direction. Calculated values contained here are based on balanced and equal phase currents on both circuits.

- Reverse phasing reduces the magnetic field of a double circuit 138 kV single pole transmission line from 29 mG to 9 mG (about 69 percent) at the edge of the 100-foot-wide right of way as shown on Chart III.
- Reverse phasing reduces the magnetic field of a double circuit 230 kV single pole transmission line from 49 mG to 16 mG (about 67 percent) at the edge of the 150-foot-wide right of way as shown on Chart VIII.
- Reverse phasing reduces the magnetic field of a double-circuit 500 kV single pole transmission line from 37 mG to 21 mG (about 43 percent) at the edge of the 200-foot-wide right of way as shown on Chart IX.
- When new or rebuilt double-circuit lines require tapping existing double-circuit lines, PPL EU will review the existing lines to determine if reverse phasing can be provided at low cost.
- Computer modeling is required to develop the optimum phasing and overall conductor arrangements for lines added to, or rebuilt in, multiple-line corridors.
  - Merely adding a reverse-phase double-circuit line to an existing transmission line corridor or reverse phasing a rebuilt line in the multiple-line corridor will not necessarily produce lower magnetic field levels at the edge of the corridor right of way.
  - The corridor must be computer modeled with all the lines, existing phase conductor locations and currents. Then, magnetic field calculations must be made varying the phase arrangements of the new or reconstructed line to determine the appropriate phasing arrangement.
  - Current flow direction on a line also must be considered. For example, a reverse-phased line should have the current flowing in the same direction on both circuits. If the current flow is in the opposite direction for one circuit, reverse phasing will not produce the lowest magnetic field and another phase arrangement that produces lower fields may need to be utilized.

**5. Increase the minimum ground clearance for all new transmission lines.**

**138/69 kV Transmission Lines**

- Increasing the minimum line design ground clearance from 25 feet to 30 feet may add up to about 5 percent to the installed cost of a new double-circuit single pole 138/69 kV line. For a given project, such cost may be substantially less, however. In fact, PPL EU frequently uses higher-than-minimum ground clearances due to such features as road crossings, line crossings and site-specific terrain. With long-span reverse-phase design, the magnetic field is reduced from 9 mG to 7 mG (about 22 percent) at the edge of a 100-foot-wide right of way as shown in Chart X.
  - In the actual design of transmission lines to include higher minimum ground clearances, there may be limited segments (such as highway crossings, severe slopes and transmission line crossing locations) where National Electrical Safety Code (NESC) minimum ground clearances may need to be used. The NESC minimum ground clearances are less than the increased ground clearance discussed previously.

**230 kV Transmission Lines**

- Increasing the minimum line design ground clearances from 27 feet to 32 feet may add up to about 5 percent to the cost of a single-circuit single-pole line (current standard). For a given project, such cost may be substantially less, however. In fact, PPL EU frequently uses higher-than-minimum ground clearances due to such features as road crossings, line crossings and site-specific terrain. By increasing the clearances, the magnetic field is reduced from 30 mG to 28 mG (about 7 percent) at the edge of a 150-foot-wide right of way.
- Increasing clearances from 27 feet to 32 feet could theoretically add up to about 2.8 percent to the cost of a double-circuit single-pole line (current standard) and reduce the magnetic field of a reverse-phase line from 16 mG to 15 mG (about 6 percent) at the edge of a 150-foot-wide right of way. Chart XI is a summary of this data.
- Studies are required for each new 230 kV line to determine optimum structure types, ground clearances, configurations and designs to reduce field levels. Such

studies could include analysis of reduction measures such as additional minimum ground clearances, increasing conductor tensions, using reduced phase spacing (a "Delta" configuration on a single-circuit line), installing the second circuit initially, and/or adding a second set of conductors that are reverse phased and operated in parallel with the first set (bundled/split phase).

### **500 kV Transmission Lines**

- Increasing ground clearances from 33 feet to 53 feet may add up to about 4.5 percent to the cost of a single-circuit "H-frame" line (current standard). For a given project, such cost may be substantially less, however. In fact, PPL EU frequently uses higher-than-minimum ground clearances due to such features as road crossings, line crossings and site-specific terrain. By increasing the clearances, the magnetic field is reduced from 42 mG to 35 mG (about 17 percent) at the edge of a 200-foot-wide right of way.
- Increasing ground clearances from 33 feet to 53 feet could theoretically add up to 2.8 percent to the cost of a double-circuit "H-frame" line (current standard) and reduces the magnetic field of a reverse-phase line from 21 mG to 16 mG (about 24 percent) at the edge of a 200-foot-wide right of way. Chart XII is a summary of this data.
- Studies are required for each new 500 kV line to determine optimum structure types, ground clearances, configurations and designs to reduce field levels. Such studies could include analysis of reduction measures such as additional minimum ground clearances, increasing conductor tensions, using reduced-phase spacing (a "Delta" configuration on a single circuit line), installing the second circuit initially, and/or adding a second set of conductors that are reverse phased and operated in parallel with the first set (bundled/split phase).

## **RECONDUCTORING OR ADDING ADDITIONAL CIRCUITS TO EXISTING TRANSMISSION LINES**

**When reconductoring or adding additional circuits to existing transmission lines, PPL EU will evaluate low-cost or no-cost options for magnetic field management on a case-by-case basis.**

When reconductoring existing transmission lines or adding additional circuits, low-cost alternatives may not exist; however, the following steps will be taken:

- For a single-circuit line, the use of a Delta arrangement or other modifications on the existing structure, with reduced-phase spacing, will be evaluated.
- For double-circuit lines, application of reverse phasing may reduce the magnetic field under the line and within the right of way and will be evaluated.
- For single- and double-circuit lines, evaluate using higher conductor tensions that can increase the minimum line design ground clearance.

## **DISTRIBUTION LINES**

**At the 12 kV distribution level, new main three-phase lines will continue to be constructed with five feet of additional ground clearance.**

- Main lines are the most heavily loaded sections of a distribution line and therefore have the highest magnetic fields associated with them.
- Increasing the ground clearance by five feet reduces the magnetic field under the line from 14 mG to 11 mG using the standard eight-foot crossarm design. These values are based on increasing pole heights from 45 feet to 50 feet and a typical operating current of 300 amps per phase.
- Chart XIII is a summary of this data. Increasing ground clearance by five feet could theoretically add about 5 percent to the cost of a typical distribution line.

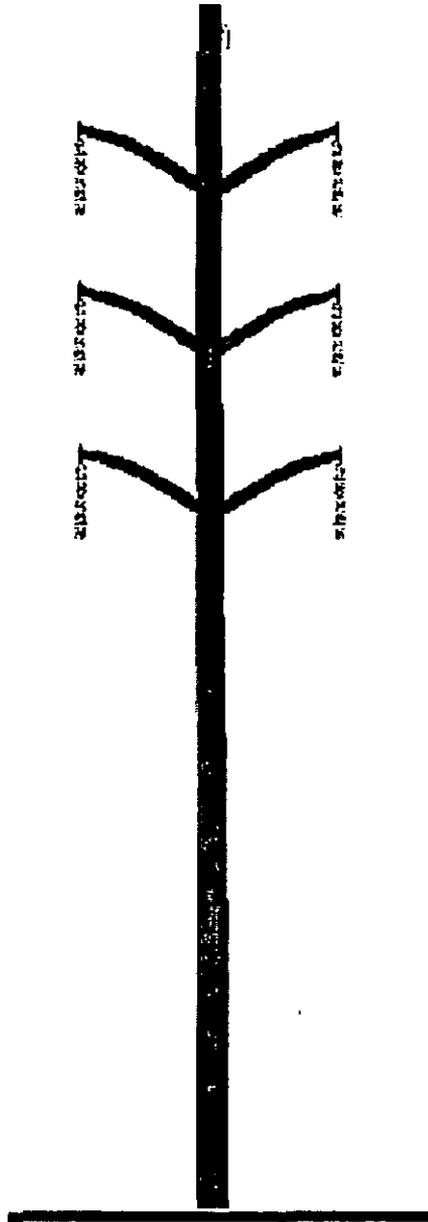
## **UNDERGROUND TRANSMISSION LINES**

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**Underground transmission lines are required due to environmental or land use factors or restrictions on available clearances, PPL EU will evaluate options for magnetic field management techniques on a case-by-case basis.**

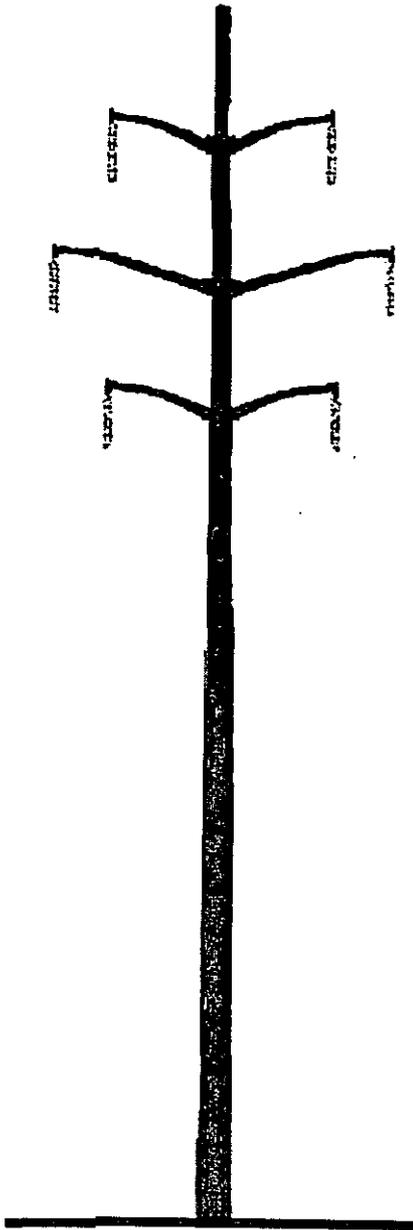
- The phase arrangement that produces the lowest field will be determined.
- The depth of burial of the line will be determined considering the cost of excavation and the location of other buried utilities in the area.
- The use of steel pipe ferromagnetic shielding that reduces magnetic fields will be evaluated.

# Short-Span Construction



- More compact design
- Should not be used solely to reduce magnetic fields
- Typical conductor data:
  - 1 3/8" HS steel overhead ground wire - 7.3 feet sag
  - 6-556.5 KCMIL 24/7 ACSR power conductors - (PARAKEET) 10.0 feet sag
  - Average span - 400 feet

# Long-Span Construction Remains PPL EU 138 kV Standard



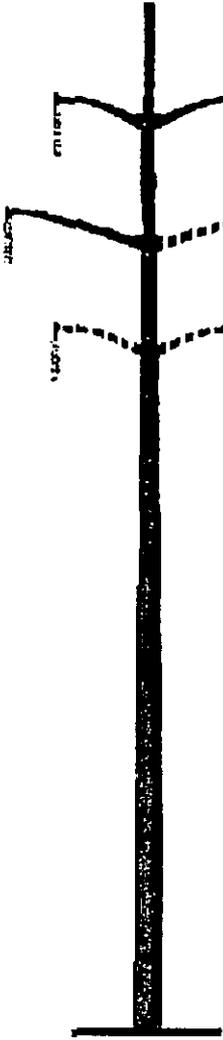
- Lower cost alternative
- Reduces magnetic fields due to higher structures
- Typical conductor data:
  - 1 3/8" HS steel overhead ground wire - 17.3 feet sag
  - 6-556.5 KCMIL 24/7 ACSR power conductors - (PARAKEET) 23.0 feet sag
  - Average span - 600 feet

**138/69 kV REVERSE-PHASE TRANSMISSION LINES  
CALCULATED MAGNETIC FIELDS AT 400 AMPERES**

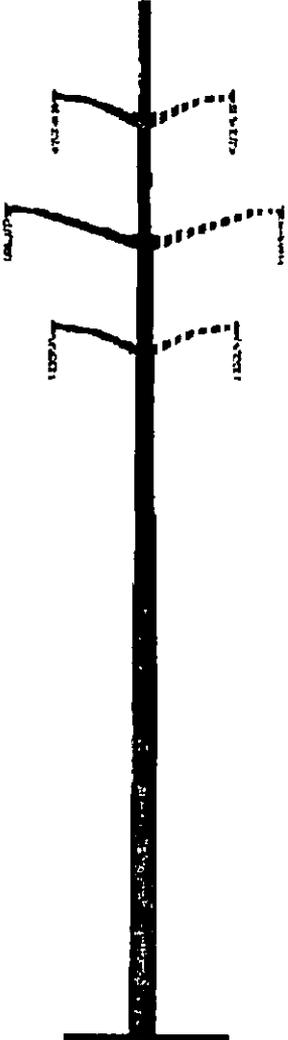
TYPE CONSTRUCTION	MAGNETIC FIELD IN MILLIGAUSS AT THE EDGE OF THE RIGHT OF WAY
SHORT SPAN (CHART I)	30
SHORT SPAN (REVERSE PHASE)	8
LONG SPAN (CHART II)	29
LONG SPAN (REVERSE PHASE)	9
COMPACT (CHART VI)	14
COMPACT (REVERSE PHASE)	3

The edge of right of way is 50 feet from the line centerline.  
 The 400 ampere phase current is balanced between phases.  
 Calculations are based on a *minimum* ground clearance of 25 feet.  
 LONG SPAN, SHORT SPAN and COMPACT are double-circuit lines.

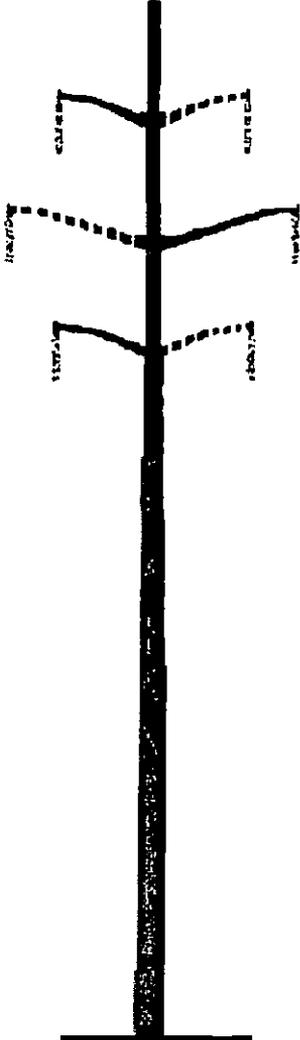
# Typical Single-Circuit Structure Designs



Top/Middle



Vertical



Top/Middle/Bottom

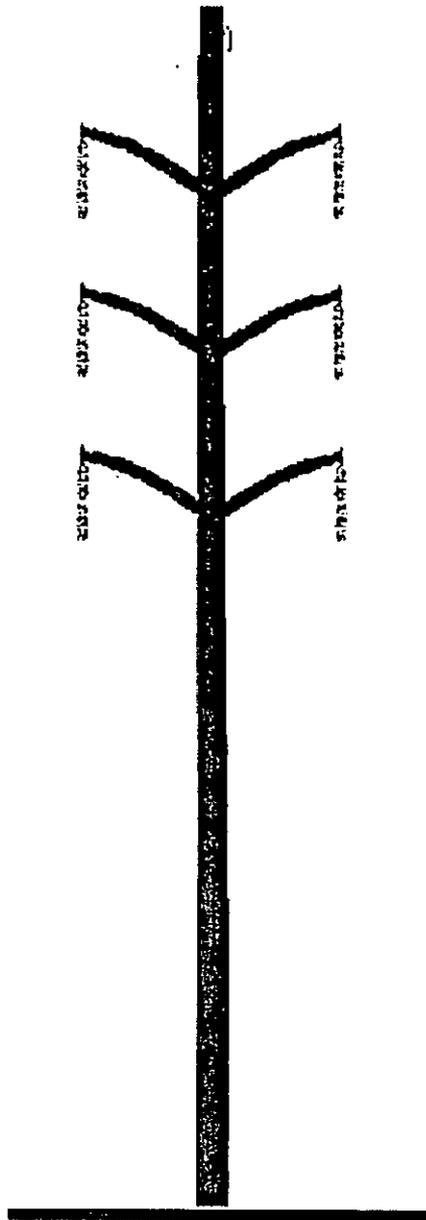
—— initial single circuit  
- - - - future second circuit

**138/69 kV SINGLE CIRCUIT TRANSMISSION LINES  
CALCULATED MAGNETIC FIELDS AT 400 AMPERES**

TYPE CONSTRUCTION	MAGNETIC FIELD IN MILLIGAUSS AT THE EDGE OF THE RIGHT OF WAY
TOP/MIDDLE/BOTTOM	20
VERTICAL	17
TOP/MIDDLE	12

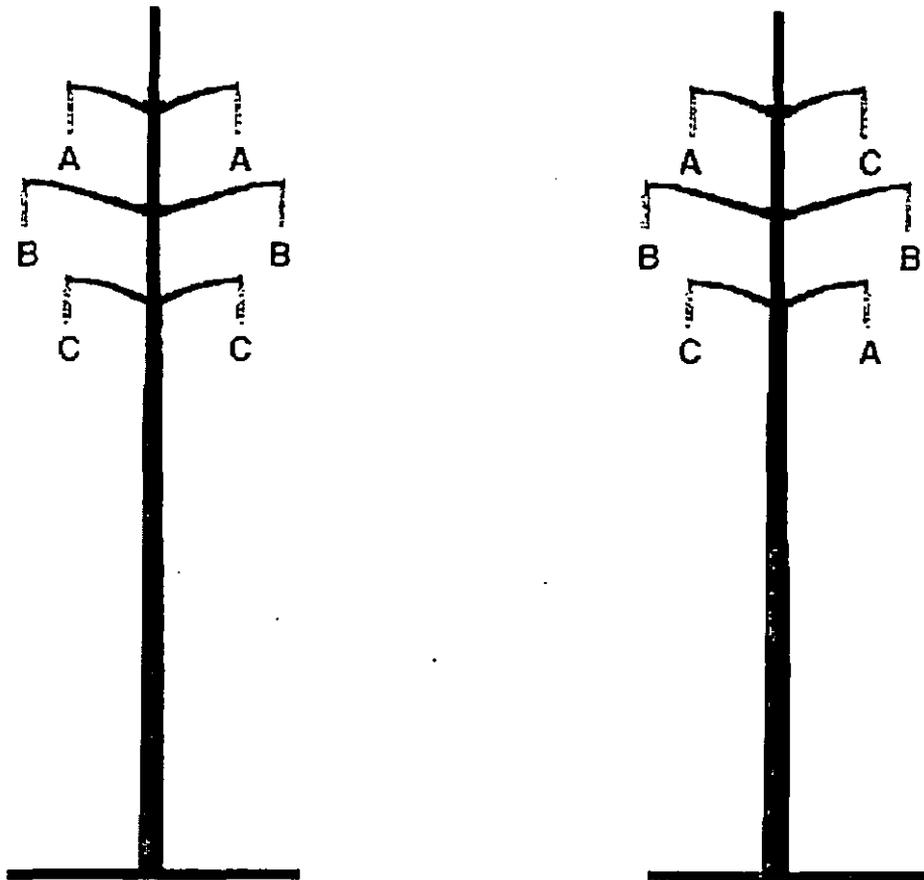
The edge of right of way is 50 feet from the line centerline.  
The 400 ampere phase current is balanced between phases.  
Calculations are based on a minimum ground clearance of 25 feet.

# Compact Design Structure



- Minimize magnetic fields due to compact design
- Not a low-cost alternative
- Typical conductor data:
  - 1 3/8" HS steel overhead ground wire - 9.0 feet sag
  - 6-556.5 KCMIL 24/7 ACSR power conductors - (PARAKEET) 9.0 feet sag
  - Average span - 300 feet

# Reverse Phasing of Double-Circuit Transmission Lines



From: → → → → To:

Reverse phasing also can be one of the following phase arrangements:

A	B		B	A		B	C		C	A		C	B
C	C	or	C	C	or	A	A	or	B	B	or	A	A
B	A		A	B		C	B		A	C		B	C

**230 kV REVERSE-PHASE TRANSMISSION LINES  
CALCULATED MAGNETIC FIELDS AT 800 AMPERES**

TYPE CONSTRUCTION	MAGNETIC FIELD IN MILLIGAUSS AT THE EDGE OF THE RIGHT OF WAY
DOUBLE CIRCUIT POLE	49
DOUBLE CIRCUIT POLE (REVERSE-PHASE)	16

The edge of right of way is 75 feet from the line centerline.  
The 800 ampere phase current is balanced between phases.  
Calculations are based on a minimum ground clearance of 27 feet.

**500 kV REVERSE-PHASE TRANSMISSION LINES  
CALCULATED MAGNETIC FIELDS AT 1100 AMPERES**

TYPE CONSTRUCTION	MAGNETIC FIELD IN MILLIGAUSS AT THE EDGE OF THE RIGHT OF WAY
DOUBLE CIRCUIT POLE	37
DOUBLE CIRCUIT POLE (REVERSE PHASE)	21

The edge of right of way is 100 feet from the line centerline.  
The 1,100 ampere phase current is balanced between phases.  
Calculations are based on a minimum ground clearance of 33 feet.

**INCREASED 138/69 kV MINIMUM GROUND CLEARANCE  
CALCULATED MAGNETIC FIELDS AT 400 AMPERES**

TYPE CONSTRUCTION	MINIMUM GROUND CLEARANCE FEET	MAGNETIC FIELD IN MILLIGAUSS AT THE EDGE OF THE RIGHT OF WAY
SINGLE CIRCUIT TOP/MIDDLE	25	12
SINGLE CIRCUIT TOP/MIDDLE	30	10
LONG SPAN	25	29
LONG SPAN	30	26
LONG SPAN (REVERSE PHASE)	25	9
LONG SPAN (REVERSE PHASE)	30	7

The edge of right of way is 50 feet from the line centerline.  
The 400 ampere phase current is balanced between phases.

**INCREASED 230 KV MINIMUM GROUND CLEARANCE  
CALCULATED MAGNETIC FIELDS AT 800 AMPERES**

TYPE CONSTRUCTION	MINIMUM GROUND CLEARANCE FEET	MAGNETIC FIELD IN MILLIGAUSS AT THE EDGE OF THE RIGHT OF WAY
SINGLE CIRCUIT TOP/MIDDLE	27	30
SINGLE CIRCUIT TOP/MIDDLE	32	28
DOUBLE CIRCUIT POLE	27	49
DOUBLE CIRCUIT POLE	32	46
DOUBLE CIRCUIT POLE (REVERSE PHASE)	27	16
DOUBLE CIRCUIT POLE (REVERSE PHASE)	32	15

The edge of right of way is 75 feet from the line centerline.  
The 800 ampere phase current is balanced between phases.

**INCREASED 500 kV MINIMUM GROUND CLEARANCE  
CALCULATED MAGNETIC FIELDS AT 1,100 AMPERES**

TYPE CONSTRUCTION	MINIMUM GROUND CLEARANCE FEET	MAGNETIC FIELD IN MILLIGAUSS AT THE EDGE OF THE RIGHT OF WAY
SINGLE CIRCUIT "H" STRUCTURE	33	42
SINGLE CIRCUIT "H" STRUCTURE	53	35
DOUBLE CIRCUIT POLE	33	37
DOUBLE CIRCUIT POLE	53	31
DOUBLE CIRCUIT POLE (REVERSE PHASE)	33	21
DOUBLE CIRCUIT POLE (REVERSE PHASE)	53	16

The edge of right of way is 100 feet from the line centerline.  
The 1,100 ampere phase current is balanced between phases.

**12 kV DISTRIBUTION LINES  
CALCULATED MAGNETIC FIELDS AT 300 AMPERES**

TYPE CONSTRUCTION	POLE HEIGHT FEET	MAGNETIC FIELD IN MILLIGAUSS*	
		AT CENTERLINE	AT 30 FEET FROM CENTERLINE
STANDARD CROSSARM	45	14	7
STANDARD CROSSARM	50	11	6

\* Field level under the line at mid-span based on 300 amps, balanced loading, one meter above ground level.

## APPENDIX C

### LIST OF INVOLVED GOVERNMENTAL AGENCIES, MUNICIPALITIES AND OTHER PUBLIC ENTITIES

---

1. Pennsylvania Historical and Museum Commission  
Bureau for Historic Preservation  
Division for Archaeology and Protection  
P.O. Box 1026  
Harrisburg, Pennsylvania 17108-1026  
Attn: Mr. Douglas C. McLearn, Chief
2. Pennsylvania Department of Transportation  
Commonwealth Keystone Building  
400 North Street, 8<sup>th</sup> Floor  
Harrisburg, Pennsylvania 17120  
Attn: The Honorable Allen D. Biehler, P.E., Secretary
3. Department of Environmental Protection  
P.O. Box 2063  
Market Street State Office Building  
Harrisburg, Pennsylvania 17105-2063  
Attn: Office of Field Operations
4. Schuylkill County Commissioners  
Schuylkill County Courthouse  
401 North Second Street  
Pottsville, PA 17901  
Attn: Mr. Frank Staudenmeier, Chairman
5. Schuylkill County Planning & Zoning  
Schuylkill County Courthouse  
401 North Second Street, Pottsville, PA 17901  
Attn: Mr. Charles M. Ross, Executive Director
6. Orwigsburg Borough  
Borough Hall  
209 North Warren Street  
Orwigsburg, PA 17961  
Attn: Mr. Charles J. Sterner, Council President
7. Orwigsburg Borough Planning and Zoning  
Lehigh Engineering  
P. O. Box 1200  
Pottsville, PA 17901•  
Attn: Mr. Thomas Yashinsky

COMMONWEALTH OF PENNSYLVANIA  
PENNSYLVANIA PUBLIC UTILITY COMMISSION  
P. O. BOX 3265, HARRISBURG PA 17105-3265

IN REPLY PLEASE  
REFER TO OUR FILE  
Secretary  
717-772-7777

**DOCKETED**  
JUN 21 2005

JUNE 21, 2005

A-110500 F0357

DOCUMENT  
FOLDER

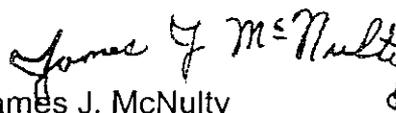
MORGAN, LEWIS & BOCKIUS LLP  
ANTHONY C. DECUSATIS  
1701 MARKET STREET  
PHILADELPHIA PA 19103-2921

Dear Mr. DeCusatis:

Receipt is acknowledged of the Letter of Notification of PPL Electric Utilities Corporation, which has been captioned and docketed to the above number.

This matter will receive the attention of the Commission and you will be advised of any further necessary procedure.

Sincerely,

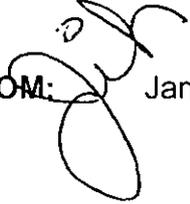
  
James J. McNulty  
Secretary

JJM:jih

DATE: June 21, 2005

SUBJECT: A-110500 F0357

TO: Bureau of Fixed Utility Services

FROM:  James J. McNulty, Secretary

**DOCUMENT  
FOLDER**  
**DOCKETED**  
JUN 21 2005

**Letter of Notification of PPL Electric Utilities Corporation**

---

We attach hereto a copy of the Letter of Notification of PPL Electric Utilities Corporation, which has been captioned and docketed to the above number.

May we have a report prepared by your Bureau for Public Meeting.

Attachment

cc: Law Bureau

jih

Morgan, Lewis & Bockius LLP  
1701 Market Street  
Philadelphia, PA 19103-2921  
Tel: 215.963.5000  
Fax: 215.963.5001  
www.morganlewis.com

Morgan Lewis  
COUNSELORS AT LAW

Anthony C DeCusatis  
Of Counsel  
215.963.5034  
adecusatis@morganlewis.com

ORIGINAL

August 18, 2005

DOCUMENT  
FOLDER

VIA OVERNIGHT MAIL

RECEIVED

James J. McNulty, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street  
Harrisburg, PA 17120

AUG 18 2005

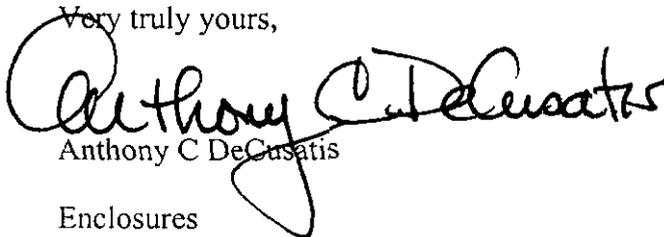
PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

Re: **Letter Of Notification Of PPL Electric Utilities Corporation Filed Pursuant To 52 Pa. Code Chapter 57 Subchapter G With Respect To The Orwigsburg #2 138/69 kV Tap – Add Second Circuit, Located In The Borough of Orwigsburg, Schuylkill County**  
**Docket No. A-110500 F0357**

Dear Secretary McNulty:

Enclosed for filing please find an original and three copies of the Proofs of Publication evidencing publication of the Public Notice for the above-referenced letter of Notification on July 21 and 28, 2005 in The Call/The Press & West Schuylkill Herald and the Republican & Herald, newspapers of general distribution in the project area.

Very truly yours,

  
Anthony C DeCusatis

Enclosures

c: Darren Gill

State of Pennsylvania,  
County of Schuylkill ) xx.

Personally appeared William K. Kneec  
the Managing Editor of The Call Newspaper  
September 15, 1891 and THE PRESS & W  
September 2000, weekly newspapers publi  
County, Pennsylvania; that said newspapers  
tinuously, weekly, in Schuylkill County, Penr  
That notice of

.....Public Notice - Transmission Line Co

.....  
.....

Thursday, July 21 & July 28-----

and a copy of such notice is attached heret  
subject matter of said notice and that all the  
place and character of publication are true.

Sworn and subscribed before me this 28th

day of ..... July ..... 200

NOTARIAL SEAL  
June H. Bensinger, Notary Public  
Schuylkill Haven Boro, Schuylkill Co. PA  
My Commission Expires May 10, 2009

I hereby certify that all costs and charges for publishing the foregoing notice  
have been paid in full.

DOCUMENT  
FOLDER



Managing Editor of The Call and The  
Press & West Schuylkill Herald

..... July 28 ..... 2005

**DOCKETED**  
AUG 22 2005

# PUBLIC NOTICE

## TRANSMISSION LINE CONSTRUCTION

PPL Electric Utilities Corp. (PPL) plans to add a second 138/69 kV circuit to serve Orwigsburg substation. The project involves installing one new pole and approximately 160 feet of wire. The project area is located in the Borough of Orwigsburg, Schuylkill County.

This project is required to meet the increasing demand for electricity and to improve reliability of electrical service in the area.

If you would like more information about this project, please contact PPL Regional Community Relations Director, Martha M. Herron, at (570) 459-7314.

On June 17, 2005, PPL filed an application with the Pennsylvania Public Utility Commission (PUC) which must approve the project before work can begin. A copy of this application is available for public inspection on weekdays during business hours at:

Orwigsburg Borough Hall  
209 North Warren Street  
Orwigsburg, PA 17961

If you wish to participate in the PUC application process, you should contact within 15 days:

James J. McNulty, Esquire  
Prothonotary  
Pennsylvania Public Utility Commission  
PO Box 3265  
Harrisburg, PA 17105-3265

As a reference aid, be sure to include the project's "docket number," which is A-110500 F0357.

# Haven ghouls parade Oct. 20

Schuylkill Haven's Halloween parade, sponsored by the Schuylkill Haven Jaycees, will be held this year on Thursday, October 20 at 7 p.m. All children marching in the parade will receive a prize for participating. Entries will be judged in various categories with cash awards for the winners.

For information, call parade chairperson Holly Zulick 385-4346.

Donations are needed to stage the parade and may be mailed to Schuylkill Haven Jaycees, attention Halloween Parade, PO Box 677, Schuylkill Haven, PA 17972.



cation from Scholarship Chairm: Charles J. Hafer, P.A., 178 N. Th St., Hamburg, PA 19526. Telepho 610-562-4142 or fax 610-562-404

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Friday 10 a.m. - 9 p.m.  
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## PUBLIC NOTICE

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Harrisburg, PA 17105-3265

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ing for deceased relatives, jury duty, etc – all of the vast variety of circumstances that daily confront employers of large numbers of people who are involved in a mind-boggling array of services to the general public.

Failure to set standards that apply to all employees, the commissioners feel, results in each department head setting his/her own rules that can be ignored or changed at will.

Which is exactly the situation Schuylkill County's new board of commissioners found when they took office over 18 months ago. The county had policies that were not set forth in writing, were not clearly defined and seemed to vary with the whims of supervisors. The policies, to quote County Administrator William Reppy, "were not evenly applied."

Thus, with the employment of a new county administrator early this year, the commissioners embarked on a project to define and enforce a standardized set of rules of conduct for county employees – supervisors and/or rank-and-file alike.

About two-thirds of the employees of the County of Schuylkill are members of the five different union locals and such matters are covered by individually negotiated union contracts. But the County of Schuylkill employs some 700 people, more than any other single private or government enterprise in the county, and approximately 150 of them are union-exempt, executive or management level personnel not covered by written contract.

Nor, in most cases, have they ever been provided with a written statement of their rights and responsibilities as non-union employees.

So Schuylkill County's new board of commissioners formed a Policies and Procedures Committee, headed by their new county administrator, which has so far produced 16 formal Personnel Policies & Procedures Statements covering as many different sets of circumstances. Of the 16, 15 have been formally approved by the Board of Commissioners and the 15th covering the subject of employee travel, is nearing completion.

The manuals, furthermore, run from one page each to the 27-page HIPAA (Health Insurance Portability & Accountability Act), document.

sick leave. Employees working less than four years are entitled to 10 working days of sick leave per year, 15 days per year for those who have served from 4-to-14 years, and 20 working days per year for 14-years or over. And there is no using of sick leave "in anticipation of earning it." No "negative balance in the sick bank," in other words.

Policy, 2005-03 – Solicitation and Distribution: "County employees are restricted from solicitation and/or distribution of materials (personal and political) during working hours and at all times while on county premises." Refusal to comply results in a call to the Sheriff's office.

Policy 2005-16 – Dress & Appearance: Requires "an appear-

ancement benefits, pension and Retirement; Vacations, Family & Medical Leave, Bereavement Leave, Jury Duty, Grievance Procedures, Confidentiality, Mean & Break Periods, Absenteeism and Tardiness, & Job Posting.

The process of defining the various policies and setting them down in writing is still a work in progress. The Board of Commissioners, in fact, is scheduled to act on Nos. 13-16 at this week's meeting.

**KEEP OUR  
COMMUNITY  
CLEAN**



## **PUBLIC NOTICE**

### **TRANSMISSION LINE CONSTRUCTION**

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Prothonotary  
Pennsylvania Public Utility Commission  
PO Box 3265  
Harrisburg, PA 17105-3265**

**As a reference aid; be sure to include the project's "docket number," which is A-110500 F0357.**

# REPUBLICAN & Herald

POTTSTVILLE REPUBLICAN, INC.  
 P.O. BOX 1165  
 POTTSTVILLE, PA 17901-7165  
 POTTSTVILLE: (570) 622-3456 • SHENANDOAH: (570) 462-2777  
 TOLL FREE: (800) 622-1737 www.schuylkill.com

9 ADVERTISER CLIENT

7 BILLED ACCOUNT NO.

2 BILLED ACCOUNT

6 TERMS OF PAYMENT  
 SEE OTHER SIDE

5 BILLING PERIOD

3 INVOICE NO. 4 BILLING DATE

10 DATE	11 REFERENCE NUMBER	12 CHARGES OR CREDITS DESCRIPTION/PRODUCT CODE	13	14	15 SAU/T DIMENSIONS	16 TIMES	17 BILLED UNITS	18 RATE	19 GROSS AMOUNT	20 NET AMOUNT
		REPUBLICAN & HERALD COMMONWEALTH OF PENNSYLVANIA								
		(UNDER ACT P.L. 877 NO. 160, JULY 9, 1978) COUNTY OF SCHUYLKILL KATHLEEN BRESLIN BEING DULY SWORN ACCORDING TO LAW DEPOSES AND SAYS THAT SHE IS ACCOUNTING CLERK FOR REPUBLICAN & HERALD, OWNER AND PUBLISHER OF REPUBLICAN & HERALD, A NEWSPAPER OF GENERAL CIRCULATION, ESTABLISHED IN 1884, PUBLISHED IN THE CITY OF POTTSTVILLE, COUNTY AND STATE AFORESAID, AND THAT THE PRINTED NOTICE OR PUBLICATION HERETO ATTACHED IS EXACTLY AS PRINTED IN THE REGULAR EDITIONS OF THE SAID NEWSPAPER ON THE FOLLOWING DATES: (IZ.: LIC NOTICE DRW7/81, 28 '05) AFFIANT FURTHER DEPOSES AND SAYS THAT NEITHER THE AFFIANT NOR REPUBLICAN & HERALD IS INTERESTED IN THE SUBJECT MATTER OF THE AFORESAID NOTICE OR ADVERTISEMENT AND THAT ALL ALLEGATIONS IN THE FOREGOING STATEMENT AS TIME, PLACE AND CHARACTER OF PUBLICATION ARE TRUE SWORN AND SUBSCRIBED TO BEFORE ME THIS 09 DAY OF AUG. A.D. 2005. <i>Nancy G. Berger</i> (NOTARY PUBLIC) COMMONWEALTH OF PENNSYLVANIA Notarial Seal Nancy G. Berger, Notary Public City of Pottsville, Schuylkill County My Commission Expires Nov. 16, 2008								

24 BILLING AGING

--	--	--	--

21 CURRENT GROSS AMOUNT

22 CURRENT NET AMOUNT

570.26

29 CONTRACT PERFORMANCE

EXPIRATION DATE	REQUIREMENT	CURRENT MONTH	CUMULATIVE

PLEASE PAY THIS AMOUNT

25 TOTAL NET AMOUNT DUE

AMOUNT OF PAYMENT

26 BILLED/ACCOUNT NO. 27 BILLED ACCOUNT NAME

4519 MANSIE P & L

DETACH AND RETURN THIS PORTION WITH YOUR PAYMENT

## REMITTANCE ADVICE

# REPUBLICAN & Herald

POTTSTVILLE REPUBLICAN, INC.  
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 TOLL FREE: (800) 622-1737 www.schuylkill.com

# TERMS OF PAYMENT

## MONTHLY

PAYABLE LAST DAY OF MONTH FOLLOWING BILLING DATE.  
A 1% PER MONTH FINANCE CHARGE WILL BE ADDED TO PAST  
DUE BALANCES. THIS IS AN ANNUAL PERCENTAGE RATE OF 12%.

**WEEKLY:** PAYABLE ON RECEIPT OF THIS INVOICE.

## LEGEND

The 29 elements of the Standard Advertising Invoice (SAI)

- |  |                                     |
|--|-------------------------------------|
| 1. Name and Address of Newspaper, and<br>Phone No. | 15. SAU/Dimensions                  |
| 2. Billed Account Name and Address                 | 16. Times Published                 |
| 3. Invoice/Document Number                         | 17. Billed Units                    |
| 4. Billing Date                                    | 18. Applicable Rate                 |
| 5. Billing Period                                  | 19. Gross Amount                    |
| 6. Terms of Payment                                | 20. Net Amount                      |
| 7. Billed Account Number                           | 21. Current Gross Amount            |
| *8. Advertiser/Client Number                       | 22. Current Net Amount Due          |
| 9. Advertiser/Client Name                          | *23. Cash Discount                  |
| 10. Date of Insertion                              | 24. Aging of Past Due Amounts       |
| 11. Newspaper's Reference Number                   | 25. Total Net Amount Due            |
| 12. Other Charges or Credits                       | 26. Billed Account Number           |
| 13. Description                                    | 27. Billed Account Name             |
| 14. Product/Service Code                           | 28. Name and Address for Remittance |
|  | 29. Contract Performance            |

*The elements shown above appear on the face of the invoice and are identified by number.*

\* NOT APPLICABLE

(570) 628-4695

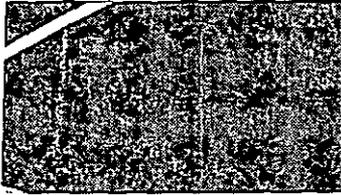


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## PUBLIC NOTICE

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Harrisburg, PA 17105-3265**

As a reference aid, be sure to include the project's "docket number," which is A-110500, F0357.

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pay nearly \$1.2 million to settle the charges, making it among the most aggressive government crackdowns on pornographic e-mail operations.

The Federal Trade Commission described the practice as "electronic flashing" and said at least some of the unwanted e-mails were sent to children. The threat of children unwittingly receiving smut in their inboxes helped drive the U.S. government to impose restrictions on sending commercial e-mails last year.

The FTC said the messages were not prominently marked "sexually explicit," did not include instructions for consumers to block future e-mails and did not include a postal address, all required under federal law.

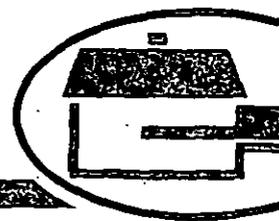
Consumers complained

The FTC said the companies did not send e-mails directly to consumers but operated affiliate programs, paying others to send unwanted messages to drive Internet traffic to adult Web sites. The FTC said under the "Can Spam" law, defendants in such cases are liable because they paid others to send e-mails on their behalf.

The government said investigators from Microsoft Corp. helped track the companies. Microsoft, which operates its MSN online subscription service and offers free "Hotmail" e-mail accounts, analyzed the pornographic sites advertised in the unwanted e-mails to identify the companies responsible, the FTC said.

The FTC said it directed the Justice Department to file civil lawsuits against three of the companies: T.J. Web Pro-

Fla., said the company was still negotiating with the Justice Department, Walters said. There were "legitimate con-



**Martin Carpen**

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## PUBLIC NOTICE

### TRANSMISSION LINE CONSTRUCTION

PPL Electric Utilities Corp. (PPL) plans to add a second 138/69kV circuit to serve Orwigsburg Substation. The project involves installing one new pole and approximately 160 feet of wire. The project area is located in the Borough of Orwigsburg, Schuylkill County.

This project is required to meet the increasing demand for electricity and to improve reliability of electrical service in the area.

If you would like more information about this project, please contact PPL Regional Community Relations Director, Martha M. Herron, at (570) 459-7314.

On June 17, 2005, PPL filed an application with the Pennsylvania Public Utility Commission (PUC), which must approve the project before work can begin. A copy of this application is available for public inspection on weekdays during business hours at:

**Orwigsburg Borough Hall  
209 North Warren Street  
Orwigsburg, PA 17961**

If you wish to participate in the PUC application process, you should contact within 15 days:

**James J. McNulty, Esquire  
Prothonotary  
Pennsylvania Public Utility Commission  
PO Box 3265  
Harrisburg, PA 17105-3265**

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