APPENDIX B

Data Sheets

Application Project Name: PPL Number: Name: Bell Bend NPP
State: PA County: Luzerne Legal Description: Township: Jalem
Date: 7/24/07 Plot No · DV A
Section: upland Sarde
Vegetation [list the three dominant species in each vegetation layer (5 if
only 1 or 2 layers)]. Indicate species with observed morphological or known
physiological adaptations with an asterisk.
Indicator Indicator Species Status Species Status
Trees Herbs
1. Prunus seration Facu 7. Podarhyllow peltate facu
2. Francisco American Facu 8.
3. Acer rubrum Fre 9.
Saplings/shrubs Woody vines
4. Linders benzoin Frew 10. Parthonocisco, quinget. Face
5. Commenter face 11 1
6. 12.
Z of species that are OBL, FACW, and/or FAC: 25 . Other indicators:
Hydrophytic vegetation: Yes No _X _ Basis:
MO N DARIE:
Soil
Series and phase: channely self loam On hydric soils list? Yes; No_X
Mottled: Yes ; No X . Mottle color:; Matrix color: 10 YR 4/3 .
Gleyed: Yes No X Other indicators: None
dydric soils: Yes No V . Parker
Hydric soils: Yes No X; Basis: no indicator:
lydrology
Inundated: Yes; No_X Depth of standing water:
Saturated soils: Yes; No_X Depth to saturated soil: >\&"
ther indicators:
Vetland hydrology: Yes ; No X . Basis: no indicators
typical situation: Yes; NoX
ormal Circumstances? Yes X No
etland Determination: Wetland ; Nonwetland 💢
Comments:
Depart to the last
Determined by: f. Mantymery

Name: PPL	Application Number:	Project Name: Ball Band NPP
State: PA County: Lvacrne	Legal Description:	Township: Salem
	DPAQ A	torested
		Section: writing I (and)
Vegetation [list the three domin	ant species in each	Vacatation laws /5 45
only 1 or 2 layers)]. Indicate	species with observe	ed morphological as her
physiological adaptations with a	n asterisk.	ed morbiological or known
Indicator		Indicator
Species Status	Species	
Trees	Herbs	· ·
1. Acer rubrum Fac	7. Sympla	earper footedis Obl Add
2. Carya ounta Free	8. Odmand	la cinnaminami Parem
3.	9.	
Saplings/shrubs	Woody vines	
4. Linders beneata Frew	10	
5.	11.	
6.	12.	
Z of species that are OBL, FACW,	and/or FAC: 80. 0	ther indicators:
Hydrophytic vegetation: Yes X	No . Basis: >	30% For
		The or greater of
Soil		
Series and phase: Atherton silt to	on hydric soils	s light? Yes V
Mottled: Yes X; No Mot	tle color: love 4/s	· Matrix colons (Aug. /
Gleyed: YesNo_X Other	indicators:	_, Hattix color: 107/20//
lydric soils: Yes No X;	Basis: 4/ /	
	me tred	10m chroma soil.
lydrology		
nundated: Yes; No_X Do	enth of standing	
aturated soils: Yes; No_X	Death to see	er:
ther indicators: FA No.	_ Depth to satura	ted soil:
etland hydrology: Yes V : No	av restina	1 sail survey data
etland hydrology: Yes X; No typical situation: Yes X; No		
ormal Circumstances? Yes X No		licators
etland Determination: Wetland		
omments:	. N	onwetland
dry conditions		
***	D	
	Determined by:	J. Montgomery
	•	K. Mausic.

DATA FORM 1 WETLAND DETERMINATION

Applicant PPL	Application Number:	Project Bell Band NPP
State:County	y: <u>) v ZCrh</u> Legal Description:	Township:
Date: 34042007	Plot No.: /	Section:
	DPAA	NEW AA30
Vegetation [list the t	three dominant species in each	vegetation layer (5 if
	Indicate species with observe	
physiological adaptati		
	Indicator	Indicator
Species	Status Species	Status
1. Red Oak	FACU Herbs 7. Prince	sspine dubmoss fac Kseedlings facu Igeberry facu
2. Virginia PINC	upl 8. Red Op	Kseedlings FACU
3. Red maple	FAC 9. Partric	laeberry. FACCE
Saplings/shrubs	Woody wines	3 /
4. Spicebush	FACW 10	
5. Redook	FACU 11.	
6.	12.	
of species that are	OBL, FACW, and/or FAC: 25. 0	ther indicators: .
	: Yes No X _ Basis:	
3011 Cf	reducinge	,
Series and phase: 95	welly loam on hydric soil	s list? Yes. No
fottled: Yes; No	V. Mottle color:	; Matrix color: OYR 5/4.
Gleyed: YesNo_	Other indicators:	-
lydric soils: Yes	No ; Basis: color	•
	-	
lydrology	/	
nundated; Yes;	No Depth of standing wa	ter:
saturated soils: Yes_	; No Depth to satur	rated soil:
ther indicators:		
etland hydrology: Ye	s; No_ , Basis: upla	nd side of break
typical situation: Y	es; No/. IN	Slope
ormal Circumstances?	Yes_'V No	'
etland Determination:	Wetland ;	Nonwetland V
comments:		-

Determined by: E. Garlo JB: chaeffer

有限的基本

•	
Applicant PPL Application Number: Project Bell Bend NPP	<u>'</u>
State: County: Lu 7 2 The egal Description: Township:	, -
Date: 240ct 2007 Plot No fine Section:	
Vegetation [list the three dominant species in each vegetation layer (5 if	
only 1 or 2 layers)]. Indicate species with observed morphological or known	
physiological adaptations with an asterisk.	
Indicator	
Species Status Species Status	
Trees Herbs	
1. Pin Oak FACW 7. ATTOWWOOD FAC 2. Red Maple FAC 8. Spice bush FACW-	
2. Red Maple FAC B. Spice Sush FACW-	
Saplings/shrubs Woody vines	
4. Spicebush FACW 10.	
5. High bush Blueberry 11.	
6.	
Z of species that are OBL, FACW, and/or FAC: 6/7 Other indicators:	
Hydrophytic vegetation: Yes No . Basis:	
Soil	
Series and phase: Rextaglace Mon hydric soils list? Yes X; No.	
Morried Ven V . No	
Mottled: Yes /; No Mottle color: 10 / 5/6; Matrix color: 10 / 8 5/6	
Gleyed: Yes No V Other indicators: Oxidized vizospheres.	
Hydric soils: Yes V No ; Basis: Ontomaddind mattles	į.
Hydrology /	
Inundated: Yes; No Depth of standing water: > 10	
Saturated soils: Yes ; No Depth to saturated soil: > 4	
Other indicators: OXIdized root channels; FAC Neutral tes	+
Wetland hydrology: Yes 1; No . Basis: 2 2 INCI cators.	
Atypical situation: Yes; No V.	
Normal Circumstances Van Name 1 1884 of a confidence of the same the	
Normal Circumstances? Yes No V. very chy conditions until accently	
Wetland Determination: Wetland YRS; Nonwetland.	
Comments:	
Determined by: E. Garle JB Scheffer	
heter 203/4 wet down 2' bruch is slope spice best dince, and wood, and	
hote = 5/4 Wet "our pin oah	
hefe 205/4 Wet and ned oak outling Woch (och) ploty but, prencess pend, coch auchling	
+ relevant - K maurice 4/30/08	

Applicant PPL	Application Number:	Pr	oject me: Bell Bend	NPP
State: <u>fA</u> County: <u>L</u>	Uzerne Legal Descr	iption: Townshi	Deliberal	1011
Date: 7/20/07 PI	ot No.: DPB		upland woods N s	
		0 00001011.	Optioned woods IV s	ide.
Vegetation [list the thre	c dominant species	in each vegetation	on layer (5 if	
only 1 or 2 layers)]. In	dicate species with	observed morpho	logical or known	
physiological adaptations	with an asterisk.	•		
	icator atus		Indicator	
Trees		Species	Status	
1. Prunus serotina	Herbs	h f		
		Dennitar Him pu		
2 1		Prunus seroti	h_ IRCU	
Saplings/shrubs				
4. Lindera benzoin	Woody 1	-		
5. Commerce beneam	25,	Smilax rotum.	ditalia tra	
6.	11.			
	12.	() ·····		
Z of species that are OBL,	FACW, and/or FAC:	72. Other indi	cators:	
Hydrophytic vegetation: Y	es No _X . B	asis: < 507, fac	or greater species.	
Soil				
Series and phase: Rextord	10am On hydr	ic soils list?	res X ; No	
Mottled: Yes ; No X	Mottle color:	, Matrix	color: 10 YR 5/6.	
Gleyed: Yes No X	Other indicators:	none	•	
Hydric soils: YesN	o_X_; Basis:	no indicator	<u>.</u> .	
Uvdmala				
Hydrology				
Inundated: Yes; No	Depth of stand	ding water:	•	
Saturated soils: Yes	No / Depth to	saturated soil:	> 15"	
Other indicators:			•	
Wetland hydrology: Yes	_; No Basis:	no indien	torr.	
Atypical situation: Yes				
Normal Circumstances? Yes_				
Vetland Determination: Wet	land	; Nonwetland	X	
Comments:	•		_	
		. ,		

Applicant PPL	Application Number:	Project Name: Bell Bend NPC	Э
State: PA County: Luze	me Legal Description:	Townshin:	
Date: 7/25/07 Plot 1	10.: DPB2 B	Section: wether Norde (2)	
		Detial Noide (2)	
Vegetation [list the three do	ominant species in each	Vegetation laver (5 if	
only 1 or 2 layers)]. Indica	te species with observe	ed morphological or know	
physiological adaptations wit	h an asterisk.	The state of the s	
Indicat		Indicator	
Species Status	Species		
Trees	Herbs		
		arms Fredidus OLI	
	ac 8. Impat	iens expensis Facu	
3.	9. lile	primila Face	
Saplings/shrubs	Woody vines		
4. Linder benzoin F. 5. Viburnon destator F.	10		
6.	11.		
	12.		
% of species that are OBL, FAC	W, and/or FAC: 16. 01	ther indicators:	
Hydrophytic vegetation: Yes	No Basis: >	50% fac or greater or.	
Cod1		1	
Soil Sandara (Al)			
Series and phase: Atherton sil	f loam On hydric soils	list? Yes X No	
notited: ies A · No	Macet 1 1 1 and and		
Gleyed: Yes No X Ot	her indicators: tree	Lummochs .	
Hydric soils: Yes_X No	_; Basis: _ mo Hled la	ow chroma soil.	
Urrdma I'a aan			
Hydrology Tourdenda V			
Inundated: Yes; No_X	Depth of standing wat	er:	
Saturated soils: Yes; No	X Depth to satura	ted soil:	
Other indicators: FACNE	-1721 testila	al soil survex data	٠,
Wetland hydrology: Yes X;	√o Basis: 🚉 🥱	e indisators.	
Atypical situation: Yes; Normal Circumstant & Y			
Normal Circumstances? Yes X			
Wetland Determination: Wetland	I X : N	onwetland	
Comments: day conditions			
	Determined by:	/ Mont	

DATA FORM 1 WETLAND DETERMINATION

Applicant PPL	Application Number:	Project Name: Bell Bend NPP
State: PA County: Luzerne	Legal Description:	Township: Salem
	~~~	section: wathand Naida
		1410
Vegetation [list the three domin	ant species in each v	egetation layer (5 if
only 1 or 2 layers)]. Indicate		morphological or known
physiological adaptations with a	n asterisk.	
Indicator Species Status	Species	Indicator Status
Trees	Herbs	
1. Nyson sylvatice Fac	7. Symploc	cons Fratilus Oll
2. Acor rubrum Fac	8. R.L., L	ispidus Frem
3.	9.	
Saplings/shrubs	Woody vines	
4. Linderm benzoin Fram	10.	
5.	11.	
6.	12.	
% of species that are OBL, FACW,	and/or FAC: 100. Oth	ner indicators:
Hydrophytic vegetation: Yes X	No Basis: 100	To Fac or greater up.
		•
<u>Sof1</u>		
Series and phase Atlant. (11		
PHAGE TIME TON. STIT.	loam On hydric soils	list? Yes X No
Series and phase: Atherton S:11.  Mottled: Yes X; No Mot	tle color: 10 YRY/6 ;	Matrix color: 16 VRY/1.
Mottled: Yes $\frac{\times}{}$ ; No Mot Gleyed: Yes No $\frac{\times}{}$ Other	tle color: 10 YRY/6; indicators: +rec	Matrix color: 16 V R Y/1.
Mottled: Yes $\frac{\times}{}$ ; No Mot Gleyed: Yes No $\frac{\times}{}$ Other	tle color: 10 YRY/6; indicators: +rec	Matrix color: 16 V R Y/1.
Mottled:         Yes X         ; No         Mot           Gleyed:         Yes         No         X         Other           Hydric soils:         Yes X         No         ;	tle color: 10 YRY/6; indicators: +rec	Matrix color: 16 V R Y/1.
Mottled: Yes X; No Mot Gleyed: Yes No X Other Hydric soils: Yes X No; Hydrology	indicators: tree  Basis: mo Hed (c	Matrix color: 16 y R 4/1.
Mottled: Yes X       ; No       . Mot         Gleyed: Yes       No       X       Other         Hydric soils: Yes       X       No       ;         Hydrology       Inundated: Yes       ; No       X       D	tle color: 10 y f y / 6; indicators: †rec Basis: mo #led (c	Matrix color: 16 y R Y/1.
Mottled: Yes	tle color: 10 / f / / / / ;  indicators: + / e e  Basis: mo # led (o  epth of standing wate  Depth to saturat	Matrix color: 16 V R Y/I.
Mottled: Yes X; No Mot Gleyed: Yes No X Other Hydric soils: Yes X No;  Hydrology Inundated: Yes; No X D Saturated soils: Yes; No X Other indicators:	tle color: 10 YFY/6; indicators: +rec Basis: mo #led (colored) epth of standing wate	Matrix color: 16 V R Y/I.
Mottled: Yes X; No Mottled: Yes X; No Mottled: Yes No X Other Hydric soils: Yes X No ;  Hydrology Inundated: Yes ; No X D. D. Saturated soils: Yes ; No X Other indicators: Xes X; No X N	epth of standing wate  Depth to saturat  Basis: 2 2	Matrix color: 16 yry/1.  besics  we have soil.  ed soil: ?  Al Scil Survey data.
Mottled: Yes X; No Mot Gleyed: Yes No X Other Hydric soils: Yes X No;  Hydrology Inundated: Yes; No X D Saturated soils: Yes; No X Other indicators: Xes; No X Wetland hydrology: YesX; No A Atypical situation: Yes; No	epth of standing wate  Depth to saturat  Basis:	Matrix color: 16 yry/1.  besics  we have soil.  ed soil: ?  Al Scil Survey data.
Mottled: Yes X; No Mot Gleyed: Yes No X Other Hydric soils: Yes X No ;  Hydrology Inundated: Yes ; No X D Saturated soils: Yes ; No X Other indicators: Xes ; No X Wetland hydrology: Yes X; No X Normal Circumstances? Yes X No	epth of standing wate  Depth to saturat  Basis:	Matrix color: 16 yry/1.  besics  we have soil.  ed soil: ?  Al Scil Survey data.
Mottled: Yes X; No Mot Gleyed: Yes No X Other Hydric soils: Yes X No ;  Hydrology Inundated: Yes ; No X D Saturated soils: Yes ; No X Other indicators: Xes ; No X Wetland hydrology: Yes X; No X Normal Circumstances? Yes X No X Wetland Determination: Wetland	epth of standing wate  Depth to saturat  Basis:	Matrix color: 16 yry/1.  besics  we have soil.  ed soil: ?  Al Scil Survey data.
Mottled: Yes X; No Mot Gleyed: Yes No X Other Hydric soils: Yes X No ;  Hydrology Inundated: Yes ; No X D Saturated soils: Yes ; No X Other indicators: Xes ; No X Wetland hydrology: Yes X; No X Normal Circumstances? Yes X No	epth of standing wate  Depth to saturat  Basis:	Matrix color: 16 yry/1.  house  indicators  indicators

Determined by: J. Mulamen

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 2 October 2008			
Applicant/Owner: PPL				County: Luzerne		
Investigator: Keith Maurice/Chris Roche				State: Pennsylvania		
Do Normal Circumstances exist on t	he site?		YES NO	Community ID: Upland de	eciduous for	est
Is the site significantly disturbed (Aty			YES NO	Transect ID: 1		
Is the area a potential Problem Area	? (if needed, explain on r	reverse)	YES NO	Plot ID: DP BBB1		
VEGETATION	· ,	· ,				
Dominant Plant Species	Stratum	Indicator		ninant Plant Species	Stratum	Indicator
1 Liriodendron tulipfera	Tree	FACU		x rotundifolia	Vine	FAC
2 Quercus rubra	Tree	FACU-		podium clavatum	Herb	FAC
3 Betula allegheniensis	Tree	FAC		pteris noveboracensis	Herb	FAC
4 Acer rubrum	Tree	FAC	12			
5 Acer rubrum	Sapling	FAC	13			
6 Lindera benzoin	Shrub	FACW-	14			
7 Betula allegheniensis	Sapling	FAC	15			
8 Quercus rubra	Sapling	FACU-	16			
Percent of Dominant Species that ar	re OBL, FACW, or FA	C (excluding FA	·С-)	73		
HYDROLOGY			1			
Recorded Data (Describe in Remarks) Stream, Lake, or Tide Gauge Aerial Photographs Other  No recorded Data Available				ETLAND HYDROLOGY Indicators: Inundated Saturated in Upper 12 in Water Marks Drift Lines		)RS
FIELD OBS	EERVATIONS			Sediment Deposits  Drainage Patterns in We	etlands	
Depth of Surface Water	None present	(in)	]	The disease (2) or more D	٠٠٠٠٠- ما/،	
Depth to Free Water in Pit None present (in)				ary Indicators (2 or more Ro Oxidized Root Channel Water-Stained Leaves		2 inches

(in)

Local Soil Survey Data ☐ FAC-Neutral Test

Other (Explain in Remarks)

>24

Depth to Saturated Soil

#### SOILS

Map Unit Name (Series and Phase): Braceville gravelly loam Drainage Class: Moderately Well Drained						
Taxonomy (Subgroup)				ons Confirm Mapped Type?		NO
Depth	Horizo	on M	ROFILE DESCR	Mottle Colors	Texture, Concre	
(inches)		,	unsell Moist)	(Munsell Moist)	Structure, e	ect
0-3	A		10 YR 3/1	-	MFR	
3-12	A		10 YR 4/2		MFR	
12-20	В		10 YR 5/4	7.5 YR 5/8	MFR	
20-24	В	11	10 YR 5/3	5 YR 5/8	WSS	
	<b>├</b> ──	$\longrightarrow$				
	<b></b>					
	<b></b>					
	<u> </u>		=:=:=:			
		HYL	ORIC SOIL INDIC	CATORS:		
Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma Colors  Remarks:				High Organic Content in Surface Lay Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)	er in Sandy Soils	
WETLAND DETE						
Hydrophytic Vegetation		YES NO	0	- · · · · · · · · · · · · · · · · · · ·	VE0	
Wetland Hydrology Pre Hydric Soils Present?	esent?	YES NO YES NO	Is this Sampling	Point Within a Wetland?	YES I	NO
	land boundary	/ flag BBB-4.				

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 2 October 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice/Chris Roche			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Forested Wetland
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DP BBB2

#### **VEGETATION**

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Acer rubrum	Tree	FAC	9	Smilax rotundifolia	Vine	FAC
2	Nyssa sylvatica	Tree	FAC	10	Fagus grandifolia	Tree	FACU
3	Quercus bicolor	Tree	FACW+	11	Fagus grandifolia	Sapling	FACU
4	Fraxinus pennsylvanica	Tree	FACW	12	Impatiens capensis	Herb	FACW
5	Quercus palustris	Tree	FACW	13	Osmunda cinnamomea	Herb	FACW
6	llex verticillata	Shrub	FACW+	14	Polygonum arifolium	Herb	OBL
7	Lindera benzoin	Shrub	FACW-	15			
8	Viburnum dentatum	Shrub	FAC	16			
Perce	nt of Dominant Species that are OBL, FA	ACW, or FA	C (excluding FA	(C-)	86		
Rema	arks						

#### **HYDROLOGY**

☐ Recorded Data (Describe ☐ Stream, Lake ☐ Aerial Photoe ☐ Other   ▼ No recorded Data Availal	e, or Tide Gauge graphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators:  Inundated Saturated in Upper 12 inches Water Marks	
FIELD OBSERVATIONS			<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>
Depth of Surface Water	<u>&lt;</u> 2	(in)	
Depth to Free Water in Pit	o Free Water in Pit 0 (in		Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches  Water-Stained Leaves
Depth to Saturated Soil	0	(in)	<ul><li>Local Soil Survey Data</li><li>FAC-Neutral Test</li><li>Other (Explain in Remarks)</li></ul>

### SOILS

	oam		Drainage Class: Somewhat P	odily to 1 dolly	Brainea
: Aeric Fragiaquepts		Field Observa	tions Confirm Mapped Type?	YES	NO
Horizon	Ма	atrix Color	Mottle Colors	Texture, Co	
,	(Mur	nsell Moist)	(Munsell Moist)	Structu	re, ect
Α	10	) YR 2/1	10 YR 5/1	W	S
В	10	YR 4/1	10 YR 6/1	MI	FI
В	10	) YR 6/1	7.5 YR 5/8	MI	FI
				İ	
				1	
	HYDI	RIC SOIL IND	ICATORS:		
don or ure Regime onditions ow-Chroma Colors			Organic Streaking in Sandy Soils Listed on Local Hydric Soils List		Soils
ERMINATION  Present? PSesent? YES YES YES	NO NO NO		ng Point Within a Wetland? s. 50 feet W of wetland bounda	YES	NO
	A B B don ur ure Regime onditions	Horizon Ma (Mur A 10 B 10 B 10 HYDI don ur ure Regime onditions	Horizon  Matrix Color (Munsell Moist)  A 10 YR 2/1  B 10 YR 4/1  B 10 YR 6/1  HYDRIC SOIL IND  don  ur  ure Regime onditions	Munsell Moist) (Munsell Moist)   A	Horizon  Matrix Color (Munsell Moist)  A 10 YR 2/1 10 YR 5/1 W  B 10 YR 4/1 10 YR 6/1 MI  B 10 YR 6/1 7.5 YR 5/8 MI  HYDRIC SOIL INDICATORS:  Concretions High Organic Content in Surface Layer in Sandy Source Regime Organic Streaking in Sandy Soils Listed on National Hydric Soils List Listed on National Hydric Soils List

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP		Date: 2 October 2008				
Applicant/Owner: PPL				County: Luzerne		
Investigator: Keith Maurice/Chris Roo				State: Pennsylvania		
Do Normal Circumstances exist on the	ne site?		YES NO	Community ID: Upland	d Deciduous Fo	rest
Is the site significantly disturbed (Aty	pical Situation)?		YES NO	Transect ID: 2		
Is the area a potential Problem Area?		reverse)	YES NO	Plot ID: DP BBB3		
VEGETATION						
Dominant Plant Species	Stratum	Indicator	Don	ninant Plant Species	Stratum	Indicator
1 Fagus grandifolia	Tree	FACU	9			
2 Fagus grandifolia	Sapling	FACU	10			
3 Acer rubrum	Tree	FAC	11			
4 Smilax rotundifolia	Vine	FAC	12			
5 Lindera benzoin	Shrub	FACW-	13			
6 Alliaria petiolata	Herb	FACU-	14			
7 Parthenocissus quinque	efolia Vine	FACU	15			
8			16			
HYDROLOGY						
11121(32331						
Recorded Data (Describe Stream, Lake Aerial Photog Other	, or Tide Gauge graphs		WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks			
FIELD OBSERVATIONS				Drift Lines Sediment Deposits Drainage Patterns in	Wetlands	
Depth of Surface Water	none present	(in)				
Depth to Free Water in Pit	none present	(in)	_	ary Indicators (2 or more  Oxidized Root Chant  Water-Stained Leave	nels in Upper 1	2 inches
Depth to Saturated Soil	Depth to Saturated Soil >22 (in)			Local Soil Survey Da FAC-Neutral Test Other (Explain in Ren		

Map Unit Name (Series and Phase): Braceville gravelly loam    PROFILE DESCRIPTION   Motito Colors (Munsell Moist) (Munsell Moist)   Tructure, ect	SOILS								
PROFILE DESCRIPTION   Motile Colors   Texture, Concretions, (inches)   Matrix Color (Munsell Moist)   Motile Colors   Structure, ect	Map Unit Name (Series and Phase): Braceville gravelly loam Drainage Class: Moderately Well Drained								ined
Depth	Taxonomy (Subgroup):	axonomy (Subgroup): Typic Fraguidepts Field Observations				m Mapped Type?	,	YES	NO
0-7	•	Depth Horizon Matrix Color			RIPTION		Te		
7-16 B 10 YR 5/5 - MFR  16-22 B 10 YR 5/6 7.5 YR 5/8 MFR  HYDRIC SOIL INDICATORS:  Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma Colors  Remarks : Impenetrable at 22 inches.  WETLAND DETERMINATION  Hydrophytic Vegetation Present? Hydrology Present? YES NO Ket Suls Sampling Point Within a Wetland? YES NO Ket Sils Present? Hydrology Present? Hydrology Present? YES NO YES NO NO	` '	Λ				(Waricon Wolce)			
16-22   B						<u> </u>			
HYDRIC SOIL INDICATORS:  Histosol Histic Epipedon Sulfidic Odor Organic Streaking in Sandy Soils Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma Colors  Remarks: Impenetrable at 22 inches.  WETLAND DETERMINATION  Hydrophytic Vegetation Present? Hydrology Present? YES NO Hydric Soils Present? YES NO Hydro Soils Sampling Point Within a Wetland? YES NO Hydric Soils Present?									
Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Sulfidic Odor Sulfidic Odo	16-22	В	10	YR 5/6		7.5 YR 5/8		M	-K
Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Sulfidic Odor Sulfidic Odo									
Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Sulfidic Odor Sulfidic Odo									
Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Sulfidic Odor Sulfidic Odo									
Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Sulfidic Odor Sulfidic Odo									
Histosol Concretions High Organic Content in Surface Layer in Sandy Soils Sulfidic Odor Sulfidic Odo									
Histic Epipedon			HYDF	RIC SOIL IND	DICATORS:				
Histic Epipedon				_					
WETLAND DETERMINATION  Hydrophytic Vegetation Present? Wetland Hydrology Present? YES NO Hydric Soils Present? YES NO Is this Sampling Point Within a Wetland? YES NO Hydric Soils Present?	Histic Epiped Sulfidic Odor Aquic Moistu Reducing Co	r ire Regime onditions	rs		High Orga Organic S Listed on Listed on	anic Content in Surfa streaking in Sandy S Local Hydric Soils L National Hydric Soil	oils ist	Sandy S	ioils
Hydrophytic Vegetation Present?  Wetland Hydrology Present?  YES  NO  YES  NO  Hydric Soils Present?  YES  NO  Is this Sampling Point Within a Wetland?  YES  NO									
Hydrophytic Vegetation Present?  Wetland Hydrology Present?  YES  NO  YES  NO  Hydric Soils Present?  YES  NO  Is this Sampling Point Within a Wetland?  YES  NO	WETI AND DETE	DMINATION	J						
Wetland Hydrology Present? YES NO Is this Sampling Point Within a Wetland? YES NO Hydric Soils Present? NO									
Hydric Soils Present? YES NO				Is this Sampli	ng Point With	nin a Wetland?	•	YES	NO
	, ,,		YES <b>NO</b>	·	Ü				
	Remarks: 50 feet N	or wetland boul	ndary пад ввв-4	4.					

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 2 October 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice/Chris Roche/Jayme Schaeffer			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Forested Wetland
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 2
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DP BBB4

#### **VEGETATION**

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Acer rubrum	Tree	FAC	9			
2	Nyssa sylvatica	Tree	FAC	10			
3	Acer rubrum	Sapling	FAC	11			
4	Nyssa sylvatica	Sapling	FAC	12			
5	Lindera benzoin	Shrub	FACW-	13			
6	Symplocarpus foetidus	Herb	OBL	14			
7	Pilea pumila	Herb	FACW	15			
8				16			
Percer	nt of Dominant Species that are OBL	, FACW, or FAC	C (excluding FA	(C-)	100		
Rema	rks						
1							

#### **HYDROLOGY**

☐ Recorded Data (Describe☐ Stream, Lake☐ Aerial Photog☐ Other☐ X	e, or Tide Gauge graphs		WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks
FIELD OBS	ERVATIONS	☐ Drift Lines ☐ Sediment Deposits ☐ Drainage Patterns in Wetlands	
Depth of Surface Water	none	(in)	
Depth to Free Water in Pit 0 (in)			Secondary Indicators (2 or more Required):  X Oxidized Root Channels in Upper 12 inches X Water-Stained Leaves
Depth to Saturated Soil	0	(in)	Local Soil Survey Data  FAC-Neutral Test  Other (Explain in Remarks)

#### SOILS

		T=		
eric Fragiaquepts	Field Observ	vations Confirm Mapped Type?	YES	NO
Depth Horizon Matrix Co		Mottle Colors	Texture, Concretion	
Δ	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
В	10 110 0/1	7.5 11( 5/6	**	<u> </u>
			+	
			_	
	HADBIC SUIT IN	IDICATORS:		
	TITURIO SOIL IN			
e Regime nditions		High Organic Content in Surface L Organic Streaking in Sandy Soils Listed on Local Hydric Soils List		oils
OMINIATIONI				
	NO I			
		ling Point Within a Wetland?	YES	NO
YES	NO			
	Horizon  A B  Don  e Regime nditions v-Chroma Colors o surface.  RMINATION  Present? YES YES YES YES abrupt slope along by the surface of the	Horizon  PROFILE DES Matrix Color (Munsell Moist)  A 5 YR 2.5/1  B 10 YR 6/1  HYDRIC SOIL IN  HYDRIC SOIL IN  PROFILE DES Matrix Color (Munsell Moist)  HYDRIC SOIL IN  On  PROFILE DES Matrix Color (Munsell Moist)  HYDRIC SOIL IN  On  PROFILE DES Matrix Color (Munsell Moist)  HYDRIC SOIL IN  On  PROFILE DES Matrix Color (Munsell Moist)  FYR 8 10 YR 6/1   B 10 YR 6/1   HYDRIC SOIL IN  On  PROFILE DES Matrix Color (Munsell Moist)  FYR 8 10 YR 6/1   B 10 YR 6/1   HYDRIC SOIL IN  On  PROFILE DES Matrix Color (Munsell Moist)  FYR 8 10 YR 6/1   B 10 YR 6/1  B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1  B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 YR 6/1   B 10 Y	PROFILE DESCRIPTION Horizon  Horizon  Matrix Color (Munsell Moist)  A 5 YR 2.5/1 5 YR 4/6  B 10 YR 6/1 7.5 YR 5/8  HYDRIC SOIL INDICATORS:  Concretions High Organic Content in Surface L Organic Streaking in Sandy Soils e Regime ditions Listed on Local Hydric Soils List ditions Cychroma Colors Other (Explain in Remarks) o surface.  RMINATION  Present? YES NO Is this Sampling Point Within a Wetland?	PROFILE DESCRIPTION Horizon Matrix Color Mottle Colors Texture, Cr. (Munsell Moist) (Munsell Moist) Structu  A 5 YR 2.5/1 5 YR 4/6 W  B 10 YR 6/1 7.5 YR 5/8 W  HYDRIC SOIL INDICATORS:  Concretions High Organic Content in Surface Layer in Sandy Soils e Regime Middle on National Hydric Soils List Listed on Local Hydric Soils List W-Chroma Colors  Osurface.    Concretions   Listed on National Hydric Soils List W-Chroma Colors   Other (Explain in Remarks)

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 24 July 2007				
Applicant/Owner: PPL		County: Luzerne					
Investigator: Keith Maurice				State: Pennsylvania			
Do Normal Circumstances exist on the	site?		YES NO	Community ID: Upland	old field		
Is the site significantly disturbed (Atypic	al Situation)?		YES NO	Transect ID: 1			
Is the area a potential Problem Area? (	f needed, explain on reve	erse)	YES NO	Plot ID: DPC1			
VEGETATION							
Dominant Plant Species	Stratum	Indicator	Dom	inant Plant Species	Stratum	Indicator	
1 Erigeron annuus *	Herb	FACU	9	Taraxacum offinale	Herb	FACU-	
2 Cirsium arvense *	Herb	FACU	10	Plantago lanceolata	Herb	UPL	
3 Cirsium vulgare *	Herb	FACU-	11	Phleum pretense	Herb	FACU	
4 Solidago canadensis *	Herb	FACU	12	Oxalis spp.	Herb	FACU-UPL	
5 Solidago rugosa *	Herb	FAC	13				
6 Trifolium pretense *	Herb	FACU-	14				
7 Ambrosia artemisiifolia	Herb	FACU	15				
8 Conyza canadensis	Herb	UPL	16				
Percent of Dominant Species that are 0	DBL, FACW, or FAC (	excluding FA	AC-)	16			
HYDROLOGY							
Recorded Data (Describe in Remarks)  Stream, Lake, or Tide Gauge Aerial Photographs Other  No recorded Data Available				WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks			
FIELD OBSERVATIONS				Drift Lines Sediment Deposits Drainage Patterns in W	/etlands		
Depth of Surface Water	None Present	(in)					
Depth to Free Water in Pit None Present (in)				ry Indicators (2 or more F Oxidized Root Channe Water-Stained Leaves	els in Upper	12 inches	
			1 _	Local Soil Survey Data			

(in)

> 18

Depth to Saturated Soil

FAC-Neutral Test

Other (Explain in Remarks)

#### SOILS

SUILS							
Map Unit Name (Series a		ngo gravelly loan			Drainage Class: Wel		
Taxonomy (Subgroup): T	ypic Dystrudepts		Field Obser	rvations C	onfirm Mapped Type?	YES	NO
Depth (inches)	Horizon	Matrix	LE DESCR x Color ell Moist)	RIPTION	Mottle Colors (Munsell Moist)		oncretions, ure, ect
0-12	Ap		'R 3/3		(Mulisell Moist)	moist frial	•
12-18	В	10 Y	′R 4/4			moist frial	bie, stony
						_	
		HYDRIC	SOIL INDI	CATORS	•		
Histosol Histic Epiped Sulfidic Odor Aquic Moistu Reducing Co	re Regime			Organic S Listed on Listed on	ns anic Content in Surface streaking in Sandy Soils Local Hydric Soils List National Hydric Soils Li plain in Remarks)		Soils
Remarks :							
WETLAND DETER							
Hydrophytic Vegetation P Wetland Hydrology Prese Hydric Soils Present?	nt? Y	TES NO TES NO TES NO	Is this Sam	pling Poin	t Within a Wetland?	YES	NO
Remarks							

### **ROUTINE WETLAND DETERMINATION**

		Date: 24 July 2007
		County: Luzerne
		State: Pennsylvania
YES	NO	Community ID: Palustrine Emergent Wetland
YES	NO	Transect ID: 1
YES	NO	Plot ID: DPC2
	YES	YES NO

#### **VEGETATION**

Dominant Plan	nt Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1 Juncus effuse	es *	Herb	FACW+	9	Vernonia noveboracensis	Herb	FACW+
2 Carex spp. *	t	Herb	FAC-OBL	10	Eupatoriadelphus spp.	Herb	FAC-FACW
3 Juncus tenuis	s *	Herb	FAC-	11	Rudbeckia laciniata	Herb	FACW
4 Solidago giga	antea *	Herb	FACW	12	Aster puniceus	Herb	OBL
5 Solidago can	adensis *	Herb	FACU	13	Scirpus spp.	Herb	FACW-OBL
6 Solidago rugo	osa *	Herb	FAC	14			
7 Euthamia gra	aminifolia *	Herb	FAC	15			
8 Eupatorium p	perfoliatum	Herb	FACW+	16			
Percent of Dominant Specie	es that are OBL, FACW,	or FAC (ex	cluding FA	C-)	86		
Remarks							
Dominant species = *							

#### **HYDROLOGY**

Recorded Data (Describe in Stream, Lake, Aerial Photogra Other  No recorded Data Available	or Tide Gauge aphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators:				
FIELD OBSER	VATIONS		<ul><li>☐ Sediment Deposits</li><li>☐ Drainage Patterns in Wetlands</li></ul>			
Depth of Surface Water	None Present	(in)				
Depth to Free Water in Pit None Present (in)			Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves			
Depth to Saturated Soil > 24 (in) Dry period		<ul><li>✓ Local Soil Survey Data</li><li>✓ FAC-Neutral Test</li><li>✓ Other (Explain in Remarks)</li></ul>				

nd Phase): Rexford lo	am	<del></del>	Drainage Class: Poorly [				
eric Fragiaquepts		Field Observations Confirm Mapped Type? YES N					
Horizon	Matr	ix Color	Mottle Colors		Concretions, ure, ect		
Ap			· · · · · · · · · · · · · · · · · · ·		,		
В							
			10 111 010				
	HYDRIC	SOIL IND	ICATORS:				
re Regime anditions w-Chroma Colors Luzerne County Soil			Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks) he Rexford series has a high water	er table early	in the		
resent? YES	NO NO	Is this Sam	upling Point Within a Wetland?	YES	NO		
	Ap B  don Irre Regime Inditions Indi	Horizon Matri (Muns Ap 10 \ B 2.5  HYDRIC  don  The Regime should the sho	Horizon Matrix Color (Munsell Moist)  Ap 10 YR 4/1  B 2.5 Y 6/2  HYDRIC SOIL IND  don	Munsell Moist) (Munsell Moist)   Ap	Horizon Matrix Color (Munsell Moist) Texture, Content (Munsell Moist) Struct  Ap 10 YR 4/1 7.5 YR 2.5/3  B 2.5 Y 6/2 10 YR 5/8  HYDRIC SOIL INDICATORS:  Concretions High Organic Content in Surface Layer in Sandy Soils Content (Struct) Content (Struct) Concretions High Organic Streaking in Sandy Soils Content (Struct) Concretions In Example Content (Streaking in Sandy Soils Cont		

Applicant PPL Application Project Name: Number: Name: Bell Bend N
State: PA County: Luzerne Legal Description: Township: Salem
Date: 10/8/07 Plot No.: 18 63 Section: (C28)
Vegetation [list the three dominant species in each vegetation layer (5 if
only 1 or 2 layers)]. Indicate species with observed morphological or known
physiological adaptations with an asterisk.
Indicator
Species Status Species Status
Trees Herbs
7. Solidas roposa Fac
8. ( )
3.
Saplings/shrubs
L 0 VILLES
5 7 11 1
12.
Z of species that are OBL, FACW, and/or FAC: 33 . Other indicators: none.
Hydrophytic vegetation: Yes No _x . Basis: > 33? Fac our year-try
<u>Soil</u>
Series and phase: Chenanie grav. long On hydric soils list? Yes ; No X .
Mottled: Yes ; No X . Mottle color: ; Matrix color: 10 YK 4/Y .
Gleyed: Yes No X Other indicators: No X
Hydric soils: Yes No X; Basis: no indicator.
Mo Indicators
Hydrology
Inundated: Yes; No_X Depth of standing water:
Saturated soils: Yes; No_ $\times$ Depth to saturated soil: $>$ / $\zeta$ "
Other indicators:
Wetland hydrology: Yes ; No X . Basis: No Indicator,
Atypical situation: Yes; No_ $\chi$
Normal Circumstances? Yes X No .
Wetland Determination: Wetland; Nonwetland
Comments:

Applicant Name: PPL	Application Number:	Project Name: BS	ell Bend NP
State: /A County: L.z.	Legal Descripti		
Date: 10/3/07 Plot 1	NO.: DPCH	Section:	
			6028)
Vegetation [list the three do	ominant species in e	ach vegetation lav	ar (5 if
only 1 or 2 layers)]. Indica	ite species with obs	erved morphological	or known
physiological adaptations wit			. OI known
Indicat		Indica	tor
Species Status	Spec:		<del>-</del>
Trees	Herbs		
1. Queres palostris Fac	· 7. Im,	etions copensis	Frew.
2. Acer rubrum		a mondimen	Facu
3.		locares betides	06)
Saplings/shrubs	Woody vines		
4. Viburnum dentaton	٦٠ 10.	-	
5. Lindera benzoin f	11.		
6.	12.		
% of species that are OBL, FA	CW, and/or FAC: 100.	Other indicators	•
Hydrophytic vegetation: Yes	X No . Basis	1: 1007 F	··
		TOUTO THE ME great	Ter Ich
Soil			•
Series and phase: Atherton ,;	H los On hydric o	odla 14-42 v V	
Mottled: Yes X ; No	Mottle color: 7 x 7/2	olls list: les A	; No
Gleyed: Yes No X On	ther indicators	1/2; matrix color	: 104R 4/Z.
Hydric soils: Yes X No	· Bacica		•
	basis wolle	d low chroma 1	01
Hydrology			
	D1		
Inundated: Yes; No_X			
Saturated soils: Yes ; No			
Other indicators: matted	regetation, day	conditions	· · · · ·
Wetland hydrology: Yes X;			
Atypical situation: Yes;		75 bustow	
Normal Circumstances? Yes Y		patterns, a	
Wetland Determination: Wetlan	dX	; Nonwetland	
Comments: dry conditions			
	Determined	by: 1 1/2 7	1 0 1

	plication mber:	Project Name: Ball Beard NPP
State: rA County: Luzerne Le	egal Description: Towns	hip: Salam
Date: 10/8/07 Plot No.:	DPC 5 Section	n:(C44)
Vegetation [list the three dominant	species in each vegeta	tion layer (5 if
only 1 or 2 layers)]. Indicate spe		
physiological adaptations with an a	sterisk.	
Indicator Species Status	Species	Indicator Status
Trees	Herbs	blacus
1. Acer rubrum Fac	7. Osmunda cinna	Fren
2. Quercus ralustris Faco	8. Importions cap	_
3.	9. Symplocaryos 1	betala Ob)
Saplings/shrubs	Woody vines	$\label{eq:continuous} \mathcal{L}_{p,q}(x) = \mathcal{L}_{p,q}(x) + \mathcal{L}_{p,q}(x) + \mathcal{L}_{p,q}(x)$
4. Lindara benzoin Frew	10.	
5. Vaccinium corymbian Fram	11.	
6. Ilex verticellate	12.	
% of species that are OBL, FACW, an	d/or FAC: 100. Other in	idicators:
Hydrophytic vegetation: Yes $\frac{1}{2}$ N	o Basis: (00 %	fac or greater my
Soil .		
Series and phase: Atherton silt lonn	On hydric soils list?	Yes X; No
Mottled: Yes ; No X . Mottle	e color:; Matr	ix color: /oyr 3/1.
Gleyed: Yes No X Other in	ndicators:	<u> </u>
Hydric soils: Yes X No ; Ba	asis: low chrome	roil.
		4
Hydrology		
Inundated: Yes; No_X Dept		**************************************
Saturated soils: Yes; No_X		
Other indicators: shallow-rooted	trees, water-stained 1	··· FAC Neutral test
Wetland hydrology: Yes Y; No	Basis: 2 2° in	dicators.
Atypical situation: Yes; No_X		
Normal Circumstances? Yes X No		
Wetland Determination: Wetland	Y Nonwetl	and
Comments: dry conditions	•	
	Determined by: 1. M	intromay by back
	12.7	

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 26 March 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Upland floodplain forest
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DPCC1

#### VEGETATION

	Dominant Plant Species	Stratum	Indicator	Dominant Plant Species Stratum Indicate	or			
1	Acer rubrum *	Tree	FAC	9 Fraxinus americana Sapling FACL	J			
2	Prunus serotina	Tree	FACU	10 Allium vineale Herb FACU	J-			
3	Robinia pseudoacacia	Tree	FACU-	11				
4	Fraxinus americana	Tree	FACU	12				
5	Quercus alba	Tree	FACU-	13				
6	Lindera benzoin *	Shrub	FACW-	14				
7	Acer rubrum	Sapling	FAC	15				
8	Prunus serotina	Sapling	FACU	16				
Percent	of Dominant Species that are OBL, FAC	CW, or FAC	(excluding FAC	C-) 100				
Remark	S:							
Red maple and spicebush are common in wetlands and uplands. Ground cover is sparse due to the time of year.  * = Dominant species								

#### **HYDROLOGY**

Recorded Data (Describe in Remarks) Stream, Lake, or Tide Gauge Aerial Photographs Other  X No recorded Data Available			WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks
FIELD OBSERVATIONS			☐ Drift Lines ☐ Sediment Deposits ☐ Drainage Patterns in Wetlands
Depth of Surface Water	None present	(in)	
Depth to Free Water in Pit None present (ii		(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches  Water-Stained Leaves
Depth to Saturated Soil	>24	(in)	Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)

#### SOILS

30IL3			T=		
Map Unit Name (Series and Phase		Terrior	Drainage Class: Well Dr		NO
Taxonomy (Subgroup): Fluventic	Dystrudepts	Field Observati	ons Confirm Mapped Type?	YES	NO
Depth Horizon (inches) A		ROFILE DESCR Matrix Color lunsell Moist) 10 YR 4/3	RIPTION  Mottle Colors  (Munsell Moist)  -	Texture, Concretions Structure, ect	
8-20	В	10 YR 5/4	-		
20-24		10 YR 5/4	10 YR 5/2		
		10 11(0/4	10 110 0/2		
				1	
				<del> </del>	
				<del>                                     </del>	
	HV	DRIC SOIL INDI	CATORS:		
	1111	JKIC SOIL INDI	CATORS.		
Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma Colors		Concretions High Organic Content in Surface Layer i Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)			oils
WETLAND DETERMINA	TION				
Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	YES NO YES NO YES NO	NO Is this Sampling Point Within a Wetland?			NO
Remarks					

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 27 March 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Forested Wetland
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DPCC2

#### **VEGETATION**

	Dominant Plant Species	Stratum	Indicator	Dominant Plant Species Stratum I	Indicator
1	Acer rubrum *	Tree	FAC	9 Allium vineale Herb	FACU-
2	Nyssa sylvatica	Tree	FAC	10	
3	Viburnum dentatum	Shrub	FAC	11	
4	Lindera benzoin *	Shrub	FACW-	12	
5	Onoclea sensibilis *	Herb	FACW	13	
6	Symplocarpus foetidus *	Herb	OBL	14	
7	Boehmeria cylindrica	Herb	FACW+	15	
8	Cinna arundinacea	Herb	FACW+	16	
Perce	ent of Dominant Species that are OBL, F	ACW, or FA	C (excluding FA	C-) 100	
Rem	arks				
* = [	Dominant species				

#### **HYDROLOGY**

☐ Recorded Data (Describe in Remarks) ☐ Stream, Lake, or Tide Gauge ☐ Aerial Photographs ☐ Other   X No recorded Data Available			WETLAND HYDROLOGY INDICATORS  Primary Indicators:
FIELD OBSERVATIONS			<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>
Depth of Surface Water	None Present	(in)	
Depth to Free Water in Pit surface (in)		Secondary Indicators (2 or more Required):  X Oxidized Root Channels in Upper 12 inches X Water-Stained Leaves	
Depth to Saturated Soil	surface	(in)	Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)

#### SOILS

SUILS							
Map Unit Name (Series a			T		Drainage Class: Poo		
Taxonomy (Subgroup): FI	uvaquentic Endoaquer	ots	Field Observa	ations Confir	m Mapped Type?	YES	NO
Depth (inches)	Horizon	M (Mu	PROFILE DESCRIPT Matrix Color (Munsell Moist)		Mottle Colors (Munsell Moist)		encretions, re, ect
0-12	A		7.5 YR 3/1		7.5 YR 3/3		
12-18	В		0 YR 4/1		7.5 YR 3/3		
18-24 B			.5 YR 3/1		7.5 YR 4/6		
		111/5	NOIS SOIL INF	NOATORO			
		HYL	ORIC SOIL IND	DICATORS	:		
☐ Histosol ☐ Histic Epipedon ☐ Sulfidic Odor ☐ Aquic Moisture Regime ☐ Reducing Conditions ☒ Gleyed or Low-Chroma Colors				Organic S Listed on Listed on	ons anic Content in Surface Streaking in Sandy Soils Local Hydric Soils List National Hydric Soils Li plain in Remarks)		oils
WETLAND DETER	MINATION						
Hydrophytic Vegetation P Wetland Hydrology Prese Hydric Soils Present?		NO NO NO	Is this Sampli	ng Point Within a Wetland?		YES	NO
Remarks							

Name: PPL	Application Number:	Proj Name	: BallBand NPF
State: [A County: Luzerne	Legal Descript	ion: Township:	Salar
Date: 7/24/04 Plot No.	: DPD( E	Section: ~	field by and
Vegetation [list the three domin	nant species in	each vegetation	layer (5 if
only 1 or 2 layers)]. Indicate			
physiological adaptations with a			
Indicator			ndicator
Species Status		cies S	Status
Trees	Herbs		/ 1. 3
1. —		taria Imberii	$U_{r}$
2.		ubrosin artem	-
3.		ifalium hybr	sdum Facu
Saplings/shrubs	Woody vin	es .thamin pran	· di Fac
4. —			_
5.		henopodium a	16cm
6.	12.		
% of species that are OBL, FACW,	and/or FAC: 20	Other indica	itors:
Hydrophytic vegetation: Yes	No X. Bas:	is: no > Fxc	rih.
0-43			
Soil Rd A			
Series and phase: Rexford lan	On hydric	soils list? Ye	s_X; No
Mottled: Yes; No_X Mo	ttle color:	; Matrix c	olor: 107R L/4.
Gleyed: Yes No X Othe	r indicators:	none	•
Hydric soils: Yes No_X	; Basis:	indicators	•
West and			
Hydrology			
Inundated: Yes; No_X			*
Saturated soils: Yes; No_X		saturated soil:_	> 18"
Other indicators: None		`	
Wetland hydrology: Yes; No		no indicate	*1
Atypical situation: Yes; No	<del></del>		
Normal Circumstances? Yes X			
Wetland Determination: Wetland_	· · · · · · · · · · · · · · · · · · ·	; Nonwetland_	
Comments:			
		4 .	

Applicant PPL	Application Number:	Project Name: BelBend NPP
State: IA County: Luzerna	Legal Description:	: Township: Salem
•	DPDZ D	Section: weth west field
Vegetation [list the three domin	nant species in each	vegetation layer (5 if
only 1 or 2 layers)]. Indicate	species with observ	ved morphological or known
physiological adaptations with a	ın asterisk.	
Indicator Species Status	Species	Indicator Status
Trees	Herbs	
1. —	7. Eutha	mia graminit. Fac
2.	8. Verba	na hastata Facu
3.	9. Carex	annectens Frew
Saplings/shrubs	Woody-wines	
4. —	10. Jun.	es effusus Frew
5.	11. Polya	onem sagittatum Obl
6.	12.	
% of species that are OBL, FACW,		
Hydrophytic vegetation: Yes 🗡	_ No Basis:_	100% fac or greater on.
Soil 'All I		
Series and phase: Atherton sitt	on hydric soi	ls list? Yes_X ; No
Mottled: Yes X; No	ttle color: 10 YR 5/4	; Matrix color: 107R JZ.
Gleyed: YesNo_X Othe		•
Hydric soils: Yes X No	; Basis: mo Hlea	d low chroma soil.
Hydrology		
Inundated: Yes; No_X		
Saturated soils: Yes ; No )		
		scal soil survey data
Wetland hydrology: Yes X; No		2 indicators
Atypical situation: Yes; No		
Normal Circumstances? Yes X		
Wetland Determination: Wetland	;	Nonwetland
Comments: dry conditions		

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP					Date: 2 October 2008	•	
Applicant/Owner: PPL					County: Luzerne		
Investigator: Keith Maurice/Chris Roche					State: Pennsylvania		
Do Normal Circumstances exist on the site?			YES	NO	Community ID: Palustr.	Emerg./Scr	ub-shrub
Is the site significantly disturbed (Atypical Situation	)?		YES	NO	Transect ID: 1		
Is the area a potential Problem Area? (if needed, exp	olain on reve	erse)	YES	NO	Plot ID: DP DDD1		
VEGETATION							
Dominant Plant Species Stratum Indicator				Domi	inant Plant Species	Stratum	Indicator

#### Juncus effusus Herb FACW+ 9 FACW+ 10 Scirpus cyperinus Herb Bidens sp. Herb FACW 11 Boehmeria cylindrica Herb FACW+ 12 FACW 13 Quercus palustris Sapling FACU 14 Fraxinus americana Sapling Aster simplex FACW 15 Herb 16 Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-) 86 Remarks

#### **HYDROLOGY**

Recorded Data (Describe in Stream, Lake, Aerial Photogri Other   No recorded Data Available	or Tide Gauge aphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks	
FIELD OBSER	VATIONS	<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>	
Depth of Surface Water	None Present	(in)	
Depth to Free Water in Pit	None Present	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	14	(in)	<ul> <li>X Local Soil Survey Data</li> <li>X FAC-Neutral Test</li> <li>Other (Explain in Remarks)</li> </ul>

### SOILS

Map Unit Name (Series	and Phase): Rexford loai	m	Drainage Class: Somewhat Po	orly to Poorly	y Drained
Taxonomy (Subgroup):	Aeric Fragiaquepts	Field O	bservations Confirm Mapped Type?	YES	NO
		PROFILE DES	SCRIPTION		
Depth	Horizon	Matrix Color	Mottle Colors	Texture, C	Concretions,
(inches)		(Munsell Moist)	) (Munsell Moist)	Struct	ture, ect
0-14	Ap	2.5 YR 5/1	10 YR 3/3	MFR	, WSS
14-24	В	2.5 YR 7/1	7.5 YR 5/6		VS
14-24	В	2.5 11(1/1	7.5 11( 5/6	<u>v</u>	<u>v3</u>
		+			
		HYDRIC SOIL IN	NDICATORS:		
☐ Histosol		Г	7 Concretions		
Histic Epipe	don	F	High Organic Content in Surface L	aver in Sandy	Soils
Sulfidic Odd		7	Organic Streaking in Sandy Soils	.,,	
Aquic Moist			<b>=</b>		
Reducing C	•		Listed on National Hydric Soils Lis	it .	
	ow-Chroma Colors	F	Other (Explain in Remarks)	•	
		- 101 1 111 1	pric oxidized root pores observed.		
WETLAND DETER	RMINATION				
Hydrophytic Vegetation I		NO NO		VEO	NO
Wetland Hydrology Pres			Sampling Point Within a Wetland?	YES	NO
Hydric Soils Present?	YES	NO	live a trimate of fam O to O also in anno		
			ally saturated for 2 to 3 weeks in gro		
	•	•	ne Rexford soil series. Data point w	vas collected	
near the er	nd of or outside the gro	wing season.			

### DATA FORM 1 WETLAND DETERMINATION

Applicant PPL	Application Number:	Project Name: BelBendNPP
State: PA County: Luzerne	Legal Description:	
	: DPE	Section: E2 (E24)
Vegetation [list the three domi		
only 1 or 2 layers)]. Indicate		ed morphological or known
physiological adaptations with	an asterisk.	
Indicator		Indicator
Species Status Trees	Species	Status
	Herbs	edtion growtil Upl
		•
2. Caryn sp. Fac.	· · · · · · · · · · · · · · · · · · ·	teris move berne. Fra
Saplings/shrubs		yo rujoin . Fac
4. Roia multiflore Face	Woody vines	
5. Linders benzoin Fre		er rotundifolia fine
6.		
	12.	
% of species that are OBL, FACW	, and/or FAC: <u>62</u> . (	Other indicators: 25% Facu.
Hydrophytic vegetation: Yes	No X . Basis:	Fac neutral trust
Soil Oquason + Lord		
Series and phase: channery silt		
Mottled: Yes; No_X . Mo	ottle color:	; Matrix color: 10YRs-/6.
Gleyed: YesNo_X_Othe	er indicators: No	nc .
Hydric soils: Yes No /	; Basis: no india	entors.
Hydrology		
Inundated: Yes; No_X		
Saturated soils: Yes; No;		ated soil: >/6"
Other indicators:	HOHE	•
Wetland hydrology: Yes; No	X Basis: no	indicatory.
Atypical situation: Yes; No	<u>X</u> .	
Normal Circumstances? Yes X	No	
Wetland Determination: Wetland	:	Nonwetland X .
Comments:		
er en		

Determined by: & Montonney L. Combo

## DATA FORM 1 WETLAND DETERMINATION

Name: PL	Application Number:	Project Name: Bell Bend NP
State: IA County: Luzern	Legal Description:	
Date: 10/12/07 Plot No		Section: $E_2$ $(E_24)$
Vegetation [list the three dom:	inant species in each	vegetation layer (5 if
only 1 or 2 layers)]. Indicate	species with observ	ed morphological or known
physiological adaptations with	an asterisk.	
Indicator Species Status	Species	Indicator Status
Trees	Herbs	
1. Acer nubrum Fac	7. Impati	ens capensii facus
2.		viridis DL1
3.		earns factides . Obl
Saplings/shrubs	Woody vines	
4. Lindera benzoin Facu	10. Smila	- rotunditalia Fre
5.	. 11.	
6.	12.	
${f z}$ of species that are OBL, FACW	, and/or FAC: 100. C	Other indicators:
Hydrophytic vegetation: Yes 🙏		
<u>So11</u>	•	•
Series and phase: Wyoming gravel	ly loam On hydric soil	s list? Yes. ; No $\chi$ .
Mottled: Yes $\chi$ ; No M	ottle color: 107/14	; Matrix color: 10 YR4/1.
Gleyed: Yes No_X Oth	er indicators: man	igancia nudile,
Hydric soils: Yes_\(\forall \) No	; Basis: low chr.	·
lydrology		
Inundated: Yes; No	Depth of standing wa	ter:
Saturated soils: Yes X; No_	. Depth to satur	ated soil: 2".
other indicators:		·
Wetland hydrology: Yes 🐰 ; No	o Basis: sat	unated soil
typical situation: Yes; No		
Normal Circumstances? Yes X	No	
Vetland Determination: Wetland	;	Nonwetland
Comments:		

Determined by: 1. Montgomen L. Con

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP	Date: 25 March 2008						
Applicant/Owner: PPL	County: Luzerne						
Investigator: Keith Maurice					State: Pennsylvania		
Do Normal Circumstances exist on the site?			YES	NO	Community ID: Palustrin	e Emergent V	Netland
Is the site significantly disturbed (Atypical Situat	tion)?		YES	NO	Transect ID: 1		
Is the area a potential Problem Area? (if needed	l, explain on	reverse)	YES	NO	Plot ID: DPFF1		
VEGETATION							
Dominant Plant Species	Stratum	Indicator		Dom	inant Plant Species	Stratum	Indicator
1 Phalaris arundinacea *	Herb	FACW+	9				
2 Dipsacus sylvestris	Herb	FACU-	10				
3			11				
4			12				
5			13				
6			14				
7			15				
8			16				
Percent of Dominant Species that are OBL, FA	CW, or FA	C (excluding FA	C-)		100		
Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-)  Remarks  * = Dominant species  HYDROLOGY							
			I				

Recorded Data (Describe Stream, Lake Aerial Photog Other	s, or Tide Gauge graphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks	
FIELD OBSERVATIONS			<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>
Depth of Surface Water	None present	(in)	
Depth to Free Water in Pit	None present	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil Driest part	>12	(in)	Local Soil Survey Data  X FAC-Neutral Test  Other (Explain in Remarks)

SOILS							
Map Unit Name (Series	and Phase): Pope soils				Drainage Class: W	ell Drained	
Taxonomy (Subgroup):	Fluventic Dystrudepts		Field Observ	ations Confirm	n Mapped Type?	YES	NO
Depth Horizon (inches)		Ma (Mun	PROFILE DESC Matrix Color (Munsell Moist)		RIPTION Mottle Colors (Munsell Moist)		oncretions, ure, ect
0-6	Α		5 YR 3/1			Wet sligh	
6-12 B		7.5	YR 2.5/1		10 YR 4/4	Wet sligh	ntly sticky
		HYDF	RIC SOIL IN	DICATORS:			
Histosol Histic Epiped Sulfidic Odor Aquic Moistu Reducing Co X Gleyed or Lo		<ul> <li>Concretions</li> <li>High Organic Content in Surface Layer in Sandy Soils</li> <li>Organic Streaking in Sandy Soils</li> <li>Listed on Local Hydric Soils List</li> <li>Listed on National Hydric Soils List</li> <li>Other (Explain in Remarks)</li> </ul>					
Impenetrabl	can have unmapped in e beyond 12" in depth t 8" in depth.					al fines are prese	∍nt
WETLAND DETE	RMINATION						
Hydrophytic Vegetation Wetland Hydrology Pres Hydric Soils Present?	Present? YES	NO NO NO	Is this Sampl	ing Point With	in a Wetland?	YES	NO
upland microsites. Co	ay have been disturbe al fines indicate period most of the area imm	lic floodin	ig by the Sus	squehanna F	River. Hydrologic co	nditions docume	

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP						Date: 26 March 2008		
Applic	ant/Owner: PPL					County: Luzerne		
Investi	gator: Keith Maurice					State: Pennsylvania		
Do No	rmal Circumstances exist on the site?			YES	NO	Community ID: Palustri	ne Emergent V	Vetland
Is the	site significantly disturbed (Atypical Si	tuation)?		YES	NO	Transect ID: 1		
Is the	area a potential Problem Area? (if nee	ded, explain on	reverse)	YES	NO	Plot ID: DPFF2		
VEGI	ETATION							
	Dominant Plant Species	Stratum	Indicator		Dom	inant Plant Species	Stratum	Indicator
1	Phalaris arundinacea *	Herb	FACW+	9				
2	Dipsacus sylvestris *	Herb	FACU-	10				
3	Juncus effusus	Herb	FACW+	11				
4	Solidago spp.	Herb	UPL-OBL	12				

15 16 Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-)
Remarks 50

FACW+

13 14

Herb

= Dominant species

Solidago spp.

Lythrum salicaria

#### **HYDROLOGY**

Recorded Data (Describe in Remarks)  Stream, Lake, or Tide Gauge Aerial Photographs Other  X No recorded Data Available			WETLAND HYDROLOGY INDICATORS  Primary Indicators:  Inundated Saturated in Upper 12 inches Water Marks		
FIELD OBSERVATIONS			<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>		
Depth of Surface Water	2	(in)			
Depth to Free Water in Pit	surface	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches  Water-Stained Leaves		
Depth to Saturated Soil	surface	(in)	Local Soil Survey Data  Karal Fac-Neutral Test  Other (Explain in Remarks)		

SOILS						
Map Unit Name (Series	and Phase): Pope soils			Drainage Class: Wel	l Drained	
Taxonomy (Subgroup):	Fluventic Dystrudepts		Field Observat	ions Confirm Mapped Type?	YES	NO
Depth (inches)	Horizon	Ма	OFILE DESCF trix Color nsell Moist)	RIPTION Mottle Colors (Munsell Moist)	Texture, Co Structui	
0-14	Α	10	YR 4/1	10 YR 3/6	Wet s	ticky
				†		
		HYDF	RIC SOIL IND	ICATORS:		
□ Sulfidic Odor       □ Organic Streaking in S         □ Aquic Moisture Regime       □ Listed on Local Hydric         □ Reducing Conditions       □ Listed on National Hydromatics			Concretions High Organic Content in Surface Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)		oils	
WETLAND DETE	RMINATION					
Hydrophytic Vegetation Wetland Hydrology Pre Hydric Soils Present?	Present? YES	NO NO NO	Is this Samplin	g Point Within a Wetland?	YES	NO
upland microsites. Co		dic floodin	g by the Susc	tivities and it consists of a moza quehanna River. There's a shallo oughout this section.		

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP					Date: 2 October 2008			
Applicant/Owner: PPL				County: Luzerne				
Investigator: Keith Maurice/Chris Roo	he			5	State: Pennsylvania			
Do Normal Circumstances exist on the site?					Community ID: Upland	old field		
Is the site significantly disturbed (Aty	oical Situation)?		YES NO		Transect ID: 1			
Is the area a potential Problem Area?		reverse)	YES NO	_	Plot ID: DP FFF1			
VEGETATION								
Dominant Plant Species	Stratum	Indicator		min	ant Plant Species	Stratum	Indicator	
1 Solidago canadensis	Herb	FACU	9					
2 Eleagnus angustifolia	Shrub	FACU	10					
3 Apocynum cannabinum	Herb	FACU	11					
4 Toxicodendron radicana	s Herb	FAC	12					
5 Fragaria virginianum	Herb	FACU	13					
6 7			14					
			15					
8			16					
Percent of Dominant Species that are	OBL, FACW, or FAC	(excluding FAC	C-)		20			
HYDROLOGY								
Recorded Data (Describe Stream, Lake Aerial Photog Other   No recorded Data Availab	, or Tide Gauge raphs		WETLAND HYDROLOGY INDICATORS  Primary Indicators:					
FIELD OBS	ERVATIONS		] ] ]		Sediment Deposits Drainage Patterns in V	Vetlands		
Depth of Surface Water	None present	(in)		dom.	Indicators (2 or more I	Jaguirad\.		
Depth to Free Water in Pit	None present	(in)		иагу	Indicators (2 or more F Oxidized Root Chann Water-Stained Leave	els in Upper 12 s	2 inches	
Depth to Saturated Soil >24 (in)			[		Local Soil Survey Dat FAC-Neutral Test Other (Explain in Rem			

SOILS							
Map Unit Name (Series	and Phase): Rexford	gravelly loai	m	Drainage	Class: Somewhat	Poorly to Poorly I	Drained
Taxonomy (Subgroup): Aeric Fragiaquepts Field Observa			ations Confirm	NO			
Depth (inches)	Horizon	Ma	OFILE DESC atrix Color nsell Moist)		Mottle Colors (Munsell Moist)	Texture, Co Structu	
0-18	Λn		0 YR 3/3	<u> </u>	indiaeli moist)	MF	
h	Ap .				<del></del>		
18-24	18-24 B 7.5 YR 5/5				-	MF	R
		HYD	RIC SOIL IND	DICATORS:			
Histosol Histic Epiped Sulfidic Odor Aquic Moistu Reducing Co	re Regime			Organic Str Listed on L Listed on N	s nic Content in Surface reaking in Sandy Soil ocal Hydric Soils List lational Hydric Soils L lain in Remarks)	ls t	oils
the edge of	the Rexford mappii	ng unit, whic	ch bounds a C	Chenago mar	oping unit.		
WETLAND DETE	PMINATION .						
Hydrophytic Vegetation Wetland Hydrology Pres Hydric Soils Present?	Present? YES	NO NO NO	Is this Sampli	ing Point Withi	n a Wetland?	YES	NO
Remarks: 50 feet SW	of wetland bounda	ary flag FFF	-42.				

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 2 October 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice/Chris Roche/Jayme Schaeffer			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Emergent Wetland
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DP FFF2

#### **VEGETATION**

	Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1	Glyceria sp.	Herb	OBL	9 Spiraea latifolia	Herb	FAC+
2	Juncus effusus	Herb	FACW+	10 Carex sp.	Herb	FAC-FACW
3	Polygonum sagitattum	Herb	OBL	11		
4	Polygonum pensylvanicum	Herb	FACW	12		
5	Vernonia noveboracensis	Herb	FACW	13		
6	Carex lurida	Herb	OBL	14		
7	Scirpus cyperinus	Herb	FACW+	15		
8	Lycopus sp.	Herb	OBL	16		
Percer	nt of Dominant Species that are OBL, FAC	W, or FAC (e	xcluding FA	C-) 100		
Rema	rks					
İ						

#### **HYDROLOGY**

Recorded Data (Describe in Stream, Lake, o Aerial Photogra Other  No recorded Data Available	or Tide Gauge uphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators:					
FIELD OBSER\	/ATIONS	<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>					
Depth of Surface Water	None Present	(in)					
Depth to Free Water in Pit None Present (in)			Secondary Indicators (2 or more Required):  X Oxidized Root Channels in Upper 12 inches  Water-Stained Leaves				
Depth to Saturated Soil >24		(in)	<ul> <li>X Local Soil Survey Data</li> <li>X FAC-Neutral Test</li> <li>Other (Explain in Remarks)</li> </ul>				

#### SOILS

Map Unit Name (Series and Phase): Rexford loam						
Taxonomy (Subgroup):	Aeric Fragiaquer	ots	Field Obs	ervations Confirm Mapped Type?	YES	NO
		-		DIDTION		
Depth	Horizo		PROFILE DESC Matrix Color	Mottle Colors	Texture, Cond	retions
(inches)	1101120		(Munsell Moist)	(Munsell Moist)	Structure,	
0-7	Ар		10 YR 4/1	7.5 YR 4/6	WSS	
7-24	В		10 YR 6/1	7.5 YR 4/6	WSS	
. – .						
					1	
	•	HY	DRIC SOIL IND	DICATORS:		
☐ Histosol				Concretions		
Histic Epipe	edon		H	High Organic Content in Surface La	yer in Sandy Soil	s
Sulfidic Odd	or			Organic Streaking in Sandy Soils		
Aquic Moist	ture Regime		х	Listed on Local Hydric Soils List		
Reducing C				Listed on National Hydric Soils List		
X Gleyed or L	ow-Chroma Colo	ors		Other (Explain in Remarks)		
Remarks :						
WETLAND DETE	<u>RMINATION</u>					
Hydrophytic Vegetation			NO			
Wetland Hydrology Pres	ent?			mpling Point Within a Wetland?	YES	NO
Hydric Soils Present? Remarks: S and W b	oundary is old		NO lands bords	er the N and E. 50 feet NE of wetla	and houndary	
flag FFF-4		neiu, agricuiti	urai iarius borue	er the N and E. 50 leet NE of wetta	and boundary	
~		surface in the	ne Rexford serie	es during the growing season (earl	v sprina).	
					,9/-	

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP					Date: 2 October 2008			
Applicant/Owner: PPL					County: Luzerne			
Investigator: Keith Maurice/Chris Roche					State: Pennsylvania			
Do Normal Circumstances exist on the site?				NO	Community ID: Upland	old field		
Is the site significantly disturbed (At	ypical Situation)?		YES	NO	Transect ID: 2			
Is the area a potential Problem Area	a? (if needed, explain on	reverse)	YES	NO	Plot ID: DP FFF3			
VEGETATION								
Dominant Plant Species	Stratum	Indicator		Dom	inant Plant Species	Stratum	Indicator	
1 Rosa multiflora	Shrub	FACU	9					
2 Eleagnus angustifolia	Shrub	FACU	10					
3 Apocynum cannabinui	m Herb	FACU	11					
4 Toxicodendron radical	ns Herb	FAC	12					
5 Solidago canadensis	Herb	FACU	13					
6 Daucus carota	Herb	FACU	14					
7 Polygonum perfoliatur	n Vine	FAC	15					
8			16					
Percent of Dominant Species that a	re OBL, FACW, or FA	C (excluding FA	C-)		29			
HYDROLOGY								
			ī					
Recorded Data (Describe	e in Remarks)			W	ETLAND HYDROLOG	Y INDICATO	RS	
	e, or Tide Gauge							
☐ Aerial Photo ☐ Other	ographs		Pri	mary I	ndicators: Inundated			
				H	Saturated in Upper 12	inches		
X No recorded Data Availa	ble				Water Marks			
FIFI D OBS	SERVATIONS				Drift Lines Sediment Deposits			
	1		4		Drainage Patterns in V	Netlands		
Depth of Surface Water	None present	(in	)					
Depth to Free Water in Pit	None present	(in		conda	ry Indicators (2 or more F Oxidized Root Chann Water-Stained Leave	els in Upper 12	2 inches	
Depth to Saturated Soil >20 (in)			)		Local Soil Survey Dat FAC-Neutral Test Other (Explain in Rem			
i	1							

and Phase):	Braceville gravelly lo	am	Drainage C	lass: Moderately W	ell Drained	
Typic Fragiud	depts	Field Observation	ons Confirm Mapped Typ	oe? <b>Y</b>	YES NO	
Horizo	on Ma	atrix Color	Mottle Color			
An	,		,			
			1			,
Ь	1.	3 TK 3/0	-		VV3/VV33	•
	LIVD	DIC COIL INDI	CATODO			
	нти	RIC SOIL INDI	CATORS:			
r ure Regime onditions	olors		High Organic Content ir Organic Streaking in Sa Listed on Local Hydric S Listed on National Hydr	indy Soils Soils List ic Soils List	andy Soils	
RMINATIO	ON					
Present?	YES NO YES NO	Is this Samplinç	p Point Within a Wetland?	? Y	ES	NO
A/ 6 // I						
vv or wettaria	boundary nag 1 1 1	0.				
	don or ure Regime onditions ow-Chroma Corable beyond	Typic Fragiudepts  PR Horizon Ma (Mui Ap 10 B 7.5 B 7.5  HYDI  don or ure Regime onditions ow-Chroma Colors rable beyond 20 inches. No wat  PR ERMINATION OF PESSINO YES NO YES NO NO	PROFILE DESCR Matrix Color (Munsell Moist)  Ap 10 YR 4/2  B 7.5 YR 5/6  HYDRIC SOIL INDI-  don	PROFILE DESCRIPTION Horizon  Matrix Color (Munsell Moist)  Ap  10 YR 4/2  B  7.5 YR 5/6  -  HYDRIC SOIL INDICATORS:  Concretions High Organic Content in or Organic Streaking in Saure Regime onditions ow-Chroma Colors  The present?  PROFILE DESCRIPTION Matrix Color (Munsell Moist) (Muns	Typic Fragiudepts  Field Observations Confirm Mapped Type?  PROFILE DESCRIPTION  Matrix Color (Munsell Moist)  Ap  10 YR 4/2  B  7.5 YR 5/6	PROFILE DESCRIPTION Horizon  Horizon  Matrix Color (Munsell Moist)  Ap  10 YR 4/2  10 YR 5/4  B  7.5 YR 5/6  -  WS/WSS  HYDRIC SOIL INDICATORS:  Concretions High Organic Content in Surface Layer in Sandy Soils or Organic Streaking in Sandy Soils Listed on Local Hydric Soils List on Local Hydric Soils List ow-Chroma Colors  Other (Explain in Remarks)  able beyond 20 inches. No water in bore hole.

#### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP				Date: 2 October 2008	Date: 2 October 2008		
Applicant/Owner: PPL				County: Luzerne	County: Luzerne		
Investigator: Keith Maurice/Chris Roche				State: Pennsylvania			
Do Normal Circumstances exist on the site?			YES NO	Community ID: Palust	trine Emergent	Wetland	
Is the site significantly disturbed (Atypical Situa			YES NO	Transect ID: 2			
Is the area a potential Problem Area? (if needed	d, explain on reve	erse)	YES NO	Plot ID: DP FFF4			
VECETATION							
VEGETATION		ī	ī		1		
Dominant Plant Species	Stratum	Indicator	1	ninant Plant Species	Stratum	Indicator	
1 Sambucus canadensis	Shrub	FACW-	9				
2 Vernonia noveboracensis	Herb	FACW	10				
<ul> <li>3 Onoclea sensibilis</li> <li>4 Eupatoriadelphus sp.</li> <li>5 Spiraea latifolia</li> <li>6 Solidago gigantea</li> <li>7</li> <li>8</li> </ul>	Herb	FACW	11				
4 Eupatoriadelphus sp.	Herb	FACW	12				
5 Spiraea latifolia	Herb	FAC+	13				
6 Solidago gigantea	Herb	FACW	14				
7			15				
			16				
Percent of Dominant Species that are OBL, FA	CW, or FAC (e	xcluding FA	C-)	100			
Remarks							
HYDROLOGY							
Recorded Data (Describe in Rema Stream, Lake, or Tide Aerial Photographs Other   No recorded Data Available	,			/ETLAND HYDROLOGI Indicators: Inundated Saturated in Upper 1. Water Marks		ORS	

Depth of Surface Water

Depth to Free Water in Pit

Depth to Saturated Soil

FIELD OBSERVATIONS

None Present

None Present

>24

Page 1 of 2

(in)

(in)

(in)

Drift Lines
Sediment Deposits
Drainage Patterns in Wetlands

Secondary Indicators (2 or more Required):

X FAC-Neutral Test Other (Explain in Remarks)

Oxidized Root Channels in Upper 12 inches
Water-Stained Leaves
Local Soil Survey Data

#### SOILS

Map Unit Name (Series and Phase): Rexford loam					
			YES	NO	
Horizon	PROFILE DESCF Matrix Color	RIPTION Mottle Colors	Texture, C	oncretions,	
	(Munsell Moist)	(Munsell Moist)	Structu	ıre, ect	
Ар	10 YR 4/1	5 YR 3/4	V	/S	
В	10 YR 6/1	7.5 YR 5/8	W	SS	
	HYDRIC SOIL INDI	CATORS:	-		
re Regime nditions		Organic Streaking in Sandy Soils Listed on Local Hydric Soils List		Soils	
nt? YES	NO Is this Sam	pling Point Within a Wetland?	YES	NO	
ot saturated within 12 in	n., but water table clo				
	Horizon  Ap B  Son  Regime Inditions W-Chroma Colors  RESENT?  YES YES YES YES Son Saturated within 12 in	Horizon  Horizon  PROFILE DESCE Matrix Color (Munsell Moist)  Ap 10 YR 4/1  B 10 YR 6/1  HYDRIC SOIL INDI  HYDRIC SOIL INDI  The Regime IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Inditions IN Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana 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Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana Indiana In	PROFILE DESCRIPTION  Matrix Color (Munsell Moist)  Ap  10 YR 4/1  B  10 YR 6/1  T.5 YR 5/8  HYDRIC SOIL INDICATORS:  Concretions High Organic Content in Surface L Organic Streaking in Sandy Soils re Regime nditions re Regime Content in Remarks)  I Listed on National Hydric Soils List United the Colors  Concretions High Organic Content in Surface L Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)  Concretions High Organic Content in Surface L Organic Streaking in Sandy Soils Listed on National Hydric Soils List United the Colors  Concretions Hydric Soils List Concretions High Organic Content in Surface L Organic Streaking in Sandy Soils Listed on National Hydric Soils List Listed on National Hydric Soils List Cother (Explain in Remarks)  Concretions Hydric Soils List Listed on National Hydric Soils List Listed on National Hydric Soils List Listed on National Hydric Soils List Listed on National Hydric Soils List Listed on National Hydric Soils List Nother (Explain in Remarks)  Concretions Hydric Soils List Listed on National Hydric Soils List Listed on National Hydric Soils List Listed on National Hydric Soils List Nother (Explain in Remarks)	PROFILE DESCRIPTION Horizon  Matrix Color (Munsell Moist)  Ap  10 YR 4/1  B  10 YR 6/1  HYDRIC SOIL INDICATORS:  Concretions High Organic Content in Surface Layer in Sandy Sire Regime Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions 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Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions Inditions In	

Applicant PPL	Application Number:	Project Name: Be	11 Bend N
State: PA County: Luzern,		on: Townshin: (/	.,
Date: 10/8/07 Plot No	.: DPG1	Section:	(G4)
Vegetation [list the three dom	inant species in es	ach vegetation layer	(5 1f
only 1 or 2 layers)]. Indicat		erved morphological o	r known
physiological adaptations with	an asterisk.		
Indicato Status	r Speci	Indicato Status	or .
Trees	Herbs		_
1. Acer inbrum . fac	5-4.	notarollia punctili	upl .
2. Querry rules FA	Ku 8. Lyc.	opodion obscorom	Facu
3.	9.		
Saplings/shrubs	Woody vines		•
4. Carya tomentore Fac	10.	_	
5. Amelamchier artoren Fa			
6. Linder beneon Fa			
Z of species that are OBL, FACW	. and/or FAC. 43	Other indiasters	
Hydrophytic vegetation: Yes	No X Basis	. $\leq 50^{\circ}$ /. FAC	
	Dasis	greater	
Soil	•	2,000	
Series and phase: Charles all			
Series and phase: Chanango golko	on nyaric so	olls list? Yes	No X
Mottled: Yes ; No X . M	orrie color:	; Matrix color: /	04R5/4.
Gleyed: Yes No X Oth	er indicators: ,	0 M C	•
Hydric soils: YesNo_X	_; Basis: _ no in	dienters	•
Unadara 3			
Hydrology			
Inundated: Yes; No X	Depth of standing	water:	•
Saturated soils: Yes; No	X Depth to sat	urated soil: > 16	*
Other indicators:	٥		
Wetland hydrology: Yes; No	DX Basis:	no indicators	
Atypical situation: Yes; No	×.		
Normal Circumstances? Yes	No.		
Vetland Determination: Wetland		; Nonwetland_ \gamma	
Comments:			-

Applicant PPL	Application Number:	Project Name: Ball Band	NPP
State: PA County: Luzerne	Legal Description:	Township: Salam	
Date: 10/F/07 Plot No.		Section: (G4)	_
			<del>-</del>
Vegetation [list the three domin	nant species in each	vegetation layer (5 if	
only 1 or 2 layers)]. Indicate			
physiological adaptations with			
Indicator		Indicator	
Species Status	Species	Status	
Trees	Herbs		
1. Acer rubrum Fac		a sensibilis Fecu	
2. Carya ovata Face	, , ,	corps: factualus 061	
3.	9. Impat	ions exponess from	
Saplings/shrubs	Woody vines		- ;
4. Lindera bensoin Fac	10.		
J. LIER VERTICE HATE	11.		
6.	12.		
Z of species that are OBL, FACW,			
Hydrophytic vegetation: Yes $\chi$	No Basis:	> 00% Fre or granter 110	
		•	
Soil .			
Series and phase: Atherton silt	loam On hydric soil	s list? Yes $\chi$ ; No	* .
Mottled: Yes / No . Mo	ttle color: 10 YR 172	; Matrix color: 18784/4.	
	- andredebible	<u> </u>	
Hydric soils: Yes_X No	; Basis: m. Hled	low chroma coil	
lydrology			
Inundated: Yes; No_X	Depth of standing wa	ter:	
Saturated soils: Yes ; No $\chi$			
Other indicators: tree hum.			vdata
Wetland hydrology: Yes 🐰 ; No			
typical situation: Yes; No			
Normal Circumstances? Yes 🗸	No		
etland Determination: Wetland_	<u> </u>	Nonwetland .	
Comments: dry condition,	-		i
	Determined by	: 1. Montyonan, L. Carlo	

Applicant PPL	Application Number:	on	Project Name: Bol	1 Band
State: PA County: Lute	ne Legal Des	cription: To	mehin: 5	1 DOLAS
Date: 10/9/08 Plot	No.: DP63		tion:	
				(6,30)
Vegetation [list the three de	ominant specie	s in each vece	etation lavor	(5 46
only 1 or 2 layers)]. Indica	ate species wi	th observed mo	rehologiani	(J II
physiological adaptations wit	th an asterisk		rphological	or known
Indicat			Indicate	
Species Status		Species	Status	J.
Trees	Herbs	<u>.</u>		<del></del>
	7.	Donn, tradtin	pun. f. 1,	Upl
_	8.		obserrum	
	9.	•		
Saplings/shrubs	Woody	vines	•	
1. Lindern bontain Fa	10.			
· Cornus racemosa F.	11.			
•	12.		•	
of species that are OBL, FAG	CW, and/or FAC	: 28 Other	indianno	
lydrophytic vegetation: Yes	No X	Basis: < 370 Z	Fac 1	•
·			THE OF THEM	er gr.
oil				
eries and phase: Chananio go	care lagar On hyd	ric coils 14s	+2 V	
ottled: Yes ; No X .	Mottle color:	TIC BUILS IIS	t: ies	$No_X$ .
Leyed: Yes No X Ot	her indicators	, ma	crix color: 1	OYRYJY.
vdric soils: YesNo_X	: Racie:	hone	1	<del></del> •
3		no India	tory	•
drology				
undated: Yes; No_X	Doneh of			
turated soils: Yes . No	Depen of sta	nding water:		
turated soils: Yes; No her indicators:	Depth	to saturated s	soil:	
tland hydrology: Voc	076			•
tland hydrology: Yes; N	Basi:	s: no in	dicators	
ypical situation: Yes; N	10			
rmal Circumstances? Yes X				
tland Determination: Wetland	l	, Nonwet	landX	
mments:				
	-			
	Determ	inad but / 4	r .	

Applicant PPL Application Project Name: Bell Bend NPP
State: PA County: Lozerne Legal Description: Township: Jalem
Date: 10/1/07 Plot No.: DPG4 Section: (630)
J
Vegetation [list the three dominant species in each vegetation layer (5 if
only 1 or 2 layers)]. Indicate species with observed morphological or known
physiological adaptations with an asterisk.
Indicator
Species Status Species Status
Trees Herbs
1. Acer rubrum Fac 7. Dennitardtin punctil Facu
2. Pinus stribus Fren 8. Lyeopudium observum Fren
3. Queres alla Faco 9. Relos hispidos Facos
Saplings/shrubs Woody vines
4. Vaccinium corymbosom Facus 10.
5. Lindern benzein trac 11.
12.
Z of species that are OBL, FACW, and/or FAC: 50. Other indicators:
Hydrophytic vegetation: Yes X No Basis: 57% Fac or greater in
0-41
Soil Carden and Carden
Series and phase: Atherton 1.14 lean On hydric soils list? Yes X ; No
Mottled: Yes X; No Mottle color: 104R4/4; Matrix color: 104R3/2.
Gleyed: Yes No_X Other indicators:
Hydric soils: Yes X No ; Basis: Mottad low chrama soil,
Hydrology
Inundated: Yes; No_X Depth of standing water:
Saturated soils: Yes ; No X . Depth to saturated soil: ?
Other indicators: FACNeutratest; Local soil survey date
Wetland hydrology: Yes X; No . Basis: 2 2° INdicator 5.
Atypical situation: Yes; No_X
Normal Circumstances? Yes X No
Wetland Determination: Wetland X ; Nonwetland
Comments:

Applicant PPL	Application Number:	Project Name: <b>B</b>	MBand N
State:County:	Legal Description		
Date: 10/9/07 Plot	No.: DPH	Section:	
Vegetation [list the three d			
only 1 or 2 layers)]. Indica	ate species with obser	rved morphologic	al or known
physiological adaptations wi	th an asterisk.		
Indicas Species Status		Indies Star	cator tus
Trees	Herbs		
1. Betala lenta Fac	1. Denni	tardtin practi	$O_{r}$ )
2. Truga camadensis Face	8.		
3. Acer rubrom Fre	9.		
Saplings/shrubs	Woody vines		
4. Ruber alleshenismiis F	10.	-	
5. Quercus rubin rendit	FACU 11.		
6	12.		
% of species that are OBL, FA	CW. and/or FAC:   8	Other indicator	· g •
Hydrophytic vegetation: Yes	No _X Basis:	< 30% Fac or 9	renter irr
C-47			
Soil Soil			
Series and phase: Braceville	unv. lon On hydric so	ils list? Yes_	; No_X
Mottled: Yes; No_\frac{\chi}{2}.	Mottle color:	; Matrix colo	r: 104R4/4.
Gleyed: Yes No X O	ther indicators:	none	•
Hydric soils: Yes No	; Basis:	ndicatori	
Hydrology			
Inundated: Yes; No_X	. Depth of standing w	water:	
Saturated soils: Yes; N	o $X$ . Depth to sati	urated soil: 2/	ζ".
Other indicators: No	ис		
Wetland hydrology: Yes;		o indicatori	
Atypical situation: Yes;			
Normal Circumstances? Yes 💢			•
Wetland Determination: Wetlan		; Nonwetland	X
Comments:			•

# DATA FORM 1 WETLAND DETERMINATION

Applicant PPL	Application	n	Project Name: Re N (	BENDNPF
State: PA County: Luze,	nc Legal Desc	cription: Towns	hin: S. I.	5-142/011
Date: 10/7/07 Plot N	10.DPH 2	Section		(H4)
				(11)
Vegetation [list the three do	minant species	in each vegeta	tion laver (5	. 1f
only 1 or 2 layers)]. Indica	te species wit	h observed morni	nological or	knorm
physiological adaptations wit	h an asterisk.			enown
Indicat			Indicator	
Species Status	-	Species	Status	
Trees	Herbs			
21 1/201	nc 7.	Osmanda cin	namomer f	new .
2.	8.	Rubus hispie	101 F	new
3.	9.			
Saplings/shrubs	Woody	vines		
4. Lindon bentoin	10.	-		
CCI-110-22 CFT y - CFT	11.			
6. Carpinus carolinsano				
% of species that are OBL, FAC	W, and/or FAC	100 . Other in	dicators:	•
Hydrophytic vegetation: Yes		Basis: 1007, Fx	c or greater	5/7
			•	
<u>So11</u>				
Series and phase: Rexturd la	on hyd	ric soils list?	Yes X; N	lo
Nottled: Yes No	Mottle color:	OYR 1/4 ; Matr	ix color: 10 Y	26/1.
Gleyed: Yes No_X_ Ot	her indicators			
Hydric soils: Yes X No	; Basis: <i>m</i>	nottend low chr	oma soil	
Hydrology				
Inundated: Yes; No $\chi$				
Saturated soils: Yes; No	$\chi$ Depth	to saturated soi	1: 7	
Other indicators: free he	mmocks, wa	torestained 7-	FA	Neutra
Vetland hydrology: Yes $\chi$ ;	No Basi	5: 2 2ª INC	licator	<u> </u>
Atypical situation: Yes;	No_X		1	•
Normal Circumstances? Yes X				
etland Determination: Wetland	<u> </u>	; Nonwetla	nd	
Comments: dry conditions				-

Determined by: / Montgomeny L. Comel

## DATA FORM 1 WETLAND DETERMINATION

Applicant PPL Name:	Application Number:	Project Name: Ball C	DENCONPP
State: PA County: Luzer	Legal Description:	Township: Salem	
	20-1	Section:	
Vegetation [list the three dom	inant species in each	vegetation layer (5	1f
only 1 or 2 layers)]. Indicate	e species with observe	d morphological or	known
physiological adaptations with	an asterisk.		
Indicator Species Status	r Species	Indicator Status	
Trees	Herbs		i i
1	7. Solida	to Labora	Fac
2.	8. alecho	me hedorares	Facu
3.	9. Solod	mso commoderiis	Fres
Saplings/shrubs	Woody-vines	u	· ·
4.	10. Cirriu	im arrense	FACU
5.	11.		
6.	12.		
% of species that are OBL, FACE	ا, and/or FAC: كوت. 01	ther indicators:	<u> </u>
Hydrophytic vegetation: Yes	No _ × . Basis: 6	00% Fac or great	ec 1/1 .
Soil			
Series and phase: Chenanno gra	velly la-On hydric soils	s list? Yes;	No_χ
Mottled: Yes; No_& N			
Gleyed: Yes No X Oth	ner indicators:	не	
Hydric soils: Yes No			•
Hydrology			
Inundated: Yes; No_X	Depth of standing was	ter:	
Saturated soils: Yes; No_			
Other indicators: Nor			•
Wetland hydrology: Yes; N		indientou	•
Atypical situation: Yes;	lo <u>γ</u>		
Normal Circumstances? Yes X			
Wetland Determination: Wetland	1; 1	Nonwetland X	<u> </u>
Comments:			

Determined by: J. M. Come L. Come

## DATA FORM I WETLAND DETERMINATION

Applicant PPL Application Project Name: Name: Bel Bench N	PP
State: A County: Luzerre Legal Description: Township: Salem	
Date: 10/10/07 Plot No.: DPI2 Section: II	
(167)	
Vegetation [list the three dominant species in each vegetation layer (5 if	
only 1 or 2 layers)]. Indicate species with observed morphological or known	
physiological adaptations with an asterisk.	
Indicator	
Species Status Species Status	
<u>Trees</u> <u>Herbs</u>	
1. Accordance Fra 7. Importions commerce frame	
2. Queres yalostris Faces 8. Ohoclea sensibilis faces	
3. Cinna arundinara face	
Saplings/shrubs Woody vines	
4. Lindera benzoin Facu 10	
5. Vaccinium corymhere farm 11.	
12.	
% of species that are OBL, FACW, and/or FAC: 100. Other indicators:	
Hydrophytic vegetation: Yes X No Basis: 100 % fac or freater in	
Soil	
	·
Series and phase: Rexford Loam On hydric soils list? Yes X; No	
Mottled: Yes / ; No . Mottle color: 10 y & 1/2; Matrix color: 10 y & 1/1.	
Gleyed: YesNo_\( \) Other indicators:	
Hydric soils: Yes / No ; Basis: motted low chrome soil .	
Hydrology	
Inundated: Yes ; No X . Depth of standing water:	
Saturated soils: Yes X; No . Depth to saturated soil: 6".	
Other indicators: water-stained leaves	
Wetland hydrology: Yes X; No Basis: saturated soil .	
Atypical situation: Yes; No_X	
Normal Circumstances? Yes X No	
Wetland Determination: Wetland X ; Nonwetland .	
Comments:	

etermined by: 1 Montamen L. Garl

# DATA FORM 1 WETLAND DETERMINATION

Name: PPL	Application Number:	Project Name: Bell Bend N
State: PA County: Lu	Legal Description	
Date: 10/10/07 Plo		Section:
Vegetation [list the three	dominant species in eac	h vegetation layer (5 if
only 1 or 2 layers)]. Ind	icate species with obser	ved morphological or known
physiological adaptations	with an asterisk.	
	cator tus Specie	Indicator Status
Trees	Herbs	
1.	7. Solia	lago canadeniis Face
2.		r priosus Upi
3.	9. gras	(unident)
Saplings/shrubs	Woody-vines	
4. –	10. S.l.	days regora fac
5.	11.	
6.	12.	
% of species that are OBL,		Other indicators:
		450% Fre or greater me.
		7.7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7.
Soil		
Series and phase: Amerilla	acceptly land On hydric so	ils list? Yes; No_X
Mottled: Yes : No X	. Mottle color:	; Matrix color: 10 \ns/3.
Gleyed: Yes No X	Other indicators:	, Matrix Color
Hydric soils: YesNo		
	, <u>J</u>	ndicatori.
Hydrology		
Inundated: Yes ; No $X$	Donth of standing	
Saturated soils: Yes;		urated soil: / 18
Other indicators: Nor		*
Wetland hydrology: Yes		no indicators.
Atypical situation: Yes		
Normal Circumstances? Yes_		
Wetland Determination: Wet	:land	Nonwetland X
Comments:		

Determined by: 1 Montgomen L. Carlo

### DATA FORM I WETLAND DETERMINATION

Applicant Name:	Application Number:	Project Name:	
State: PA County: Luza	me_Legal Description	: Township: Jalan	
	o.: DRJ2	Section:	
Vegetation [list the three do	minant species in each	h vegetation layer (5	if
only 1 or 2 layers)]. Indica	te species with observ	ved morphological or k	nown
physiological adaptations with	n an asterisk.		
Indicate		Indicator	
Species Status	Species	Status	• •
Trees	Herbs		
	7.		
2. Queres palvitais for	•		
	9.		
Saplings/shrubs	Woody vines		4.3
4. Tlex verticallate F.  5. Vaccinin coryantorum			
	-		
1,664 1641.00	12.		
Z of species that are OBL, FAC	W, and/or FAC: 100	Other indicators:	•
Hydrophytic vegetation: Yes	No Basis:_	10070 FAC OF	•
		J. Zack	
Soil Sorder and above it	" 1		',
Series and phase: Braceville gra	velly logic On hydric soi	ls list? Yes; N	ο <u>χ</u> .
Mottled: Yes X; No			24/2.
Gleyed: Yes No X Ot			<del></del> • , . ,
Hydric soils: Yes V No	; Basis: mitted	low chroma soil	•
Uvrdena I a ann			
Hydrology		•	
	Depth of standing w		•
Saturated soils: Yes ; No			i 4
Other indicators: FAC Ne	THE LESTING	<u>cal Soil Surv</u>	eydala
Wetland hydrology: Yes X;		2 Indicat	<u>27</u> 5
Atypical situation: Yes;		• •	•
Normal Circumstances? Yes Y	<del></del>		
Wetland Determination: Wetlan	d;	Nonwetland	•
Comments: dry conditions			

Determined by: 1. Montoney L. Garlo

## DATA FORM 1 WETLAND DETERMINATION

States: PA County: Luterac Legal Description: Township: Salem  Date: 10/10/07	Applicant PPL	Application Number:	Project Name: Ball Band NPP
Date: 10/10/07 Plot No.: DPK Section:  Vegetation [list the three dominant species in each vegetation layer (5 if only 1 or 2 layers)]. Indicate species with observed morphological or known physiological adaptations with an asterisk.  Indicator Species Indicator Species Status  Trees Herbs  1.	State: PA County: Luter	Ac Legal Description:	
only 1 or 2 layers)]. Indicate species with observed morphological or known physiological adaptations with an asterisk.    Indicator   Species   Status	•	~ !	
only 1 or 2 layers)]. Indicate species with observed morphological or known physiological adaptations with an asterisk.    Indicator   Species   Status			
Indicator Species Status  Trees    Herbs	Vegetation [list the three dom	inant species in each	vegetation layer (5 if
Indicator Species  Indicator Status  Trees  1.	only 1 or 2 layers)]. Indicat	e species with observe	ed morphological or known
Species Status  Trees  Herbs  1.	physiological adaptations with	an asterisk.	
2.  3.  8. Agreedy, percentages for a great considering for a great considerin			
8. Agost. percensus. face  9. grass (vm.dt)  Saplings/shrubs  Woody vines  4. Accr robron face 10. Tovice dendron radical, face 5. Re., moltifline face 11.  6. 12.  Z of species that are OBL, FACW, and/or FAC: 40. Other indicators: Hydrophytic vegetation: Yes No X. Basis: 5007, face or grate grave.  Soil  Series and phase: Revford Learn On hydric soils list? Yes X; No  Mottled: Yes ; No X. Mottle color: ; Matrix color: 10 yr face  Gleyed: Yes No X Other indicators: none  Hydric soils: Yes No X; Basis: no judicator.  Hydrology  Inundated: Yes ; No X. Depth of standing water:  Saturated soils: Yes ; No X. Depth to saturated soil: > 15"  Other indicators: none  Wetland hydrology: Yes ; No X. Basis: no judicator.  Atypical situation: Yes ; No X.  Normal Circumstances? Yes X No  Wetland Determination: Wetland ; Nonwetland X	Trees	Herbs	
8. Agost. percensus. face  9. grass (vm.dt)  Saplings/shrubs  Woody vines  4. Accr robron face 10. Tovice dendron radical, face 5. Re., moltifline face 11.  6. 12.  Z of species that are OBL, FACW, and/or FAC: 40. Other indicators: Hydrophytic vegetation: Yes No X. Basis: 5007, face or grate grave.  Soil  Series and phase: Revford Learn On hydric soils list? Yes X; No  Mottled: Yes ; No X. Mottle color: ; Matrix color: 10 yr face  Gleyed: Yes No X Other indicators: none  Hydric soils: Yes No X; Basis: no judicator.  Hydrology  Inundated: Yes ; No X. Depth of standing water:  Saturated soils: Yes ; No X. Depth to saturated soil: > 15"  Other indicators: none  Wetland hydrology: Yes ; No X. Basis: no judicator.  Atypical situation: Yes ; No X.  Normal Circumstances? Yes X No  Wetland Determination: Wetland ; Nonwetland X	1.	7. Solidare	s coundomiss From:
3. 9. grass (one dent)  Saplings/shrubs Woody vines  4. Accr (obrown Fac 10. Tovice dendron radican), Fac  5. No. moltithes fac 11.  6. 12.  Z of species that are OBL, FACW, and/or FAC: 40. Other indicators: Hydrophytic vegetation: Yes No X. Basis: 5007, Fac or greater grass.  Soil  Series and phase: Newford Learn On hydric soils list? Yes X; No  Mottled: Yes ; No X. Mottle color: ; Matrix color: 10 yr fac.  Gleyed: Yes No X Other indicators: none  Hydric soils: Yes No X . Depth of standing water:  Saturated soils: Yes ; No X . Depth to saturated soil: >15"  Other indicators: No X . Depth to saturated soil: >15"  Wetland hydrology: Yes ; No X . Basis: no judicators  Wetland Situation: Yes ; No X .  Normal Circumstances? Yes X No  Wetland Determination: Wetland ; Nonwetland X	.2.		
4. Acer robrom  Fac. 10. Toxicodendrom radican, fac.  5. No, modifies fac. 11.  6. 12.  Z of species that are OBL, FACW, and/or FAC: 40. Other indicators:  Hydrophytic vegetation: Yes No X. Basis: 5507 fac. or greater rec.  Soil  Series and phase: Revford Learn On hydric soils list? Yes X; No Mottled: Yes ; No X. Mottle color: ; Matrix color: 10 Y K C C C C C C C C C C C C C C C C C C	3.	9. grass (	(un, dant)
5. No, moltifline face 11. 6. 12.  Z of species that are OBL, FACW, and/or FAC: 40. Other indicators: Hydrophytic vegetation: Yes No X. Basis: 5007. Face or greater for .  Soil Series and phase: Revfeet Learn On hydric soils list? Yes X; No . Mottled: Yes ; No X. Mottle color: ; Matrix color: 10 YES .  Gleyed: Yes No X Other indicators: 10 00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Saplings/shrubs	Woody vines	
Z of species that are OBL, FACW, and/or FAC: 40. Other indicators:  Hydrophytic vegetation: Yes No X. Basis: 5507 Fac or greater are  Soil  Series and phase: Revford Loam On hydric soils list? Yes X; No  Mottled: Yes ; No X. Mottle color: ; Matrix color: 10 YK X.  Gleyed: Yes No X Other indicators: none  Hydric soils: Yes No X Depth of standing water:  Saturated soils: Yes ; No X Depth to saturated soil: >16"  Other indicators: No X Depth to saturated soil: >16"  Other indicators: No X Depth to saturated soil: >16"  Atypical situation: Yes ; No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstances? Yes X No X Depth of Standing water: Normal Circumstanc	4. Acer subruman Fac	10. Tavica.	dendron radicans fac
Z of species that are OBL, FACW, and/or FAC: 40. Other indicators:  Hydrophytic vegetation: Yes No X . Basis: 5007 For or orate ser  Soil  Series and phase: Revford Learn On hydric soils list? Yes X; No .  Mottled: Yes ; No X . Mottle color: ; Matrix color: 10 YK .  Gleyed: Yes No X Other indicators: none Hydric soils: Yes No X; Basis: no indicator:  Hydrology Inundated: Yes ; No X . Depth of standing water:  Saturated soils: Yes ; No X . Depth to saturated soil: > 16 "  Other indicators: none Wetland hydrology: Yes ; No X . Basis: no indicators  Atypical situation: Yes ; No X .  Normal Circumstances? Yes X No .  Wetland Determination: Wetland ; Nonwetland X	5. Rosa multiflere Face	11.	
Hydrophytic vegetation: Yes No X . Basis: 6507 Fac or grater ser.  Soil  Series and phase: Revford Learn On hydric soils list? Yes X; No .  Mottled: Yes ; No X . Mottle color: ; Matrix color: 10 YK .  Gleyed: Yes No X Other indicators: none.  Hydrology  Inundated: Yes ; No X . Depth of standing water:  Saturated soils: Yes ; No X . Depth to saturated soil: > 16"  Other indicators:	6.	12.	
Hydrophytic vegetation: Yes No X . Basis: 6507 Fac or grater ser.  Soil  Series and phase: Revford Learn On hydric soils list? Yes X; No .  Mottled: Yes ; No X . Mottle color: ; Matrix color: 10 YK .  Gleyed: Yes No X Other indicators: none.  Hydrology  Inundated: Yes ; No X . Depth of standing water:  Saturated soils: Yes ; No X . Depth to saturated soil: > 16"  Other indicators:	${\bf Z}$ of species that are OBL, FACE	V, and/or FAC: 40 . 0	ther indicators:
Series and phase: Revford Learn On hydric soils list? Yes X; No  Mottled: Yes ; No X . Mottle color: ; Matrix color: 10 YR X .  Gleyed: Yes No X Other indicators: none  Hydric soils: Yes No X : Basis: no indicator.  Hydrology Inundated: Yes ; No X . Depth of standing water:  Saturated soils: Yes ; No X . Depth to saturated soil: > 16 "  Other indicators: none  Wetland hydrology: Yes ; No X . Basis: no indicator.  Atypical situation: Yes ; No X .  Normal Circumstances? Yes X No  Wetland Determination: Wetland ; Nonwetland X			
Series and phase: Revford Learn On hydric soils list? Yes X; No  Mottled: Yes ; No X . Mottle color: ; Matrix color: 10 YR X .  Gleyed: Yes No X Other indicators: none  Hydric soils: Yes No X : Basis: no indicator.  Hydrology Inundated: Yes ; No X . Depth of standing water:  Saturated soils: Yes ; No X . Depth to saturated soil: > 16 "  Other indicators: none  Wetland hydrology: Yes ; No X . Basis: no indicator.  Atypical situation: Yes ; No X .  Normal Circumstances? Yes X No  Wetland Determination: Wetland ; Nonwetland X			
Mottled: Yes ; No X . Mottle color: ; Matrix color: 10 YR	<u>So11</u>		
Gleyed: Yes No X Other indicators: No A .  Hydrology Inundated: Yes ; No X . Depth of standing water:  Saturated soils: Yes ; No X . Depth to saturated soil: > If "  Other indicators: Set ; No X . Basis: No Set Set Set Set Set Set Set Set Set Set	Series and phase: Revford La	On hydric soil	s list? Yes <u> X</u> ; No
Gleyed: Yes No X Other indicators: No A .  Hydrology Inundated: Yes ; No X . Depth of standing water:  Saturated soils: Yes ; No X . Depth to saturated soil: > If "  Other indicators: Set ; No X . Basis: No Set Set Set Set Set Set Set Set Set Set	Mottled: Yes; No_X . M	lottle color:	; Matrix color: 10 yk s/4.
Hydrology Inundated: Yes ; No X . Depth of standing water:  Saturated soils: Yes ; No X . Depth to saturated soil: > If "  Other indicators:  Wetland hydrology: Yes ; No X . Basis: no judicators  Atypical situation: Yes ; No X .  Normal Circumstances? Yes X No  Wetland Determination: Wetland ; Nonwetland X	Gleyed: YesNo_X Oth	er indicators: no	n-a
Inundated: Yes ; No X . Depth of standing water:  Saturated soils: Yes ; No X . Depth to saturated soil: > If "  Other indicators:	Hydric soils: YesNo	: Basis: no indic	-+-,,
Inundated: Yes ; No X . Depth of standing water:  Saturated soils: Yes ; No X . Depth to saturated soil: > If "  Other indicators:			
Saturated soils: Yes ; No X . Depth to saturated soil: > 15"  Other indicators:	Hydrology		
Other indicators:  Wetland hydrology: Yes; No X . Basis: no judicators.  Atypical situation: Yes; No X .  Normal Circumstances? Yes X No .  Wetland Determination: Wetland ; Nonwetland X .	Inundated: Yes; No_X	Depth of standing wa	ter:
Wetland hydrology: Yes ; No X . Basis: no judicature.  Atypical situation: Yes ; No X .  Normal Circumstances? Yes X No .  Wetland Determination: Wetland ; Nonwetland X .	Saturated soils: Yes; No	X . Depth to satur	ated soil: > IF"
Wetland hydrology: Yes ; No X . Basis: no judicature.  Atypical situation: Yes ; No X .  Normal Circumstances? Yes X No .  Wetland Determination: Wetland ; Nonwetland X .			
Normal Circumstances? Yes X No .  Wetland Determination: Wetland ; Nonwetland X .			judicators .
Wetland Determination: Wetland ; Nonwetland X .	Atypical situation: Yes; N	lo <u>X</u> .	
•	Normal Circumstances? Yes X	No	
•	Wetland Determination: Wetland	;	Nonwetland X
	,		

Determined by: / Montgaman

Applicant PPL	Application Number:	Project Name: Bell B	and NPP
State: 1A County: Lvzerne	Legal Description: T		
Date: 10/14/07 Plot No.	: DPK2 Se	ction:	<u> </u>
Vegetation [list the three domi	nant species in each ve	getation layer (5	if
only 1 or 2 layers)]. Indicate	species with observed	morphological or 1	known
physiological adaptations with	an asterisk.		•
Indicator		Indicator	
Species Status	Species	Status	
Trees	Herbs		
1. —			Faew
2.	8. Solidar o	igantea	Face
3.	9. Junios e	ffcor,	Frew
Saplings/shrubs	Woody wines		Fac
4. Acer rubrum Fac	10. E. thami	a graminit.	Fac
5.	11. Soliday.	rugore	
6.	12.		
% of species that are OBL, FACW	, and/or FAC: 100. Oth	er indicators:	•
Hydrophytic vegetation: Yes X			
		•	
Soil >			w
Series and phase: Lex ford Lon	On hydric soils	list? Yes 🗶 📑	No .
Mottled: Yes X ; No . Mo			
Gleyed: YesNo_X_Othe			•
Hydric soils: Yes X No		w chroma roil	•
			N. C.
Hydrology			
Inundated: Yes; No_X	Depth of standing water	r:	
Saturated soils: Yes X; No	· ·		
Other indicators: adjacent			
Wetland hydrology: Yes X; No		sted soil	
Atypical situation: Yes; No			
Normal Circumstances? Yes X			
Wetland Determination: Wetland	. U	nwetland	
Comments:	, 100	c.c.tanu	•

Applicant PPL	Application Number:	Project Name: Boll Band NPF
State: /A County: Luzerne	Legal Description:	Township: Jalam
Date: 10/16/07 Plot No.	: DPK3	Section: New K45
Vegetation [list the three domi	nant species in each v	regetation layer (5 if
only 1 or 2 layers)]. Indicate	species with observed	l morphological or known
physiological adaptations with		
Indicator		Indicator
Species Status	Species	Status
Trees	Herbs	F
1. Acer rubrum fac	7. Mit. Lell.	repen, Free
2. Betala lenta face	0.	
3. Fraxinus americana Faci	9.	
Saplings/shrubs	Woody vines	
4. Lindora benzoin Free	10. —	
<b>5.</b> ;	11.	
6.	12.	
% of species that are OBL, FACW	, and/or FAC: 40 . Ot	her indicators:
Hydrophytic vegetation: Yes	No X . Basis: < 8	0% fac ir greater ipr
Soll Ogunggat Lora	lutown	
Series and phase: Cxt stony wilt	loam On hydric soils	list? Yes; No_X
Mottled: Yes; No_X . Mo		; Matrix color: 104R376.
Gleyed: Yes No_ X Other		·
Hydric soils: Yes No X	; Basis: no india	nters.
Hydrology		
Inundated: Yes; No_X	Depth of standing wat	er:
Saturated soils: Yes; No	$\times$ . Depth to satura	ted soil: $7(\delta^{\prime\prime})$ .
Other indicators:		•
Wetland hydrology: Yes; No	X Basis: No	indienters.
Atypical situation: Yes; No	<u> </u>	
Normal Circumstances? Yes X	No	
Wetland Determination: Wetland	; N	onwetland A .
Comments:		

Applicant PPL	Application Number:	Project Name: Bell Bend NPP
State: /A County: Lo	terme Legal Description	
	t No.: DPK4	Section: Near K44
Vegetation [list the three	dominant species in eac	h vegetation layer (5 if
only 1 or 2 layers)]. Ind:	icate species with obser	ved morphological or known
physiological adaptations v	with an asterisk.	r = r
	cator	Indicator
Species Stat	tus Specie.	Status
Trees	<u>Herbs</u>	•
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		en remibility them
2.		da cinnamoura faran
3.	9. Dry .,	tonis earthwriand Face
Saplings/shrubs	Woody vines	
COLINE DE MEDIA	10.	
5.	11.	
6.	12.	
% of species that are OBL,		
Hydrophytic vegetation: Ye	s X No Basis:_	100% Fac is greater in.
<u>Soil</u>		
Series and phase: Rexford		
Mottled: Yes X; No		
Gleyed: YesNo_X		
Hydric soils: Yes V No	: Basis: mo filed	low chrom- soil.
And the second		
Hydrology		
Inundated: Yes; No_X		
Saturated soils: Yes $\chi$ ;	No Depth to satu	rated soil: 10-/6"
Other indicators: stren	mide; FAC Nout	ral: Local soil survey date
Wetland hydrology: Yes 🛚 🗡	; No Basis: a	a indicators.
Atypical situation: Yes		
Normal Circumstances? Yes	<u>Χ</u> Νο	
Wetland Determination: Wet	land $\chi$ ;	Nonwetland
Comments:		

# DATA FORM 1 WETLAND DETERMINATION

Applicant PPL	Application Number:	Project Name: Ball Bend NPP
State: 14 County: Luterno		waship: Salem
Date: 10/25/07 Plot No.	:DPK5 Sec	tion:
	•	
Vegetation [list the three domi	nant species in each veg	etation layer (5 if
only 1 or 2 layers)]. Indicate	species with observed me	orphological or known
physiological adaptations with	an asterisk.	
Indicator		Indicator
Species Status	Species	Status
Trees	Herbs	Em.
1. Fuglans north		
2. Frazinus americana Fac		mt)
3. Promos scrotina Far		
Saplings/shrubs	Woody vines	
4. Corner Florida tac 5. Elanson umballata Ur	10. Vitis ripar	in Facu
6. Promos seratina From		
	12.	
% of species that are OBL, FACW		
Hydrophytic vegetation: Yes	No X Basis: < 507	s Fac or greater sur.
So11	•	
Series and phase: Rextond los		
Mottled: Yes; No_X Mo		
Gleyed: Yes No X Other		
Hydric soils: YesNo_X	; Basis: no indienter	•
Hydrology		
Inundated: Yes; No_K		
Saturated soils: Yes; No		soil: > / L "
Other indicators:nene		*
Wetland hydrology: Yes; No		dientors.
Atypical situation: Yes; No		
Normal Circumstances? Yes 🐰	<del></del>	
Wetland Determination: Wetland	; Nonw	retland 7
Comments:		•.

Determined by: J. Montgomen, L. Couly

# DATA FORM 1 WETLAND DETERMINATION

Applicant PPL Application Project Name: Name: Name:	U Band N
State: YA County: Loterne Legal Description: Township: 5-	
Date: 10/25/07 Plot No.: DPK 6 Section:	
Vegetation [list the three dominant species in each vegetation layer	(5 if
only 1 or 2 layers)]. Indicate species with observed morphological	or known
physiological adaptations with an asterisk.	
Indicator Indicat Species Status Species Status	
<u>Trees</u> <u>Herbs</u>	
1. Acer rubrum Fac 7. Onoclea sensibilis	reu .
2. 8. Suliday sugara F	٨٠
3. 9.	•
Saplings/shrubs Woody vines	
4. Vibumum dontatum Fac 10.	*
5. Linder benzoin Facw 11.	*
6. Carner amount Facus 12.	1,
I of species that are OBL, FACW, and/or FAC: 100. Other indicators:	
Hydrophytic vegetation: Yes X No . Basis: 100% Fac or gree	ntor ar
<u>So11</u>	
Series and phase: Restord loam On hydric soils list? Yes X	
Mottled: Yes X; No Mottle color: 10 yr 4/c; Matrix color:	10 YR 4/2.
Gleyed: YesNo_X_Other indicators:	•
Hydric soils: Yes X No ; Basis: mottled low channers	<u>; )                                    </u>
Hydrology	
Inundated: Yes; No_X . Depth of standing water:	•
Saturated soils: Yes $\chi$ ; No Depth to saturated soil: 10 "	·
Other indicators: streamilde	•
Wetland hydrology: Yes X ; No . Basis: saturated sor)	•
Atypical situation: Yes; NoY	
Normal Circumstances? Yes X No .	
Wetland Determination: Wetland X; Nonwetland	<u> </u>
Comments:	

Determined by: J. Montyomen L. God

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP		Date: 25 March 2008				
Applicant/Owner: PPL				County: Luzerne		
Investigator: Keith Maurice				State: Pennsylvar	nia	
Do Normal Circumstances exist on the	ne site?		YES NO	Community ID: Su	ccessional Old Fiel	d
Is the site significantly disturbed (Aty	pical Situation)?		YES NO	Transect ID: 1		
Is the area a potential Problem Area	? (if needed, explain on	reverse)	YES NO	Plot ID: DPKK1		
VEGETATION						ı
Dominant Plant Species	Stratum	Indicator		ninant Plant Species	Stratum	Indicator
1 Rubus allegheniensis		FACU-	9			
2 Rosa multiflora *	Shrub	FACU	10			
3 Hesperis matronalis *	Herb	FACU-	11			
4 Alliaria petiolata	Herb	FACU-	12			
5 Cicuta bulbifera	Herb	OBL	13			
6 Solidago spp.	Herb	FACU-FACW	14			
7			15			
8			16			
Percent of Dominant Species that are	e OBL, FACW, or FAC	C (excluding FAC	C-)	0		
HYDROLOGY						
Recorded Data (Describe Stream, Lake Aerial Photog	e, or Tide Gauge		WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches			ORS
X No recorded Data Availab	ole			Water Marks		
FIELD OBSERVATIONS				Drift Lines Sediment Deposi Drainage Pattern		
Depth of Surface Water	oth of Surface Water None present (in)					
Depth to Free Water in Pit	Depth to Free Water in Pit None present (in)			Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inche  Water-Stained Leaves		
Depth to Saturated Soil	>24	(in)		Local Soil Surve FAC-Neutral Tes Other (Explain in	st	

SOILS											
Map Unit Name (Series and Phase): Fill				Drainage Class: Field Observations Confirm Mapped Type? YES NO							
Taxonomy (Subgroup):			Field Observations Confirm Mapped Type? YES								
Depth Horizon (inches)		on	PROFILE DESCRIPTION  Matrix Color  (Munsell Moist)  Mottle Colors  (Munsell Moist)			Mottle Colors (Munsell Moist)	Texture, Concretions Structure, ect				
0-24	Fill		,	) YR 4/2		2.5 YR 4/4		ghtly sticky			
0-24			10	7 113 4/2		2.5 11(4/4	vvet slig	gritty Sticky			
		1			†						
<u> </u>			HYDI	RIC SOIL IND	ICATORS	<b>:</b>	L				
Histosol Histic Epiped Sulfidic Odol Aquic Moistu Reducing Co	re Regime				Organic S Listed on Listed on	anic Content in Surfac Streaking in Sandy So I Local Hydric Soils Lis I National Hydric Soils	ils st	Soils			
Gleyed or Low-Chroma Colors Other (Explain in Remarks)											
Remarks : Data point located on reflect historic condition			•			cilities. Low soil chr	omas and mottli	ng			
WETLAND DETE Hydrophytic Vegetation Wetland Hydrology Pres	Present?	ON YES YES	NO NO	Is this Samplir	ıa Point Wit	thin a Wetland?	YES	NO			
Hydric Soils Present?	Serie:	YES	NO	is this campin	ig i Ollit vvit	unin a vveuana:	120	140			
Remarks											

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 25 March 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Emergent Wetland
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DPKK2

#### **VEGETATION**

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1 Typha latifolia *	Herb	OBL	9			
2 Phragmites australis *	Herb	FACW	10			
3 Microstegium vimineum *	Herb	FAC	11			
4 Onoclea sensibilis	Herb	FACW	12			
5			13			
6			14			
7			15			
8			16			
Percent of Dominant Species that are OBL, F	ACW, or FA	C (excluding FA	(C-)	100		
Remarks						
* = Dominant species						

#### **HYDROLOGY**

Aerial Photog Other  X No recorded Data Availab	s, or Tide Gauge graphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators:  X Inundated X Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands	
Depth of Surface Water	6	(in)	_
Depth to Free Water in Pit	1	(in)	Secondary Indicators (2 or more Required):  X Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	surface	(in)	<ul> <li>X Local Soil Survey Data</li> <li>X FAC-Neutral Test</li> <li>Other (Explain in Remarks)</li> </ul>

SOILS							
Map Unit Name (Series a	and Phase): Holly silt loa	am			Drainage Class: Po	orly Drained	
Taxonomy (Subgroup):	Fluvaquentic Endoaquer	ts	Field Observ	ations Confi	rm Mapped Type?	YES	NO
Depth (inches)	Horizon	M	ROFILE DESC atrix Color nsell Moist)	CRIPTION	Mottle Colors (Munsell Moist)	Texture, Co Structu	
0-24	A-B		10 YR 4/1		2.5 YR 4/6	Wet s	
0-24	A-D		0 113 4/1		2.5 11 4/0	vvers	иску
		HYD	RIC SOIL IN	DICATORS	3:		
Histosol Histic Epiped Sulfidic Odor Aquic Moistur Reducing Cot Si Gleyed or Lot Remarks: The Luzerne within 6" of the surface	re Regime nditions w-Chroma Colors County Soil Survey indic			Organic Listed or Listed or Other (E	panic Content in Surface Streaking in Sandy Soil n Local Hydric Soils List n National Hydric Soils I xplain in Remarks)	s : _ist	
WETI AND DETE	DMINIATION						
WETLAND DETE Hydrophytic Vegetation F Wetland Hydrology Pres Hydric Soils Present?	Present? YES	NO NO NO	Is this Sampl	ing Point Wi	thin a Wetland?	YES	NO
Remarks							

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 27 March 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Forested Wetland
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DPKK3

#### **VEGETATION**

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Acer saccharinum *	Tree	FACW	9	Acer saccharinum	Sapling	FACW
2	Fraxinus americana	Tree	FACU	10	Onoclea sensibilis	Herb	FACW
3	Ulmus rubra *	Tree	FAC	11	Carex spp.	Herb	FAC-OBL
4	Betula nigra	Tree	FACW	12	Cinna arundinacea	Herb	FACW+
5	Lindera benzoin *	Shrub	FACW-	13			
6	Toxicodenron radicans	Vine	FAC	14			
7	Ulmus rubra	Sapling	FAC	15			
8	Fraxinus americana	Sapling	FACU	16			
Perce	ent of Dominant Species that are OBL, F	ACW, or FAC	C (excluding FA	.C-)	100		
Rema	arks						
* = [	Dominant species						

#### **HYDROLOGY**

Recorded Data (Describe Stream, Lake Aerial Photog Other	s, or Tide Gauge graphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks	
FIELD OBS	ERVATIONS	<ul><li>☐ Drift Lines</li><li>☐ Sediment Deposits</li><li>☐ Drainage Patterns in Wetlands</li></ul>	
Depth of Surface Water	None present	(in)	
Depth to Free Water in Pit	11	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	surface	(in)	<ul> <li>Local Soil Survey Data</li> <li>FAC-Neutral Test</li> <li>Other (Explain in Remarks)</li> </ul>

SOILS							
	and Phase): Holly silt loa				Drainage Class: Po		
Taxonomy (Subgroup):	s Field Observations Confirm Mapped Type?			rm Mapped Type?	YES NO		
Depth Horizon (inches) 0-10 A		Ma (Mui	OFILE DESC atrix Color nsell Moist) OYR 4/1	CRIPTION	Mottle Colors (Munsell Moist)	Texture, Co Structu	
10-24	В		.5 Y 6/1		10 YR 4/6		
	<u> </u>	HYD	RIC SOIL INI	DICATORS	3:		
Remarks : The Luzerne	re Regime			Organic Listed or Listed or Other (E	ganic Content in Surface Streaking in Sandy Soil n Local Hydric Soils List n National Hydric Soils L explain in Remarks) flooded and have a seas	s : _ist	
WETLAND DETE Hydrophytic Vegetation I Wetland Hydrology Pres Hydric Soils Present?	Present? YES	NO NO NO	Is this Sampl	ing Point Wi	ithin a Wetland?	YES	NO
Remarks	,		,				

## DATA FORM 1 WETLAND DETERMINATION

Applicant PPL	Application	Project
Name:	Number:	Name: Ball Bank
	Luzerne Legal Description:	
	Plot No.: DRLA	
		Decerou.
Vegetation [list the thr	rec <u>dominant</u> species in each	vegetation layer (5 if
	Indicate species with observe	
physiological adaptation		
Ir	ndicator	Indicator
Species S	Status Species	Status
Trees	Herbs	dt.
1. Jugland nigra	7. Salida	ra rugara Fa
2. Robini - pseudoar	ncia Facu 8. Polygon	um perfollatum Fac
3.	9. Brome	i thermis Upl
Saplings/shrubs	Woody vines	
4. Rosa multiflora	Face 10.	
5.	11.	
r	10	
0.	12.	
6. $\overline{z}$ of species that are OB		ther indicators:
₹ of species that are OB	L, FACW, and/or FAC: 33. C	
Z of species that are OB		
7 of species that are OB	L, FACW, and/or FAC: 33. C	
7 of species that are OB Hydrophytic vegetation:	L, FACW, and/or FAC: 33. C	50% fac or greatering.
Z of species that are OB Hydrophytic vegetation:  Soil Series and phase: $\mathcal{K}_{e_{x}}f_{x}$	L, FACW, and/or FAC: 33. C Yes No _X Basis: <	s list? Yes X; No
Z of species that are OB Hydrophytic vegetation:  Soil Series and phase: $\mathcal{K}_{c_{\times}}f_{v_{\times}}$ Mottled: Yes; No_X	L, FACW, and/or FAC: 33. C Yes No _X . Basis: < On hydric soil ( Mottle color:	s list? Yes_ X ; No  ; Matrix color: 10 4/2.1/4.
Z of species that are OB Hydrophytic vegetation:  Soil Series and phase: $\frac{\mathcal{K}_{c_{\kappa}}f_{\nu}}{\mathcal{K}_{c_{\kappa}}}$ Mottled: Yes; No_X Gleyed: Yes No_X	L, FACW, and/or FAC: 33. C Yes No X Basis: <  J Still loc On hydric soil  Mottle color:  Other indicators: 5	s list? Yes. X; No; Matrix color: 16 \( \text{16} \) \( \text{16} \)
Z of species that are OB Hydrophytic vegetation:  Soil Series and phase: $\frac{\mathcal{K}_{c_{\kappa}}f_{\nu}}{\mathcal{K}_{c_{\kappa}}}$ Mottled: Yes ; No X	L, FACW, and/or FAC: 33. C Yes No _X . Basis: < On hydric soil ( Mottle color:	s list? Yes. X; No; Matrix color: 16 \( \text{16} \) \( \text{16} \)
Z of species that are OB Hydrophytic vegetation:  Soil Series and phase: Rexfor Mottled: Yes; No_X Gleyed: Yes No_X Hydric soils: Yes	L, FACW, and/or FAC: 33. C Yes No X Basis: <  J Still loc On hydric soil  Mottle color:  Other indicators: 5	s list? Yes. X; No; Matrix color: 16 \( \text{16} \) \( \text{16} \)
Z of species that are OB Hydrophytic vegetation:  Soil Series and phase: Rexform Mottled: Yes; No_X Gleyed: Yes No_X Hydric soils: Yes	L, FACW, and/or FAC: 33. C Yes No X . Basis: <  J Sitt Los On hydric soil  Mottle color:  Other indicators: n No X ; Basis: no indicators	s list? Yes. X; No ; Matrix color: 16 YR 1/4.
Z of species that are OB Hydrophytic vegetation:  Soil Series and phase: Rex for Mottled: Yes No X Hydric soils: Yes  Hydrology Hundated: Yes ; No	L, FACW, and/or FAC: 33. C Yes No X Basis: <  J Still los On hydric soil  Mottle color: Other indicators: n No X; Basis: no indicators  Depth of standing wa	s list? Yes. X; No;  ; Matrix color: 10 YR 1/4.
Tof species that are OB Hydrophytic vegetation:  Soil Series and phase: Kexfor  fottled: Yes No X Hydric soils: Yes  Hydrology Enundated: Yes ; No Saturated soils: Yes	L, FACW, and/or FAC: 33. C Yes No X Basis: <  J Still los On hydric soil  Mottle color:  Other indicators: n No X; Basis: no indicators  X Depth of standing wa ; No X Depth to satur	s list? Yes. X; No; Matrix color: 16 YR 1/4.
Z of species that are OB Hydrophytic vegetation:  Soil Series and phase: Rext. Mottled: Yes; No_X Hydric soils: Yes; Hydrology Inundated: Yes; No Saturated soils: Yes; Other indicators:	L, FACW, and/or FAC: 33. C Yes No X . Basis: <  J Sill low On hydric soil  Mottle color:   Other indicators: n No X ; Basis: no indicators  X . Depth of standing wa ; No X . Depth to satur	s list? Yes. X; No;  y Matrix color: 10 YR 1/4.  cator;  ter: ated soil: > 18"
Z of species that are OB Hydrophytic vegetation:  Soil Series and phase: Rexform Mottled: Yes; No X Hydric soils: Yes Hydrology Inundated: Yes; No Saturated soils: Yes Other indicators: Wetland hydrology: Yes	L, FACW, and/or FAC: 33. C Yes No X . Basis: <  J Sitt los On hydric soil  Mottle color:  Other indicators: n No X ; Basis: no indicators  X . Depth of standing wa ; No X . Depth to satur	s list? Yes. X; No
Z of species that are OB Hydrophytic vegetation:  Soil Series and phase: Rexfor Mottled: Yes NoX Hydric soils: Yes Hydrology Inundated: Yes; No Saturated soils: Yes Other indicators: Wetland hydrology: Yes Atypical situation: Yes	L, FACW, and/or FAC: 33. C Yes No X . Basis: <  Joseph Joseph Company	s list? Yes. X; No
Z of species that are OB Hydrophytic vegetation:  Soil Series and phase: Rexform Mottled: Yes No X Hydric soils: Yes Hydrology Inundated: Yes ; No Saturated soils: Yes Other indicators: Wetland hydrology: Yes Atypical situation: Yes Normal Circumstances? Yes	L, FACW, and/or FAC: 33. C Yes No X . Basis: <  Joseph Joseph Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company Company	s list? Yes. X; No;  y; Matrix color: 10 YR 1/4.  on t  cator;  ter: ated soil: > 18"

Determined by: 1 Manhomery

Applicant PPL Application Project Name: Name: Ball Banch	JF
State: <u>PA</u> County: <u>Luzeror</u> Legal Description: Township: Salem	·
Date: 10/14/07 Plot No.: DPL2 Section:	
Vegetation [list the three dominant species in each vegetation layer (5 if	
only 1 or 2 layers)]. Indicate species with observed morphological or known	
physiological adaptations with an asterisk.	
Indicator	
Species Status Species Status	
<u>Trees</u> <u>Herbs</u>	
1. Juglans nigre Face 7. Oraclea sensibility Face	
2. 8. Polygonum eggitheten Obl	
3. golidas, giganten Frew	
Saplings/shrubs Woody vines	
4. Cornus racemosa Fac 10.	
5. Lindara benzoin France 11.	
6.	
% of species that are OBL, FACW, and/or FAC: §3. Other indicators:	
Hydrophytic vegetation: Yes X No Basis: > 30 7. fac or granter was	
<u>Soil</u>	
Series and phase: Rexford sitt loam On hydric soils list? Yes X ; No	
Mottled: Yes / ; No . Mottle color: 107R4/6 ; Matrix color: 10 YR4/2.	
Gleyed: YesNo_X Other indicators:	
Hydric soils: Yes V No ; Basis: m. Hed low chroma soil.	
Hydrology	
Inundated: Yes; No_X Depth of standing water:	
Saturated soils: Yes X; No . Depth to saturated soil: 6" .	
Other indicators:	
Wetland hydrology: Yes X; No . Basis: salvantal soil .	
Atypical situation: Yes; No_X	
Normal Circumstances? Yes X No No	
Wetland Determination: Wetland X; Nonwetland	
Comments:	

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 27 March 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Emergent Wetland
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DPLL1

#### **VEGETATION**

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator		
1 Cornus amomum	Shrub	FACW	9					
2 Phalaris arundinacea *	Herb	FACW+	10					
3 Lythrum salicaria *	Herb	FACW+	11					
4 Typha latifolia	Herb	OBL	12					
5			13					
6			14					
7			15					
8			16					
Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-)								
Remarks								
* = Dominant species								

#### **HYDROLOGY**

Recorded Data (Describe Stream, Lake Aerial Photog Other	e, or Tide Gauge graphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators:  Inundated Saturated in Upper 12 inches Water Marks	
FIELD OBSERVATIONS			<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>
Depth of Surface Water 10 (in) over part of site			
Depth to Free Water in Pit surface (in)			Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil surface (in)		Local Soil Survey Data  K FAC-Neutral Test  Other (Explain in Remarks)	

Man Unit Name (Series	and Phase): Holly silt loan	1			Drainage Class: Po	orly Drained	
	Fluvaquentic Endoaquepts		Field Observa	ations Confirm	m Mapped Type?	YES	NO
Depth (inches)	Horizon	Ма	OFILE DESC trix Color nsell Moist)	RIPTION	Mottle Colors (Munsell Moist)	Texture, Co Structu	
0-6	Α		YR 3/1		10 YR 4/4		
6-15	В	6/N		10 YR 4/6		Heavy clay	
Impenetrable > 15"							
		HVDI	RIC SOIL IND	DICATORS			
Remarks: The county	re Regime			Listed on Listed on Other (Ex	Streaking in Sandy Soil Local Hydric Soils List National Hydric Soils L cplain in Remarks) oded and have a sea	List	table
WETLAND DETE Hydrophytic Vegetation		NO					
Wetland Hydrology Pres Hydric Soils Present?		NO NO	ls this Samplii	ng Point Witl	hin a Wetland?	YES	NO
Remarks							

Name:	Number:	Nat	me: Bell Bend NPP			
State: County: Lusern	Legal Description:					
Date: 25 0c + 2007 Plot No.:		Section:				
	DPM1	-				
Vegetation [list the three domin	ant species in each	vegetatio	on layer (5 if			
only 1 or 2 layers)]. Indicate	species with observe	ed morphol	logical or known			
physiological adaptations with a	n asterisk.					
Indicator			Indicator			
Species Status	Species		Status			
Trees	Herbs	A aster !	aster ps loous) UPL			
1.	2 Solidar	O Cano	Jeania FACI			
2.	o dlinde	a linta	lersis FACV alder rout foli			
3.		- any or	H			
Saplings/shrubs 4.	Woody vines					
5.	11.					
6.	12.					
% of species that are OBL, FACW,		Other ind	fostore:			
Hydrophytic vegetation: Yes						
nydrophycic vegetation. 1es	_ no /1. Dasis		*			
Soil R						
Series and phase: gracely loan	On hydric soi	ls list?	Yes. No.			
Mottled: Yes ; No V. Mo	ttle color:	: Matri:	x color: 10 YR 5/6			
Gleved: Yes No √ Othe	r indicators:					
Hydric soils: Yes No V	; Basis: in place	88 NOC	sed hield.			
		, , , , , , ,	0			
Hydrology /						
Inundated: Yes; No	Depth of standing w	ater:	•			
Saturated soils: Yes ; No V						
Other indicators:			•			
Wetland hydrology: Yes; No	Basis:		•			
Atypical situation: Yes; No	<u>.</u> .					
Normal Circumstances? Yes	No		. /			
Wetland Determination: Wetland	, ·	Nonwetla	nd			
Wetland Determination: Wetland; Nonwetland .  Comments: photoo # / wel - PA 250001 10/25/07						
#2 up	ねりって めわりん		•			
·	Determined b	y: Woar	lo, S.B. Schaeffer			

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend PPL					Date: 26 March 2008				
Applicant/Owner: PPL					County: Luzerne				
Investigator: Keith Maurice					State: Pennsylvania				
Do Normal Circumstances exist on th	ne site?		YES	NO	Community ID: Old field/ Scrub shrub				
Is the site significantly disturbed (Aty	pical Situation)?		YES	NO	Transect ID: 1				
Is the area a potential Problem Area?	(if needed, explain on	reverse)	YES	NO	Plot ID: DPMM1				
VEGETATION									
Dominant Plant Species	Stratum	Indicator		Dom	inant Plant Species	Stratum	Indicator		
1 Elaeagnus angustifolia	Shrub	FACU	9						
2 Rosa multiflora	Shrub	FACU	10						
3 Dipsacus sylvestris	Herb	FACU-	11						
4 Solidago spp.	Herb	FACU-FACW	12						
5 Oenothera argillicola	Herb	FACU-	13						
6			14						
7			15						
8			16						
Percent of Dominant Species that are	OBL, FACW, or FAC	C (excluding FAC	;-)		≤20				
* = Dominant species									
HYDROLOGY									
Recorded Data (Describe in Remarks)  Stream, Lake, or Tide Gauge Aerial Photographs Other				WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks					
FIELD OBS	ERVATIONS				Drift Lines Sediment Deposits Drainage Patterns in	Wetlands			
Depth of Surface Water	None present	(in)							
Depth to Free Water in Pit	>18	(in)		condai	ry Indicators (2 or more  Oxidized Root Chanr  Water-Stained Leave	nels in Upper 12	2 inches		
Depth to Saturated Soil	10	(in)			Local Soil Survey Da FAC-Neutral Test Other (Explain in Ren				

SOILS							
	and Phase): Fill		T=		Drainage Class: We		
Taxonomy (Subgroup):			Field Observa	ations Confirm	n Mapped Type?	YES	NO
Depth (inches) 0-8 8-14 14-18	Depth Horizon (inches)  0-8 A 8-14 B 14-18 B  14-18 B  Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma Colors  marks: bstrate consists of fill from construction aditions of the source area rather than constrate is impenetrable at > 18" in depth turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions of the source area rather than constrate is impenetrable at > 18" in depth turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to 1-incentral turated conditions are likely due to		ROFILE DESC atrix Color nsell Moist) 0 YR 3/2 0 YR 4/2 0 YR 3/1	CRIPTION	Mottle Colors (Munsell Moist) 10 YR 3/6 10 YR 4/3 10 YR 4/3	Texture, Co Structu Wet sligh	ıre, ect
		HYD	RIC SOIL INI	DICATORS:			
Histic Epiped Sulfidic Odor Aquic Moistur Reducing Cor	re Regime nditions			Concretion High Orga Organic St Listed on L Listed on N	ns nic Content in Surface treaking in Sandy Soil Local Hydric Soils List National Hydric Soils L blain in Remarks)	s	oils
conditions of the source substrate is impenetra	ce area rather than ble at > 18" in dept	current cor h.	nditions. Coal	fines are pre	esent starting at 14"	in depth and the	e
Hydrophytic Vegetation I Wetland Hydrology Pres	Present? YES ent? YES	NO NO	Is this Sampli	ing Point With	in a Wetland?	YES	NO
Remarks	113	NO					

## **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP					Date: 26 March 2008		
Applicant/Owner: PPL					County: Luzerne		
Investigator: Keith Maurice					State: Pennsylvania		
Do Normal Circumstances exist on the site?			YES	NO	Community ID: Palustrine	e Emerg./Scr	ub Shrub
Is the site significantly disturbed (Atypical Situat	ion)?		YES	NO	Transect ID: 1		
Is the area a potential Problem Area? (if needed,	explain on	reverse)	YES	NO	Plot ID: DPMM2		
VEGETATION							
VEGETATION							
	a					a	

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Lindera benzoin *	Shrub	FACW-	9	Symplocarpus foetidus	Herb	OBL
2	Cornus amomum	Shrub	FACW	10			
3	Alnus spp.	Shrub	FACW-OBL	11			
4	Phalaris arundinacea *	Herb	FACW+	12			
5	Lythrum salicaria *	Herb	FACW+	13			
6	Typha latifolia *	Herb	OBL	14			
7	Polygonum sagittatum *	Herb	OBL	15			
8	Juncus effuses	Herb	FACW+	16			
Perce	ent of Dominant Species that are OBL, FA	ACW, or FA	C (excluding FAC	C-)	100		
Rem	arks						
* = [	Dominant species						

Recorded Data (Describe Stream, Lake Aerial Photog Other	s, or Tide Gauge graphs		WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks
FIELD OBSERVATIONS			<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>
Depth of Surface Water	None Present	(in)	
Depth to Free Water in Pit	surface	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	surface	(in)	Local Soil Survey Data    X   FAC-Neutral Test   Other (Explain in Remarks)

SOILS	and Dhana). Dana sail				Desirona Olasa W	all Dusins d	
Map Unit Name (Series Taxonomy (Subgroup):		S	Field Observat	ione Confir	Drainage Class: Worm Mapped Type?	YES	NO
raxonomy (Subgroup).	Tiuverilic Dystrudepts		i leiu Obselvat	IOTIS COTIIII	пп маррец туре:	123	110
Depth (inches)	Horizon	Ma	ROFILE DESCF atrix Color nsell Moist)	RIPTION	Mottle Colors (Munsell Moist)	Texture, Co Structu	oncretions,
0-14	Α	10	0 YR 4/1		10 YR 4/4	Wets	sticky
Impenetrable >14"							
		HYD	RIC SOIL IND	ICATORS	3:		
Remarks : Pope soil s	r ure Regime			Organic S Listed on Listed on Other (Ex		ls t List	Soils
WETLAND DETE Hydrophytic Vegetation Wetland Hydrology Pres	Present? YES	NO NO	Is this Samplin	g Point Wit	thin a Wetland?	YES	NO
Hydric Soils Present?	YES	NO					
Remarks							

## **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 2 October 2008				
Applicant/Owner: PPL					County: Luzerne		
Investigator: Keith Maurice/Chris Roo	che	State: Pennsylvania					
Do Normal Circumstances exist on th	ne site?		YES	NO	Community ID: Upland	old field	
Is the site significantly disturbed (Atyp	oical Situation)?		YES	NO	Transect ID: 1		
Is the area a potential Problem Area?	(if needed, explain on	reverse)	YES	NO	Plot ID: DP NNN 1		
VEGETATION							
Dominant Plant Species	Stratum	Indicator		Dom	inant Plant Species	Stratum	Indicator
1 Rosa multiflora	Shrub	FACU	9				
2 Eleagnus angustifolia	Shrub	FACU	10				
3 Onoclea sensibilis	Herb	FACW	11				
4 Parthenocissus quinque	efolia Herb	FACU	12				
5 Solidago canadensis	Herb	FACU	13				
6 Acer rubrum	Herb	FAC	14				
7 Rubus sp.	Herb	FAC	15				
8 Vitis labrusca	Herb	FACU	16				
HYDROLOGY			1				
Recorded Data (Describe in Remarks)  Stream, Lake, or Tide Gauge Aerial Photographs Other  X No recorded Data Available				WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines			
FIELD OBSI	ERVATIONS				Sediment Deposits Drainage Patterns in V	Vetlands	
Depth of Surface Water	None present	(in					
Depth to Free Water in Pit	None present	(in		conda	ry Indicators (2 or more F Oxidized Root Chann Water-Stained Leave	els in Upper 1	2 inches
Depth to Saturated Soil	≥12	(in			Local Soil Survey Dat FAC-Neutral Test Other (Explain in Rem		

#### SOILS

Map Unit Name (Series	and Phase):	Chenango	gravelly lo	am	Drainage Class: Somewhat	Excessively Drain	ned	
Taxonomy (Subgroup):	Typic Dystru	ıdepts		Field Observa	tions Confirm Mapped Type?	YÉS	NO	
Depth	Horiz	zon	Ма	OFILE DESC trix Color	Mottle Colors	Texture, Co		
(inches)			(Mur	sell Moist)	(Munsell Moist)	Structu	re, ect	
0-12	Ap	)	10	10 YR 5/3 10 YR 6/4 MFR 10 YR 5/4 7.5 YR 4/6 WS  HYDRIC SOIL INDICATORS:  Concretions		R		
12-24	В		10	YR 5/4	7.5 YR 4/6	W	S	
			HYDF	RIC SOIL IND	DICATORS:	-		
Histosol Histic Epipe Sulfidic Odo Aquic Moisti Reducing C	r ure Regime	colors			Concretions High Organic Content in Surface Layer in Sandy Soils Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)			
<b>WETLAND DETE</b>	RMINATI	ON						
Hydrophytic Vegetation Wetland Hydrology Pre Hydric Soils Present?		YES YES YES	NO NO NO	Is this Samplir	ng Point Within a Wetland?	YES	NO	
Remarks: Abrupt tra	insition to up of wetland b	land forest	on S bou		d scrub-shrub on E, W and N b	oundaries.		

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 2 October 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice/Chris Roche			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustr. Emerg./Scrub-shrub
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DP NNN2

#### **VEGETATION**

	Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1	Salix nigra	Shrub	FACW+	9 Polygonum sagittatum	Herb	OBL
2	Cornus amomum	Shrub	FACW	10		
3	Solidago gigantea	Herb	FACW	11		
4	Aster puniceus	Herb	OBL	12		
5	Onoclea sensibilis	Herb	FACW	13		
6	Verbena hastata	Herb	FACW+	14		
7	Juncus effusus	Herb	FACW+	15		
8	Vernonia noveboracensis	Herb	FACW+	16		
Percent	of Dominant Species that are OBL, FAC	V, or FAC (e	xcluding FA	C-) 100		
Remark	KS .					
1						

Recorded Data (Describe in Stream, Lake, o Aerial Photogra Other  No recorded Data Available	or Tide Gauge aphs		WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines			
FIELD OBSER\	/ATIONS		<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>			
Depth of Surface Water	None Present	(in)				
Depth to Free Water in Pit	None Present	(in)	Secondary Indicators (2 or more Required):    X			
Depth to Saturated Soil	0	(in)	Local Soil Survey Data  X FAC-Neutral Test  Other (Explain in Remarks)			

### SOILS

SULS					
Map Unit Name (Series a			Drainage Class: Somewhat Ex		
Taxonomy (Subgroup): 1	Typic Dystrudepts	Field Obs	ervations Confirm Mapped Type?	YES	NO
Depth (inches)	Horizon	PROFILE DESC Matrix Color (Munsell Moist)	RIPTION  Mottle Colors  (Munsell Moist)		oncretions, ure, ect
0-11	Ap	2.5 YR 4/1	5 YR 4/6		/S
11-24	В	10 YR 6/1	7.5 YR 5/8	1	/S
		10 111 0/1	7.5 110 5		
		HYDRIC SOIL IND	ICATORS:	•	
Histosol Histic Epiped Sulfidic Odo Aquic Moistu Reducing Ct Gleyed or Lo	r ure Regime		Concretions High Organic Content in Surface L Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)		Soils
WETLAND DETER	RMINATION				
Hydrophytic Vegetation F Wetland Hydrology Prese Hydric Soils Present?	Present? YES	NO Is this Sar	npling Point Within a Wetland?	YES	NO
Remarks Saturated t	o surface. 50 feet E	of wetland boundary fl	ag NNN-17.		

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP					Date: 9 January 2008			
Applicant/Owner: PPL					County: Luzerne			
Investigator: Keith Maurice					State: Pennsylvania			
Do Normal Circumstances exist on the site?			YES NO		Community ID: Succes	sional Old Fiel	id	
Is the site significantly disturbed (Atypical Situation	1)?		YES NO		Transect ID: 1			
Is the area a potential Problem Area? (if needed, ex	cplain on reve	erse)	YES NO	0	Plot ID: DPO1			
VEGETATION								
Dominant Plant Species	Stratum	Indicator	Do	omir	nant Plant Species	Stratum	Indicator	
1 Pinus Strobus	Tree	FACU	9					
2 Rosa multiflora	Shrub	FACU	10					
3 Rubus allegheniensis	Shrub	FACU-	11					
4 Ealeagnus spp.	Shrub	FACU	12	_				
5 Solidago canadensis	Herb	FACU	13					
6 Apocynum cannibinum	Herb	FACU	14					
7			15					
8	T		16					
Percent of Dominant Species that are OBL, FACW	/, or FAC (e	xcluding FA	.C-)		0	•		
Remarks								
HYDROLOGY								
Recorded Data (Describe in Remarks) Stream, Lake, or Tide Gauge Aerial Photographs Other   No recorded Data Available					ETLAND HYDROLOG ndicators: Inundated Saturated in Upper 12 Water Marks Drift Lines		RS	
FIELD OBSERVATIONS	<u> </u>				Sediment Deposits  Drainage Patterns in V	Vetlands		

Page 1 of 2

(in)

(in)

(in)

Secondary Indicators (2 or more Required):

Local Soil Survey Data

Other (Explain in Remarks)

FAC-Neutral Test

Oxidized Root Channels in Upper 12 inches
Water-Stained Leaves

None Present

>24

Surface

Depth of Surface Water

Depth to Free Water in Pit

Depth to Saturated Soil

Heavy rain on January 8, 2008

SOILS							
Map Unit Name (Series and		gravelly loam			Drainage Class: Well I		
Taxonomy (Subgroup): Ty	pic Dystrudepts		Field Obse	rvations C	onfirm Mapped Type?	YES	NO
Depth (inches)	Horizon	Matr	ILE DESCF ix Color ell Moist)	RIPTION	Mottle Colors (Munsell Moist)	Texture, Co Structu	
0-14	Ар	T ,	YR 3/3		(Wallson Wolst)	Cirdota	10, 000
14-24	<u> </u>		YR 5/4		10 YR 4/6		
14-24	В	10	I K 3/4		10 1 K 4/0		
						-	
		10/2010					
		HYDRIC	SOIL INDI	CATORS	3:		
Histosol Histic Epipedo Sulfidic Odor Aquic Moisture Reducing Con Gleyed or Low	e Regime			Organic S Listed on Listed on	anic Content in Surface La Streaking in Sandy Soils Local Hydric Soils List National Hydric Soils List xplain in Remarks)		Soils
Soils were saturated thro throughout the soil profil	•	ne due to re	een neavy	rianis. C	ngame matter streaming	was also obs	lei veu
WETLAND DETER	MINATION						
Hydrophytic Vegetation Pre Wetland Hydrology Presen Hydric Soils Present?	esent? YES	NO NO NO	Is this Sam	pling Poin	t Within a Wetland?	YES	NO
Remarks							

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 9 January 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Forested Wetland
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DPO2

#### **VEGETATION**

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1 Nyssa sylvatica *	Tree	FAC	9	Nyssa sylvatica	Sapling	FAC
2 Quercus palustris *	Tree	FACW	10	Osmunda cinnamomea	Herb	FACW
3 Acer rubrum *	Tree	FAC	11	Carex spp.	Herb	FAC-OBL
4 Quercus bicolor	Tree	FACW+	12			
5 Liriodendron tulipifera	Tree	FACU	13			
6 Lindera benzoin *	Shrub	FACW-	14			
7 Ilex verticillata *	Shrub	FACW+	15			
8 Vaccinium corymbosum	Shrub	FACW-	16			
Percent of Dominant Species that are OBL, FACW,	or FAC (ex	cluding FA	C-)	100		
Remarks						
Dominant species = *						

Recorded Data (Describe ir Stream, Lake, Aerial Photogra Other	or Tide Gauge aphs		WETLAND HYDROLOGY INDICATORS  Primary Indicators:  Inundated Saturated in Upper 12 inches Water Marks
FIELD OBSERVATIONS			☐ Drift Lines ☐ Sediment Deposits ☑ Drainage Patterns in Wetlands
Depth of Surface Water	1	(in)	
Depth to Free Water in Pit 1		(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	Surface	(in)	<ul> <li>Local Soil Survey Data</li> <li>FAC-Neutral Test</li> <li>Other (Explain in Remarks)</li> </ul>

SOILS								
Map Unit Name (Series an			Drainage Class: Poorly	•				
Taxonomy (Subgroup): Ae	eric Endoaquepts	Field Obser	vations Confirm Mapped Type?	YES	NO			
Depth (inches)	Depth Horizon Matrix Colo (Munsell Mois (Mun	Matrix Color	Color Mottle Colors Texture, Concreti					
, ,	Α	1 ' 1	-	<u> </u>	0, 001			
		1	10 YR 5/8	+				
		1	10 YR 4/6	+				
11-24	ь	PROFILE DESCRIP Matrix Color (Munsell Moist)  10 YR 3/1  10 YR 5/1  10 YR 5/1  HYDRIC SOIL INDICA  C H O X Li O	10 110 4/0	_				
				_				
				_				
L		HYDRIC SOIL INDIC	CATORS:					
Sulfidic Odor Aquic Moistur Reducing Cor Gleyed or Lov  Remarks: The Luzerne	e Regime nditions v-Chroma Colors e County Soil Survey i		High Organic Content in Surface La Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks) soils have a water table that is a					
WETLAND DETER								
Hydrophytic Vegetation Pro Wetland Hydrology Presert Hydric Soils Present?			oling Point Within a Wetland?	YES	NO			
Remarks								

### **ROUTINE WETLAND DETERMINATION**

			Ţ.
Project/Site: Bell Bend NPP			Date: 2 October 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice/Chris Roche			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Emergent Wetland
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DP PPP1

#### **VEGETATION**

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Vernonia noveboracensis	Herb	FACW	9			
2	Scirpus cyperinus	Herb	FACW+	10			
3	Aster puniceus	Herb	OBL	11			
4	Typha latifolia	Herb	OBL	12			
5	Euthamia graminofolia	Herb	FAC	13			
6	Solidago canadensis	Herb	FACU	14			
7	Onoclea sensibilis	Herb	FACW	15			
8	Solidago rugosa	Herb	FAC	16			
Percent	of Dominant Species that are OBL, FA	CW, or FAC (e.	xcluding FA	C-)	88		
Remar	ks						
l							
i							
ĺ							

Pepth to Free Water in Pit None present			WETLAND HYDROLOGY INDICATORS  Primary Indicators:  Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits
			Drainage Patterns in Wetlands
Depth of Surface Water	None present	(in)	
Depth to Free Water in Pit	None present	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	0 (in)		Local Soil Survey Data  K FAC-Neutral Test  Other (Explain in Remarks)

#### SOILS

Map Unit Name (Series and	d Phase): Chen	ango gravelly loam	Ti	Drainage Class: Somewhat Ex	cessively Dra	ined	
Taxonomy (Subgroup): Ty		ange granen, ream		ations Confirm Mapped Type?	YES	NO	
			-				
			LE DESCRI				
Depth	Horizon		x Color	Mottle Colors		oncretions,	
(inches)			ell Moist)	(Munsell Moist)		ure, ect	
0-8	Ар	10 Y	/R 4/2	5 YR 4/6	W	/S	
8-24	В	10 Y	′R 6/1	10 YR 5/4	W	/S	
		HYDRIC	SOIL INDIC	ATORS:			
- History				Nama and 1 and 1			
☐ Histosol ☐ Histic Epipedo	n.			Concretions High Organic Content in Surface L	over in Sandy S	Poilo	
Sulfidic Odor			_	• •	_ayer in Sandy Soils		
Aquic Moisture	o Pogimo		_	Organic Streaking in Sandy Soils Listed on Local Hydric Soils List			
Reducing Con	•		_	isted on National Hydric Soils List.	·+		
	v-Chroma Colors			isted on National Hydric Soils Lis Other (Explain in Remarks)	ot.		
				Wetlands were located at toe	of slope and		
are likely the	e result of pond	ed runoff or grou	ndwater see	page.			
WETLAND DETERI	MINATION						
Hydrophytic Vegetation Pre	esent?	YES NO					
Wetland Hydrology Presen		YES NO	Is this Samp	ing Point Within a Wetland?	YES	NO	
Hydric Soils Present?		YES NO					
				ot transition to upland scrub-sh		nd	
N boundaries	s. Boundary to	W is agricultural	land. 25 fe	et W of wetland boundary flag	PPP-6.		

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP					Date: 10 January 2008	}	
Applicant/Owner: PPL					County: Luzerne		
Investigator: Keith Maurice					State: Pennsylvania		
Do Normal Circumstances exist on the s	ite?		YES	NO	Community ID: Succes	sional Old Fie	ld
Is the site significantly disturbed (Atypica	al Situation)?		YES	NO	Transect ID: 1		
Is the area a potential Problem Area? (if	<u> </u>	erse)	YES	NO	Plot ID: DPQ1		
VEGETATION		_					
Dominant Plant Species	Stratum	Indicator		Domi	inant Plant Species	Stratum	Indicator
1 Pinus Strobus	Tree	FACU	9				
2 Rosa multiflora	Shrub	FACU	10				
3 Ealeagnus angustifolia	Shrub	FACU	11				
4 Spiraea latifolia	Shrub	FAC+	12				
5 Solidago canadensis	Herb	FACU	13				
6			14				
7			15				
8			16				
Percent of Dominant Species that are O	BL. FACW. or FAC (e	xcludina FA	C-)		20		,
HYDROLOGY			1				
Recorded Data (Describe in Remarks) Stream, Lake, or Tide Gauge Aerial Photographs Other  No recorded Data Available			Priı	WETLAND HYDROLOGY INDICATORS  Primary Indicators:  Inundated Saturated in Upper 12 inches Water Marks			PRS
FIELD OBSERVATIONS				☐ Drift Lines ☐ Sediment Deposits ☐ Drainage Patterns in Wetlands			
Depth of Surface Water	None Present	(in)					
Depth to Free Water in Pit	None Present	(in)		condar	ry Indicators (2 or more F Oxidized Root Chann Water-Stained Leave	els in Upper 1	2 inches

(in)

Surface

Depth to Saturated Soil

Local Soil Survey Data

FAC-Neutral Test
Other (Explain in Remarks)

### SOILS

301L3									
Map Unit Name (Series a		ingo grav	elly loam			Drainage Class:			
Taxonomy (Subgroup): T	ypic Dystrudepts			Field Obse	rvations Co	onfirm Mapped Type	?	YES	NO
Depth (inches)	Horizon		Matri	LE DESCR x Color ell Moist)	RIPTION	Mottle Colors (Munsell Moist)	ר	Texture, Concretion	
0-10	Ap			′R 4/3		-			
10-24	В			/R 4/6		_			
			HYDRIC	SOIL INDI	CATORS				
Histic Epiped Sulfidic Odol Aquic Moistu Reducing Co Gleyed or Lo Remarks:  Soil is saturated due to	r ure Regime onditions ww-Chroma Colors	i			Organic S Listed on Listed on	anic Content in Surfa streaking in Sandy S Local Hydric Soils L National Hydric Soil plain in Remarks)	oils ist	in Sandy S	SOIIS
WETLAND DETER Hydrophytic Vegetation P Wetland Hydrology Prese	resent?	YES YES	NO NO	Is this Sam	pling Point	: Within a Wetland?		YES	NO
Hydric Soils Present?		YES	NO						
Remarks									

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 10 January 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Scrub Shrub Wetland
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DPQ2

#### **VEGETATION**

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1 Acer rubrum	Sapling	FAC	9			
2 Rosa multiflora	Shrub	FACU	10			
3 Cornus amomum	Shrub	FACW	11			
4 Spiraea latifolia *	Shrub	FAC+	12			
5			13			
6			14			
7			15			
8			16			
Percent of Dominant Species that are OBL, FACW	, or FAC (e	xcluding FA	C-)	100		
Remarks						
Dominant Species = *						

Recorded Data (Describe in Stream, Lake, Aerial Photogra Other   No recorded Data Available  FIELD OBSER	or Tide Gauge aphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits	
Depth of Surface Water	None present	(in)	Drainage Patterns in Wetlands
Depth to Free Water in Pit	6	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	Surface	(in)	<ul><li>Local Soil Survey Data</li><li>FAC-Neutral Test</li><li>Other (Explain in Remarks)</li></ul>

SOILS			In ol o	hat Barata Bar		
Map Unit Name (Series and Phase): Re Taxonomy (Subgroup): Aeric Fragiaque		Drainage Class: Somewhat Poorly Drained ervations Confirm Mapped Type? YES NO				
Depth Horiz	PROF zon Mat	FILE DESCRIP trix Color sell Moist)		Texture, Co	oncretions,	
0-16 A		YR 4/2	5 YR 3/2	Structu	ie, eci	
16-24 B		YR 4/2	10 YR 5/6			
10-24	10	11/4/2	10 113 370			
	HYDRIC	C SOIL INDICA	TORS:			
Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma Co		Hi   Oi  X Li:   Li:	oncretions gh Organic Content in Surface La rganic Streaking in Sandy Soils sted on Local Hydric Soils List sted on National Hydric Soils List ther (Explain in Remarks) soils have a high water table			
WETLAND DETERMINATIO	N					
Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	YES NO YES NO YES NO	Is this Samplin	ng Point Within a Wetland?	YES	NO	
Remarks						

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP		Date: 10 January 2008
Applicant/Owner: PPL		County: Luzerne
Investigator: Keith Maurice		State: Pennsylvania
Do Normal Circumstances exist on the site?	YES NO	Community ID: Palustrine Forested Wetland
Is the site significantly disturbed (Atypical Situation)?	YES NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES NO	Plot ID: DPQ3

#### **VEGETATION**

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator					
1 Acer rubrum *	Tree	FAC	9								
2 Quercus palustris *	Tree	FACW	10								
3 Prunus serotina	Tree	FACU	11								
4 Fraxinus americana	Tree	FACU	12								
5 Cornus racemosa	Shrub	FAC	13								
6 Geum canadense	Herb	FACU	14								
7 Carex spp.	Herb	FAC-OBL	15								
8			16								
Percent of Dominant Species that are OBL, FACW,	or FAC (ex	xcluding FAC	;-)	100							
Remarks											
Dominant Species = *											

Recorded Data (Describe in Stream, Lake, Aerial Photogra Other	or Tide Gauge aphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Wetland Marks	
FIELD OBSER	VATIONS	☐ Drift Lines ☐ Sediment Deposits ☐ Drainage Patterns in Wetlands	
Depth of Surface Water	None present	(in)	
Depth to Free Water in Pit	12	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches  Water-Stained Leaves
Depth to Saturated Soil	6	(in)	<ul><li>X Local Soil Survey Data</li><li>X FAC-Neutral Test</li><li>Other (Explain in Remarks)</li></ul>

SOILS									
Map Unit Name (Series an									
Taxonomy (Subgroup): Ae	F	ield Obser	YES	NO					
Depth (inches)	Horizon	PROFILE DESC Matrix Color (Munsell Moist)		IPTION  Mottle Colors (Munsell Moist)	Texture, Co Structu				
0-6	A	10 YF		10 YR 3/4	Moist F				
6-22	В	10 YF		10 YR 4/3	IVIOISTI	Hable			
	В			i e e e e e e e e e e e e e e e e e e e					
22-26	В	10 YF	( 3/2	10 YR 4/6	+				
					_				
				<u> </u>					
		HYDRIC S	OIL INDI	CATORS:					
Histic Epipedo Sulfidic Odor Aquic Moistur Reducing Cor Gleyed or Lov Remarks: Luzerne Cor	licates that Rex	□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	High Organic Content in Surface Li Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)  have a high water table early in						
WETLAND DETER Hydrophytic Vegetation Pr Wetland Hydrology Preser Hydric Soils Present?	esent? YES	S NO Is	s this Sam	oling Point Within a Wetland?	YES	NO			
Remarks									

## **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP	Date: 10 January 2008					
Applicant/Owner: PPL		County: Luzerne				
Investigator: Keith Maurice		State: Pennsylvania				
Do Normal Circumstances exist on the s	ite?		YES NO	Community ID: Uplar	nd Succession	al Old Field
Is the site significantly disturbed (Atypica	al Situation)?		YES NO	Transect ID: 1		
Is the area a potential Problem Area? (if	needed, explain on reve	erse)	YES NO	Plot ID: DPQ4		
VEGETATION	L	I	T		T -:	T
Dominant Plant Species	Stratum	Indicator		nant Plant Species	Stratum	Indicator
1 Prunus serotina	Tree	FACU	9			
2 Quercus velutina	Tree	UPL	10			
3 Eleagnus angustifolia	Shrub	FACU	11			
4 Schizachyrium scoparium	Herb	FACU-	12			
5 Euthamia graminifolia	Herb	FAC	13			
6			14			
7			15			
8			16	20		
HYDROLOGY						
Recorded Data (Describe in Remarks) Stream, Lake, or Tide Gauge Aerial Photographs Other  No recorded Data Available				WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks		
FIELD OBSERVATIONS				Drift Lines Sediment Deposits Drainage Patterns in	n Wetlands	
Depth of Surface Water	None Present	(in)				
Depth to Free Water in Pit	None Present	(in)		ry Indicators (2 or mor Oxidized Root Cha Water-Stained Lea	nnels in Uppe	r 12 inches
Depth to Saturated Soil	10	(in)		Local Soil Survey D FAC-Neutral Test Other (Explain in Re		

SOILS								
Map Unit Name (Series	and Phase): Cher	nango grav	elly loam		Drainage Clas	s: Well Drained		
Taxonomy (Subgroup): Typic Dystrudepts				Field Observations Confirm Mapped Type?			NO	
Map Unit Name (Series and Phase): Chenango gravelly loar Taxonomy (Subgroup): Typic Dystrudepts  PRO Depth Horizon W (inches) (Mi 0-10 Ap 1 10-24 B 1			Mat	ILE DESCRIF trix Color sell Moist)	PTION  Mottle Colors  (Munsell Moist)		, Concretions,	
` ' ' I	An		(Munsell Moist) 10 YR 3/3				lightly Sticky	
i	•			YR 4/4	-			
10-24	<u>D</u>		Ιυ	YK 4/4	-	VVE	et Sticky	
				<u> </u>	<del></del>			
	-				<del>                                     </del>			
						<del></del>		
			HYDRIC	SOIL INDICA	ATORS:			
Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma Colors			Concretions High Organic Content in Surface Layer in Sandy Soils Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)					
Saturated soils due to								
WETLAND DETE	RMINATION							
Hydrophytic Vegetation Wetland Hydrology Pres Hydric Soils Present?		YES YES YES	NO NO	Is this Samplin	ng Point Within a Wetland?	YES	NO	
Remarks								

### **ROUTINE WETLAND DETERMINATION**

				ı		
Project/Site: Bell Bend NPP		Date: 26 March 2008				
Applicant/Owner: PPL				County: Luzerne		
Investigator: Keith Maurice			\/=0 \\\0	State: Pennsylvania		
Do Normal Circumstances exist on			YES NO	Community ID: Upland	d Floodplain Fo	rest
Is the site significantly disturbed (A ls the area a potential Problem Are	•	rovorgo)	YES NO	Transect ID: 1 Plot ID: DPQQ1		
is the area a potential i Toblem Are	a: (II fieeded, explain on	ieveise)	120 110	PIOLID. DPQQ1		
VEGETATION						
Dominant Plant Species	Stratum	Indicator	Dom	ninant Plant Species	Stratum	Indicator
1 Acer rubrum *	Tree	FAC	9			
2 Prunus serotina	Tree	FACU	10			
3 Carya ovata	Tree	FACU-	11			
4 Liriodendron tulipifera	Tree	FACU	12			
5 Lindera benzoin *	Shrub	FACW-	13			
6 Alliara petiolata	Herb	FACU-	14			
7			15			
8			16			
Percent of Dominant Species that a	are OBL, FACW, or FAC	C (excluding FA	(C-)	100		
HYDROLOGY						
HIDROLOGI			1			
Recorded Data (Describ Stream, Lal Aerial Phote Other	ke, or Tide Gauge ographs			WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks		
FIELD OB	SERVATIONS			Drift Lines Sediment Deposits Drainage Patterns in	Wetlands	
Depth of Surface Water	None present	(iı	1)			
Depth to Free Water in Pit	None present	(iı		Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inche  Water-Stained Leaves		
Depth to Saturated Soil	>24 (in)			Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)		

SOILS									
Map Unit Name (Series a	and Phase): Pope so	ils			Drainage Class: W	/ell Drained			
Taxonomy (Subgroup): Fluventic Dystrudepts			Field Observa	YES	NO				
Depth Horizon (inches)  0-10 A  10-24 B		Ma (Mu	ROFILE DESC atrix Color nsell Moist) 0 YR 4/3	I	Mottle Colors  Munsell Moist)  10 YR 4/1	Texture, Co Structur Wet slight	re, ect		
			0 YR 4/4		-				
10-24	D		0 17 4/4		-	Wet slight	ly sticky		
☐ Histosol		HYD	RIC SOIL INI	DICATORS:					
Histosof  Histic Epipedon  Sulfidic Odor  Aquic Moisture Regime  Reducing Conditions  Gleyed or Low-Chroma Colors			High Organic Content in Surface Layer in Sandy Soils Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)						
Remarks :									
WETLAND DETER Hydrophytic Vegetation F Wetland Hydrology Prese Hydric Soils Present?	Present? YES	NO <b>NO</b> <b>NO</b>	Is this Sampl	ling Point Withir	ı a Wetland?	YES	NO		
Remarks									

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP					Date: 26 March 2008		
Applicant/Owner: PPL					County: Luzerne		
Investigator: Keith Maurice					State: Pennsylvania		
Do Normal Circumstances exist on the site	?		YES	NO	Community ID: Palust	rine Forested V	Vetland
Is the site significantly disturbed (Atypical S	Situation)?		YES	NO	Transect ID: 1		
Is the area a potential Problem Area? (if ne	eded, explain on	reverse)	YES	NO	Plot ID: DPQQ2		
Dominant Plant Species  Acer rubrum	Stratum Tree	Indicator FAC	9	Dom	inant Plant Species	Stratum	Indicator
VEGETATION							
1 Acer rubrum	Tree	FAC	9	20	mant i iam operior	ou atam.	a.cato.
2 Fraxinus americana	Tree	FACU	10				
3 Nyssa sylvatica	Tree	FAC	11				
4 Lindera benzoin	Shrub	FACW-	12				
5 Symplocarpus foetidus	Herb	OBL	13				
6 Claytonia virginica	Herb	FACU	14				
7			15				
8			16				
Percent of Dominant Species that are OBL.	, FACW, or FAC	C (excluding FA	.C-)		66	•	•
Remarks	,	· · · ·	,				

* = Dominant species

☐ Recorded Data (Describe in Remarks) ☐ Stream, Lake, or Tide Gauge ☐ Aerial Photographs ☐ Other			WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks
FIELD OBSERVATIONS		☐ Drift Lines  X Sediment Deposits  X Drainage Patterns in Wetlands	
Depth of Surface Water	None present	(in)	
Depth to Free Water in Pit	17	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	10	(in)	Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)

SOILS						
Map Unit Name (Series and Phase				Drainage Class: W		
Taxonomy (Subgroup): Fluventic D	ystrudepts	Field Observa	tions Confirr	m Mapped Type?	YES	NO
		ROFILE DESC atrix Color insell Moist)	RIPTION	Mottle Colors (Munsell Moist)	Texture, Co Structur	
		0 YR 3/2		10 YR 3/4		
16-24	3 1	0 YR 4/2		7.5 YR 3/3		
	HYD	RIC SOIL IND	DICATORS:			
Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma			Organic S Listed on Listed on Other (Ex	anic Content in Surface Streaking in Sandy Soil Local Hydric Soils List National Hydric Soils I splain in Remarks)	ils t	oils
Remarks: Pope soils can have	ліпаррей пісійѕіоті	s of flyuric rioi	ny and vvay	ianu sons.		
WETI AND DETERMINAT	ION.					
WETLAND DETERMINAT Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	YES NO YES NO YES NO	Is this Samplin	ng Point With	hin a Wetland?	YES	NO
Remarks						

## **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP					Date: 9 January 2008	Date: 9 January 2008		
Applicant/Owner: PPL					County: Luzerne			
Investigator: Keith Maurice					State: Pennsylvania			
Do Normal Circumstances exist on the site?				NO	Community ID: Upland d	eciduous fore	est	
Is the site significantly disturbed (Atypical Situation)?				NO	Transect ID: 1			
Is the area a potential Problem Area? (if needed, exp	olain on reve	erse)	YES	NO	Plot ID: DPR1			
VEGETATION								
Dominant Plant Species Stratum Indicator				Dom	inant Plant Species	Stratum	Indicator	
4 0 11	O 1.0							

	Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1	Quercus velutina	Tree	UPL	9		
2	Carya ovata	Tree	FACU-	10		
3	Quercus rubra	Tree	FACU-	11		
4	Lindera benzoin	Shrub	FACW-	12		
5	Viburnum dentatum	Shrub	FAC	13		
6	Eulalia viminea	Herb	FAC	14		
7				15		
8				16		
Percent o	f Dominant Species that are OBL, FAC	W, or FAC (e	xcluding FA	C-): 50%		
Remarks	: Upland-preferring trees predomina	ated. Spiceb	oush, arrow	r-wood and stilt grass were spar	se.	

Recorded Data (Describe in Remarks) Stream, Lake, or Tide Gauge Aerial Photographs Other  No recorded Data Available  FIELD OBSERVATIONS			WETLAND HYDROLOGY INDICATORS  Primary Indicators:  Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands
Depth of Surface Water	0	(in)	
Depth to Free Water in Pit	0	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	Surface	(in)	Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)
Saturation due to recent heavy rains	•		

#### SOILS

SUILS						
Map Unit Name (Series and Pl		avelly loam		Drainage Class: Mode		
Taxonomy (Subgroup): Typic	Fragiochrepts		Field Observ	rations Confirm Mapped Type?	YES	NO
Depth (inches)	Matri	LE DESCRI x Color ell Moist)	PTION  Mottle Colors  (Munsell Moist)	Texture, Co Structu		
0-2	Α	T ,	Y 2/1	2.5 YR 2.5/2	Satur	
2-20	В		/R 4/4	none	Satur	
20-24	В		/R 4/4	10 YR 5/1, 10 YR 3/2	Satur	
		10 11( 4/4				
					1	
					1	
					-	
•		HYDRIC	SOIL INDIC	ATORS:		
Histic Epipedon Sulfidic Odor Aquic Moisture Reducing Conditi Gleyed or Low-Cl Remarks: Soils were satur	ons	ne soil prof		High Organic Content in Surface La Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks) Cent heavy rains.		oils
WETLAND DETERMI	ΝΔΤΙΩΝ					
Hydrophytic Vegetation Presert Wetland Hydrology Present? Hydric Soils Present?		NO NO NO	Is this Samp	ling Point Within a Wetland?	YES	NO
Remarks						

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 3 April 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Forested Wetland
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DPR2

#### **VEGETATION**

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Quercus palustris	Tree	FACW	9	Cinna arundinacea	Herb	FACW+
2	Acer rubrum	Tree	FAC	10	Microstegium vimineum	Herb	FAC
3	Nyssa sylvatica	Tree	FAC	11			
4	Lindera benzoin	Shrub	FACW-	12			
5	Vaccinium corymbosum	Shrub	FACW-	13			
6	Viburnum dentatum	Shrub	FAC	14			
7	llex verticillata	Shrub	FACW+	15			
8	Carex spp.	Herb	FAC-OBL	16			
Perce	nt of Dominant Species that are OBL, F	ACW, or FA	C (excluding FA	C-)	100		
Rema	arks						
  *	Dominant species						

Recorded Data (Describe in Remarks)  Stream, Lake, or Tide Gauge Aerial Photographs Other  X No recorded Data Available  FIELD OBSERVATIONS			WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks
			<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>
Depth of Surface Water	None present	(in)	
Depth to Free Water in Pit	surface	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches  Water-Stained Leaves
Depth to Saturated Soil	surface	(in)	<ul> <li>Local Soil Survey Data</li> <li>FAC-Neutral Test</li> <li>Other (Explain in Remarks)</li> </ul>

Map Unit Name (Series and	Phase): Atherton s	silt loam		Drainage Class: Poor	ly Drained			
Field Observation (Subgroup): Aeric Endoaquepts				ervations Confirm Mapped Type? YES N				
Depth (inches)	Horizon	Ма	OFILE DESCF trix Color nsell Moist)	RIPTION  Mottle Colors  (Munsell Moist)	Texture, Co Structu			
0-4	A	· ` `	YR 2.5/1	- (Manson Moist)	Otructo	110, 001		
4-24	В	1	YR 5/2	10 YR 5/6				
121			111 0/2	10 YR 4/6				
				10 111 110				
		HYDI	RIC SOIL INDI	CATORS:				
	tions Chroma Colors		X \Box	Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils Lis Other (Explain in Remarks)  ve a seasonal high water table at o				
WETLAND DETERM	MINATION							
Hydrophytic Vegetation Pre Wetland Hydrology Present Hydric Soils Present?	sent? YES	NO NO NO	Is this Sampling	g Point Within a Wetland?	YES	NO		
Remarks								

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 3 April 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Emerg./Scrub-Shrub
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DPR3

#### **VEGETATION**

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Acer rubrum	Tree	FAC	9			
2	Vaccinium corymbosum	Shrub	FACW-	10			
3	Salix discolor	Shrub	FACW	11			
4	Lindera benzoin	Shrub	FACW-	12			
5	Spirea latifolia	Shrub	FAC+	13			
6	Typha latifolia	Herb	OBL	14			
7	Onoclea sensibilis	Herb	FACW	15			
8	Carex spp.	Herb	FAC-OBL	16			
Perce	ent of Dominant Species that are OBL, FA	CW, or FA	C (excluding FAC	C-)	100		
Rem	arks						
* = [	Oominant species						

Recorded Data (Describe Stream, Lake Aerial Photog Other	e, or Tide Gauge graphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks	
FIELD OBS	ERVATIONS	<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>	
Depth of Surface Water	None Present		
Depth to Free Water in Pit surface (in)			Secondary Indicators (2 or more Required):  X Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	surface	<ul><li>X Local Soil Survey Data</li><li>X FAC-Neutral Test</li><li>☐ Other (Explain in Remarks)</li></ul>	

Map Unit Name (Series an	d Phase): Atherton s	silt loam		Drainage Class: Poor	ly Drained	
Taxonomy (Subgroup): Ae			Field Observation	ons Confirm Mapped Type?	YES	NO
Depth (inches)	Ma	OFILE DESCR atrix Color nsell Moist)	Mottle Colors	Texture, Co Structu		
(inches) 0-10 Ap		i ,	YR 2.5/1	(Munsell Moist) 5 YR 4/6	Structo	ie, eci
	10-16 B		) YR 3/2	10 YR 2/1		
10-10 В		10	) TR 3/2			
16.04		2	E V E/4	10 YR 3/3		
16-24	В		.5 Y 5/1	10 YR 4/6		
				10 YR 3/2		
		HYD	RIC SOIL INDI	CATORS:		
	itions Chroma Colors		Atherton soils hav	Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils Lis Other (Explain in Remarks) re a seasonal high water table at o		
WETLAND DETERI	MINATION					
Hydrophytic Vegetation Pro Vetland Hydrology Presen Hydric Soils Present?		NO NO NO	NO Is this Sampling Point Within a Wetland?			NO
Remarks: Bounded to the s	Journal agricultural					

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 9 January 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Emerg./Scrub-Shrub
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DPR4

#### **VEGETATION**

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator		
1 Spiraea latifolia *	Shrub	FAC+	9					
2 Agrostis gigantea *	Herb	FACW	10					
3 Juncus effusus *	Herb	FACW+	11					
4 Vernonia noveboracensis	Herb	FACW+	12					
5 Scirpus cyperinus	Herb	FACW+	13					
6 Onoclea sensibilis	Herb	FACW	14					
7			15					
8			16					
Percent of Dominant Species that are OBL, FACW,	or FAC (ex	xcluding FA	C-)	100				
Remarks								
Dominant Species = *								

Recorded Data (Describe in Stream, Lake, Aerial Photogra Other   No recorded Data Available  FIELD OBSER'	or Tide Gauge aphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators:	
Depth of Surface Water	None Present	☐ Drainage Patterns in Wetlands	
Depth to Free Water in Pit 14 (in)			Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil Surface (in)			Local Soil Survey Data  K FAC-Neutral Test  Other (Explain in Remarks)

SOILS							
Map Unit Name (Series ar	nd Phase): Atherton silt I	oam	Drainage Class: Poorl	y Drained			
Taxonomy (Subgroup): Ae	ric Endoaquepts	Field Obse	Field Observations Confirm Mapped Type?				
Depth (inches)	Horizon	PROFILE DESCR Matrix Color (Munsell Moist)	RIPTION  Mottle Colors  (Munsell Moist)	Texture, Concretions, Structure, ect			
0-14 A		10 YR 3/1	10 YR 5/3	1	itly Sticky		
14-24 B		10 YR 4/2		Wet Sligi	itiy Otloky		
14-24	В	10 YR 4/2	5 YR 3/3	_			
				_			
		HYDRIC SOIL INDI	CATORS:				
Remarks: The Luzerne Co	re Regime nditions w-Chroma Colors	High Organic Content in Surface Layer in Sandy Soils Organic Streaking in Sandy Soils IX Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)  tes that Atherton soils have a seasonal high water table at or near the on.					
WETLAND DETER Hydrophytic Vegetation Pr Wetland Hydrology Preser Hydric Soils Present?	resent? YES	NO NO Is this Sam	pling Point Within a Wetland?	YES	NO		
Remarks: Bounded to the	south by agricultural land	1.					

## **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP		Date: 3 October 2008								
Applicant/Owner: PPL						County: Luzerne	County: Luzerne			
Investigator: Keith Maurice/Chris Ro						State: Pennsylvania				
Do Normal Circumstances exist on t	the site?			YES	NO	Community ID: Upland scrub-shrub				
Is the site significantly disturbed (At	s the site significantly disturbed (Atypical Situation)?					Transect ID: 1				
Is the area a potential Problem Area? (if needed, explain on reverse)					NO	Plot ID: DP RRR1				
VEGETATION										
	Dominant Plant Species Stratum Indicator				Dom	inant Plant Species	Stratum	Indicator		
1 Betula lenta		Sapling FACU 9								
2 Liriodendron tulipfera		Sapling	FACU	10						
3 Lindera benzoin		Shrub	FACW-	11						
4 Dennstaedtia punctilol	bula	Herb	UPL	12						
5 Tsuga canadensis		Tree	FACU	13						
6 Dryopteris spinulosa		Herb	FAC+	14						
7 Rubus allegheniensis		Shrub	FACU-	15						
8				16						
Percent of Dominant Species that a	re OBL, FAC	W, or FAC	C (excluding FA	C-)		29				
HYDROLOGY										
THE ROLLOGI										
□ Recorded Data (Describe □ Stream, Lak □ Aerial Photo □ Other	e, or Tide Ga	•		WETLAND HYDROLOGY INDICATORS  Primary Indicators:				RS		
<u> </u>					Saturated in Upper 12 inches					
X No recorded Data Availa	ble				L	Water Marks				
FIELD OBSERVATIONS						Drift Lines Sediment Deposits Drainage Patterns in \	Vetlands			
Depth of Surface Water None present (in)										
Depth to Free Water in Pit None present (in)				Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 ind Water-Stained Leaves			2 inches			
Depth to Saturated Soil	>2	24	(in	)		Local Soil Survey Dail FAC-Neutral Test Other (Explain in Rem				
1	1	,		1						

#### SOILS

Map Unit Name (Series and Pha	se): Rexford loan	n		Drainage Class: Somew	hat Poorly Drained	
Taxonomy (Subgroup): Aeric Fr			Field Observation	ons Confirm Mapped Type?	YES <b>NO</b>	
Depth I	Horizon		DFILE DESCR	IPTION  Mottle Colors	Texture, Concretions,	
(inches)	10112011		sell Moist)	(Munsell Moist)	Structure, ect	
0-3	Α		YR 4/1	-	MFR	
3-10 B		10	YR 5/3	<u>-</u>	WSS	
10-18 B		10	YR 6/3	10 YR 4/6	WSS	
		HYDF	RIC SOIL INDI	CATORS:		
				Concretions High Organic Content in Surface Lay Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)	er in Sandy Soils	
mapped in close pr	oximity to where	data po	vint collected. N	No water in bore hole. Impenetrab	le beyond 18 in.	
WETLAND DETERMINA	ATION					
Hydrophytic Vegetation Present' Wetland Hydrology Present? Hydric Soils Present?	? YES YES YES	NO NO NO	Is this Sampling Point Within a Wetland?  YES  N			
Remarks:	1 120	110				

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 3 October 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice/Chris Roche			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustr. Emerg./Scrub-shrub
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DP RRR2

#### **VEGETATION**

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Sambucus canadensis	Shrub	FACW-	9			
2	Lindera benzoin	Shrub	FACW-	10			
3	llex verticillata	Shrub	FACW+	11			
4	Hamamelis virginianus	Shrub	FAC-	12			
5	Bidens sp.	Herb	FACW-	13			
6	Spharganium sp.	Herb	OBL	14			
7	Impatiens capensis	Herb	FACW	15			
8				16			
Percer	nt of Dominant Species that are OBL, FA	ACW, or FAC (e:	xcluding FA	C-)	86		
Rema	rks						
1							

Recorded Data (Describe in Remarks) Stream, Lake, or Tide Gauge Aerial Photographs Other  No recorded Data Available			WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks			
FIELD OBSERVATIONS			<ul><li>☐ Drift Lines</li><li>☐ Sediment Deposits</li><li>☐ Drainage Patterns in Wetlands</li></ul>			
Depth of Surface Water	None Present	(in)				
Depth to Free Water in Pit	None Present	(in)	Secondary Indicators (2 or more Required):  X Oxidized Root Channels in Upper 12 inches Water-Stained Leaves			
Depth to Saturated Soil	0	(in)	<ul> <li>X Local Soil Survey Data</li> <li>X FAC-Neutral Test</li> <li>X Other (Explain in Remarks)</li> </ul>			

#### SOILS

Map Unit Name (Series and Phase): Rexford loam						Drained		
Taxonomy (Subgroup): A			Field Obse	rvations Confirm Mapped Type? YES				
		PROFI	LE DESCR	RIPTION				
Depth	Horizon		x Color	Mottle Colors	Texture, Co	oncretions,		
(inches)		(Munse	ell Moist)	(Munsell Moist)	Structu			
0-3	Α	10 Y	/R 4/1	7.5 YR 4/6				
3-18	В	10 Y	/R 6/2	10 YR 5/4				
		HYDRIC	SOIL INDI	CATORS:				
☐ Histosol				Concretions				
Histic Epipe	don		H	High Organic Content in Surface Lay	ver in Sandy S	Soils		
Sulfidic Odo			$\Box$	Organic Streaking in Sandy Soils	,			
Aquic Moistu	ıre Regime		х	Listed on Local Hydric Soils List				
Reducing Co			Listed on National Hydric Soils List					
X Gleyed or Lo	w-Chroma Colors			Other (Explain in Remarks)				
Remarks: Impenetrab	le at 18 inches. Saturat	ed to surfa	ace.					
<b>WETLAND DETER</b>	RMINATION							
Hydrophytic Vegetation P		NO						
Wetland Hydrology Prese	ent? YES	NO	Is this Sam	pling Point Within a Wetland?	YES	NO		
Hydric Soils Present?	YES	NO						
				secondary indicator of hydrology.				
Water table	is close to the surface	during the	growing s	eason (early spring) in the Rexfor	d soil series			

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 9 January 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Successional Old Field
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DPS1

#### **VEGETATION**

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1 Populus tremula	Tree	FACU	9	Solidago spp. *	Herb	FACU-FACW
2 Quercus palustris	Tree	FACW	10			
3 Pinus strobus	Tree	FACU	11			
4 Picea rubens	Tree	FACU	12			
5 Elaeagnus angustifolia	Shrub	FACU	13			
6 Rosa multiflora *	Shrub	FACU	14			
7 Rubus allegheniensis	Shrub	FACU-	15			
8 Spiraea latifolia *	Shrub	FAC+	16			
Percent of Dominant Species that are OBL, FACW,	or FAC (ex	cluding FA	C-)	<u>&lt;</u> 33		
Remarks: The dominant goldenrod present is p	robably S	S. canaden	sis (	FACU).		
Dominant Species = *						

Recorded Data (Describe in Remarks) Stream, Lake, or Tide Gauge Aerial Photographs Other  No recorded Data Available  FIELD OBSERVATIONS			WETLAND HYDROLOGY INDICATORS  Primary Indicators:  Inundated Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands
Depth of Surface Water	None Present	(in)	
Depth to Free Water in Pit	>24	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	Surface	(in)	Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)

SOILS							
Map Unit Name (Series a		go gravelly loam			Drainage Class: Well		
Taxonomy (Subgroup): T	ypic Dystrudepts		Field Obse	rvations C	Confirm Mapped Type?	YES	NO
Depth (inches)	Horizon	Matri	LE DESCF ix Color ell Moist)	RIPTION	Mottle Colors (Munsell Moist)	Texture, Co Structu	
0-18	Ap	T ,	/R 4/3		-	1	,
18-24	<u> Ар</u> В		/R 5/4		10 YR 4/6		
10-24	<u> </u>	10 1	IX 3/4		10 113 4/0		
						_	
		HYDRIC	SOIL INDI	CATORS	S:		
Histic Epiped Sulfidic Odor Aquic Moistu Reducing Co Gleyed or Lo Remarks:  Soils were saturated th	re Regime Inditions w-Chroma Colors	wasila dua ta ya		Organic s Listed on Listed on Other (E:	panic Content in Surface L Streaking in Sandy Soils I Local Hydric Soils List I National Hydric Soils Lis Explain in Remarks)		Soils
WETI AND DETER	PMINIA TION						
WETLAND DETER Hydrophytic Vegetation P Wetland Hydrology Prese Hydric Soils Present?	resent? YE	s <b>no</b>	Is this Sam	npling Poir	nt Within a Wetland?	YES	NO
Remarks							

### **ROUTINE WETLAND DETERMINATION**

		Date: 9 January 2008
		County: Luzerne
		State: Pennsylvania
YES	NO	Community ID: Palustrine Scrub/Shrub Wetland
YES	NO	Transect ID: 1
YES	NO	Plot ID: DPS2
	YES	YES NO

#### **VEGETATION**

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1 Cornus amomum	Shrub	FACW	9			
2 Viburnum dentatum *	Shrub	FAC	10			
3 Cornus racemosa *	Shrub	FAC	11			
4 Rosa multiflora	Shrub	FACU	12			
5 Elaeagnus angustifolia	Shrub	FACU	13			
6 Spiraea latifolia	Shrub	FAC+	14			
7 Onoclea sensibilis *	Herb	FACW	15			
8			16			
Percent of Dominant Species that are OBL, FACW,	or FAC (ex	xcluding FA	C-)	72		
Remarks						
Dominant Species = *						

Recorded Data (Describe in Remarks) Stream, Lake, or Tide Gauge Aerial Photographs Other  No recorded Data Available  FIELD OBSERVATIONS			WETLAND HYDROLOGY INDICATORS  Primary Indicators:
Depth of Surface Water	None Present	(in)	☐ Drainage Patterns in Wetlands
Depth to Free Water in Pit	9	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	Surface	(in)	<ul><li>Local Soil Survey Data</li><li>FAC-Neutral Test</li><li>Other (Explain in Remarks)</li></ul>

SOILS  Map Unit Name (Series and Phase): A	thorton cilt loom		Drainage Class. Bearl	. Drainad			
Taxonomy (Subgroup): Aeric Endoaque		Field Observations	Drainage Class: Poorly Drained vations Confirm Mapped Type?  YES  NO				
Depth Horiz	PROF zon Matı	ILE DESCRIPTION rix Color sell Moist)		Texture, Co	oncretions,		
0-12 A		YR 3/1	7.5 YR 2.5/3	Structu	ie, eci		
12-24 B		YR 7/1	10 YR 5/6				
12-24	10		10 11 3/0				
Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma Co	vey indicates that Ath	Organi  X Listed (  Listed (  Other (	rganic Content in Surface Lac c Streaking in Sandy Soils on Local Hydric Soils List on National Hydric Soils List Explain in Remarks) asonal high water table at or		oils		
WETLAND DETERMINATIO Hydrophytic Vegetation Present?	N YES NO						
Wetland Hydrology Present? Hydric Soils Present?	YES NO	Is this Sampling Po	oint Within a Wetland?	YES	NO		
Remarks							

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP				Date: 26 March 2008		
Applicant/Owner: PPL				County: Luzerne		
Investigator: Keith Maurice				State: Pennsylvania		
Do Normal Circumstances exist on the	ne site?		YES NO	Community ID: Old fiel	ld/ Scrub shrub	
Is the site significantly disturbed (Aty	pical Situation)?		YES NO	Transect ID: 1		
Is the area a potential Problem Area	? (if needed, explain on	reverse)	YES NO	Plot ID: DPSS1		
VEGETATION						
Dominant Plant Species	Stratum	Indicator	Dom	inant Plant Species	Stratum	Indicator
1 Elaeagnus angustifolia	Shrub	FACU	9			
2 Juglans nigra	Sapling	FACU	10			
3 Robinia pseudoacacia	Sapling	FACU-	11			
4 Solidago spp. *	Herb	FACU-FACW	12			
5 Oenothera biennis	Herb	FACU-	13			
6 Allium vineale	Herb	FACU-	14			
7 Alliara petiolata	Herb	FACU-	15			
8 Coronilla varia *	Herb	UPL	16			
Percent of Dominant Species that ar	e OBL, FACW, or FAC	C (excluding FAC	:-)	0		
HYDROLOGY						
☐ Aerial Photog ☐ Other	e, or Tide Gauge graphs			WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches		
X No recorded Data Availat	ERVATIONS			Water Marks Drift Lines Sediment Deposits Drainage Patterns in	Watlanda	
Depth of Surface Water	None present	(in)	L	Diamage Fatterns in	vvetiarius	
Depth to Free Water in Pit	None present	(in)		ry Indicators (2 or more  Oxidized Root Chan  Water-Stained Leave	nels in Upper 1	2 inches
Depth to Saturated Soil	>12	(in)		Local Soil Survey Da FAC-Neutral Test Other (Explain in Ren		

Man Unit Name (Carina	and Dhass). Fill			Dunimana Classi				
Map Unit Name (Series Taxonomy (Subgroup):	and Phase): Fill		Field Observa		VES	NO		
raxonomy (Subgroup).			i leid Observa	uions Commin Mapped Type:	123	140		
Depth (inches)	Horizon	Ma	atrix Color	Mottle Colors	Texture, Co Structu			
0-8	Α	,		``	Wet sligh			
8-12	В	_	ROFILE DESCRIPTION atrix Color Mottle Colors Textusinsell Moist) (Munsell Moist) S 0 YR 3/2 10 YR 3/3 Wet 5 YR 2.5/1 Coa  PRIC SOIL INDICATORS:  Concretions High Organic Content in Surface Layer in Sa Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)  earyby SSES facilities. Low chroma and mottling reflect inditions.		s present			
Impenetrable > 12"	<del>-</del>		Field Observations Confirm Mapped Type?  PROFILE DESCRIPTION Matrix Color Mottle Colors Texture, (Munsell Moist) (Munsell Moist) Stru-  10 YR 3/2 10 YR 3/3 Wet sli  7.5 YR 2.5/1 Coal fir  HYDRIC SOIL INDICATORS:  Concretions High Organic Content in Surface Layer in Sandy Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)  NO  NO					
I		HYD	RIC SOIL INC	DICATORS:				
Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime				High Organic Content in Surface Layer in Sandy Soils Organic Streaking in Sandy Soils				
Reducing Co Gleyed or Lo	nditions w-Chroma Colors							
Substrate likely consist conditions of the source				facilities. Low chroma and mottlin	g reflect histo	ric		
WETLAND DETE	RMINATION							
Hydrophytic Vegetation   Wetland Hydrology Pres Hydric Soils Present?		NO	Is this Samplii	ng Point Within a Wetland?	YES	NO		
Remarks								

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP					Date: 27 March 2008		
Applicant/Owner: PPL					County: Luzerne		
Investigator: Keith Maurice					State: Pennsylvania		
Do Normal Circumstances exist on the site?			YES	NO	Community ID: Palustrine Emerg./Forested		
Is the site significantly disturbed (Atypical Situati	ion)?		YES	NO	Transect ID: 1		
Is the area a potential Problem Area? (if needed,	explain on	reverse)	YES	NO	, , , , , , , , , , , , , , , , , , ,		
VEGETATION							
Dominant Plant Species	Stratum	Indicator		Dom	inant Plant Species	Stratum	Indicator

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Acer rubrum	Tree	FAC	9			
2	Betula nigra	Tree	FACW	10			
3	Sambucus canadensis	Shrub	FACW-	11			
4	Lindera benzoin	Shrub	FACW-	12			
5	Typha latifolia *	Herb	OBL	13			
6	Phalaris arundinacea *	Herb	FACW+	14			
7	Lythrum salicaria	Herb	FACW+	15			
8				16			
Percent of	f Dominant Species that are OBL, FAC	CW, or FAC	(excluding FAC	;-)	100		
Remarks							
* = Dom	inant species						

Recorded Data (Describe Stream, Lake Aerial Photog Other	e, or Tide Gauge graphs		WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks
FIELD OBSERVATIONS			☐ Drift Lines ☐ Sediment Deposits ☐ Drainage Patterns in Wetlands
Depth of Surface Water	None present	(in)	
Depth to Free Water in Pit	surface	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches  Water-Stained Leaves
Depth to Saturated Soil	surface	(in)	<ul><li>X Local Soil Survey Data</li><li>X FAC-Neutral Test</li><li>☐ Other (Explain in Remarks)</li></ul>

SOILS							
Map Unit Name (Series and	Phase): Holly silt loa	m			Drainage Class: Poo	orly Drained	
Taxonomy (Subgroup): Fluv	aquentic Endoaquept	S	Field Observation	ns Confirm	n Mapped Type?	YES	NO
Depth (inches)	Horizon	Ma	DFILE DESCRIF atrix Color nsell Moist)	NOIT	Mottle Colors (Munsell Moist)	Texture, Co Structur	
0-8	Α	,	0 YR 3/2		,		
8-12	В		YR 2.5/1			Texture, Constructure  Heavy  Acce Layer in Sandy  Soils List List  bestrate was too	
12-18	В		0 YR 4/4	Mottle Colors Texture, Content (Munsell Moist)  CATORS:  Concretions High Organic Content in Surface Layer in Sandy Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)  yer at 12 to 18 inches as the substrate was too	clav		
			,, .				0.0.5
			-				
			-				
	L	HYDR	RIC SOIL INDICA	ATORS:			
soupy at > 18" for a sam	ions chroma Colors ears to be perched on ple with an auger. ears indicates that Ho	olly soils	e heavy clay laye	Organic S Listed on I Listed on I Other (Exp r at 12 to 1	treaking in Sandy Soils Local Hydric Soils List National Hydric Soils Li plain in Remarks) 18 inches as the substra	ist ate was too	Soils
WETLAND DETERN Hydrophytic Vegetation Pres Wetland Hydrology Present'	sent? YES	NO NO	Is this Sampling	Point With	nin a Wetland?	YES	NO
Hydric Soils Present?	YES	NO					
Remarks							

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP				Date: 3 October 2008			
Applicant/Owner: PPL				County: Luzerne			
Investigator: Keith Maurice/Chris Ro	che/Jayme Schaeffer			State: Pennsylvania			
Do Normal Circumstances exist on the	ne site?		YES NO	Community ID: Upland	d Deciduous Fo	rest	
Is the site significantly disturbed (Aty	pical Situation)?		YES NO	Transect ID: 1			
Is the area a potential Problem Area		reverse)	YES NO	Plot ID: DP SSS1			
VEGETATION							
Dominant Plant Species	Stratum	Indicator	Dom	ninant Plant Species	Stratum	Indicator	
1 Acer rubrum	Tree	FAC	9				
2 Lindera benzoin	Shrub	FACW-	10				
3 Maianthemum canader	nse Herb	FAC-	11				
4 Mitchella repens	Herb	FACU	12				
5 Dennstaedtia punctilob	<i>ula</i> Herb	UPL	13				
6 7			14				
			15				
8 Percent of Dominant Species that ar			16				
HYDROLOGY							
Recorded Data (Describe Stream, Lake Aerial Photog Other	e, or Tide Gauge graphs			WETLAND HYDROLOGY INDICATORS  Primary Indicators:  Inundated Saturated in Upper 12 inches Water Marks			
FIELD OBS	ERVATIONS			Drift Lines Sediment Deposits Drainage Patterns in	Wetlands		
Depth of Surface Water	none present	(in	)				
Depth to Free Water in Pit	none present	(in	_	ry Indicators (2 or more  Oxidized Root Chanr  Water-Stained Leave	nels in Upper 1	2 inches	
Depth to Saturated Soil	>24	(in		Local Soil Survey Da FAC-Neutral Test Other (Explain in Ren			

SOILS							
Map Unit Name (Series a		go gravelly lo					
Taxonomy (Subgroup): Ty	pic Dystrudepts		Field Observa	tions Confirm Mapped	Гуре?	YES	NO
Depth (inches)	Horizon	Ma	atrix Color	Mottle Co			
+1-0	0		-	-		leaf l	ayer
0-10	Α	10	Field Observations Confirm Mapped Type?  OFILE DESCRIPTION trix Color	SS			
10-24	В	PROFILE DESCRIPTION Matrix Color Mottle Colors Texture, Co. (Munsell Moist) (Munsell Moist) Structu    leaf leaf leaf leaf leaf leaf leaf leaf	/SS				
<u> </u>		HYD	RIC SOIL IND	DICATORS:			
Histosol Histic Epipedo Sulfidic Odor Aquic Moisture Reducing Con Gleyed or Low	Regime			High Organic Conter Organic Streaking in Listed on Local Hydr Listed on National Hy	Sandy Soils c Soils List dric Soils List	er in Sandy S	ioils
WETLAND DETER Hydrophytic Vegetation P		NO					
Wetland Hydrology Prese			Is this Sampli	ng Point Within a Wetla	nd?	YES	NO
Hydric Soils Present? Remarks: 10 feet SW	YES		<u> </u>				
		.,					

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 3 October 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice/Chris Roche/Jayme Schaeffer			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palus. Emerg. (10% Forested)
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DP SSS2

#### **VEGETATION**

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Acorus calamus	Herb	OBL	9			
2	Leersia oryzoides	Herb	OBL	10			
3	Polygonum punctatum	Herb	OBL	11			
4	Acer rubrum	Tree	FAC	12			
5	Acer rubrum	Herb	FAC	13			
6	Quercus palustris	Tree	FACW	14			
7	Alisma subcordatum	Herb	OBL	15			
8	Carex sp.	Herb	FAC-OBL	16			
Percen	t of Dominant Species that are OBL, FA	CW, or FAC (e	xcluding FA	C-)	100		
Remar	ks						

Recorded Data (Describe in Stream, Lake, of Aerial Photogra Other  No recorded Data Available  FIELD OBSERV	or Tide Gauge Iphs		WETLAND HYDROLOGY INDICATORS  Primary Indicators:  X Inundated X Saturated in Upper 12 inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands
Depth of Surface Water	4	(in)	
Depth to Free Water in Pit	1	(in)	Secondary Indicators (2 or more Required):  X Oxidized Root Channels in Upper 12 inches X Water-Stained Leaves
Depth to Saturated Soil	0	(in)	Local Soil Survey Data  FAC-Neutral Test  Other (Explain in Remarks)

SOILS					
Map Unit Name (Series ar	nd Phase): Rexford loam		Drainage Class: Somewhat Poo	orly to Poorly	Drained
Taxonomy (Subgroup): A	eric Fragiaquepts	Field Obse	ervations Confirm Mapped Type?	YES	NO
Depth (inches)	Horizon	PROFILE DESCF Matrix Color (Munsell Moist)	RIPTION  Mottle Colors  (Munsell Moist)		concretions, ure, ect
0-15	Α	10 YR 4/1	7.5 YR 4/6	1	,
15-24	В	10 YR 5/2	7.5 YR 4/6	+	
13-24	ь	10 11372	7.5 TK 4/0	+	
				+	
		}			
		HYDRIC SOIL IND	ICATORS:		
Histosol Histic Epiped Sulfidic Odor Aquic Moistu Reducing Co X Gleyed or Lo	re Regime		Concretions High Organic Content in Surface La Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)	yer in Sandy S	Soils
WETLAND DETER					
Hydrophytic Vegetation Po Wetland Hydrology Presed Hydric Soils Present?	nt? YES	NO	npling Point Within a Wetland?	YES	NO
Remarks: 10 feet SW	of wetland boundary fla	g 555-17.			

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP					Date: 3 October 2008				
Applicant/Owner: PPL					County: Luzerne				
Investigator: Keith Maurice/Chris Ro	che				State: Pennsylvania				
Do Normal Circumstances exist on the	ne site?		YES	NO	Community ID: Palustrine forested wetland				
Is the site significantly disturbed (Aty	pical Situation)?		YES	NO	Transect ID: 1	Transect ID: 1			
Is the area a potential Problem Area	Is the area a potential Problem Area? (if needed, explain on reverse)				Plot ID: DP T1				
VEGETATION  Dominant Plant Species	Stratum	Indicator		Dom	inant Plant Species	Stratum	Indicator		
1 Acer rubrum	Tree	FAC	9	DOIII	mant Flant Species	Stratum	indicator		
2 Lindera benzoin	Shrub	FACW-	10						
3 Ilex verticillata	Shrub	FACW+	11						
4 Viburnum dentatum	Shrub	FAC	12						
5 Onoclea sensibilis	Herb	FACW	13						
6 Toxicodendron radican		FAC	14						
7 Uvularia sessilifolia	Herb	FACU-	15						
8	TICID	1700-	16						
Percent of Dominant Species that ar	ORL FACW or FAC	L (excluding EA)			86				
HYDROLOGY									
☐ Recorded Data (Describe ☐ Stream, Lake ☐ Aerial Photoo ☐ Other ☐ No recorded Data Availab	e, or Tide Gauge graphs		Prir	WETLAND HYDROLOGY INDICATORS  Primary Indicators:  Inundated Saturated in Upper 12 inches Water Marks			PRS		
FIELD OBS	ERVATIONS				Drift Lines Sediment Deposits Drainage Patterns in \	Vetlands			
Depth of Surface Water	None present	(in	)						
Depth to Free Water in Pit	None present	(in		Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 1:  Water-Stained Leaves			2 inches		
Depth to Saturated Soil	>24	(in	X Local Soil Survey Data						

### SOILS

Map Unit Name (Series	s and Phase): Rexford loa	ım		Drainage Class: Somewhat Poorl	ly to Poorly D	rained
Taxonomy (Subgroup):			Observation	ons Confirm Mapped Type?	YES	NO
Depth	Horizon	PROFIL Matrix C	E DESCR	RIPTION  Mottle Colors	Texture, Con	cretions,
(inches)		(Munsell N		(Munsell Moist)	Structure	
0-6	Α	10 YR 3	3/1	10 YR 5/6	WSS	3
6-24	В	10 YR 4	4/2	10 YR 5/4	WS	
		HYDRIC S	OIL INDI	CATORS:		
Histosol Histic Epipe Sulfidic Odo Aquic Moisti Reducing C.  Gleyed or Le	or ure Regime			Concretions High Organic Content in Surface Layer Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)	эr in Sandy Soi	ls
WETLAND DETE	RMINATION					
Hydrophytic Vegetation Wetland Hydrology Pre Hydric Soils Present?	Present? YES	NO NO Is thi	s Sampling	p Point Within a Wetland?	YES	NO
	_	-		exford soil series. Data collected neetland boundary flag T-20.	ear the end of	for

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP		Date: 3 October 2008						
Applicant/Owner: PPL			County: Luzerne					
Investigator: Keith Maurice/Chris Ro	che/Jayme Schaeffer			State: Pennsylvania	State: Pennsylvania			
Do Normal Circumstances exist on the			YES NO		l deciduous fore	st		
Is the site significantly disturbed (Aty			YES NO					
Is the area a potential Problem Area		YES NO						
VEGETATION								
Dominant Plant Species	Stratum	Indicator	Dor	minant Plant Species	Stratum	Indicator		
1 Prunus serotina	Tree	FACU	9	- p				
2 Acer rubrum	Tree	FAC	10					
3 Lindera benzoin	Shrub	FACW-	11					
4 Toxicodendron radican		FAC	12					
5 Dryopteris spinulosa	Herb	FAC+	13					
6			14					
7			15					
8			16					
Percent of Dominant Species that are	e OBL, FACW, or FAC	(excluding FAC		80				
HYDROLOGY								
Recorded Data (Describe Stream, Lake Aerial Photog Other	e, or Tide Gauge graphs			VETLAND HYDROLOG Indicators: Inundated Saturated in Upper 12 Water Marks Drift Lines		PRS		
FIELD OBS	ERVATIONS		] [	Sediment Deposits Drainage Patterns in	Wetlands			
Depth of Surface Water	None present	(in)						
Depth to Free Water in Pit	None present	(in)	_	ary Indicators (2 or more Oxidized Root Chani Water-Stained Leave	nels in Upper 12 es	2 inches		
Depth to Saturated Soil >24 (in)				ata marks)				

SOILS						
Map Unit Name (Series and Ph		gravelly lo		Drainage Class: Somewhat Ex		
Taxonomy (Subgroup): Typic D	Dystrudepts		Field Observa	ations Confirm Mapped Type?	YES	NO
Depth (inches)	Horizon	Ма	OFILE DESC atrix Color nsell Moist)	RIPTION  Mottle Colors  (Munsell Moist)	Texture, Co Structu	
0-8	Α	10	) YR 3/3		MF	-R
8-24	В	7.	5 YR 4/6	-	MF	-R
		i		1		
		ĺ			1	
					+	
		1		1	+	
		1		+	+	
					+	
I		HYD	RIC SOIL IND	DICATORS:		
Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regi Reducing Conditions Gleyed or Low-Chro  Remarks: No water in bore	s oma Colors			Concretions High Organic Content in Surface L Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)		oils
WETLAND DETERMIN Hydrophytic Vegetation Present		NO	T			
Wetland Hydrology Present? Hydric Soils Present?	YES YES	NO NO	Is this Samplir	ng Point Within a Wetland?	YES	NO
Remarks						

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 3 October 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice/Chris Roche/Jayme Schaeffer			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Forested Wetland
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DP TTT2

#### **VEGETATION**

	Dominant Plant Species	Stratum	Indicator	Dominant Plant Species Stratu	m Indicator
1	Onoclea sensibilis	Herb	FACW	Symplocarpus foetidus Herb	OBL
2	Polygonum cespitosum	Herb	FACU-		
3	Pilea pumila	Herb	FACW		
4	Lycopus sp.	Herb	OBL	2	
5	Impatiens capensis	Herb	FACW	3	
6	Lindera benzoin	Shrub	FACW-	l .	
7	Acer rubrum	Tree	FAC	5	
8	Quercus palustris	Tree	FACW	3	
Perce	nt of Dominant Species that are OBL, FA	CW, or FA	C (excluding FAC	89	
Rema	arks				

Recorded Data (Describe Stream, Lake Aerial Photog Other	s, or Tide Gauge graphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks	
FIELD OBS	ERVATIONS	<ul><li>☐ Drift Lines</li><li>☐ Sediment Deposits</li><li>☐ Drainage Patterns in Wetlands</li></ul>	
Depth of Surface Water	None present	(in)	
Depth to Free Water in Pit	Depth to Free Water in Pit 18 (in)		Secondary Indicators (2 or more Required):  X Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	0	(in)	<ul> <li>X Local Soil Survey Data</li> <li>X FAC-Neutral Test</li> <li>Other (Explain in Remarks)</li> </ul>

#### SOILS

Map Unit Name (Series and Phase	): Rexford loam		Drainage Class: Somewhat Poor	ly to Poorly Drained		
Taxonomy (Subgroup): Aeric Fragi	aquepts	Field Observation	ns Confirm Mapped Type?	YES NO		
Depth Ho		ROFILE DESCR latrix Color	PTION  Mottle Colors	Texture, Concretions,		
(inches)	(Mı	unsell Moist)	(Munsell Moist)	Structure, ect		
0-24	1	0 YR 2/1	5 YR 4/6	WS		
	НҮС	ORIC SOIL INDIC	CATORS:			
Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma	Colors		Concretions High Organic Content in Surface Layo Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)	er in Sandy Soils		
WETLAND DETERMINAT	rion					
Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	YES NO YES NO YES NO	Is this Sampling	Point Within a Wetland?	YES NO		
Remarks: 30 feet E of TTT-18.						

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP					Date: 3 October 2008			
Applicant/Owner: PPL					County: Luzerne			
Investigator: Keith Maurice/Chris Roo	che				State: Pennsylvania			
Do Normal Circumstances exist on the	he site?		YES	NO	Community ID: Upland	mowed field	_	
Is the site significantly disturbed (Aty				NO	Transect ID: 1			
Is the area a potential Problem Area	? (if needed, explain on	reverse)	YES	NO	Plot ID: DP UUU1			
VEGETATION	1	<del></del>	<del></del>			T	<del></del>	
Dominant Plant Species			<del>_</del>	Dom	ninant Plant Species	Stratum	Indicator	
1 Holcus lanatus	Herb	FACU	9			+	<del>                                     </del>	
2 Prunella vulgaris	Herb	FACU+	10			+	<del>                                     </del>	
3 Plantago lanceolata	Herb	UPL	11				<u> </u>	
4 Agrostis gigantea	Herb	FACW	12				<u> </u>	
5 Schizachyrium scopario		FACU-	13				ļ	
6 Phleum pratense	Herb	FACU	14				ļ	
7			15			$\bot$	<u> </u>	
8			16		17			
HYDROLOGY								
Recorded Data (Describe in Remarks) Stream, Lake, or Tide Gauge Aerial Photographs Other  No recorded Data Available			Pri	WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks			)RS	
FIELD OBS	SERVATIONS				Drift Lines Sediment Deposits Drainage Patterns in V	Wetlands		
Depth of Surface Water	None present	(in						
Depth to Free Water in Pit	None present	(in		conda	ary Indicators (2 or more I Oxidized Root Chann Water-Stained Leave	nels in Upper 12 es	2 inches	
Depth to Saturated Soil	>14	(in	1)		Local Soil Survey Dat FAC-Neutral Test Other (Explain in Rem			

#### SOILS

Taxonomy (Subgroup):	and Phase):	Chenango gr	ravelly lo	am	Drainage Class: Somewhat Exce	essively Drai	ned
Taxonomy (Subgroup): Typic Dystrudepts Field Observations Confirm Mapped Type? YES NO							NO
Depth	Horiz	on	Mat	OFILE DESCR	Mottle Colors	Texture, Concretions,	
(inches)				nsell Moist)	(Munsell Moist)	Structu	
0-14	Ар	+		YR 4/3	7.5 YR 3/4	MFR/	
14-24	В	<del></del>	10	YR 5/5	10 YR 5/8	W	S
					<del> </del>		
					<del> </del>		
	<del></del>				ļ		
					<u></u>		
			HYDF	RIC SOIL INDI	CATORS:		
☐ Histosol       ☐ Concretions         ☐ Histic Epipedon       ☐ High Organic Content in Surface Layer in Sandy Soils         ☐ Sulfidic Odor       ☐ Organic Streaking in Sandy Soils         ☐ Aquic Moisture Regime       ☐ Listed on Local Hydric Soils List         ☐ Reducing Conditions       ☐ Listed on National Hydric Soils List         ☐ Gleyed or Low-Chroma Colors       ☐ Other (Explain in Remarks)						oils	
WETLAND DETE							
II describe the Magazation		VEC	אור .	1			
Hydrophytic Vegetation Wetland Hydrology Pre		YES YES	NO NO	ls this Samplinզ	g Point Within a Wetland?	YES	NO
Wetland Hydrology Pre Hydric Soils Present?		YES YES	NO NO		g Point Within a Wetland?	YES	NO

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP					Date: 3 October 2008			
Applicant/Owner: PPL						County: Luzerne		
Investigator: Keith Maurice/Chris Roche						State: Pennsylvania		
Do Normal Circumstances exist on the site?				YES	NO	Community ID: Palustr	rine Emergent	
Is the site significantly disturbed (Atypical Situation)?			YES	NO	Transect ID: 1			
Is the	area a potential Problem Area? (if nee	ded, explain on	reverse)	YES	NO	Plot ID: DP UUU2		
VEG	ETATION							
VEG	ETATION		ı	_			_	
	Dominant Plant Species	Stratum	Indicator		Dom	inant Plant Species	Stratum	Indicator
1	Lysimachia nummalaria	Herb	OBL	9				
2	Agrostis gigantea	Herb	FACW	10				

Recorded Data (Describe	in Remarks)	WETLAND HYDROLOGY INDICATORS	
`	e, or Tide Gauge graphs	Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks	
FIELD OBS	ERVATIONS	<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>	
Depth of Surface Water	None present	(in)	
Depth to Free Water in Pit	21	(in)	Secondary Indicators (2 or more Required):  X Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	20	(in)	<ul> <li>X Local Soil Survey Data</li> <li>X FAC-Neutral Test</li> <li>Other (Explain in Remarks)</li> </ul>

#### SOILS

Map Unit Name (Series and Phase): Rexford loam Drainage Class: Somewhat I							Drained
Taxonomy (Subgroup):	Aeric Fragiad	quepts		Field Observati	ons Confirm Mapped Type?	YES	NO
			PR	OFILE DESCR	RIPTION		
Depth	Horiz	on	Ma	trix Color	Mottle Colors	Texture, C	Concretions,
(inches)			(Mun	sell Moist)	(Munsell Moist)	Struct	ture, ect
0-12	Ap	)	10	YR 5/1	7.5 YR 4/4	V	VS
12-24	В		10	YR 5/2	7.5 YR 3/4	MFI	/WSS
						1	
			HYDF	RIC SOIL INDI	CATORS:	1	
☐ Histosol					Concretions		
Histic Epipe	don			H	High Organic Content in Surface Lav	ver in Sandy	Soils
Sulfidic Odd				H	Organic Streaking in Sandy Soils	, o oaa,	000
Aquic Moist				X	Listed on Local Hydric Soils List		
Reducing C	onditions				Listed on National Hydric Soils List		
X Gleyed or L	ow-Chroma C	olors			Other (Explain in Remarks)		
Remarks:							
<b>WETLAND DET</b>	ERMINATI	ON					
Hydrophytic Vegetation	Present?	YES N	0				
Wetland Hydrology Pre	esent?		0	Is this Samplino	g Point Within a Wetland?	YES	NO
Hydric Soils Present?			0				
Remarks: Water table	e is close to	the surface dur	ing th	ne growing sea	ason (early spring) in the Rexford s	soil series.	
1							

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP				Date: 3 October 2008			
Applicant/Owner: PPL				County: Luzerne			
Investigator: Keith Maurice/Chris Ro	che			State: Pennsylvania			
Do Normal Circumstances exist on the			YES NO	Community ID: Upland	d deciduous fore	est	
Is the site significantly disturbed (Aty	pical Situation)?		YES NO	Transect ID: 1			
Is the area a potential Problem Area	? (if needed, explain on	reverse)	YES NO	Plot ID: DP VVV1			
VEGETATION							
Dominant Plant Species	Stratum	Indicator		ninant Plant Species	Stratum	Indicator	
1 Acer rubrum	Tree	FAC	9				
2 Lindera benzoin	Shrub	FACW-	10				
3 Prunus serotina	Tree	FACU	11				
4 Toxicodendron radican	s Herb	FAC	12				
5 Quercus palustris	Tree	FACW	13				
6 Maianthemum canadei	nse Herb	FAC-	14		_		
7			15				
8			16				
Percent of Dominant Species that an Remarks	BOBL, FACW, or FAC	C (excluding FA	C-)	67			
HYDROLOGY							
☐ Recorded Data (Describe ☐ Stream, Lake ☐ Aerial Photoo ☐ Other ▼ No recorded Data Availab	e, or Tide Gauge graphs			WETLAND HYDROLOGY INDICATORS  Primary Indicators:  Inundated Saturated in Upper 12 inches Water Marks			
FIELD OBSERVATIONS				Drift Lines Sediment Deposits Drainage Patterns in	Wetlands		
Depth of Surface Water	None present	(in	)				
Depth to Free Water in Pit	Depth to Free Water in Pit None present (in)			ry Indicators (2 or more  Oxidized Root Chan  Water-Stained Leav	nels in Upper 1	2 inches	
Depth to Saturated Soil	>24	>24 (in)		Local Soil Survey Data    X			

SOILS									
Map Unit Name (Serie	s and Phase):	Rexford loa	am			Drainage Class: \$	Somewhat Po	orly Dra	ined
Taxonomy (Subgroup): Aeric Fragiaquepts Field Observations Con					tions Confirm	Mapped Type?	Y	ES	NO
Depth (inches)	Horiz	on	M	ROFILE DESC atrix Color insell Moist)		Mottle Colors Munsell Moist)		ture, Cor Structure	ncretions, e, ect
1-0	0					-		leaf la	ıyer
0-3	Α		1	0 YR 3/2		10 YR 5/4		MFI	R
3-6	В		1	0 YR 4/3		7.5 YR 5/6		MFI	R
6-24	В		1	0 YR 6/3		7.5 YR 5/8		MFR/	ORL
						10 YR 6/2			
Reducing C	or ture Regime	olors			Organic Str Listed on L Listed on N	s ic Content in Surfa eaking in Sandy S ocal Hydric Soils Li ational Hydric Soils ain in Remarks)	oils ist	andy So	oils
•	This area lik	c vegetatio	ed as Re	xford due to p	roximity to W	ed as Rexford lo /alker Run. This napped as Rexfo	proximity ar		
Hydrophytic Vegetation	n Present?	YES	NO						
Wetland Hydrology Pre	esent?	YES	NO	Is this Sampli	na Point Withi	n a Wetland?	Y	ES	NO

Hydrophytic	: Vegetation Present?	YES	NO			
Wetland Hy	drology Present?	YES	NO	Is this Sampling Point Within a Wetland?	YES	NO
Hydric Soils	Present?	YES	NO			
Remarks:	No hydric soils and no	hydrologi	cal indica	season could account for dominant presence of tors except for FAC neutral secondary confirm a mapped as an upland inclusion (VVV) in We	ed this data poi	nt

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 21 February 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice, Jayme Schaeffer			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Upland Floodplain Forest
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DPXX1

#### **VEGETATION**

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	Acer saccharinum	Tree	FACW	9			
2	Lindera benzoin	Shrub	FACW-	10			
3	Acer saccharinum	Sapling	FACW	11			
4	Viburnum dentatum	Shrub	FAC	12			
5	Cornus amomum	Shrub	FACW	13			
6	Rosa multiflora	Shrub	FACU	14			
7	Solidago spp.	Herb	FACU-FACW	15			
8				16			
Percen	t of Dominant Species that are OBL, FAG	CW, or FAC	C (excluding FAC	-)	71		
Rema	rks						

☐ Recorded Data (Describe☐ Stream, Lake☐ Aerial Photoe☐ Other☐ X	e, or Tide Gauge graphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators: None Inundated Saturated in Upper 12 inches Water Marks	
FIELD OBS	ERVATIONS	☐ Drift Lines ☐ Sediment Deposits ☐ Drainage Patterns in Wetlands	
Depth of Surface Water	None Present	(in)	
Depth to Free Water in Pit	> 24	(in)	Secondary Indicators (2 or more Required): None  Oxidized Root Channels in Upper 12 inches  Water-Stained Leaves
Depth to Saturated Soil	> 24	(in)	Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)

SOILS								
Map Unit Name (Series a	and Phase): Pope soils				Draina	age Class: Well	Drained	
Taxonomy (Subgroup): F	luventic Dystrudepts		Field Observa	ations Confi	rm Mappe	ed Type?	YES	NO
Depth (inches)	Horizon	Ma (Mu	ROFILE DESC atrix Color insell Moist)	1	(Munse	Colors ell Moist)	Texture, Co	re, ect
0-14	Α		0 YR 4/3			7.5 YR 4/4	Wet Sligh	
14-24	В	1	0 YR 4/4	10	YR 5/2	7.5 YR 4/6	Moist	Firm
☐ Histosol		HYD	RIC SOIL INI	DICATORS				
Histic Epipedo Sulfidic Odor Aquic Moistur Reducing Cor	e Regime			High Org Organic Listed or Listed or	ganic Con Streaking n Local Hy	tent in Surface L in Sandy Soils ydric Soils List I Hydric Soils Lis Remarks)		oils
WETLAND DETER Hydrophytic Vegetation F Wetland Hydrology Prese Hydric Soils Present?	Present? YES	NO NO NO	Is this Sampli	ng Point Wi	thin a We	itland?	YES	NO
Remarks								

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 21 February 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice, Jayme Schaeffer			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Forested Wetland
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DPXX2

#### **VEGETATION**

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1 Acer saccharinum	Tree	FACW	9			
2 Cornus amomum	Shrub	FACW-	10			
3 Sassafrass albidum	Sapling	FACU-	11			
4 Toxicodendron radicans	Vine	FAC	12			
5 Allium vineale	Herb	FACU-	13			
6			14			
7			15			
8			16			
Percent of Dominant Species that are OBL, FAC	CW, or FAC	(excluding FAC	;-)	60		
Remarks						
-						

Recorded Data (Describe in Remarks) Stream, Lake, or Tide Gauge Aerial Photographs Other  X No recorded Data Available			WETLAND HYDROLOGY INDICATORS  Primary Indicators: None Inundated Saturated in Upper 12 inches Water Marks
FIELD OBS	ERVATIONS	<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>	
Depth of Surface Water	None Present	(in)	
Depth to Free Water in Pit	> 24	(in)	Secondary Indicators (2 or more Required): None Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	Surface	(in)	Local Soil Survey Data  X FAC-Neutral Test  Other (Explain in Remarks)

and Phase): Pope soi	ls		Drainage Class: Wel	l Drained		
Fluventic Dystrudepts	F	ield Observat	ions Confirm Mapped Type?	ype? YES		
Depth Horizon (inches)		ix Color	RIPTION  Mottle Colors  (Munsell Moist)		oncretions, ire, ect	
Ap	T ,	•	-	1	•	
11-15 B			10 YR 6/2			
	10	111 0/2	10 11470	vvot eligi	nay Outony	
			<u> </u>			
	LIVDD	IC COIL IND	ICATORS:			
	HYDK	IC SOIL IND	ICATORS:			
r ure Regime onditions ow-Chroma Colors I survey states that Pe		High Organic Content in Surface Layer in S Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks) e soils may have unmapped inclusions of hydric Holly and Way				
Present? YES YES YES		s this Samplin	g Point Within a Wetland?	YES	NO	
ILS	NO					
	•			p).		
	Horizon  Ap B B B  don or ure Regime onditions ow-Chroma Colors I survey states that Pelocated in close prox  Present? YES YES YES YES	Horizon Matri (Muns Ap 10.7 B 10.7 B 10.7 B 10.7 B 10.7 HYDR  don or ure Regime onditions ow-Chroma Colors  I survey states that Pope soils material population of the colors  ERMINATION Present? YES NO YES	PROFILE DESCENTIANT Color (Munsell Moist)  Ap 10 YR 3/2 B 10 YR 4/2 B 10 YR 5/2  HYDRIC SOIL IND  HYDRIC SOIL IND  HYDRIC SOIL IND  Sow-Chroma Colors  I survey states that Pope soils may have unmark located in close proximity to the canal and the sent?  Present? YES NO YES NO YES NO YES NO YES NO YES NO Is this Samplin YES NO YES	PROFILE DESCRIPTION Matrix Color (Munsell Moist)  Ap 10 YR 3/2 -  B 10 YR 4/2 10 YR 6/2  B 10 YR 5/2 10 YR4/6  HYDRIC SOIL INDICATORS:  Concretions don r Concretions High Organic Content in Surface I Granic Streaking in Sandy Soils Listed on National Hydric Soils List ow-Chroma Colors  United any Soils Content in Remarks)  I survey states that Pope soils may have unmapped inclusions of hydric Holly located in close proximity to the canal and the depth to water from top of bank  ERMINATION Present? YES NO YES NO Is this Sampling Point Within a Wetland? YES NO Is this Sampling Point Within a Wetland?	Fluventic Dystrudepts  Field Observations Confirm Mapped Type?  PROFILE DESCRIPTION  Matrix Color	

#### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP		Date: 2 April 2008					
Applicant/Owner: PPL				County: Luzerne			
Investigator: Keith Maurice				State: Pennsylvania	State: Pennsylvania		
Do Normal Circumstances exist on the site?				Community ID: Upland	Forest		
Is the site significantly disturbed (Aty	pical Situation)?		YES NO	Transect ID: 1			
Is the area a potential Problem Area	? (if needed, explain on	reverse)	YES NO	Plot ID: DPZ1			
VEGETATION							
Dominant Plant Species	Stratum	Indicator		ninant Plant Species	Stratum	Indicator	
1 Acer rubru <u>m</u> *	Tree	FAC	9				
2 Fraxinus americana	Tree	FACU	10				
3 Prunus serotina	Tree	FACU	11				
4 Lindera benzoin *	Shrub	FACW-	12				
5 Prunus serotina	Sapling	FACU	13				
6 Elaeagnus angustifolia		FACU	14				
7 Ligustrum vulgare	Shrub	FACU	15				
8			16	100			
·							
HYDROLOGY							
Recorded Data (Describe in Remarks)  Stream, Lake, or Tide Gauge Aerial Photographs Other  X No recorded Data Available				WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks Drift Lines			
FIELD OBSERVATIONS				Sediment Deposits Drainage Patterns in Wetlands			
Depth of Surface Water	None present	(ir	]				
Depth to Free Water in Pit	None present	(ir	_	ary Indicators (2 or more of the control of the con	nels in Upper 12 es		
Depth to Saturated Soil	10 (in)			Local Soil Survey Da FAC-Neutral Test Other (Explain in Rem			

SOILS									
Map Unit Name (Series and		o gravelly l			Drainage Class:				
Taxonomy (Subgroup): Typ	ic Dystrudepts		Field Observ	ations Confirm	n Mapped Type?		YES N		
Depth Horizon (inches)  0-4 A		Ma (Mu	ROFILE DESC atrix Color nsell Moist) 0 YR 2/2	CRIPTION	IPTION  Mottle Colors  (Munsell Moist)  7.5 YR 3/4		Texture, Concretions Structure, ect		
4-10	В		0 YR 3/3		-				
10-24 B			0 YR 5/4		7.5 YR 4/6				
10-24			0 11( 3/4		7.5 110 4/0				
		HYD	RIC SOIL IN	DICATORS					
Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma Colors  Remarks: Saturated soil conditions were likely due to ra			Gall in March th	Concretions High Organic Content in Surface Layer in Sandy Soils Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)					
WETLAND DETERN Hydrophytic Vegetation Pre Wetland Hydrology Present Hydric Soils Present?	sent? YES	NO <b>NO</b> <b>NO</b>	Is this Sampl	ling Point With	in a Wetland?	,	/ES	NO	
Remarks									

### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP			Date: 2 April 2008
Applicant/Owner: PPL			County: Luzerne
Investigator: Keith Maurice			State: Pennsylvania
Do Normal Circumstances exist on the site?	YES	NO	Community ID: Palustrine Forested Wetland
Is the site significantly disturbed (Atypical Situation)?	YES	NO	Transect ID: 1
Is the area a potential Problem Area? (if needed, explain on reverse)	YES	NO	Plot ID: DPZ2

#### **VEGETATION**

	Dominant Plant Species	Stratum	Indicator	Dominant Plant Species Stratum Inc	dicator
1	Acer rubrum *	Tree	FAC	9 Alliaria petiolata Herb F.	ACU-
2	Betula nigra	Tree	FACW	10	
3	Lindera benzoin *	Shrub	FACW-	11	
4	Fraxinus americana	Sapling	FACU	12	
5	Prunus serotina	Sapling	FACU	13	
6	Carya cordiformis	Sapling	FACU+	14	
7	Symplocarpus foetidus *	Herb	OBL	15	
8	Osmunda cinnamomea	Herb	FACW	16	
Perce	nt of Dominant Species that are OBL, FA	CW, or FA	C (excluding FAC	C-) 100	
Rema	arks				
* = D	ominant species				

Recorded Data (Describe Stream, Lake Aerial Photog Other	s, or Tide Gauge graphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators:  Inundated Saturated in Upper 12 inches Water Marks Drift Lines	
FIELD OBS	ERVATIONS	Sediment Deposits     Drainage Patterns in Wetlands	
Depth of Surface Water	None present	(in)	
Depth to Free Water in Pit	>24	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	10	(in)	<ul><li>Local Soil Survey Data</li><li>FAC-Neutral Test</li><li>Other (Explain in Remarks)</li></ul>

SOILS								
Map Unit Name (Series and Phase)	: Rexford loam	Drainage Class: Poorly Drained						
Taxonomy (Subgroup): Aeric Fragia	aquepts	Field Observations Confirm Mapped Type? YES						
(inches) 0-12	izon Ma (Mu A 1	ROFILE DESC atrix Color insell Moist) 0 YR 3/1	Mottle Colors (Munsell Moist) 7.5 YR 3/4 10 YR 5/6	Texture, Concretions Structure, ect				
12 27			10 11( 6/6	_				
	100	RIC SOIL IND						
Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma Remarks: The county soil survey ingrowing season.		□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	Concretions High Organic Content in Surface I Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils Lis Other (Explain in Remarks) sonal high water table near the surface	st	oils			
WETLAND DETERMINAT	7							
Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	YES NO YES NO YES NO	Is this Sampli	YES	NO				
Remarks								

### **ROUTINE WETLAND DETERMINATION**

		Date: 27 March 2008
		County: Luzerne
		State: Pennsylvania
YES	NO	Community ID: Upland forest
YES	NO	Transect ID: 2
YES	NO	Plot ID: DPZ3
	YES	YES NO

	Dominant Plant Species	Stratum	Indicator	Dominant Plant Species Stratum Indica	ator
1	Acer rubrum *	Tree	FAC	9 Cornus florida Tree FAC	U-
2	Prunus serotina	Tree	FACU	10 Alliaria petiolata Herb FAC	U-
3	Liriodendron tulipifera	Tree	FACU	11	
4	Fraxinus americana	Tree	FACU	12	
5	Quercus alba	Tree	FACU-	13	
6	Carya ovata	Tree	FACU-	14	
7	Betula lenta	Tree	FACU	15	
8	Lindera benzoin *	Shrub	FACW-	16	
Percei	nt of Dominant Species that are OBL, FAG	CW, or FAC	C (excluding FAC	C-) 100	
Rema	irks: Red maple and spicebush predo	minate thi	oughout uplan	ds and wetlands within the project area.	
* = D	ominant species				

Recorded Data (Describe Stream, Lake Aerial Photog Other	s, or Tide Gauge graphs	WETLAND HYDROLOGY INDICATORS  Primary Indicators: Inundated Saturated in Upper 12 inches Water Marks	
FIELD OBS	ERVATIONS	<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>	
Depth of Surface Water	None present	(in)	
Depth to Free Water in Pit	>24	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	14	(in)	Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)

SOILS							
Map Unit Name (Series and	d Phase): Braceville	gravelly lo	oam		Drainage Class: Mo	derately Well Drair	ned
Taxonomy (Subgroup): Ty	pic Fragiudepts		Field Observa	ations Confirm	n Mapped Type?	YES	NO
Depth Horizon (inches)  0-2 A		PROFILE DESCRIPTION Matrix Color (Munsell Moist) 10 YR 2/1			Mottle Colors Texture, Conc (Munsell Moist) Structure,		
2-17	В	10	YR 4/3.5		-		
17-24 B		10	0 YR 5/5		-		
		HVD	RIC SOIL INI	DICATORS:			
Histosol Histic Epipedon Sulfidic Odor Aquic Moisture I Reducing Condi Gleyed or Low-0	Regime tions			Organic St Listed on L Listed on N	ns nic Content in Surface treaking in Sandy Soils Local Hydric Soils List National Hydric Soils L olain in Remarks)	3	oils
WETLAND DETER! Hydrophytic Vegetation Pre Wetland Hydrology Presen	esent? YES	NO <b>NO</b>	Is this Sampli	na Point With	in a Wetland?	YES	NO
Hydric Soils Present? Remarks	NO						

#### **ROUTINE WETLAND DETERMINATION**

Project/S	Site: Bell Bend NPP				Date: 27 March 2008			
Applican	nt/Owner: PPL				County: Luzerne	County: Luzerne		
Investigator: Keith Maurice					State: Pennsylvania	State: Pennsylvania		
Do Normal Circumstances exist on the site?  YES				YES NO	Community ID: Palus	trine Scrub Shru	ıb	
Is the site significantly disturbed (Atypical Situation)?			YES NC	Transect ID: 2				
Is the are	ea a potential Problem Area? (if ne	eeded, explain on	reverse)	YES NC	Plot ID: DPZ4			
VEGE	TATION							
	Dominant Plant Species	Stratum	Indicator	Do	minant Plant Species	Stratum	Indicator	
1	Lindera benzoin	Shrub	FACW-	9				
2				10				
3 4				11				
4				12				
5	<del></del>			13				
6				14				
7				15				
8				16				
Percent	of Dominant Species that are OBL	, FACW, or FA	C (excluding FA	AC-)	100			
Remark	(S							
* = Dor	minant species							
HYDR	OLOGY							
	Recorded Data (Describe in Re	ide Gauge			WETLAND HYDROLO	GY INDICATO	DRS	
[	•	ide Gauge			WETLAND HYDROLO  / Indicators:	GY INI	DICATO	

Recorded Data (Describe in Remarks) Stream, Lake, or Tide Gauge Aerial Photographs Other  No recorded Data Available			WETLAND HYDROLOGY INDICATORS  Primary Indicators:
FIELD OBSERVATIONS			<ul><li>□ Drift Lines</li><li>□ Sediment Deposits</li><li>□ Drainage Patterns in Wetlands</li></ul>
Depth of Surface Water	None present	(in)	
Depth to Free Water in Pit	None present	(in)	Secondary Indicators (2 or more Required):  Oxidized Root Channels in Upper 12 inches Water-Stained Leaves
Depth to Saturated Soil	15	(in)	<ul> <li>X Local Soil Survey Data</li> <li>X FAC-Neutral Test</li> <li>Other (Explain in Remarks)</li> </ul>

SOILS					
Map Unit Name (Series and Phase	): Rexford loam		Drainage Class: Poorly	Drained	
Taxonomy (Subgroup): Aeric Fragi	aquepts	Field Observa	ations Confirm Mapped Type?	YES	NO
(inches) 0-7	izon M. (Mu A 1	ROFILE DESC atrix Color insell Moist) 0 YR 3/2	Mottle Colors (Munsell Moist)	Texture, Co Structu	
		5 YR 2.5/1	7.5 YR 4/6		
15-24	B 1	0 YR 4/1	7.5 YR 3/4		
☐ Histosol	HYD	RIC SOIL INI	DICATORS:		
Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma	Colors		High Organic Content in Surface La Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)	yer in Sandy S	oils
Remarks: Wetland is located adjac					
WETLAND DETERMINAT Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	YES NO YES NO YES NO	Is this Sampli	ing Point Within a Wetland?	YES	NO
Remarks					

#### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP					Date: 2 April 2008		
Applicant/Owner: PPL					County: Luzerne		
Investigator: Keith Maurice					State: Pennsylvania		
Do Normal Circumstances exist on the	ne site?		YES	NO	Community ID: Successional Old Field		
Is the site significantly disturbed (Aty	pical Situation)?		YES	NO	Transect ID: 3		
Is the area a potential Problem Area	? (if needed, explain on	reverse)	YES	NO	Plot ID: DPZ5		
VEGETATION							
Dominant Plant Species	Stratum	Indicator		Dom	inant Plant Species	Stratum	Indicator
1 Elaeagnus angustifolia	* Shrub	FACU	9				
2 Rosa multiflora *	Shrub	FACU	10				
3 Lindera benzoin	Shrub	FACW-	11				
4 Solidago s <u>pp.</u> *	Herb	FACU-FACW	12				
5 Phytolacca americana	Herb	FACU+	13				
6 Apocynum cannabinum	n Herb	FACU	14				
7 Alliaria petiolata	Herb	FACU-	15				
8 Rubus occidentalis	Herb	UPL	16				
Percent of Dominant Species that are	e OBL, FACW, or FAC	C (excluding FAC	;-)		<u>&lt;</u> 33		
* = Dominant species							
HYDROLOGY							
Recorded Data (Describe in Remarks)  Stream, Lake, or Tide Gauge Aerial Photographs Other			Prir	WETLAND HYDROLOGY INDICATORS  Primary Indicators:			
FIELD OBS	ERVATIONS				Drift Lines Sediment Deposits Drainage Patterns in \	Wetlands	
Depth of Surface Water	None present	(in)					
Depth to Free Water in Pit	None present	(in)		condar 	ry Indicators (2 or more I Oxidized Root Chann Water-Stained Leave	els in Upper 1	2 inches
Depth to Saturated Soil	>24	(in)			Local Soil Survey Dat FAC-Neutral Test Other (Explain in Rem		

SOILS							
Map Unit Name (Series and	Phase): Chenango	gravelly lo	oam		Drainage Class: W	/ell Drained	
Taxonomy (Subgroup): Typi	c Dystrudepts		Field Observa	ations Confirm	Mapped Type?	YES	NO
Depth (inches) 0-2	Horizon	Ma (Mu	ROFILE DESC atrix Color nsell Moist) 0 YR 3/3		Mottle Colors (Munsell Moist)	Struct	Concretions, ture, ect phtly sticky
2-14	В		0 YR 4/4		-		htly sticky
				_			
14-24	В	10	0 YR 5/6	-	-	vvet slig	htly sticky
		HYD	RIC SOIL INI				
Histosol Histic Epipedon Sulfidic Odor Aquic Moisture R Reducing Conditi Gleyed or Low-Ci	ons			Organic Str Listed on Lo Listed on N	s lic Content in Surfac reaking in Sandy Soi ocal Hydric Soils Lis ational Hydric Soils lain in Remarks)	ils st	Soils
WETLAND DETERM Hydrophytic Vegetation Pres Wetland Hydrology Present? Hydric Soils Present?	ent? YES	NO NO NO	Is this Sampli	ing Point Withir	า a Wetland?	YES	NO
Remarks							

#### **ROUTINE WETLAND DETERMINATION**

Project/Site: Bell Bend NPP					Date: 2 April 2008		
Applicant/Owner: PPL	County: Luzerne						
Investigator: Keith Maurice					State: Pennsylvania		
Do Normal Circumstances exist on the site?				NO	Community ID: Palustrii	ne Scrub Shru	ıb
Is the site significantly disturbed (Atypical Situat			YES	NO	Transect ID: 3		
Is the area a potential Problem Area? (if needed	, explain on	reverse)	YES	NO	Plot ID: DPZ6		
VEGETATION							
Dominant Plant Species	Stratum	Indicator		Dom	inant Plant Species	Stratum	Indicator
1 Acer rubrum	Tree	FAC	9				
2 Betula alleghaniensis	Tree	FAC	10				
3 Lindera benzoin *	Shrub	FACW-	11				
4 Impatiens capensis *	Herb	FACW	12				
5 Symplocarpus foetidus *	Herb	OBL	13				
6 Lysimachia nummularia	Herb	OBL	14				
7			15				
8			16				
Percent of Dominant Species that are OBL, FAG	CW, or FAC	C (excluding FA	C-)		100		
Remarks							
* = Dominant species							
- Dominant species							
HYDROLOGY							
Recorded Data (Describe in Remark Stream, Lake, or Tide G Aerial Photographs	•		Prin		ETLAND HYDROLOG	Y INDICATO	PRS
☐ Other				X	Inundated Saturated in Upper 12	inches	

 ☐ Recorded Data (Describe in Remarks)
 ☐ Stream, Lake, or Tide Gauge

 ☐ Aerial Photographs
 ☐ Inundated

 ☐ Other
 ☐ Inundated

 ☐ No recorded Data Available
 ☐ Water Marks

 ☐ Drift Lines
 ☐ Drift Lines

 ☐ Sediment Deposits
 ☐ Drainage Patterns in Wetlands

Primary Indicators:
☐ Inundated
☐ Water Marks
☐ Drift Lines
☐ Sediment Deposits
☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more Required):
☐ Oxidized Root Channels in Upper 12 inches
☐ Water-Stained Leaves
☐ Local Soil Survey Data
☐ Local Soil Survey Data
☐ Other (Explain in Remarks)

SOILS					
Map Unit Name (Series and Phase)	: Chenango gravelly	loam	Drainage Class: Mode	rately Well Drain	ned
Taxonomy (Subgroup): Typic Fragiu	udepts	Field Observa	tions Confirm Mapped Type?	YES	NO
(inches) 0-2 P	izon M (M	ROFILE DESC Matrix Color unsell Moist) 10 YR 2/1 10 YR 3/1	RIPTION  Mottle Colors (Munsell Moist)	Texture, Co Structu	
		DRIC SOIL IND	NOATORO		
Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma			Concretions High Organic Content in Surface L Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils Lis Other (Explain in Remarks)		oils
Remarks: Groundwater discharges	through numerous se	eeps into this wet	lland and then flows through it in a br	aided pattern.	
WETLAND DETERMINAT Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present?	YES NO YES NO YES NO	Is this Samplir	ng Point Within a Wetland?	YES	NO
Remarks					

WETLAND DETERMINATION DAT	A FORM – Northcentral and Northeast Region
Project/Site: Ball Bard NPP	City/County: Luzer Ne Sampling Date: 4/30//2
Applicant/Owner: PPL	
	State:Sampling Point: DYAM
	Section, Township, Range: Salem Township
Landform (hillslope, terrace, etc.): Today Plank	Local relief (concave, convex, none):
Slope (%): 0-3% Lat: -76.171631	Long: 41.084587 Datum: NAD 83
Soil Map Unit Name: Rex ford	NWI classification: PFO/PSS
Are climatic / hydrologic conditions on the site typical for this time of y	
Are Vegetation N. Soil N., or Hydrology N. significantly	
Are Vegetation, Soil, or Hydrology naturally pr	
SUMMARY OF FINDINGS – Attach site map showing	g sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?         Yes X         No           Hydric Soil Present?         Yes X         No           Wetland Hydrology Present?         Yes X         No	Is the Sampled Area within a Wetland?  Yes No  If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate repo	ort.)
1 . 1	to north, Market St. to east, and moved upland along to west.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	
Surface Water (A1) Water-Stained	()
X Saturation (A3) Marl Deposits	· · · · · · · · · · · · · · · · · · ·
Water Marks (B1) Hydrogen Sulfi	ide Odor (C1) Crayfish Burrows (C8)
	ospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) ***
Drift Deposits (B3) Presence of Re	
	eduction in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Sur	
Inundation Visible on Aerial Imagery (B7) Other (Explain	
Sparsely Vegetated Concave Surface (B8) Field Observations:	_X_ FAC-Neutral Test (D5) ◆
Surface Water Present? Yes No _X Depth (inches	),
Water Table Present?  Yes X No Depth (inches	)
Saturation Present? Yes X No Depth (inches	
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photo	
Seesand Note and State (stream gauge, monitoring well, aerial priori	os, previous inspections), il avallable:
Remarks:	

Stratum (Plot size: 30 )	Absolute	Dominant Species?		Dominance Test worksheet:
S Ottatanii (1 lot oleo:	% Cover	Species?	FAC.	Number of Dominant Species
Acer rubrua		-	FAL	That Are OBL, FACW, or FAC:(A)
Populus de Hoides				Total Number of Dominant Species Across All Strata: (B)
				Percent of Dominant Species
				That Are OBL, FACW, or FAC: (A/
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
	100	= Total Cov	ver	OBL species3 x1 =3
oling/Shrub Stratum (Plot size:)				FACW species x 2 = 8G
Flex verticulata	20	7	FACW	FAC species $\frac{0.7}{2}$ x 3 = $\frac{3.21}{2}$
Lindera benzoin	15	A	FACW	FACU species x 4 = 28
0	E.	- / N	FACU	UPL species x 5 =
V 11.201111111111111111111111111111111111			PACIN	Column Totals: 160 (A) 438 (I
Cornus ammanum		<u> </u>	FACW	Prevalence Index = B/A = 2,737
Viburnum dentatum	ALTO THE PERSON NAMED IN COLUMN TO T	_ N	FAC	
				Hydrophytic Vegetation Indicators:
				Rapid Test for Hydrophytic Vegetation
- /	46	_ = Total Co	ver	X Dominance Test is >50%
b Stratum (Plot size:5)				✓ Prevalence Index is ≤3.0¹
Vibarnum dentatum	5	Y	EAC	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
			DEL	Problematic Hydrophytic Vegetation¹ (Explain)
Symplocarpus Foetidus				Problematic Hydrophytic vegetation (Explain)
Onoclea sensibilis	2	<u> </u>	FACW	¹ Indicators of hydric soil and wetland hydrology mus
Rosa multiflora		N	FACU	be present, unless disturbed or problematic.
Arisaena triphyllum	A-1	N	FACW	Definitions of Vegetation Strata:
Toxicodendron radicans		K.I.	EAC	Definitions of vegetation outland.
LOWIS CONTROL LOWIS WILL				Tree – Woody plants 3 in. (7.6 cm) or more in diame at breast height (DBH), regardless of height.
				Sapling/shrub – Woody plants less than 3 in. DBH
				and greater than 3.28 ft (1 m) tall.
				Herb – All herbaceous (non-woody) plants, regardle
				of size, and woody plants less than 3.28 ft tall.
				Woody vines - All woody vines greater than 3.28 f
	14	_ = Total Co	ver	height.
ody Vine Stratum (Plot size:)				
				Harden ale 4th
				Hydrophytic Vegetation
				Present? Yes No
		_ = Total Co	over	
marks: (Include photo numbers here or on a separat	e sheet.)			

Donth	ription: (Describe	to the dep	th needed to docum	ent the i	ndicator	or confirm	the absence o	f indicators.)	
Depth	Matrix			K Features			<u> </u>		
(inches)	Color (moist)		Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture 1	Remarks	
0-6,5	10 YR 3/1	<u>60</u>	7,5 18 2/2	20	<u></u>	14/	loam.		
015-15	10 JK 5/1	<u>58</u>	1.5 YR 3/3	40		1//	loam		
5-24	10 YR 6/1	40	7,5 YR618	60	C	M	loam		
						*			
***************************************									
			***************************************						**
			·						
Type: C=Co	ncentration, D=Dep	letion, RM	=Reduced Matrix, CS	=Covered	or Coate	d Sand G	ains. ² Loca	tion: PL=Pore Lining, M=f	Matrix.
lydric Soil li	ndicators:							or Problematic Hydric Sc	
Histosol (			Polyvalue Belov		(S8) ( <b>LR</b> I	R,		ick (A10) (LRR K, L, MLR	
Histic Epi Black His	ipedon (A2)		MLRA 149B) Thin Dark Surfa		DDD 84	DA 440B		rairie Redox (A16) (LRR K ucky Peat or Peat (S3) (LR	
_	n Sulfide (A4)		Loamy Mucky N					rface (S7) (LRR K, L)	.K K, L, K)
	Layers (A5)		Loamy Gleyed			, ,		ue Below Surface (S8) (LR	RK, L)
	Below Dark Surface	e (A11)	X Depleted Matrix					rk Surface (S9) (LRR K, L)	
	rk Surface (A12) ucky Mineral (S1)		Redox Dark Sur Depleted Dark S		7)			nganese Masses (F12) ( <b>LF</b> nt Floodplain Soils (F19) ( <b>F</b>	
	leyed Matrix (S4)		Redox Depressi		(1)			podic (TA6) ( <b>MLRA 144A,</b>	
	edox (S5)			(,				ent Material (TF2)	, , , , , , , , , , , , ,
Sandy Ri	Matrix (S6)							allow Dark Surface (TF12)	
Stripped		ILRA 149	B)				Other (E	Explain in Remarks)	
Stripped	face (S7) (LRR R, N		-,			alta to ota a a	or problematic		
Stripped Dark Sur	face (S7) (LRR R, N			t he prese	ent unles				
Stripped Dark Sur Indicators of	face (S7) (LRR R, N	tion and w	etland hydrology mus	t be prese	ent, unles	s disturbed	T		
Stripped Dark Sur Indicators of	face (S7) (LRR R, I	tion and w		t be prese	ent, unles	s disturbed			
Stripped Dark Sur Indicators of Restrictive L Type:	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	tion and w	etland hydrology mus	t be prese	ent, unies	s disturbed		Present? Yes X	No
Stripped Dark Sur Indicators of Restrictive L Type: Depth (inc	face (S7) (LRR R, I	tion and w	etland hydrology mus	t be prese	ent, unles	s disturbed		Present? Yes X	No
Stripped Dark Sur Indicators of Restrictive L Type: Depth (inc	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	tion and w	etland hydrology mus	t be prese	ent, unies	s disturbed		Present? Yes X	No
Stripped Dark Sur Indicators of Restrictive L Type: Depth (inc	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	tion and w	etland hydrology mus	t be prese	ent, unies	s disturbed		Present? Yes X	No
Stripped Dark Sur- Indicators of Restrictive L Type: Depth (inc	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	tion and w	etland hydrology mus	t be prese	ent, unles	s disturbed		Present? Yes X	No
Stripped Dark Sur- Indicators of Restrictive L Type: Depth (inc	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	tion and w	etland hydrology mus	t be prese	ent, unles	s disturbed		Present? Yes X	No
Stripped Dark Sur Indicators of Restrictive L Type: Depth (inc	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	tion and w	etland hydrology mus	t be prese	ent, unies	s disturbed		Present? Yes X	No
Stripped Dark Sur- Indicators of Restrictive L Type: Depth (inc	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	tion and w	etland hydrology mus	t be prese	ent, unles	s disturbed		Present? Yes X	No
Stripped Dark Sur- Indicators of Restrictive L Type: Depth (inc	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	tion and w	etland hydrology mus	t be prese	ent, unles	s disturbed		Present? Yes X	No
Stripped Dark Sur- Indicators of Restrictive L Type: Depth (inc	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	tion and w	etland hydrology mus	t be prese	ent, unles	Saisturbec		Present? Yes X	No
Stripped Dark Sur Indicators of Restrictive L Type: Depth (inc	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	tion and w	etland hydrology mus	t be prese	ent, unles	a disturbed		Present? Yes X	No
Stripped Dark Sur  Plandicators of Restrictive L Type: Depth (inc	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	tion and w	etland hydrology mus	t be press	ent, unles	a disturbed		Present? Yes X	No
Stripped Dark Sur  Indicators of Restrictive L  Type:	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	tion and w	etland hydrology mus	t be press	ent, unles	a disturbed		Present? Yes X	No
Stripped Dark Sur  Plandicators of Restrictive L Type: Depth (inc	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	tion and w	etland hydrology mus	t be press	ent, unles	s disturbed		Present? Yes X	No
Stripped Dark Sur Indicators of Restrictive L Type: Depth (inc	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	tion and w	etland hydrology mus	t be press	ent, unles	a disturbed		Present? Yes X	No
Stripped Dark Sur- Indicators of Restrictive L Type: Depth (inc	face (S7) (LRR R, II hydrophytic vegetar ayer (if observed):	ion and w	etland hydrology mus	t be press	ent, unles	a disturbed		Present? Yes X	No

WETLAND DETERMINATION DATA	A FORM – Northcentral and Northeast Region
Ball Ball NPP	City/County: Luzerne Sampling Date: 5/5/10
501	~ A
Applicant/Owner:	
Investigator(s): KRM / C J K	Section, Township, Range:
Landform (hillslope, terrace, etc.): hillslope	Local relief (concave, convex, none):
Slope (%): Lat:	Long: 41.08329 Datum: NAD 83
Soil Map Unit Name: Cherry a ravel	1 loam NWI classification: UPL moved field
Are climatic / hydrologic conditions on the site typical for this time of y	ear? Yes X No (If no, explain in Remarks.)
Are Vegetation	/ disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation N, Soil N, or Hydrology N naturally pr	
SUMMARY OF FINDINGS - Attach site map showing	g sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No X	Is the Sampled Area
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No No	within a Wetland? Yes No
Wetland Hydrology Present? Yes No	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate repr	
This is an upland moved	
east with wetland AN/A	
	to be moved on a regular basis.
Upland point DPAN-1 is 1	9 Feet southeast (120°) From WL-ANIO.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained	Leaves (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna	,
X Saturation (A3)	(B15) Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sul	fide Odor (C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhiz	ospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
	Reduced Iron (C4) Stunted or Stressed Plants (D1)
	eduction in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Su	
Inundation Visible on Aerial Imagery (B7) Other (Explain	n in Remarks) Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inche	
Water Table Present? Yes NoX_ Depth (inche	
Saturation Present? Yes No Depth (inche	s): No No No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial pho	tos, previous inspections), if available:
Remarks: Saturation beginning	at 10 inches likely due to
1	c/4 110
significant rainfall	on 3/7/10.
J	

		Dominant		Dominance Test worksheet:
e Stratum (Plot size: 30)		Species?	Status	Number of Dominant Species
Carya ovata		<del></del>	FACIA	That Are OBL, FACW, or FAC: (A)
Prinus scroting		7	FACU	Total Number of Dominant
Juglans nigra	-10		FACU	Species Across All Strata: (B)
. **		***************************************		Percent of Dominant Species
				That Are OBL, FACW, or FAC: (A/
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
	<u>55</u>	= Total Cov	er er	OBL species 35 x1 = 35
oling/Shrub Stratum (Plot size:)				FACW species
				FAC species $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$
				FACU species 74 x4 = 296
				UPL species $\frac{19}{135}$ x 5 = $\frac{59}{139}$ (E) Column Totals: $\frac{135}{139}$ (A) $\frac{439}{139}$ (E)
				Prevalence Index = B/A = 3 1 8
		***************************************		Hydrophytic Vegetation Indicators:
				Rapid Test for Hydrophytic Vegetation
		T-1-10-		Dominance Test is >50%
30		= Total Co	/er	Prevalence Index is ≤3.01
b Stratum (Plot size: 30)	25	Y	FACT OBL	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Carex 2	10	Y	PA(-08	Problematic Hydrophytic Vegetation ¹ (Explain)
Lilium canadense	10.	Ä	FAC	
Potentilla canadensis		Ý	UPL	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Dactalis slomerata	770	Ń	FACU	
Taraxacum officinale		1.1	FACIL	Definitions of Vegetation Strata:
	5	- 14	FAG	Tree - Woody plants 3 in. (7.6 cm) or more in diame
Erythronium gmericanum		n.l	FACU	at breast height (DBH), regardless of height.
Smilacing racemesa		N	-	Sapling/shrub – Woody plants less than 3 in. DBH
Anthoxanthum oderatum		- / V	FACU	and greater than 3.28 ft (1 m) tall.
Claytonia virginica			FACU	Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall.
Allian vineale		- <del>N</del>	FACU	
Erigeron philadelphicus	-6-	- <u>N</u>	FACU	Woody vines – All woody vines greater than 3.28 ft height.
Eulalia Viminica	(80)	= Total Co	ver	
ody Vine Stratum (Plot size:)				
				Hydrophytic
				Vegetation   Present?   Yes No
		= Total Co	ver	
marks: (Include photo numbers here or on a separate	sheet.)			
			- 1	

tile Description: (Describe to the def	oth needed to document the indicator or confirm	the absence	of indicators.)	
pth Matrix	Redox Features			
ches) Color (moist) %	Color (moist) % Type ¹ Loc ²	Texture	Remarks	
-2 107R 2/1 100	A together designation and the section of the secti	<u>SL</u>	10042 10	<u></u>
-10 7.5 /84/3 100	A part of the formatty of a constraint of the format of th	Sh		
- 24 7.5 YR 3/4 100		12	sat beg. @	10 Pain day
2. 1.3 11 77 100	The second design of the secon	- do	30. by.	10 10
			-	
		***************************************		
	1=Reduced Matrix, CS=Covered or Coated Sand Gr		cation: PL=Pore Lining,	
ric Soil Indicators:	Data atom Datas Confess (CO) / DD D		for Problematic Hydri	
Histosol (A1)	Polyvalue Below Surface (S8) (LRR R, MLRA 149B)		Muck (A10) ( <b>LRR K, L, F</b> Prairie Redox (A16) ( <b>LF</b>	
Histic Epipedon (A2) Black Histic (A3)	Thin Dark Surface (S9) (LRR R, MLRA 149B)		Mucky Peat or Peat (S3)	
Hydrogen Sulfide (A4)	Loamy Mucky Mineral (F1) (LRR K, L)		Surface (S7) (LRR K, L)	
Stratified Layers (A5)	Loamy Gleyed Matrix (F2)		alue Below Surface (S8)	
Depleted Below Dark Surface (A11)	Depleted Matrix (F3)		Oark Surface (S9) (LRR	
Thick Dark Surface (A12)	Redox Dark Surface (F6)		Manganese Masses (F12 nont Floodplain Soils (F1	
Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4)	Depleted Dark Surface (F7) Redox Depressions (F8)		Spodic (TA6) (MLRA 1	
Sandy Redox (S5)	Nedox Depressions (1 0)		Parent Material (TF2)	,,,
Stripped Matrix (S6)			Shallow Dark Surface (T	F12)
Dark Surface (S7) (LRR R, MLRA 149		0.11	(Explain in Remarks)	
	<b>9B</b> )	Other	(Explain in Nemarks)	
licators of hydrophytic vegetation and w	vetland hydrology must be present, unless disturbed			
licators of hydrophytic vegetation and watrictive Layer (if observed):				
licators of hydrophytic vegetation and w strictive Layer (if observed): Type:		or problemati	ic.	No. X
dicators of hydrophytic vegetation and watrictive Layer (if observed):  Type:  Depth (inches):		or problemati		
licators of hydrophytic vegetation and w strictive Layer (if observed): Type:	vetland hydrology must be present, unless disturbed	or problemati	I Present? Yes	
dicators of hydrophytic vegetation and wastrictive Layer (if observed):  Type:  Depth (inches):	vetland hydrology must be present, unless disturbed	or problemati	I Present? Yes	
licators of hydrophytic vegetation and w strictive Layer (if observed): Type:		or problemati	I Present? Yes	
licators of hydrophytic vegetation and w strictive Layer (if observed):  Type:  Depth (inches):	vetland hydrology must be present, unless disturbed	or problemati	I Present? Yes	
icators of hydrophytic vegetation and witrictive Layer (if observed):  Type:  Depth (inches):  narks:  Soil sqturate	vetland hydrology must be present, unless disturbed	or problemati	I Present? Yes	
icators of hydrophytic vegetation and w trictive Layer (if observed):  Type:  Depth (inches):  narks:  Soil sqturate	vetland hydrology must be present, unless disturbed	or problemati	I Present? Yes	
icators of hydrophytic vegetation and witrictive Layer (if observed):  Type:  Depth (inches):  narks:  Soil sqturate	vetland hydrology must be present, unless disturbed	or problemati	I Present? Yes	
licators of hydrophytic vegetation and westrictive Layer (if observed):  Type:  Depth (inches):  marks:  Soil sqturate	vetland hydrology must be present, unless disturbed	or problemati	I Present? Yes	
licators of hydrophytic vegetation and westrictive Layer (if observed):  Type:  Depth (inches):  marks:  5011 594 2006	vetland hydrology must be present, unless disturbed	or problemati	I Present? Yes	
licators of hydrophytic vegetation and westrictive Layer (if observed):  Type:  Depth (inches):  marks:  Soil sqturate	vetland hydrology must be present, unless disturbed	or problemati	I Present? Yes	
licators of hydrophytic vegetation and westrictive Layer (if observed):  Type:  Depth (inches):  marks:  Soil sqturate	vetland hydrology must be present, unless disturbed	or problemati	I Present? Yes	
licators of hydrophytic vegetation and westrictive Layer (if observed):  Type:  Depth (inches):  marks:  Soil sqturate	vetland hydrology must be present, unless disturbed	or problemati	I Present? Yes	
licators of hydrophytic vegetation and westrictive Layer (if observed):  Type:  Depth (inches):  marks:  Soil sqturate	vetland hydrology must be present, unless disturbed	or problemati	I Present? Yes	
licators of hydrophytic vegetation and westrictive Layer (if observed):  Type:  Depth (inches):  marks:  5011 594 2006	vetland hydrology must be present, unless disturbed	or problemati	I Present? Yes	

#### WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region City/County: Luzerne Project/Site: Sampling Point: DPAO-State: Applicant/Owner: Investigator(s): Landform (hillslope, terrace, etc.): Hill slope - toe Local relief (concave, convex, none): 41.0827 Long: __ __ NWI classification: _ Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.) Are Vegetation Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? within a Wetland? Hydric Soil Present? X No_ Wetland Hydrology Present? If yes, optional Wetland Site ID: Remarks: (Explain alternative procedures here or in a separate report.) · Approximately 50% of wetland west by Market St, on north by uplan on east by upland forest and south by **HYDROLOGY** Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) ___ Surface Soil Cracks (B6) Primary Indicators (minimum of one is required; check all that apply) ___ Drainage Patterns (B10) Surface Water (A1) X Water-Stained Leaves (B9) ___ Aquatic Fauna (B13) ___ Moss Trim Lines (B16) High Water Table (A2) ___ Dry-Season Water Table (C2) ___ Marl Deposits (B15) X Saturation (A3) Crayfish Burrows (C8) Hydrogen Sulfide Odor (C1) Water Marks (B1) X Oxidized Rhizospheres on Living Roots (C3) ___ Saturation Visible on Aerial Imagery (C9) ___ Sediment Deposits (B2) Stunted or Stressed Plants (D1) ___ Presence of Reduced Iron (C4) Drift Deposits (B3) Geomorphic Position (D2) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) ___ Thin Muck Surface (C7) _ Iron Deposits (B5) Shallow Aquitard (D3) Microtopographic Relief (D4) Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) K FAC-Neutral Test (D5) Sparsely Vegetated Concave Surface (B8) Field Observations: No X Depth (inches): Surface Water Present? Water Table Present? No _____ Depth (inches): _ Yes X No ____ Depth (inches): _ Wetland Hydrology Present? Yes Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: concave depression at the top of a slope. Groundwater seep at the top of this wetland.

VEGETATION – Use scientific names of plants.				Sampling Point: <u>DPAO-</u>
	Absolute			Dominance Test worksheet:
Tree Stratum (Plot size: \( \sum_{\text{N}} \)  1. \( \lambda \) \( \text{N} \) \( \text{N} \)		Species?	Status FAC	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata: (B)
4.				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
5.				That Ale OBE, I NOVY, OI I NO.
6			****	Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
	50	= Total Co	ver	OBL species x1 =
Sapling/Shrub Stratum (Plot size:)				FACW species x 2 = 182
1. Vibarrum lantanoides	25	Y	FAC	FAC species 80 x3 = 20
2. Lindera benzoin	10	Y	FA(W	FACU species x 4 =
3 Sambucus canadensis		N	FACW	UPL species x 5 =
		A.	FACW	Column Totals:(A)
7.		1/1	LMCAN	Prevalence Index = B/A = 2 . 4 7
5				Hydrophytic Vegetation Indicators:
6				Rapid Test for Hydrophytic Vegetation
7				X Dominance Test is >50%
	39	= Total Co	ver	
Herb Stratum (Plot size:)	70	<b>V</b>	FACW	
1. Impatiens capensis	- 1 Cd	/_	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Fraxinus pennsylvanica		· <u> </u>		Problematic Hydrophytic Vegetation (Explain)
3. Toxicodendron radicans 4. Arisagma triphellum	- 5	$\frac{N}{N}$	FACW	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5			F 117.44	Definitions of Vegetation Strata:
6				Tree – Woody plants 3 in. (7.6 cm) or more in diameter
7				at breast height (DBH), regardless of height.
9				Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
11				Woody vines – All woody vines greater than 3.28 ft in height.
	82	_ = Total Co	over	noight.
Woody Vine Stratum (Plot size:)				
1				
2.				
3.				Hydrophytic
3.				Vegetation
4				Present? Yes No
		_ = Total Co	over	
Remarks: (Include photo numbers here or on a separate	sheet.)			
·				
			•	

	ription: (Describe to	the dept	h needed to docur	nent the inc	uscator o	r contirm	the absence of in	idicators.)	
pth	Matrix	•		x Features					
ches)	Color (moist)	%	Color (moist)		Type ¹	Loc ²	Texture	Remark	£ 1
-5	7.5 YR3/	00	Adjustice Conceptions and Children Control of Con-		and the second second second	WANTED SAFETY OF THE PARTY OF T	Sandy loam	saturate	true of b
-14	7.5 YR 4%	90	2.5YR 3/	6 10	0	14	sandaloam		
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					-				
			· · · · · · · · · · · · · · · · · · ·						
				-				:	
					-				
ne: C=C(	oncentration, D=Deple	etion RM=	Reduced Matrix C	S=Covered	or Coated	I Sand Gr	rains. ² Locatio	n: PL=Pore Lining	, M=Matrix.
	Indicators:	20011, 1 (14)	rteduced matrix, o	5 0010.00	0. 000.00			Problematic Hydi	
Histosol	(A1)		Polyvalue Belo	w Surface (	S8) ( <b>LRR</b>	R,	2 cm Muck	(A10) ( <b>LRR K, L,</b>	MLRA 149B)
Histic Ep	oipedon (A2)		MLRA 149B				_	rie Redox (A16) (L	
Black Hi	stic (A3)		Thin Dark Surf				_	y Peat or Peat (S3	
	en Sulfide (A4)		Loamy Mucky			L)		ce (S7) (LRR K, L	
	d Layers (A5)		Loamy Gleyed					Below Surface (S8	
	d Below Dark Surface	(A11)	Depleted Matri					Surface (S9) (LRR	
	ark Surface (A12)		Redox Dark Su		• `			anese Masses (F1	
	Mucky Mineral (S1)		Depleted Dark		')			Floodplain Soils (F dic (TA6) ( <b>MLRA</b> '	
	Gleyed Matrix (S4)		Redox Depres	sions (Fo)				t Material (TF2)	1447, 140, 1401
-	Redox (S5)							ow Dark Surface (	TF12\
	l Matrix (S6) rface (S7) ( <b>LRR R, M</b>	LRA 149E	3)					olain in Remarks)	11 12)
	f hydrophytic vegetati			st be preser	nt, unless	disturbed		,	
	Layer (if observed):				,				
							Hydric Soil Pre	esent? Yes	No
Туре:	ches):								
Type: Depth (in	ches):								
Type: Depth (in	ches):								
Type: Depth (in	ches):								
Type: Depth (in	ches):								
Type: Depth (in	ches):								
Type: Depth (in	ches):								
Type: Depth (ini marks:									
Type: Depth (ini marks:	ches):								

WETLAND DETERMINATION DATA FO	RM – Northcentral and Northeast Region
001	State: PA Sampling Point: DPAO 2
Applicant/Owner.	on, Township, Range: Sqlem lownship
all the second s	Local relief (concave, convex, none): CONVEX
Slope (%): to Lat: Long:	
Soil Map Unit Name: Chenango gravelly	10 am NWI classification: UPL Forcet
Are climatic / hydrologic conditions on the site typical for this time of year? Y	es No (If no, explain in Remarks.)
Are Vegetation $\underline{\ \ \ \ \ \ \ \ \ \ \ }$ Soil $\underline{\ \ \ \ \ \ \ \ \ }$ or Hydrology $\underline{\ \ \ \ \ \ \ \ }$ significantly distur	bed? Are "Normal Circumstances" present? Yes No
Are Vegetation $\underline{ \land \ \circ}$ , Soil $\underline{ \land \circ}$ , or Hydrology $\underline{ \land \circ}$ naturally problems	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing san	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?	Is the Sampled Area within a Wetland? Yes No
Remarks: (Explain alternative procedures here-or in a separate report.)	n yes, opnorial vvetand one ib.
· approximately 25 teet Not	A0-7
La la la south la valad	in the state of the
· Dounded on south by upland	Money 1/814 Dess
· bounded on south by upland wetland AO, east and no	th by upland forcit
·	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leave	
High Water Table (A2) Aquatic Fauna (B13)	
X Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Od	or (C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospher	es on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduce	
<u> </u>	on in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (0	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rel	
Sparsely Vegetated Concave Surface (B8)  Field Observations:	FAC-Neutral Test (D5)
Surface Water Present? Yes No _x Depth (inches):	
Water Table Present? Yes No Depth (inches):	
	Wetland Hydrology Present? Yes No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks: Saturated likely due to rea	ent rainfall

ree Stratum (Plot size: 30)		Dominant		Dominance Test worksheet:
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		Species?		Number of Dominant Species
Acer rubrum	40		FAC	That Are OBL, FACW, or FAC: (A)
daglans nigra	20	<u></u>	FACY	Total Number of Dominant
Fraxinus americana			FACU	Species Across All Strata: (B)
Carya ovata	_15		FACY	Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)
			-	Prevalence Index worksheet:
				Total % Cover of: Multiply by:
	95	= Total Cov	/er	OBL species
apling/Shrub Stratum (Plot size: 15 )		1010.00		FACW species 80 x2= 160
and a	5	Y	FACU	FAC species 45 x3 = 135
				FACU species 114 x4= 456
				UPL species x 5 =
				Column Totals: 239 (A) 751 (B)
				Prevalence Index = B/A =
				Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation
				Rapid Test for Hydrophytic Vegetation Dominance Test is >50%
		= Total Co	ver	Prevalence Index is ≤3.01
erb Stratum (Plot size: 5)	70	Y	FACW	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
per l	40	V	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
A 1	10	N	FACW	
	- 10	- 19	F80	¹ Indicators of hydric soil and wetland hydrology must
Alliaria petiolata	- 19		FAC	be present, unless disturbed or problematic.
Toxicodendron radicans	- <del>- 2</del>	<u> </u>	1 / 1	Definitions of Vegetation Strata:
Prynus serotina		<u>~~</u>	FKU	Tree – Woody plants 3 in. (7.6 cm) or more in diameter
Kosa multitloca		-N	FACY	at breast height (DBH), regardless of height.
Lonicera Hatarica Geum canadense	-	<u>N</u>	FACU FACU	Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
0				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
1.				Woody vines – All woody vines greater than 3.28 ft in
2	179	= Total Co		height.
	121	_ = Total Co	ver	
loody Vine Stratum (Plot size:)				
				Hydrophytic
				Vegetation Present? Yes No
		= Total Co	ver	160 110
temarks: (Include photo numbers here or on a separate	sheet.)	-		
· · · · · · · · · · · · · · · · · · ·	,			

proc. C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.    Coated Coated Coated Coated Coated Sand Grains.   Coated Coated Sand						icator or confir			
ppe: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.    Coation: PL=Pore Lining, M=Matrix, Indicators   PL=Pore Lining, M=Matrix, Indicator	epth		%			Type ¹ Loc ²	Texture	Remark	s
pge: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.    **Location: PL=Pore Lining, M=Matrix.    dric Soil Indicators:	n /	- 2 /		Color (moist)		PROFESSIONAL STATE OF THE PROFESSION OF THE PROF	1 1		
pre: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.    Folyotalus Below Surface (S8) (LRR R, Histic Epipedon (A2)	J-14	10 1R 5/4	95	5 YR 4/6	5	CM	- 11:	Satura	red
dric Soil Indicators:       Histosol (A1)     Polyvalue Below Surface (S8) (LRR R, Histosol (A1)     2 cm Muck (A10) (LRR K, L, MLRA 149B)       Histosol (A1)     MLRA 149B)     2 cm Muck (A10) (LRR K, L, MLRA 149B)       Histosol (A2)     MLRA 149B)     5 cm Muck (A10) (LRR K, L, R)       Black Histo (A3)     Thin Dark Surface (S9) (LRR R, MLRA 149B)     5 cm Mucky Peat or Peat (S3) (LRR K, L, F)       Hydrogen Sulfide (A44)     Loamy Mucky Mineral (F1) (LRR K, L)     Dark Surface (S7) (LRR K, L)       Stratified Layers (A56)     Loamy Gleyed Matrix (F3)     Depleted Surface (S7) (LRR K, L)       Thick Dark Surface (A11)     Depleted Matrix (F3)     Inon-Manganese Masses (F12) (LRR K, L)       Thick Dark Surface (A12)     Redox Dark Surface (F7)     Piedmont Floodplain Soils (F19) (MLRA 145, 148       Sandy Mucky Mineral (S1)     Depleted Dark Surface (F7)     Piedmont Floodplain Soils (F19) (MLRA 145, 148       Sandy Redox (S5)     Red Parent Material (TF2)       Stripped Matrix (S6)     Wery Shallow Dark Surface (TF12)       Dark Surface (S7) (LRR R, MLRA 149B)     Other (Explain in Remarks)       dicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       Instrictive Layer (if observed):       Type:       Depth (inches):       Hydric Soil Present? Yes    No  An Action of the problem of the problem of the pro				, , ,			No State of Contract of Contra		
dric Soil Indicators:       Histosol (A1)     Polyvalue Below Surface (S8) (LRR R, Histosol (A1)     2 cm Muck (A10) (LRR K, L, MLRA 149B)       Histosol (A1)     MLRA 149B)     2 cm Muck (A10) (LRR K, L, MLRA 149B)       Histosol (A2)     MLRA 149B)     5 cm Muck (A10) (LRR K, L, R)       Black Histo (A3)     Thin Dark Surface (S9) (LRR R, MLRA 149B)     5 cm Mucky Peat or Peat (S3) (LRR K, L, F)       Hydrogen Sulfide (A44)     Loamy Mucky Mineral (F1) (LRR K, L)     Dark Surface (S7) (LRR K, L)       Stratified Layers (A56)     Loamy Gleyed Matrix (F3)     Depleted Surface (S7) (LRR K, L)       Thick Dark Surface (A11)     Depleted Matrix (F3)     Inon-Manganese Masses (F12) (LRR K, L)       Thick Dark Surface (A12)     Redox Dark Surface (F7)     Piedmont Floodplain Soils (F19) (MLRA 145, 148       Sandy Mucky Mineral (S1)     Depleted Dark Surface (F7)     Piedmont Floodplain Soils (F19) (MLRA 145, 148       Sandy Redox (S5)     Red Parent Material (TF2)       Stripped Matrix (S6)     Wery Shallow Dark Surface (TF12)       Dark Surface (S7) (LRR R, MLRA 149B)     Other (Explain in Remarks)       dicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.       Instrictive Layer (if observed):       Type:       Depth (inches):       Hydric Soil Present? Yes    No  An Action of the problem of the problem of the pro									
dric Soil Indicators: Histosol (A1)									
dric Soil Indicators: Histosoi (A1)	· · ·		<del></del>						
Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Histosol (A1) Polyvalue Below Surface (S9) (LRR R, L) Cast Pratrie Redox (A16) (LRR K, L, R) Slack Histo (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Dark Surface (S7) (LRR K, L) Thin Dark Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Thin Dark Surfac									
dric Soil Indicators: Histosol (A1)									
dric Soil Indicators: Histosol (A1)							21	DI - Dave Lining	Manageria
Histosol (A1)			etion, RM=	Reduced Matrix, C	S=Covered o	r Coated Sand C	Indicators for F		
Histic Epipedon (A2) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Thin Dark Surface (S9) (LRR K, L, F) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Sandy Mucky Mineral (S1) Depleted Dark Surface (F6) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Sitripped Matrix (S6) Dark Surface (S7) (LRR K, L) Piedmont Floodplain Soils (F19) (MLRA 14 Mesic Spodic (TA6) (MLRA 144A, 145, 145 Red Parent Material (TF2) Very Shallow Dark Surface (TF12) Other (Explain in Remarks)  dicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  strictive Layer (if observed): Type: Depth (inches):  Depth (inches):				Polyvalue Beld	w Surface (S	88) ( <b>LRR R,</b>		-	
Hydrogen Sulfide (A4)  Stratified Layers (A5)  Loamy Gleyed Matrix (F2)  Depleted Below Dark Surface (S7) (LRR K, L)  Polyvalue Below Surface (S8) (LRR K, L)  Thick Dark Surface (A12)  Redox Dark Surface (F6)  Sandy Mucky Mineral (S1)  Depleted Dark Surface (F6)  Sandy Mucky Mineral (S1)  Depleted Dark Surface (F6)  Sandy Mucky Mineral (S1)  Depleted Dark Surface (F7)  Sandy Gleyed Matrix (S4)  Redox Depressions (F8)  Sandy Redox (S5)  Stripped Matrix (S6)  Dark Surface (S7) (LRR K, L)  Piedmont Floodplain Soils (F19) (MLRA 144  Mesic Spodic (TA6) (MLRA 144A, 145, 145  Red Parent Material (TF2)  Very Shallow Dark Surface (TF12)  Other (Explain in Remarks)  dicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  In the strictive Layer (If observed):  Type:  Depth (inches):  Dep	-			MLRA 149E	3)				
Stratified Layers (A5)							,		
Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L) Thick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 14 Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 145, 145, 145, 145, 145, 145, 145						(LRR K, L)			
Thick Dark Surface (A12)	_		e (A11)						
Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 14 Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 145 Sandy Redox (S5) Red Parent Material (TF2) Very Shallow Dark Surface (S7) (LRR R, MLRA 149B) Other (Explain in Remarks) Other (Explain in Remarks) Other (Explain in Remarks)			. ( ,						
Sandy Redox (S5) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  dicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  strictive Layer (if observed): Type: Depth (inches):  marks:  Saturation from (a to 24 inches likely due to recent formula for the continuation of the continuatio	_			Depleted Dark	Surface (F7)		· ·		
Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)  dicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  restrictive Layer (if observed):  Type: Depth (inches):  Phydric Soil Present? Yes No  Rainfall  And A 24 inches likely due to recent	Sandy	Gleyed Matrix (S4)		Redox Depres	sions (F8)				144A, 145, 149I
Dark Surface (S7) (LRR R, MLRA 149B)  Other (Explain in Remarks)  dicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.  bestrictive Layer (if observed):  Type:									TE40)
dicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.    September   Sept			ILRA 1498	3)					1112)
Type:					ıst be presen	t, unless disturb	ed or problematic.		
Depth (inches): Hydric Soil Present? Yes No		• •					Louis		
saturation from 6 to 24 inches likely due to recent							Hydric Soil Pre	sent? Yes	No X
raintall									
raintall	ziliains.	11	D.	( )	-0 24	1 inche	s likely	due to	re cent
	0	al and lives	. E 423	and on					
	1	Wintall							

#### WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Bell Bend NPP City/County: Lozerne Sampling Date: 4/30/10  Applicant/Owner: PPL State: PA Sampling Point: PMP- Investigator(s): KRM, C3R, 3B5 Section, Township, Range: SALEM Township Landform (hillslope, terrace, etc.): depression on hillslate Local relief (concave, convex, none): COXCALE  Slope (%): 10 Lat: -76.170573 Long: 41.082386 Datum: NAD 83  Soil Map Unit Name: Chenango gradelly loave NWI classification: PEM  Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)  Are Vegetation YES, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" present? Yes No X  Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)  SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No Is the Sampled Area within a Wetland? Yes X No Wetland Hydrology Present? Yes X No If yes, optional Wetland Site ID:  Remarks: (Explain alternative procedures here or in a separate report.)  Surrounded on all sides by moved hay field. Wetland Occurs completely in depression on hillstde.
HYDROLOGY         Wetland Hydrology Indicators:       Secondary Indicators (minimum of two required)         Primary Indicators (minimum of one is required; check all that apply)       Surface Soil Cracks (B6)         Surface Water (A1)       Water-Stained Leaves (B9)       Drainage Patterns (B10)         M High Water Table (A2)       Aquatic Fauna (B13)       Moss Trim Lines (B16)         Saturation (A3)       Marl Deposits (B15)       Dry-Season Water Table (C2)         Water Marks (B1)       Hydrogen Sulfide Odor (C1)       Crayfish Burrows (C8)         Sediment Deposits (B2)       X Oxidized Rhizospheres on Living Roots (C3)       Saturation Visible on Aerial Imagery (C9)         Drift Deposits (B3)       Presence of Reduced Iron (C4)       Stunted or Stressed Plants (D1)         Algal Mat or Crust (B4)       Recent Iron Reduction in Tilled Soils (C6)       Geomorphic Position (D2)         Inon Deposits (B5)       Thin Muck Surface (C7)       Shallow Aquitard (D3)         Inundation Visible on Aerial Imagery (B7)       Other (Explain in Remarks)       Microtopographic Relief (D4)         Sparsely Vegetated Concave Surface (B8)       FAC-Neutral Test (D5)
Surface Water Present? Yes No Depth (inches):  Water Table Present? Yes X No Depth (inches):  Gincludes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  VEGETATION IS DISTURBED DUE TO MOWING, SITE IS Located IN AN Aggrentian flow flexed in Soil makes pit water table rise slowly. This is likely to be a perched water table.

#### VEGETATION – Use scientific names of plants.

Sampling Point: PAP-1

	Absolute	Dominant	t Indicator	
Tree Stratum (Plot size:)	% Cover			Dominance Test worksheet:
				Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				
3.				Total Number of Dominant Species Across All Strata:  (B)
4				Percent of Dominant Species
				That Are OBL, FACW, or FAC: (A/B)
5			-	
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
		= Total Co	ver	OBL species
Sapling/Shrub Stratum (Plot size:)				FACW species 85 x 2 = 170
				FAC species
1				FACU species
2	_			UPL species
3				0, E opeoios
4				( )
5				Prevalence Index = B/A = 2.247
6.				Hydrophytic Vegetation Indicators:
				Rapid Test for Hydrophytic Vegetation
7			-	Dominance Test is >50%
·		= Total Co	ver	Y Prevalence Index is ≤3.0¹
Herb Stratum (Plot size:)	1 -	V	50011	Morphological Adaptations ¹ (Provide supporting
1. Aster simplex	-60		FACW	data in Remarks or on a separate sheet)
2. Juneus effusus	25	<u> </u>	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
3. Trifolium pratense	10	N	FACU	
4. Toraxicum officinate	2	N	FACU	¹ Indicators of hydric soil and wetland hydrology must
		- ' ' '	<del></del>	be present, unless disturbed or problematic.
5				Definitions of Vegetation Strata:
6				Tree – Woody plants 3 in. (7.6 cm) or more in diameter
7				at breast height (DBH), regardless of height.
8				Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to the Continue to th
9.				Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
11	-		-	
12.				Woody vines – All woody vines greater than 3.28 ft in height.
	4/	= Total Co	over	Tiolgric.
Woody Vine Stratum (Plot size:)				
1				
2				
3.	-			Hydrophytic
4				Vegetation Present? Yes No
		= Total Co	over	
Remarks: (Include photo numbers here or on a separate	sheet.)			

OIL							Sampling Point: DPAP—
	ription: (Describe t	o the dep	th needed to docum	ent the in	dicator	or confirm	n the absence of indicators.)
Depth	Matrix			Features		Loc ²	Texture Remarks
(inches)	Color (moist)	<u>%</u>	7.5 YR 4/6	25	Type ¹	DI	1 1 1 1 2
0-11	2,3 7 72	10				The box	- day loamheavy roots in upper ?
11-24	10 YR 5/6	75	J. S YK 7/6	20		$M_{-}$	<u>chyloam</u>
			10 YR 6/2	_5_		M	chyloan
			Į.				,
							A STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STA
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				-			
		-					
	oncentration, D=Depl	etion, RM	=Reduced Matrix, CS	=Covered	or Coate	ed Sand G	Grains. ² Location: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Indicators for Problematic Hydric Soils ³ :
Histosol			Polyvalue Belov MLRA 149B)		(S8) ( <b>LR</b>	RR,	2 cm Muck (A10) ( <b>LRR K, L, MLRA 149B</b> ) Coast Prairie Redox (A16) ( <b>LRR K, L, R</b> )
	pipedon (A2) istic (A3)		Thin Dark Surfa		.RR R. M	LRA 149E	
	en Sulfide (A4)		Loamy Mucky N				Dark Surface (S7) (LRR K, L)
	d Layers (A5)		Loamy Gleyed		)		Polyvalue Below Surface (S8) (LRR K, L)
	d Below Dark Surface	e (A11)	★ Depleted Matrix     Depleted Matrix				Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R)
_	ark Surface (A12) Mucky Mineral (S1)		Redox Dark Su Depleted Dark 3		7)		Piedmont Floodplain Soils (F19) (MLRA 149B)
	Gleyed Matrix (S4)		Redox Depress		,		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Redox (S5)						Red Parent Material (TF2)
	d Matrix (S6)		B)				Very Shallow Dark Surface (TF12) Other (Explain in Remarks)
Dark St	ırface (S7) (LRR R, N	1LKA 149	<b>D</b> )				Other (Explain in Nemano)
3Indicators o	of hydrophytic vegetat	ion and w	etland hydrology mus	st be prese	ent, unles	s disturbe	d or problematic.
Restrictive	Layer (if observed):						
Type:							×
Depth (in	nches):						Hydric Soil Present? Yes No
Remarks:					-	. 1	
1-/-	LOGT VLAS	511	Janak 1	3 ′′	, f s	501	. Roots lessen and then
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di	sappear	at	6.				
	1 4		A 1.				1
7	his lik	elv.	twost	ON:	5 0	25 ·	a hydric Sall
		/					
	lue to	f-V	e Otest	76 L	VO	(	Fhychophytic
€	and the same of the same	11	ha he man	and a second	and the same of th	C) \	7,4
	to ant	· L.		1) no	or Georges	1000	water table.
`	and a	<u>-//</u> c	M anc	× 10.	and and	Merch	wall the
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WETLAND DETERMINATION DATA FO	RM – Northcentral and Northeast Region
Bell Bend NPP	county: Luzerne Sampling Date: 5/5/10
001	State: PA Sampling Point: DPAP-2
Applicant/Owner:	C 1 maconion P
Landform (hillslope, terrace, etc.):	Local relief (concave, convex, none):
Slope (%): Lat: 76.1704 Long:	
Soil Map Unit Name: Chenango gravelly	100 M NWI classification: W pland moved hay be
Are climatic / hydrologic conditions on the site typical for this time of year? Y	es No (If no, explain in Remarks.)
Are Vegetation , Soil , or Hydrology significantly distur	bed? Are "Normal Circumstances" present? Yes No
Are Vegetation _ N_ , Soil _ N_ , or Hydrology _ N_ naturally problems	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing san	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No _X	Is the Sampled Area
Hydric Soil Present? Yes NoX	within a Wetland? Yes NoX
Wetland Hydrology Present? Yes NoX	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	^
upland mowed hay field	₹,
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leave	es (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Oc	lor (C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospher	res on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduce	d Iron (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction	on in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (	C7) Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Re	marks) Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No _X Depth (inches):	
Water Table Present? Yes No _X Depth (inches):	
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes NoX
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	evious inspections), if available:
Remarks:	
A perched water tal	ple is not present.
1	No.

		Dominant		Dominance Test worksheet:
		Species?		Number of Dominant Species
				That Are OBL, FACW, or FAC:(A)
				Total Number of Dominant
				Species Across All Strata: (B)
				Percent of Dominant Species
				Percent of Dominant Species That Are OBL, FACW, or FAC:  (A/
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
	-	= Total Cov	er er	OBL species  x1 = 0
oling/Shrub Stratum (Plot size:)				FACW species 16 x 2 = 32
				FAC species $\frac{1}{\sqrt{3}} \times 3 = \frac{3}{\sqrt{3}}$
				FACU species $42 \times 4 = 168$
				UPL species x 5 =
		****		Column Totals:
				Prevalence Index = B/A =
CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR				Hydrophytic Vegetation Indicators:
	****			Rapid Test for Hydrophytic Vegetation
4		= Total Cov	ver	Dominance Test is >50%
rb Stratum (Plot size:)				Prevalence Index is ≤3.0¹
Pos pratensis	15	Y	FACIL	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
A Later Color	15	<del>-</del>	FACW	Problematic Hydrophytic Vegetation (Explain)
Aster simplex	1 -		+VCAA	Troblematic Hydrophytic vogetation (Explain)
Jaraxicum officinale	10	_N_	THUY	¹ Indicators of hydric soil and wetland hydrology mus
Anthoxanthum odoratum	<u> </u>	$N_{-}$	THU	be present, unless disturbed or problematic.
Trifolium pratense	_2_	N	FACU	Definitions of Vegetation Strata:
Onoclea Sensibilis	<b>P</b>	N	FACW	· ·
	1	N	FAC	Tree – Woody plants 3 in. (7.6 cm) or more in diame at breast height (DBH), regardless of height.
				Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
				and greater than 3.20 it (1 iii) tail.
· · · · · · · · · · · · · · · · · · ·				Herb - All herbaceous (non-woody) plants, regardle
				of size, and woody plants less than 3.28 ft tall.
				Woody vines - All woody vines greater than 3.28 f
	59	= Total Co	ver	height.
ody Vine Stratum (Plot size:)				
			-	
The second secon				Hydrophytic
				Vegetation Present? Yes No
		_ = Total Co	ver	
marks: (Include photo numbers here or on a separate	sheet.)			

	ription: (Describe t	o the dep				or confirm	m the absence of indicators.)
Depth (inches)	Matrix Color (moist)	%	Color (moist)	Features %	_Type ¹ _	_Loc ²	
0-12	10 YR 5/2	82	10 YR 6/6	3	C	M	Clayeyloam
	7-111-765		1.5 YR 3/4	15	0	M	GNRS4/metros
1-19	16 40 5/1	100	8,211	N mod		Participation and Participation	M. James
0 04	10 YR 74	100	7 C VD 4/	20			Clayey loam
9-27	16 YR 7/6	70	1.3 16 76	30		- 6.4	Clayeyloan
	-		7.5 YR. %	30	$\underline{D}$	$\overline{M}$	
	-	***************************************					
						anno-n-	
vne: C=Ce	oncentration, D=Dep	letion, RM	=Reduced Matrix, CS	=Covered	d or Coate	ed Sand G	Grains. ² Location: PL=Pore Lining, M=Matrix.
	Indicators:						Indicators for Problematic Hydric Soils ³ :
_ Histosol	(A1)		Polyvalue Below	Surface	(S8) ( <b>LR</b>	R R,	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	pipedon (A2)		MLRA 149B)	(CO) (I	000 1	I DA 440E	Coast Prairie Redox (A16) (LRR K, L, R)
_ Black Hi			Thin Dark Surface Loamy Mucky M				<ul><li>B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, I</li><li>Dark Surface (S7) (LRR K, L)</li></ul>
	en Sulfide (A4) d Layers (A5)		Loamy Gleyed N			kg hm/	Polyvalue Below Surface (S8) (LRR K, L)
	d Below Dark Surface	e (A11)	Depleted Matrix		,		Thin Dark Surface (S9) (LRR K, L)
	ark Surface (A12)	- (,	Redox Dark Sur				Iron-Manganese Masses (F12) (LRR K, L,
	Mucky Mineral (S1)		Depleted Dark S				Piedmont Floodplain Soils (F19) (MLRA 14
_ Sandy G	Bleyed Matrix (S4)		Redox Depressi	ons (F8)			Mesic Spodic (TA6) (MLRA 144A, 145, 145
_ Sandy F	Redox (S5)						Red Parent Material (TF2)
	Matrix (S6)						Very Shallow Dark Surface (TF12)
Dark Su	rface (S7) (LRR R, N	#LRA 149	<b>B</b> )				Other (Explain in Remarks)
			etland hydrology mus	t be prese	ent, unles	s disturbe	ed or problematic.
	Layer (if observed):						
Type:	-h>.						Hydric Soil Present? Yes No
emarks:	ches):						
omarko.							

WETLAND DETERMINATION DATA FO	RM – Northcentral and Northeast Region
Project/Site: Bell Bend NPP City/O	County: Luzerne Sampling Date: 4/30/10
Applicant/Owner: PPL	State: PA Sampling Point: DPAQ
1000 1000 1584	magneting
- · · · · · · · · · · · · · · · · · · ·	
Landform (hillslope, terrace, etc.): Shallow Depts 101	Local relief (concave, convex, none):
Slope (%): 0-5% Lat: -76.169671 Long:	<u> </u>
Soil Map Unit Name: Chenange gravelly lo	NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Y	'es X No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly distur	bed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally problems	atic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sam	ppling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area
Hydric Soil Present? Yes No	within a Wetland? Yes No
Wetland Hydrology Present? Yes No	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	Λ
vegetation is regularly ma	
Wetland bounded by upland f	prest to north and moved
File I II Plana	sign is work and moned
ricias to the west, south a	nd east.
, , , , , , , , , , , , , , , , , , ,	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leave High Water Table (A2) Aquatic Fauna (B13)	
Addatic Faulta (B15) Saturation (A3) Marl Deposits (B15)	Moss Hill Ellies (B16) Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Od	
	res on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) =
Oxidized 141izosphiel Drift Deposits (B3) Presence of Reduced	
	on in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (0	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rer	
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	1 AO-Neutral Test (DO)
Surface Water Present? Yes No _X Depth (inches):	
Water Table Present? Yes No Depth (inches):	
	Wetland Hydrology Present? Yes No
(includes capillary fringe)	wettand hydrology Flesent? Tes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	
	1111
A perched water tabl	= 15 likely present:
,	
	'

	Absolute	Dominant	Indicator	
ee Stratum (Plot size:)		Species?		Dominance Test worksheet:
				Number of Dominant Species That Are OBL, FACW, or FAC:  (A)
				Total Number of Dominant Species Across All Strata: (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/
				Prevalence Index worksheet:
				Total % Cover of:Multiply by:
pling/Shrub Stratum (Plot size:  5)		= Total Cov	er er	OBL species         1 5 x 1 = 1 5           FACW species         x 2 = 2
Fraxinus americana	and the same of th	1	FACU	FAC species
				UPL species x 5 =
				Column Totals: <u>33</u> (A) <u>70</u> (B
				Prevalence Index = B/A =
				Hydrophytic Vegetation Indicators:
				Rapid Test for Hydrophytic Vegetation  Dominance Test is >50%
		= Total Co	ver	Prevalence Index is ≤3.0¹
Eleocharis SPP	15	Y	OBL	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Solidago rugosa	15		FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
Potentille simplex		<u> </u>	FAC W	¹ Indicators of hydric soil and wetland hydrology mus
rotentille simplex		-	FAL VI	be present, unless disturbed or problematic.  Definitions of Vegetation Strata:
				Tree – Woody plants 3 in. (7.6 cm) or more in diame
				at breast height (DBH), regardless of height.
				Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
				Herb – All herbaceous (non-woody) plants, regardle of size, and woody plants less than 3.28 ft tall.
			*****	Woody vines – All woody vines greater than 3.28 ft height.
	32	= Total Co	ver	noight.
ody Vine Stratum (Plot size:)				
		-		Hydrophytic Vegetation
		= Total Co	ver	Present? Yes No
marks: (Include photo numbers here or on a separate	sheet.)			

OIL Profile Doce	rintian: (Describe	to the de-	oth needed to docur	noné ého i	ndinata	or confir	m the cheene	Sampling Point: DPAQ —
Depth	Matrix	to the dep		x Features		or conni	m the absence	e of indicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-11	16YR 5/2	65	7.5YR5/4	20	$\subset$	PLM	clay loa	footsare 20% at
				-		- <del>1                                     </del>		matrix at & GiA.
11-20	10/86/4	80	104R6/2	10	B	M	SONOLY	No Facité
			7.5 YR 5/6	5	C	M		
20-25	7.5 YR 4/6	60	10YR6/2	40	D	M	Soudy	Small & sandy
								/
							-	Announce the state of the state
					***************************************			-
					***************************************			
'Type: C=Co Hydric Soil I		letion, RM	=Reduced Matrix, CS	S=Covered	or Coat	ed Sand (		s for Problematic Hydric Soils ³ :
Histosol			Polyvalue Belov	w Surface	(S8) (LF	RR.		Muck (A10) (LRR K, L, MLRA 149B)
	pipedon (A2)		MLRA 149B		(00) (=:	,		t Prairie Redox (A16) (LRR K, L, R)
Black Hi	stic (A3)		Thin Dark Surfa	ace (S9) (L	.RR R, N	ILRA 149		Mucky Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4)		Loamy Mucky N			<, L)		Surface (S7) (LRR K, L)
	Layers (A5)		Loamy Gleyed		)			ralue Below Surface (S8) (LRR K, L)
	Below Dark Surfac	e (A11)	Depleted Matrix					Dark Surface (S9) (LRR K, L)
	ark Surface (A12)		Redox Dark Su					Manganese Masses (F12) (LRR K, L, R)
	lucky Mineral (S1) Bleyed Matrix (S4)		Depleted Dark : Redox Depress		′)			mont Floodplain Soils (F19) (MLRA 149B) c Spodic (TA6) (MLRA 144A, 145, 149B)
	tedox (S5)		redox Depress	10113 (1 0)				Parent Material (TF2)
	Matrix (S6)							Shallow Dark Surface (TF12)
Dark Su	rface (S7) (LRR R, N	/ILRA 149	B)					r (Explain in Remarks)
3Indicators of	f hydrophytic vegeta	tion and w	etland hydrology mus	st be prese	ent. unles	s disturbe	ed or problemat	iic.
	_ayer (if observed):							
Type:								<b>\</b> /
Depth (inc	ches):						Hydric So	il Present? Yes No No
Remarks:	W Cons	Lien	M5 45	s a	h	dejo	<u> </u>	il due to
the	- Pra	Na	lence	_ 💍	7	Tyd	pobl	ytic vegetation

WETLAND DETERMINATION DATA FO	RM – Northcentral and Northeast Region
Project/Site: Bell Bend NPP City/C	County: Luzerne Sampling Date: 5/5/10
N D1	State: PA Sampling Point: DPAQ
Applicant/Owner:	
	Local relief (concave, convex, none):
Slope (%): Lat: Long	
Soil Map Unit Name: Chenango gravelly	loam NWI classification: UPL moved tiel
Are climatic / hydrologic conditions on the site typical for this time of year?	es _X No (If no, explain in Remarks.)
Are Vegetation	
Are Vegetation N, Soil N, or Hydrology N naturally problem	
SUMMARY OF FINDINGS – Attach site map showing sar	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes NoX	is the Sampled Area
Hydric Soil Present? Yes NoX	within a Wetland? Yes NoX
Wetland Hydrology Present? Yes NoX	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
Field is moved periodically	
The state of the s	
8	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
High Water Table (A2) Aquatic Fauna (B13 Saturation (A3) Marl Deposits (B15)	
Water Marks (B1) — Mari Deposits (B19)  Water Marks (B1) — Hydrogen Sulfide O	
	res on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Orifit Deposits (B3) Presence of Reduce	
1 <del></del>	on in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (	
Inundation Visible on Aerial Imagery (B7) Other (Explain in Re	
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No _X Depth (inches):	
Water Table Present? Yes No _X Depth (inches):	
Saturation Present? Yes No X Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe)	eviews inspections) if available:
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pr	evious inspections), it available.
Remarks:	
Soil saturated at dent	l ot a
Remarks: Soil saturated at dept	
T. Control of the con	

	Dominant	Indicator	Dominance Test worksheet:
	Species?		
	****		Number of Dominant Species That Are OBL, FACW, or FAC: (A)
			Total Number of Dominant Species Across All Strata: (B)
			Percent of Dominant Species
			That Are OBL, FACW, or FAC: (A/B
			Prevalence Index worksheet:
	= Total Cov	er er	OBL species
			FAC species
			FACU species 91 x4 = 364  UPL species 6 x5 = 30
	-		Column Totals: 102 (A) 409 (B)
			Prevalence Index = B/A =
			Hydrophytic Vegetation Indicators:
			Rapid Test for Hydrophytic Vegetation
	= Total Co	/er	Dominance Test is >50% Prevalence Index is ≤3.0¹
. 90	Y	ENIL	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5	N	FAC	Problematic Hydrophytic Vegetation¹ (Explain)
5_	<u>N</u>	UPL	¹ Indicators of hydric soil and wetland hydrology must
	_N	FACU	be present, unless disturbed or problematic.
			Definitions of Vegetation Strata:
			<b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diamet at breast height (DBH), regardless of height.
			Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
			Herb – All herbaceous (non-woody) plants, regardles of size, and woody plants less than 3.28 ft tall.
			Woody vines – All woody vines greater than 3.28 ft i
102	_ = Total Co	ver	height.
			Hydrophytic
_			Vegetation Present? Yes No
	= Total Co	ver	1
	790	= Total Cov	= Total Cover  = Total Cover  = Total Cover  FACU  N FACU  N FACU  N FACU  TOTAL Cover

						n commi	n the absence of indicators.)	
pth ches)	Matrix Color (moist)	%	Color (moist)	Features     %	Type ¹	Loc ²	Texture Remarks	
1 )	10 YP 4/2	0 व	10 YP 5//	10	$\overline{}$	M	Claver loger	
7100	1018 12		1 S VD 3/2	1	~		BOOK AND AND AND AND AND AND AND AND AND AND	
	- 205/		2171176				A. 1	
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-24	7,5 YR %	70	5 YR 3/8	30		_M_	Clayeyloam	
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						***************************************		_
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	oncentration, D=Dep	letion, RM	=Reduced Matrix, CS	S=Covered	d or Coate	d Sand G	Grains. ² Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils ³ :	
	Indicators:		Dahasalua Balas	Curfoos	(C0) (I B)	9 19	2 cm Muck (A10) (LRR K, L, MLRA 149	B)
Histosol Histic Fr	pipedon (A2)		Polyvalue Belov		(30) (LN	<b>、Γ</b>	Coast Prairie Redox (A16) (LRR K, L, R	
	istic (A3)		Thin Dark Surfa	ice (S9) (I				L, R
	en Sulfide (A4)		Loamy Mucky N			, L)	Dark Surface (S7) (LRR K, L)	
	d Layers (A5)	o (A11)	Loamy Gleyed Depleted Matrix		2)		Polyvalue Below Surface (S8) (LRR K, L Thin Dark Surface (S9) (LRR K, L)	-)
	d Below Dark Surface ark Surface (A12)	e (ATT)	Redox Dark Su				Iron-Manganese Masses (F12) (LRR K,	L, R
	Mucky Mineral (S1)		Depleted Dark				Piedmont Floodplain Soils (F19) (MLRA	
-	Gleyed Matrix (S4)		Redox Depress	ions (F8)			Mesic Spodic (TA6) (MLRA 144A, 145,	149
	Redox (S5)						Red Parent Material (TF2) Very Shallow Dark Surface (TF12)	
-	d Matrix (S6)	ALRA 149	B)				Other (Explain in Remarks)	
Stripped			-,	st he nres	ent unles	s disturbe		
Stripped Dark Su	urface (S7) (LRR R, N	tion and w	etland hydrology mus		Crit, ariico	o diotarbo		
Stripped Dark Su dicators of			etland hydrology mu				•	
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Stripped Dark Sulicators of Strictive Type:	urface (S7) (LRR R, M of hydrophytic vegetat Layer (if observed):	:					Hydric Soil Present? Yes No _	X
Stripped Dark Sulicators of Strictive Type:	urface (S7) (LRR R, M of hydrophytic vegetat Layer (if observed):	:					Hydric Soil Present? Yes No _	<u>X</u>
Stripped Dark Sulicators of Strictive Type:	urface (S7) (LRR R, M of hydrophytic vegetat Layer (if observed):	:		•			Hydric Soil Present? Yes No _	X
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Stripped Dark Su dicators of strictive Type:	urface (S7) (LRR R, M) of hydrophytic vegetal Layer (if observed):							<u>X</u>
Stripped Dark Sulicators of strictive Type:	urface (S7) (LRR R, M) of hydrophytic vegetal Layer (if observed):							<u>X</u>
Stripped Dark Sulicators of strictive Type:	urface (S7) (LRR R, M) of hydrophytic vegetal Layer (if observed):						Hydric Soil Present? Yes No _	<u>X</u>
Stripped Dark Su licators of strictive Type: Depth (in	urface (S7) (LRR R, M) of hydrophytic vegetal Layer (if observed):							<u>X</u>

WETLAND DETERMINATION DATA	FORM – Northcentral and Northeast Region
Project/Site: Bell Band NRP Ci	ty/County: Luzerne Sampling Date: 6/15/10
Applicant/Owner: PPL	State: PA Sampling Point: NP-AS
C + 0	ection, Township, Range: Solem Township
Landform (hillslope, terrace, etc.): Flood plan	Local relief (concave, convex, none):
a men's life s	ong: 41.08249 Datum: NAD 83
Soil Map Unit Name: Rexford loam	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year	? Yes No (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly di	sturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation N, Soil N, or Hydrology naturally problem	lematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing s	sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No No No	Is the Sampled Area within a Wetland? Yes No
Wetland Hydrology Present? Yes No	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	r Run on east west and
PEM bounded by Walk	
south; upland moved ti	eld to north.
·	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
X Surface Water (A1) Water-Stained Le	eaves (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (E	
X Saturation (A3) Marl Deposits (B	
Water Marks (B1) Hydrogen Sulfide Sediment Deposits (B2) Oxidized Rhizos	oheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Red	
	uction in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface	ce (C7) Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in	
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:  Surface Water Present?  Yes X No Depth (inches):	0-8
Water Table Present? Yes X No Depth (inches):  Ves X No Depth (inches):	
Saturation Present? Yes No Depth (inches):	Swiface Wetland Hydrology Present? Yes No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos	, previous inspections), il available.
Remarks:	
Remarks: Pockets of standing	water un to 8
. Poches	
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VEGETATION – Use scientific names of plants				Sampling Point: DP - AS
	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)  1		Species?	Status	Number of Dominant Species
2				That Are OBL, FACW, or FAC: (A)  Total Number of Dominant
3				Species Across All Strata: (B)
4				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
5				That Are OBL, FACW, OF FAC. (AVB)
6.       7.				Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size:)  1		= Total Co		Total % Cover of:   Multiply by:
2.				FACU species x4 =
3				UPL species $\times 5 = $ Column Totals: $\times 3 = $ (A) $\times 1 = $ (B)
4				, 41
5		***************************************		
6				Hydrophytic Vegetation Indicators:  Rapid Test for Hydrophytic Vegetation
7				X Dominance Test is >50%
, ,	***************************************	= Total Co	ver	Z Prevalence Index is ≤3.0¹
Herb Stratum (Plot size: )	40	Υ	FACW	Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
2. Typha latifolia	40	Y	OBL	Problematic Hydrophytic Vegetation¹ (Explain)
3. Carex stricts	90	_N_	OBL	¹ Indicators of hydric soil and wetland hydrology must
	<u>20</u>	<u> </u>	OBL	be present, unless disturbed or problematic.
5. Solidaga rugosa 6. Symplocarous factions		-N	OBL	Definitions of Vegetation Strata:
7. Invations expensis	5	N	FACW	Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
9				Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10	-			Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
11.				Woody vines – All woody vines greater than 3.28 ft in
12.	135	= Total Co	ver	height.
Woody Vine Stratum (Plot size:)				
1				
2				
3	-			Hydrophytic Vegetation
4		= Total Co	over	Present? Yes No
Remarks: (Include photo numbers here or on a separate				

• •	depth needed to document the indicator or confirm	the absence of indicators.)
Depth <u>Matrix</u>	Redox Features	
inches) Color (moist) 9	Golor (moist) % Type ¹ Loc ²	Texture Remarks
D-20+ 10 7R213/11		Loany Clay
		1
	ALL THE STATE OF T	
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	_	
		2.
	, RM=Reduced Matrix, CS=Covered or Coated Sand Gr	
ydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :
_ Histosol (A1)	Polyvalue Below Surface (S8) (LRR R,	2 cm Muck (A10) (LRR K, L, MLRA 149B)
_ Histic Epipedon (A2)	MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B)	Coast Prairie Redox (A16) (LRR K, L, R) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
_ Black Histic (A3) _ Hydrogen Sulfide (A4)	Loamy Mucky Mineral (F1) (LRR K, L)	Sciri Middky Feat of Feat (33) (LRK K, L, K) Dark Surface (S7) (LRR K, L)
_ Stratified Layers (A5)	Loamy Gleyed Matrix (F2)	Polyvalue Below Surface (S8) (LRR K, L)
_ Depleted Below Dark Surface (A1		Thin Dark Surface (S9) (LRR K, L)
Thick Dark Surface (A12)	Redox Dark Surface (F6)	Iron-Manganese Masses (F12) (LRR K, L, R)
Sandy Mucky Mineral (S1)	Depleted Dark Surface (F7)	Piedmont Floodplain Soils (F19) (MLRA 1498
Sandy Gleyed Matrix (S4)	Redox Depressions (F8)	Mesic Spodic (TA6) (MLRA 144A, 145, 149B
_ Sandy Redox (S5)		Red Parent Material (TF2)
_ Stripped Matrix (S6)		Very Shallow Dark Surface (TF12)
Dark Surface (S7) (LRR R, MLRA	. 149B)	Other (Explain in Remarks)
	nd wetland hydrology must be present, unless disturbed	l or problematic.
estrictive Layer (if observed):		
Type:	<del></del>	V
Depth (inches):		Hydric Soil Present? Yes No
emarks:	β ²⁰ h.	
	rated to surface	1 / 2/
Doil satu	rated to surface	with standing pools
of water	1 > 1/	
of water	TO 8	9
	,	

WETLAND DETERMINATION DATA FORM - No	rthcentral and Northeast Region
Project/Site: Bell Real NPP City/County:	
Applicant/Owner:	State: Sampling Point: 19
	ip, Range: Salem Township
Landform (hillstope, terrace, etc.): hillstope Local	relief (concave, convex, none):
Colope (70)	08455 Datum: NAD 83
Soil Map Unit Name: Chenango gravelly loan	Titti daddiidaddii
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	No (If no, explain in Remarks.)
	Are "Normal Circumstances" present? Yes NoX
Are Vegetation, Soil, or Hydrology naturally problematic?	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling po	pint locations, transects, important features, etc.
Hydric Soil Present?  Yes No within a	mpled Area Wetland? Yes No  tional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
Upland moved field bounded b	y PEM to south and
Market Street to north west,	and east
I will a state of the state of	
HYDROLOGY	
	Secondary Indicators (minimum of two required)
Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (B9)	Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizospheres on Livin	g Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced Iron (C4)	Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction in Tilled	
Iron Deposits (B5) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Sparsely Vegetated Concave Surface (B8)	Microtopographic Relief (D4) FAC-Neutral Test (D5)
Field Observations:	1 Ac-Neutral Test (50)
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches):	1
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspi	ections), it available:
Remarks:	

#### Sampling Point: <u>DP-</u>AS2 VEGETATION - Use scientific names of plants. Absolute Dominant Indicator Dominance Test worksheet: Tree Stratum (Plot size: _____) % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: Total Number of Dominant Species Across All Strata: Percent of Dominant Species That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: = Total Cover _____ x 2 = ___ Sapling/Shrub Stratum (Plot size: FACW species ___ FACU species $155 \times 4 = 629$ UPL species _____ x 5 = ____ Column Totals: _____ (A) Prevalence Index = B/A = _ Hydrophytic Vegetation Indicators: ___ Rapid Test for Hydrophytic Vegetation ___ Dominance Test is >50% _ = Total Cover Prevalence Index is ≤3.01 ___ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Vegetation Strata: Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. **Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines - All woody vines greater than 3.28 ft in 155 = Total Cover Woody Vine Stratum (Plot size: Hydrophytic Vegetation Present? Yes ____ No ___ Remarks: (Include photo numbers here or on a separate sheet.)

		o the dep				or confirm	n the absence of in	dicators.)
epth nches)	Matrix Color (moist)	%	Color (moist)	x Features %	Type ¹	Loc ²	Texture	Remarks
1 - 8	10 40 5/2	100		***************************************		CONTRACTOR OF THE PARTY OF THE	. 71 \	remarko
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ype: C=Coi		etion, RM=	=Reduced Matrix, C	S=Covered	or Coate	ed Sand G		n: PL=Pore Lining, M=Matrix.  Problematic Hydric Soils ³ :
Black His Hydrogen Stratified Depleted Thick Dar Sandy Mu Sandy Gl Sandy Re Stripped I Dark Surf	pedon (A2) tic (A3) I Sulfide (A4) Layers (A5) Below Dark Surface k Surface (A12) Lecky Mineral (S1) Leyed Matrix (S4) Leyed Matrix (S6) Matrix (S6) Lace (S7) (LRR R, N	ILRA 149E		) ace (S9) (L Mineral (F1 Matrix (F2 x (F3) arface (F6) Surface (F8)	.RR R, M	LRA 149B	Coast Prair  5 cm Mucky Dark Surfacy Polyvalue E Thin Dark S Iron-Manga Piedmont F Mesic Spoo Red Parent Very Shallc Other (Expl	(A10) (LRR K, L, MLRA 149B) ie Redox (A16) (LRR K, L, R) y Peat or Peat (S3) (LRR K, L, R) ze (S7) (LRR K, L) Selow Surface (S8) (LRR K, L) Surface (S9) (LRR K, L) innese Masses (F12) (LRR K, L, Filoodplain Soils (F19) (MLRA 149 itc (TA6) (MLRA 144A, 145, 149) itc (TA6) (MLRA 144A, 145, 149) itc Material (TF2) in Dark Surface (TF12) lain in Remarks)
	nydropnytic vegetat ayer (if observed):	ion and we	etland hydrology mu	st be prese	ent, unles	s disturbed	d or problematic.	
Type:	., (							
	nes):						Hydric Soil Pres	sent? Yes No
emarks:								

Landform (hillslope, terrace, etc.): Flood plain Local relief (concave, convex, none): Concave	WETLAND DETERMINATION DATA FO	DRM – Northcentral and Northeast Region
Sampling Point: DAN	BOLL BURN NPP	Country 1 285 NB Sampling Date: (1/15/10
Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Township, Range:   Section, Range:   Se	D 6/	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  Local relief (concave, correx, none):  NW destarisation  NW destarisation  Ave "None (fro, explain in Remarks.)  Ave "Normal Circumstances" present? Yes		**Product**
Sold Map Juri Name:  REKERAL Loan:  Revided Phydrologic conditions on the site typical for this time of year? Yes.  No. (thoughain in Remarks.)  Are Vogetation:  Are Normal Circumstances' present? Yes.  No. (thoughain any answers in Remarks.)  SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.  Hydrophydic Vegetation Present? Yes.  No. Is the Sampled Area within a Wottand?  Wetland Hydrology Present? Yes.  No. Wetland Hydrology Present?  Wetland Hydrology Present?  Wetland Hydrology Indicators:  Primar Indicators (minimum of one is required, check all that spoly)  Surface Soil Cracks (B5)  Primar Indicators (minimum of one is required, check all that spoly)  Water Marks (B1)  Sufface Water (A1)  Water Marks (B1)  Sadimant Deposits (B3)  Water Marks (B1)  Agal Mat or Crust (B4)  Agal Mat or Crust (B4)  Agal Mat or Crust (B4)  Recent from Reduction in Titlled Soils (C5)  Sparsely Vegetated Oncavers Surface (B7)  Thin Muck Surface (C7)  Sparsely Vegetation (A3)  Shallow Aquitart (D3)  Flat Observations:  Surface Water Resent?  Yes.  No. Depth (inches): Surface  Wetland Hydrology Present? Yes.  No. Depth (inches): Surface  Wetland Hydrology Present? Yes.  No. Depth (inches): Surface  Wetland Hydrology Present? Yes.  No. Depth (inches): Surface  Wetland Hydrology Present? Yes.  No. Depth (inches): Surface  Wetland Hydrology Present? Yes.  No. Depth (inches): Surface  Wetland Hydrology Present? Yes.  No. Depth (inches): Surface  Wetland Hydrology Present? Yes.  No. Depth (inches): Surface  Wetland Hydrology Present? Yes.  No. Depth (inches): Surface  Wetland Hydrology Present? Yes.  No. Depth (inches): Surface  Wetland Hydrology Present? Yes.  No. Depth (inches): Surface  Wetland Hydrology Present? Yes.  No. Depth (inches): Surface  Wetland Hydrology Present? Yes.  No.	Investigator(s): Sect	
Are climatic Indurciogic conditions on the site typical for this time of year? Yes		Local relief (concave, convex, none):
Are climatic hydrologic conditions on the sile typical for this time of year? Yes	Slope (%): 6 Lat: -76,1698 Long	g: 41,08402 Datum: NAD83
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	Soil Map Unit Name: Rexford loam	NWI classification:
Are Vegetation N Soil N or Hydrology N significantly disturbed? (If needed, explain any answers in Remarks.)  SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.  Hydrophytic Vegetation Present? Yes X No Island Because Within a Wetland? Yes X No Island Wetland? Yes X No Island Wetland? Yes X No Island Wetland? Yes X No Island Wetland? Yes X No Island Wetland? Yes X No Island Wetland Site ID:  Remarks: (Explain alternative procedures here or in a separate report.)  Concave within a Vegetation of Walker Ruy.  HYDROLOGY  Wetland Hydrology Indicators:  Primary Indicators (Imminimum of one is required; check all that apply). Surface Soil Cracks (B6)  Yes X Mar Deposits (B15) Dry-Season Water Table (C2)  Yes All Hydrology Suffice Odor (C1)  Sedement Deposits (B2) Aquatic Fauna (B13) Moss Trim Lines (B16)  Water Marks (B11) Hydrology Suffice Odor (C1)  Sedement Deposits (B2) Dry-Season Water Table (C2)  Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)  Suffice Oscillation (C2) Shallow Aquatar (C3)  Interposits (B3) Thin Muck Surface (C7) Shallow Aquatar (D3)  Interposits (B3) Thin Muck Surface (C7) Shallow Aquatar (D3)  Interposits (B3) Depth (inches): Surface (B4)  Face-Neutral Test (D5)  Field Observations:  Surface Water Present? Yes No Depth (inches): Surface (Wetland Hydrology Present? Yes No Depth (inches): Surface (B4)  Describe Recorded Data (Steam gauge, monitoring well, serial photos, previous inspections), if available:  Remarks:  Pocketh of Surface (C7) Surface (C7)  Depth (inches): Surface (C7)  Depth (inches): Surface (C7)  Depth (inches): Surface (C7)  Depth (inches): Surface (C7)  Solution (Hydrology Present? Yes No Depth (inches): Surface (C7)  Depth (inches): Surface (C7)  Solution (Hydrology Present? Yes No Depth (inches): Surface (C7)  Solution (Hydrology Present? Yes No Depth (inches): Surface (C7)  Depth (inches): Surface (C7)  Depth (inches): Surface (C7)  Depth (inches): Surface (C7)  Solution (Hydrology		Yes X No (If no, explain in Remarks.)
Attach site map showing sampling point locations, transects, important features, etc.  Hydrophytic Vegetation Present? Yes X No is the Sampled Area within a Wetland? Yes X No if yes, optional Wetland Site ID:  Remarks: (Explain alternative procedures here or in a separate report.)  Concave wathand located in Apland Methand Site ID:  HYDROLOGY  Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required: check all that apply)  Surface Water (A1) Water Stained Leaves (B9)  High Weter Table (A2) Aquatic Faura (B13)  Sustration (A3) Mart Deposits (B15)  Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3)  Saturation Visible on Aerial Imagery (C9)  Algal Mat or Crust (E4)  Fersence of Reduced Iron (C4)  Algal Mat or Crust (E4)  For Deposits (B3)  Thin Muck Surface (C5)  For Cave Water (A1)  Presence of Reduced Iron (C4)  Subtract of Sustraction (C5)  Algal Mat or Crust (E4)  For Deposits (B3)  Other (Explain in Remarks)  Depth (Inches): Surface (B4)  FAC-Neutral Test (D5)  Fersender Remarks:  Remarks:  Pocketh of Surface (B8)  Frace Wetland Hydrology Present? Yes No Depth (Inches): Surface (B4)  For Check (B1)  Face (B1)  For Cave Wetland Hydrology Present? Yes No Depth (Inches): Surface (B4)  Face  Are Variation N Soil N as I ludgelogy N significantly distribution	urbod? Are "Normal Circumstances" present? Yes X No	
Hydrophytic Vegetation Present?  Hydrophytic Vegetation Present?  Hydrophytic Vegetation Present?  Yes X No Within a Wetland?  Wetland Hydrology Present?  Yes X No Wetland Hydrology Present?  Wetland Hydrology Indicators:  Premarks: (Explain alternative procedures here or in a separate report.)  Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply)  HYDROLOGY  Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply)  Hydrogen Sulfide Odor (C1)  Saturation (A2)  Water Marks (B1)  Sodiment Deposits (B2)  Dorit Deposits (B2)  Dorit Deposits (B3)  Prisence of Reduced Iron (C4)  High Water Crust (E4)  Iron Deposits (B3)  Presence of Reduced Iron (C4)  Sparasely Vegetated Concave Surface (B8)  Find Observations:  Sparasely Vegetated Concave Surface (B8)  Fold Observations:  Surface Vater Present?  Yes X No Depth (inches): Surface Soli Crack (Ba)  Wetland Hydrology Present? Yes No Depth (inches): Surface C7)  Saturation Present?  Yes No Depth (inches): Surface C8  Wetland Hydrology Present? Yes No Depth (inches): Surface C8  Wetland Hydrology Present? Yes No Depth (inches): Surface C8  Wetland Hydrology Present? Yes No Depth (inches): Surface C8  Remarks:  Pockets of Surface C9 Surfac		Are Normal officialistatices present: 100
Hydrophylic Vegetation Present?  Yes X No Within a Wetland?  Wetland Hydrology Present?  Yes X No Within a Wetland?  Wetland Hydrology Present?  Yes X No Within a Wetland?  Wetland Hydrology Present?  Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)  High Water Table (A2)  Aquatic Fauna (B13)  Water Marks (B1)  Hydrophylic Yes Saturation (A3)  Water Marks (B1)  Hydrophylic Yes Saturation (A3)  Hydrophylic Yes Saturation (A3)  Hydrophylic Yes Saturation (A3)  Hydrophylic Yes Saturation (A3)  Water Marks (B1)  Presence of Reduced Iron (C4)  Aquatic Fauna (B3)  Agal Mar Orust (B4)  Recent Iron Reduction in Tilled Soils (C5)  Iron Deposits (B3)  Sparsely Vegetated Concave Surface (B3)  Water Table (A2)  Sparsely Vegetated Concave Surface (B3)  Sparsely Vegetated Concave Surface (B7)  Sparsely Vegetated Concave Surface (B7)  Sourface Water Present?  Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Depth (inches): Surface  Wetland Hydrology Indic		
Wetland Hydrology Present?   Yes   No	SUMMARY OF FINDINGS – Attach site map showing sa	mpling point locations, transects, important features, etc.
Hydric Soil Present? Yes No Within a Wetland? Yes No Wetland Hydrology Present? Yes No If yes, optional Wetland Site ID:  Remarks: (Explain alternative procedures here or in a separate report.)  Cancare without locatca in upland meadow in the separate report.)  Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (86)  Surface Water (A1) Water-Stained Leaves (89) Drainage Patterns (810)  High Water Table (A2) Aquatic Fauna (813) Moss Tim Lines (816)  Saturation (A3) Marl Deposits (815) Dry-Season Water Table (C2)  Crayfish Environment (C2) Sediment Opposits (82) Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)  Strift Opposits (83) Presence of Reduced Iron (C4) Stanted or Stressed Plants (D1)  In on Deposits (85) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Micropopyarphic Relief (D4)  Sparsely Vegetated Concave Surface (B8) Floid Observations:  Surface Water Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes No Depth (inches): Surfa	Hydrophytic Vegetation Present? Ves X No.	Is the Sampled Area
Metland Hydrology Present? Yes   No   If yes, optional Wetland Site ID:		within a Wetland? Yes No
Remarks: (Explain alternative procedures here or in a separate report.)  Concave without located in upland meadow in flood plann of Walker Run,  HYDROLOGY  Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1) Water-Stalined Leaves (B9)  Mart Pable (A2) — Aquatic Fauna (B13)  Water Marks (B1) — Hydrogen Sulfide Odor (C1) — Crayfish Burrows (C8)  Saturation (A3) — Mart Deposits (B15) — Dy-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Peducidion in Tilled Soils (C6)  Iron Deposits (B3) — Presence of Reduced Iron (C4) — Stunted or Stressed Plants (D1)  Iron Deposits (B3) — Presence of Reduced Iron (C4) — Stunted or Stressed Plants (D1)  Iron Deposits (B3) — Thin Muck Surface (C7) — Microtopographic Relief (D4)  Sparsely Vegetated Concave Surface (B8)  Field Observations:  Surface Water Present? Yes No Depth (inches): ————————————————————————————————————		If yes, optional Wetland Site ID:
Wetland Hydrology Indicators:   Primary Indicators (minimum of one is required; check all that apply)	, , , , , , , , , , , , , , , , , , , ,	
Wetland Hydrology Indicators:   Primary Indicators (minimum of one is required; check all that apply)		
Wetland Hydrology Indicators:   Primary Indicators (minimum of one is required; check all that apply)	Concare wetland located	in upland meadow in
Wetland Hydrology Indicators:   Primary Indicators (minimum of one is required; check all that apply)	Floodplain of Walker R.	
Wetland Hydrology Indicators:   Secondary Indicators (minimum of two required)	1 1 2 2 1 Color of the color of the	~~ ,
Wetland Hydrology Indicators:   Secondary Indicators (minimum of two required)		
Wetland Hydrology Indicators:   Secondary Indicators (minimum of two required)	HADBOLOGA	
Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)  High Water Table (A2)  Aquatic Fauna (B13)  Moss Trim Lines (B16)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation (A3)  Marl Deposits (B15)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Sediment Deposits (B2)  Drift Deposits (B3)  Presence of Reduced Iron (C4)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Sparsely Vegetated Concave Surface (B8)  Field Observations:  Surface Soil Cracks (B6)  Drainage Patterns (B10)  Moss Trim Lines (B16)  Dry-Season Water Table (C2)  Crayfish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Stunted or Stressed Plants (D1)  Geomorphic Position (D2)  Shallow Aquitard (D3)  Microtopographic Relief (D4)  FAC-Neutral Test (D5)  Field Observations:  Surface Soil Cracks (B6)  Dry-Season Water Table (A2)  Depth (inches): Surface (B8)  FAC-Neutral Test (D5)  Remarks:  Remarks:  Remarks:  Remarks:		
Surface Water (A1)	1	
High Water Table (A2)  Aquatic Fauna (B13)  Moss Trim Lines (B16)  X Saturation (A3)  Water Marks (B1)  Water Marks (B1)  Sediment Deposits (B2)  Drift Deposits (B3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Inundation Visible on Aerial Imagery (B7)  Sparsely Vegetated Concave Surface (B8)  Field Observations:  Surface Water Present?  Water Table (A2)  Aquatic Fauna (B13)  Moss Trim Lines (B16)  Dry-Season Water Table (C2)  Carylish Burrows (C8)  Saturation Visible on Aerial Imagery (C9)  Sturted or Stressed Plants (D1)  Sparsely Vegetated (C7)  Shallow Aquitard (D3)  Microtopographic Relief (D4)  Fac-Neutral Test (D5)  Field Observations:  Surface Water Present?  Yes X No Depth (inches): D-2  Saturation Present?  Yes X No Depth (inches): Surface  Water Table Present?  Yes X No Depth (inches): Surface  Wetland Hydrology Present? Yes X No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
Saturation (A3)		
Water Marks (B1)		
Sediment Deposits (B2)		
Drift Deposits (B3)		. ,
Algal Mat or Crust (B4)		
Iron Deposits (B5)		
Inundation Visible on Aerial Imagery (B7)		
Sparsely Vegetated Concave Surface (B8)  Field Observations:  Surface Water Present? Yes X No Depth (inches): O-Q Water Table Present? Yes X No Depth (inches): Surface Wetland Hydrology Present? Yes X No Depth (inches): Surface Wetland Hydrology Present? Yes X No Depth (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Remarks:		
Field Observations:  Surface Water Present? Yes X No Depth (inches): O-2  Water Table Present? Yes X No Depth (inches): Surface Wetland Hydrology Present? Yes X No Depth (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Remarks:		
Surface Water Present? Yes X No Depth (inches): O-2 Water Table Present? Yes X No Depth (inches): Surface Saturation Present? Yes X No Depth (inches): Surface Wetland Hydrology Present? Yes X No Depth (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Remarks:		
Water Table Present? Yes X No Depth (inches): Surface Wetland Hydrology Present? Yes X No Depth (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Remarks:		0-2
Saturation Present? Yes X No Depth (inches): Surface Wetland Hydrology Present? Yes X No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Pockets of surface water O-2 / deep.		
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  Pockets of surface water 6-2 decp.		Sweface Wetland Hydrology Present? Yes No
Remarks: Pockets of surface water 6-2" decp.	(includes capillary fringe)	
Pockets of surface water 0-2" decp.	Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	revious inspections), if available:
Pockets of surface water 0-2" decp.	,	
	Remarks:	§ .
	D V La La La La La La La La La La La La La	mater G-D' line
	JOCKERS OF SMITACE	want or a decp.
		\
$\Gamma$		

		Dominant		Dominance Test worksheet:
ree Stratum (Plot size:)		Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC:(A)
				Total Number of Dominant
				Species Across All Strata: (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC:  (A/B
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
		= Total Cov	/er	OBL species 20 x1= 20
apling/Shrub Stratum (Plot size:)				FACW species x 2 = 8 FAC species x 3 = 6
				FACU species x 4 =
				UPL species x 5 = \
				Column Totals: 113 (A) 321 (B
				Prevalence Index = B/A = 2 . 8
				Hydrophytic Vegetation Indicators:
				Rapid Test for Hydrophytic Vegetation  Dominance Test is >50%
- 1		= Total Co	ver	Prevalence Index is ≤3.0¹
erb Stratum (Plot size: 5 )	40	Y	FACW	Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
· · · · · · · · · · · · · · · · · · ·	30	<u> </u>	14N	Problematic Hydrophytic Vegetation¹ (Explain)
	20		FAC	
		- N	OBL	¹ Indicators of hydric soil and wetland hydrology must
Α	<u> </u>	- I V	FAC	be present, unless disturbed or problematic.
· Kenunculus acris	<	- 10	NPL	Definitions of Vegetation Strata:
. Setaria taberi				Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
				Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
0.				Herb – All herbaceous (non-woody) plants, regardles of size, and woody plants less than 3.28 ft tall.
1.				
2		_ = Total Co		<b>Woody vines</b> — All woody vines greater than 3.28 ft i height.
Voody Vine Stratum (Plot size:)		_ = 10(a) C0	vei	
voody viile Stratum (Flot Size)				
3.		_		Hydrophytic Vegetation
ł	***************************************			Present? Yes No
	a shoot )	_ = Total Co	ver	
Remarks: (Include photo numbers here or on a separat	e sneet.)			

Profile Dage	ription: (Describe to	the dans	h needed to docum	ent the i	ndicator	or confirm	the absence of in	dicators.)	
		tne aepi				or commi	i the absence of mi	uicators.j	
Depth inches)	Matrix Color (moist)	%	Color (moist)	Features %	Type ¹	Loc ²	Texture	Remarks	s
7 - 7	10 40 5/	80	7 SYR 7/2	20		PI	Clayloam		
	10 11 7/			75		P.A	011 / 1		
-16	10 4 K /2	50	7,5 1K 16		-		Clay Loan		
			7,5 YR91	25	0	M	- Landerson		
1-001	107R6/		10 78 5/6	hA	0	M	Clay loam		
le du	1010/1		10/1/16	-10	-	- 80 (	<u>C.149 160101</u>		
		·							
· · · · · · · · · · · · · · · · · · ·					-				
-									
vne: C=Co	oncentration, D=Deple	etion. RM=	=Reduced Matrix, CS	=Covered	or Coate	ed Sand G	rains. ² Location	: PL=Pore Lining	, M=Matrix.
	Indicators:							roblematic Hydr	
_ Histosol	(A1)		Polyvalue Below	Surface	(S8) ( <b>LR</b>	RR,	2 cm Muck	(A10) ( <b>LRR K, L,</b>	MLRA 149B)
	oipedon (A2)		MLRA 149B)				Coast Prairi	e Redox (A16) (L	RR K, L, R)
_	stic (A3)		Thin Dark Surface				. —	Peat or Peat (S3	
_ , ,	en Sulfide (A4)		Loamy Mucky M			(, L)		ce (S7) (LRR K, L)	
	d Layers (A5)	(444)	Loamy Gleyed N		)			selow Surface (S8) Surface (S9) ( <b>LRR</b>	
	d Below Dark Surface ark Surface (A12)	(ATT)	Depleted Matrix Redox Dark Sur					nese Masses (F12	
	Aucky Mineral (S1)		Depleted Dark S		7)			loodplain Soils (F	, ,
	Gleyed Matrix (S4)		Redox Depressi	ons (F8)			Mesic Spoo	lic (TA6) ( <b>MLRA 1</b>	44A, 145, 149E
_ Sandy F	Redox (S5)							Material (TF2)	
	Matrix (S6)							w Dark Surface (T	ΓF12)
Dark Su	rface (S7) (LRR R, M	LRA 149E	3)				Other (Expi	ain in Remarks)	
ndicators o	f hydrophytic vegetation	on and we	atland hydrology mus	t he nrese	ent unles	s disturbe	d or problematic		
	Layer (if observed):	on and we	stiatid flydrology mas	t be preed	Jiii, dilloc	o diotarbot	T problemation	· · · · · · · · · · · · · · · · · · ·	
Type:									
							Hydric Soil Pres	sent? Yes	No
	ches):						1.,		
emarks:									

WETLAND I	DETERMINATION DATA FO	RM – Northcentral a	and Northeast Re	gion	,
Project/Site: Bell Ben	I NPP City/	County: Lyzern	Sam	pling Date:	15/10
1 rojectorie.	Sily,	Journy.	State: PA	_ Sampling Point:	DPLAVE
Applicant/Owner: PPL		on, Township, Range:	Culent	unshio	
Investigator(s):	Secti	on, I ownship, Range:	73 dicin 100		
Landform (hillslope, terrace, etc.):	hillslope	Local relief (concave	e, convex, none):	- COKVEX	~?
Slope (%): Lat:/	6.1677 Long	: 41.08393	Datu		<u> </u>
	ford loam		NWI classification	· · · · · · · · · · · · · · · · · · ·	nowed t
Are climatic / hydrologic conditions on th	ne site typical for this time of year?	Yes No (I	f no, explain in Remar	ks.)	
Are Vegetation, Soil, or I	Hydrology N significantly distu	rbed? Are "Normal	Circumstances" prese	nt? Yes No	·_X
Are Vegetation, Soil, or	Hydrology naturally problem	atic? (If needed, ex	xplain any answers in	Remarks.)	
SUMMARY OF FINDINGS - A	ttach site map showing sar	npling point locatio	ns, transects, im	portant feature	s, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No _X Yes No _X Yes No _X	Is the Sampled Area within a Wetland? If yes, optional Wetland	<b>Yes</b> Site ID:		
Remarks: (Explain alternative procedu		3			
meadow is n and west by hillslope uplo	nowed periodice PEM, Walke and to sout		north	and and	-
HYDROLOGY					
Wetland Hydrology Indicators:			Secondary Indicators	(minimum of two reg	uired)
Primary Indicators (minimum of one is	required; check all that apply)		Surface Soil Crac	ks (B6)	
Surface Water (A1)	Water-Stained Leav	es (B9)	Drainage Pattern	s (B10)	
High Water Table (A2)	Aquatic Fauna (B13	)	Moss Trim Lines	(B16)	
Saturation (A3)	Marl Deposits (B15)	ı	Dry-Season Wate	er Table (C2)	
Water Marks (B1)	Hydrogen Sulfide O	dor (C1)	Crayfish Burrows	(C8)	
Sediment Deposits (B2)	Oxidized Rhizosphe	eres on Living Roots (C3)	Saturation Visible		C9)
Drift Deposits (B3)	Presence of Reduce		Stunted or Stress		
Algal Mat or Crust (B4)	Recent Iron Reducti	ion in Tilled Soils (C6)	Geomorphic Posi		
Iron Deposits (B5)	Thin Muck Surface	(C7)	Shallow Aquitard		
Inundation Visible on Aerial Image	ery (B7) Other (Explain in Re	emarks)	Microtopographic		
Sparsely Vegetated Concave Sur	face (B8)		FAC-Neutral Tes	t (D5)	
Field Observations:					
Surface Water Present? Yes _	No Depth (inches):				
	No Depth (inches):				./
	No Depth (inches):	Wetland H	lydrology Present?	Yes No _	<del></del>
(includes capillary fringe)  Describe Recorded Data (stream gau	ge, monitoring well, aerial photos, p	revious inspections), if ava	ilable:		
Remarks:					
1					1

		Dominant		Dominance Test worksheet:
ee Stratum (Plot size:)		Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
				Total Number of Dominant Species Across All Strata: (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/E
44.4				
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
		= Total Cov	er	OBL species x1 = 0
pling/Shrub Stratum (Plot size:)				FACW species x 2 = FAC species 25 x 3 = 7 5
				FAC species 25 x3 = 75 FACU species 40 x4 = 160
				FACU species 40 x4= 165
				UPL species x5 = 30 0
			***************************************	Column Totals: 1 2 5 (A) 5 3 5 (B
A STATE OF THE STA				Prevalence Index = B/A =
				Hydrophytic Vegetation Indicators:
				Rapid Test for Hydrophytic Vegetation
,		= Total Cov	er	Dominance Test is >50%
rb Stratum (Plot size:)				Prevalence Index is ≤3.0 ¹ Morphological Adaptations ¹ (Provide supporting
Setaria taberi	60		UPL	data in Remarks or on a separate sheet)
Solidago canadensis	40		FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
Solidado Maosa	20	N	FAC	
Ranunculus acris		N	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
			. 01	be present, unless disturbed of problematic.
Bromus inermis		- 19	upl	Definitions of Vegetation Strata:
				Tree – Woody plants 3 in. (7.6 cm) or more in diamet at breast height (DBH), regardless of height.
				Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
)				Herb – All herbaceous (non-woody) plants, regardles of size, and woody plants less than 3.28 ft tall.
1.				
2.				Woody vines All woody vines greater than 3.28 ft height.
	130	= Total Co	ver	neight.
oody Vine Stratum (Plot size:)				
				.
		_		Hydrophytic
				Vegetation Present? Yes No
		_ = Total Co	ver	
emarks: (Include photo numbers here or on a separa	te sheet.)			

Sampling Point: DP-AV 2 SOIL Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Redox Features Color (moist) Loc² 7.5 YR 5/8 70 ²Location: PL=Pore Lining, M=Matrix. ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Indicators for Problematic Hydric Soils3: Hydric Soil Indicators: ___ 2 cm Muck (A10) (LRR K, L, MLRA 149B) ___ Histosol (A1) Polyvalue Below Surface (S8) (LRR R, Coast Prairie Redox (A16) (LRR K, L, R) MLRA 149B) Histic Epipedon (A2) ___ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) Thin Dark Surface (S9) (LRR R, MLRA 149B) Black Histic (A3) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L) ___ Polyvalue Below Surface (S8) (LRR K, L) Loamy Gleyed Matrix (F2) Stratified Layers (A5) Thin Dark Surface (S9) (LRR K, L) ___ Depleted Matrix (F3) Depleted Below Dark Surface (A11) ___ Iron-Manganese Masses (F12) (LRR K, L, R) ___ Redox Dark Surface (F6) Thick Dark Surface (A12) ___ Piedmont Floodplain Soils (F19) (MLRA 149B) ___ Depleted Dark Surface (F7) Sandy Mucky Mineral (S1) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Redox Depressions (F8) Sandy Gleyed Matrix (S4) Red Parent Material (TF2) Sandy Redox (S5) Very Shallow Dark Surface (TF12) Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B) ___ Other (Explain in Remarks) ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): Type: Hydric Soil Present? Yes Depth (inches): Remarks:

WETLAND DETERMINATION DATA	FORM – Northcentral and Northeast Region
Project/Site: Ball Bank NPP	City/County: Luzerne Sampling Date: 6/15/10
Applicant/Owner: PPL	State: PA Sampling Point: DP - AV
Application owner.	Section, Township, Range: Salem Township
	Local relief (concave, convex, none):
Landform (hillstope, terrace, etc.): + load olain	
Slope (70).	2019.
Soil Map Unit Name: Braceville gravelly	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year	
Are Vegetation, Soil, or Hydrology significantly	disturbed? Are "Normal Circumstances" present? Yes No
Are Vegetation $\underline{\hspace{1cm}\mathbb{N}}$ , Soil $\underline{\hspace{1cm}\mathbb{N}}$ , or Hydrology $\underline{\hspace{1cm}\mathbb{N}}$ naturally pro	blematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing	sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes X No  Yes X No	Is the Sampled Area within a Wetland?  Yes No  If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate repor	
Wetland bounded by access south upland meadow an building foundation to no	road to east upland meadow to d Walker Run to west Fill from th.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
High Water Table (A2) Aquatic Fauna	
✓ Saturation (A3)	
Water Marks (B1) Hydrogen Sulfic	de Odor (C1) Crayfish Burrows (C8) spheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
	educed Iron (C4) Stunted or Stressed Plants (D1)
	duction in Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surf	
Inundation Visible on Aerial Imagery (B7) Other (Explain	in Remarks) Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes X No Depth (inches	
Water Table Present? Yes X No Depth (inches	
Saturation Present? Yes X No Depth (inches (includes capillary fringe)	): Surface   Wetland Hydrology Present? Yes X No
Describe Recorded Data (stream gauge, monitoring well, aerial photo	os, previous inspections), if available:
Remarks: Soil saturated to su	reface, standing water in
depressions < 1";	

		Dominant		Dominance Test worksheet:
ree Stratum (Plot size:)		Species?		Number of Dominant Species That Are OBL, FACW, or FAC: (A)
				Total Number of Dominant Species Across All Strata: (B)
				Percent of Dominant Species
				That Ale Obe, 1 Nov, 61 No.
				Prevalence Index worksheet:  Total % Cover of: Multiply by:
		= Total Cov	ver	OBL species $\frac{85}{4}$ x1 = $\frac{85}{4}$ FACW species $\frac{1}{4}$ x2 = $\frac{1}{4}$ $\frac{1}{4}$
apling/Shrub Stratum (Plot size:)				FAC species x 3 = 0
			-	FACU species x 4 =
			<del></del>	UPL species
				Column Totals: 146 (A) 207 (B
				Prevalence Index = B/A = 1, 4 2
				Hydrophytic Vegetation Indicators:
				Rapid Test for Hydrophytic Vegetation
< '		= Total Co	ver	<ul> <li>✓ Dominance Test is &gt;50%</li> <li>✓ Prevalence Index is ≤3.0¹</li> </ul>
erb Stratum (Plot size:)	60	Y	FA(W	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Carex lurida	60	<u> </u>	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
- Carex stricta Impations apensis	<u> </u>	<u>N</u>	FACW	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
- partery apensis				Definitions of Vegetation Strata:
•			*	Tree – Woody plants 3 in. (7.6 cm) or more in diamet
				at breast height (DBH), regardless of height.  Sapling/shrub – Woody plants less than 3 in. DBH
0				and greater than 3.28 ft (1 m) tall.  Herb – All herbaceous (non-woody) plants, regardles
1.				of size, and woody plants less than 3.28 ft tall.
2		_ = Total Co	ver	Woody vines – All woody vines greater than 3.28 ft height.
Voody Vine Stratum (Plot size:)	— Kulggeniu			
				Hydrophytic
		********		Vegetation Present? Yes No
		_ = Total Co	ver	Flesent: 165 V
Remarks: (Include photo numbers here or on a separa	ate sheet.)			

ofile Desc	ription: (Describe t	to the dept	h needed to docur	nent the indicat	or or confir	n the absence of ind	Sampling Point:	
epth	Matrix			x Features	1 , 2	Touture	Domarko	
nches)	Color (moist)	%	Color (moist)	<u>% Type</u>	Loc ²		Remarks	····
<u>8-6</u>	107R 7/1	70	7.5 YR 76	30 (	_ <u></u>	Loamy clay		
3-20	107R 6/	60	10 YR 5/8	40 0	_ M	Sandy loan		
						Mr.		
					·	-		
	·····							
			De de la de de de de la Co		estad Cand C	Proinc 21 ocation:	PL=Pore Lining, M=M:	atriv
	oncentration, D=Dep Indicators:	letion, RM=	Reduced Matrix, C	S=Covered of CC	aleu Sanu C	Indicators for P	roblematic Hydric Soil	
			Polyvalue Relo	w Surface (S8) (	RR R.		A10) ( <b>LRR K, L, MLRA</b>	
Histosol Histor Er	oipedon (A2)		MLRA 149B				Redox (A16) (LRR K,	
Black Hi				, ace (S9) ( <b>LRR R</b>	MLRA 1491		Peat or Peat (S3) (LRR	
	n Sulfide (A4)		Loamy Mucky	Mineral (F1) ( <b>LR</b>	RK, L)		e (S7) ( <b>LRR K, L</b> )	
Stratified	d Layers (A5)		Loamy Gleyed				elow Surface (S8) (LRR	(K, L)
,	d Below Dark Surfac	e (A11)	X Depleted Matri				urface (S9) (LRR K, L)	וועם
	ark Surface (A12)		Redox Dark Su				nese Masses (F12) ( <b>LRi</b> oodplain Soils (F19) ( <b>M</b> I	
-	Mucky Mineral (S1)		Depleted Dark Redox Depress				c (TA6) ( <b>MLRA 144A,</b> 1	
	Redox (S5)		Nedox Depres	310113 (1 0)			Material (TF2)	,
	Matrix (S6)						v Dark Surface (TF12)	
	rface (S7) (LRR R, I	MLRA 149E	3)			Other (Expla	in in Remarks)	
	f hydrophytic vegeta		tland hydrology mu	st be present, un	less disturbe	ed or problematic.		
strictive	Layer (if observed)	:						
Туре:							X	1
Depth (in	ches):					Hydric Soil Pres	ent? Yes X	40
narks:								
(	11 1 = =	- \	1 0 "		1	1 1	also prese	10
CS	1 11 5	011	184 0 1	biece;	0 1	CNAICGAI	d100 b100	A ( 1
Das	+ 4 "	,						
1.	3							

WETL	AND DETERMINA	TION DATA FO	RM - North	central and	Northea	st Region	1
Project/Site: Bell B	and NPP	City/C	county.	wzerne	_	_ Sampling Date: _	6/15/10
Applicant/Owner:	ţ.					Α .	
		Section	on Townshin I	20000: 5	State: _ P	Tourshi	Λ
mredugator (o).		Section					1
Landform (hillslope, terrace, etc.	):		2	ef (concave, co	nvex, none)	4.7 A	N 8 3
Slope (%): 0 - 3 Lat:	-76:1677	Long:				_ Datum:N f	(1)()
Soil Map Unit Name:	aceville 91	avelly 10	Jan		NWI classifi	cation:	
Are climatic / hydrologic conditio	ns on the site typical for	this time of year? Y	′es No	(If no,	explain in l	Remarks.)	
Are Vegetation N., Soil	or Hydrology	significantly distur	bed? Ar	e "Normal Circu	umstances"	present? Yes	∠ No
Are Vegetation, Soil	M or Hydrology N					ers in Remarks.)	
-					-		anturne ata
SUMMARY OF FINDING	5 – Attach site ma	ip showing san	npling poin	t locations,	transect	s, important is	atures, etc.
Hydrophytic Vegetation Preser	nt? Yes	No <u>X</u>	Is the Sampl			🗸	
Hydric Soil Present?	Yes	No <u>×</u>	within a Wet	land?	Yes	No <u></u>	
Wetland Hydrology Present?	Yes		If yes, option	al Wetland Site	ID:		
Remarks: (Explain alternative	procedures here or in a	separate report.)					
Small con	vex upland	bounde wetlan	dan	west	P - N	Jalker K	N M
		11	1	4		4000	
and by	emergent	wetlan	ot b	I he	east	MOLIN	ana
South	2					1	
0 - 1, 1,							
HYDROLOGY						ataua (minimum of	f two required)
Wetland Hydrology Indicator						cators (minimum of	(wo required)
Primary Indicators (minimum c						il Cracks (B6)	
Surface Water (A1)		Water-Stained Leave		_	•	atterns (B10) Lines (B16)	
High Water Table (A2)		Aquatic Fauna (B13)				n Water Table (C2)	,
Saturation (A3)		Marl Deposits (B15)				irrows (C8)	'
Water Marks (B1)	_	Hydrogen Sulfide Od Oxidized Rhizosphei				Visible on Aerial In	nagery (C9)
Sediment Deposits (B2)		Presence of Reduce	_	0013 (C3)		Stressed Plants (D	1
Drift Deposits (B3)		Recent Iron Reduction		s (C6)		ic Position (D2)	.,
Algal Mat or Crust (B4) Iron Deposits (B5)		Thin Muck Surface (				uitard (D3)	
Inundation Visible on Aeri		Other (Explain in Re				raphic Relief (D4)	
Sparsely Vegetated Conc	• • • • —	Othor (Explain in the	····a····o _/			al Test (D5)	
Field Observations:	avo carraco (50)		T				
Surface Water Present?	Yes No _X	Depth (inches):					
Water Table Present?	Yes No X	Depth (inches):					
Saturation Present?	Yes No X	Depth (inches):		Wetland Hydro	ology Pres	ent? Yes	No X
(includes capillary fringe)			1				
Describe Recorded Data (stre	am gauge, monitoring w	ell, aerial photos, pr	evious inspecti	ons), if available	e:		
Remarks:							
itellians.							
							-
1							

#### **VEGETATION** – Use scientific names of plants. Absolute Dominant Indicator Dominance Test worksheet: Tree Stratum (Plot size: _____) % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: Total Number of Dominant Species Across All Strata: Percent of Dominant Species That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species ___ FACW species __ Sapling/Shrub Stratum (Plot size: FAC species x 3 = 0 UPL species __ 410 (B) 9<u></u> 5 (A) _ Column Totals: __ 4.32 Prevalence Index = B/A = Hydrophytic Vegetation Indicators: ___ Rapid Test for Hydrophytic Vegetation ___ Dominance Test is >50% = Total Cover Prevalence Index is ≤3.01 Herb Stratum (Plot size: _ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must 1 N be present, unless disturbed or problematic. Definitions of Vegetation Strata: 6. Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. $\label{eq:herb-all} \textbf{Herb} - \text{All herbaceous (non-woody) plants, regardless} \\ \text{of size, and woody plants less than 3.28 ft tall.}$ Woody vines - All woody vines greater than 3.28 ft in 95 = Total Cover Woody Vine Stratum (Plot size: Hydrophytic Vegetation Present? = Total Cover Remarks: (Include photo numbers here or on a separate sheet.)

OIL rofile Desc	ription: (Describe t	o the dept	h needed to docun	ent the i	ndicator	or confirm	the absence of inc	dicators.)	
Depth	Matrix			Feature					
inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		Remarks	
0-8	10 TR 3/3	100	***Contraction of the Contraction  CONTRACTOR OF THE PROPERTY OF		recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recommendate of the recomm	Ory loam			
8-18	1048 5/3	95	10 YR 4/6	5	C	M	Clauloom		
0 10								-	
		-							
									· · · · · · · · · · · · · · · · · · ·
					-		4117		
	oncentration, D=Depl	letion, RM=	Reduced Matrix, CS	=Covere	d or Coate	ed Sand G		: PL=Pore Lining,	
•	Indicators:							roblematic Hydri	
_ Histosol	· ·		Polyvalue Belov		(S8) ( <b>LR</b>	RR,		(A10) ( <b>LRR K, L, l</b> e Redox (A16) ( <b>Lf</b>	
	pipedon (A2) istic (A3)		Thin Dark Surfa		LRR R. M	LRA 149B	And the second	Peat or Peat (S3)	
	en Sulfide (A4)		Loamy Mucky N				,	e (S7) (LRR K, L)	
	d Layers (A5)		Loamy Gleyed				Polyvalue B	elow Surface (S8)	(LRR K, L)
Deplete	d Below Dark Surface	e (A11)	Depleted Matrix	(F3)				iurface (S9) (LRR	
	ark Surface (A12)		Redox Dark Su					nese Masses (F12	, ,
	Mucky Mineral (S1)		Depleted Dark					loodplain Soils (F1	
	Gleyed Matrix (S4)		Redox Depress	ions (F8)				lic (TA6) (MLRA 1	44A, 145, 149E
	Redox (S5)							Material (TF2) w Dark Surface (T	F12)
	d Matrix (S6) urface (S7) ( <b>LRR R, N</b>	/ILRA 149E	3)					ain in Remarks)	,,
			-,				_ ` ` '	•	
	of hydrophytic vegetat		etland hydrology mus	st be pres	ent, unles	s disturbed	d or problematic.		
	Layer (if observed):								
Type:							Undela Dall Dave	sent? Yes	No X
Depth (in	iches):						Hydric Soil Pres	sentr res	NO
Remarks:									

WETLAND DETERMINATION DATA FORM – Northcentral	and Northeast Region
Project/Site: Bell Band NPP City/County: Lyzer	Ne Sampling Date: 6/15/10
Applicant/Owner:	State: PA Sampling Point: DP-A
Investigator(s): Section, Township, Range:	Salem Township
Landform (hillslope, terrace, etc.): Local relief (concav	
Slope (%): 8 - 5 Lat: -76.1694 Long: 41.0835	
Dark	NWI classification: PFO
our map our manner	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal	
, , , , , , , , , , , , , , , , , , , ,	explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point location	ons, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?  Yes No Is the Sampled Area within a Wetland?  Wetland Hydrology Present?  Yes No If yes, optional Wetland	Yes No
Remarks: (Explain alternative procedures here or in a separate report.)	J Site ID.
Forested wetland bounded by access	mad to east
upland forest to west, Walker f	Zun to north
and hillstope upland meadow to	south.
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (B9)	Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (C1)	Crayfish Burrows (C8)
Sediment Deposits (B2)  Oxidized Rhizospheres on Living Roots (C3)  Propose of Reduced Iron (C4)	Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1)
Drift Deposits (B3) Presence of Reduced Iron (C4) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6)	Geomorphic Position (D2)
Algal Mat of Citas (D4) Recent NorTheadatan Third Solis (S5) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks)	Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes X No Depth (inches): 3 - S	
Water Table Present? Yes X No Depth (inches): Surface	
Saturation Present? Yes X No Depth (inches): Shrtace Wetland (includes capillary fringe)	Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if av	ailable:
Remarks: Forested we Hand to cated in a	depressional area
in Goodplain of Walker Ku	1. Many pockets
of standing water 3"-5" dee	
	1

worksheet: ant Species CW, or FAC:  Ominant I Strata:  (B) ant Species CW, or FAC:  (A/
ominant (B) Intrata: (B) Introduction (A/
I Strata: (B) ant Species CW, or FAC: (A/
CW, or FAC: (A/
worksheet:
r of: Multiply by:
50 x1= 50
135 x2= 270
65 x3= 195
O x4= O
x 5 = O
250 (A) 515 (E
index = B/A =
etation Indicators:
r Hydrophytic Vegetation
est is >50%
idex is ≤3.01
I Adaptations ¹ (Provide supporting marks or on a separate sheet)
Hydrophytic Vegetation ¹ (Explain)
ric soil and wetland hydrology must s disturbed or problematic.
getation Strata:
nts 3 in. (7.6 cm) or more in diame DBH), regardless of height.
Woody plants less than 3 in. DBH 3.28 ft (1 m) tall.
eous (non-woody) plants, regardle y plants less than 3.28 ft tall.
all woody vines greater than 3.28 ft
woody throo grounds are re-
Yes

Depth	ription: (Describe i	to the depth	needed to docum	ent the indicato	r or confirm	the absence of indica	Sampling Point: DP - AX
	Matrix			Features			
(inches)	Color (moist)		Color (moist)	%Type ¹	Loc²		Remarks
0-18	10 YR 3/1	100		20-4-1		Loans day	
18+	10 7R 7/1	60	10 YR 5/1	40 D	<u>M</u>	Sandy loan	
			-				
 ¹Type: C=Cd	oncentration, D=Dep	letion, RM=F	Reduced Matrix, CS	=Covered or Coa	ted Sand Gr	ains. ² Location: PL	=Pore Lining, M=Matrix.
Hydric Soil I						Indicators for Prob	ematic Hydric Soils ³ :
Histosol	(A1)	_	-	/ Surface (S8) (L	RR R,		) (LRR K, L, MLRA 149B)
	ipedon (A2)		MLRA 149B)	(00) // PB B	W D 4 4 40 D		dox (A16) ( <b>LRR K, L, R</b> ) at or Peat (S3) ( <b>LRR K, L, R</b> )
Black His		-		ce (S9) ( <b>LRR R,</b> l lineral (F1) ( <b>LRR</b>		) 5 cm Mucky Pea Dark Surface (S	
	n Sulfide (A4) I Layers (A5)	-	Loamy Gleyed N		rt, L)		Surface (S8) (LRR K, L)
	i Below Dark Surfac	e (A11)	Z Depleted Matrix				ce (S9) (LRR K, L)
	rk Surface (A12)		Redox Dark Sur				Masses (F12) (LRR K, L, R)
	lucky Mineral (S1)	_	Depleted Dark S			Piedmont Flood	olain Soils (F19) (MLRA 149B)
	leyed Matrix (S4)	_	Redox Depressi	ons (F8)		Mesic Spodic (T	A6) (MLRA 144A, 145, 149B)
	edox (S5)					Red Parent Mat	
Stripped	Matrix (S6)						ark Surface (TF12)
Dark Sur	rface (S7) (LRR R, I	VILRA 149B)				Other (Explain i	n Remarks)
	f hydrophytic vegeta		and hydrology mus	t be present, unle	ess disturbed	or problematic.	
Restrictive I	_ayer (if observed):	:					
Restrictive I	_ayer (if observed):	:	and a section			Hydric Soil Present	Yes X No
Type: Depth (inc	_ayer (if observed):					Hydric Soil Present	? Yes No
Type: Depth (inc	_ayer (if observed):		satur	ated	with		
Type: Depth (inc	_ayer (if observed):		satur	ated as (	with 3" to	Hydric Soil Present  Standing  5" deep)	
Type: Depth (inc	_ayer (if observed):		satur	ated as (	w;th 3" to		
Type: Depth (inc	_ayer (if observed):		satur	ated as (	w;th 3" to		
Type: Depth (inc	_ayer (if observed):		satur	ated as (3	with 3'l to		
Type: Depth (inc	_ayer (if observed):		satur	ated as (	with 3" to		
Type: Depth (inc	_ayer (if observed):		satur	ated as (	with 3" to		
Restrictive I Type: Depth (inc Remarks:	ches):  depre	letely		New York		standing 5" deep)	water throughout.
Restrictive I Type: Depth (inc Remarks:	ches):  depre	letely		New York		standing 5" deep)	
Restrictive I Type: Depth (inc Remarks:	ches):  depre	letely		New York		standing 5" deep)	water throughout.
Restrictive I Type: Depth (inc Remarks:	ches):  depre	letely		New York		standing 5" deep)	water throughout.
Restrictive I Type: Depth (inc Remarks:	ches):  depre	letely		New York		standing 5" deep)	water throughout.
Restrictive I Type: Depth (inc Remarks:	ches):  depre	letely		New York		standing 5" deep)	water throughout.

WETLAND DETERMINATION DATA F	ORM – Northcentral and Northeast Region
PIR INPP	"County: Luzerne Sampling Date: 6/15/10
NA.	//County: Lu Let Ne Sampling Date: C / 1 3 / 1 9  State: Sampling Point: D - AX 2
Applicant/Owner:	The second of th
	Local relief (concave, convex, none):
Slope (%): Lat: Lor Lor	9
Soil Map Unit Name: Kex ford loam	NWI classification: wyland mowed Till
Are climatic / hydrologic conditions on the site typical for this time of year?	Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly dist	turbed? Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally proble	matic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sa	ampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes NoX	Is the Sampled Area
Hydric Soil Present? Yes NoX	within a Wetland? Yes No
Wetland Hydrology Present? Yes NoX	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
Woland moved field bounder	A by hillslope meadow to west,
ACM to with PED wetland	to east and south. Area appears
The to wolfy to contract	
to have been disturbed in	past gravel in soil (retusal)
at 6 ) suggests fill and ve	actation appears to be periodically momed
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Lea	aves (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (B1	
Saturation (A3) Marl Deposits (B1	
Water Marks (B1) Hydrogen Sulfide	
	neres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Redu	
Iron Deposits (B5) Thin Muck Surface Inundation Visible on Aerial Imagery (B7) Other (Explain in F	
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches): _	
Water Table Present? Yes No Depth (inches): _	
Saturation Present? Yes No Depth (inches): _	Wetland Hydrology Present? Yes NoX
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos,	pravious inspections) if available:
Describe Recorded Data (stream gauge, monitoring well, aerial priotos,	previous inspections), it available.
Remarks:	

	Absolute	Dominant		Dominance Test worksheet:
ee Stratum (Plot size:)		Species?	Status	Number of Dominant Species  That Are OBL, FACW, or FAC:(A
***************************************				Total Number of Dominant Species Across All Strata: (B
				Percent of Dominant Species
	***************************************	***************************************		That Are OBL, FACW, or FAC: (A
				Prevalence Index worksheet:  Total % Cover of: Multiply by:
		= Total Cov	ver	OBL species
pling/Shrub Stratum (Plot size:)				FACW species x 2 =
				FAC species
A A A A A A A A A A A A A A A A A A A				FACU species 55 x 4 = 220
				UPL species 140 x 5 = 700
				Column Totals: 195 (A) 920 (
				Prevalence Index = B/A =
				Hydrophytic Vegetation Indicators:
				Rapid Test for Hydrophytic Vegetation
ALL STREET AND AND A STREET AND		= Total Cov	<i>i</i> er	Dominance Test is >50%
		- Total Cov	701	Prevalence Index is ≤3.01
Setaria taber	80	У	uPL	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Datentilla canadensis	(00	Y	Jan	Problematic Hydrophytic Vegetation ¹ (Explain)
	20	-/-	FACU	
Parthenoeissus quinque tolis		- N	FACU	¹ Indicators of hydric soil and wetland hydrology mus be present, unless disturbed or problematic.
Solidago canadensis	\	N	FACU	be present, unless disturbed of problematic.
Daligedo Eduagenti?	1		THU	Definitions of Vegetation Strata:
7				Tree – Woody plants 3 in. (7.6 cm) or more in diame at breast height (DBH), regardless of height.
				Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
				Herb – All herbaceous (non-woody) plants, regardle
				of size, and woody plants less than 3.28 ft tall.  Woody vines – All woody vines greater than 3.28 f
· Children .	121	= Total Co	ver	height.
oody Vine Stratum (Plot size:)				
				Hydrophytic
				Vegetation
		= Total Co	ver	Present? Yes No
emarks: (Include photo numbers here or on a separate s	heet.)			
smarks. (molado prioto namboro noro or on a coparato o	,,,			

na maanihaani (maanihaanihaanihaanihaanihaanihaanihaani	n the absence of indicators.)
oth Matrix Redox Features	
hes) Color (moist) % Color (moist) % Type¹ Loc²	Texture Remarks
-6 10 TR 7/3 100	Loam very gravelly
	( ) )
be: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Gr	rains. ² Location: PL=Pore Lining, M=Matrix.
Iric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
Histosol (A1) Polyvalue Below Surface (S8) (LRR R,	2 cm Muck (A10) (LRR K, L, MLRA 149B)
Histic Epipedon (A2) MLRA 149B)	Coast Prairie Redox (A16) (LRR K, L, R)
Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B)	5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L)	Dark Surface (S7) (LRR K, L)
Stratified Layers (A5) Loamy Gleyed Matrix (F2)	Polyvalue Below Surface (S8) (LRR K, L)
Depleted Below Dark Surface (A11) Depleted Matrix (F3)	Thin Dark Surface (S9) (LRR K, L)
Thick Dark Surface (A12) Redox Dark Surface (F6)	Iron-Manganese Masses (F12) (LRR K, L, R)
Sandy Mucky Mineral (S1) Depleted Dark Surface (F7)	Piedmont Floodplain Soils (F19) (MLRA 149B)
Sandy Gleyed Matrix (S4) Redox Depressions (F8)	Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Red Parent Material (TF2)
Sandy Redox (S5)	Very Shallow Dark Surface (TF12)
Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B)	Other (Explain in Remarks)
Daile Guillage (G7) (Litating Mallot 1102)	
licators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed	d or problematic.
strictive Layer (if observed):	
Гуре:	
	1
	Hydric Soil Present? Yes NoX_
Depth (inches):	Hydric Soil Present? Yes No
Depth (inches):	

#### WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Applicant/Owner:  Investigator(s):  Landform (hillslope, terrace, etc.):  Slope (%):  Lat: 4 (.07086057	ear? Yes X No (If no, explain in Remarks.)  y disturbed? Are "Normal Circumstances" present? Yes X No
SHMMARY OF FINDINGS - Attach site man showing	g sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Remarks: (Explain alternative procedures here or in a separate represent)	Is the Sampled Area within a Wetland? Yes No  If yes, optional Wetland Site ID:
Sediment Deposits (B2) Oxidized Rhiz Drift Deposits (B3) Presence of F	d Leaves (B9) Drainage Patterns (B10) a (B13) Moss Trim Lines (B16) (B15) Dry-Season Water Table (C2) fide Odor (C1) Crayfish Burrows (C8) cospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) Reduced Iron (C4) Stunted or Stressed Plants (D1) Reduction in Tilled Soils (C6) Geomorphic Position (D2) rface (C7) Shallow Aquitard (D3) n in Remarks) Microtopographic Relief (D4) FAC-Neutral Test (D5)  s): s): s): s): No
Remarks: Noin Wind to to of w	etlandhydsodegy.

VEGETATION – Use scientific names of plants.				Sampling Point: DPBG-
Trop Stratum (Blot alza) 3.0	Absolute	Dominant		Dominance Test worksheet:
Tiee Stratum (Piot Size)		Species?		Number of Dominant Species
1. Quercus velutina		<u> </u>	FACU	That Are OBL, FACW, or FAC: (A)
2. Carya ovata		$\overline{N}$	FACU	Total Number of Dominant
3. Neer rubrum		_ N	FAS	Species Across All Strata: (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC: (A/B)
6				Prevalence Index worksheet:
7				Total % Cover of: Multiply by:
	63	= Total Co	ver	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:))				FACW species x 2 =
1. Acer rubrum	30	Y	PAC	FAC species x 3 =
		<del>-</del>	FACU	FACU species x 4 =
2. Quercus reluting		<del></del>		UPL species x 5 =
3. <u>Lindera benzoin</u>		<u> </u>	FACM	Column Totals: (A) (B)
4.			***************************************	
5				Prevalence Index = B/A =
6.				Hydrophytic Vegetation Indicators:
7				Rapid Test for Hydrophytic Vegetation
		= Total Co	ver	Dominance Test is >50%
Herb Stratum (Plot size:)				Prevalence Index is ≤3.0¹
1. Prunus serotina	l	N	FACU	Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
2. Acce rubrum	1	N	FAC	Problematic Hydrophytic Vegetation¹ (Explain)
	^	Y	FACU	
		· <del> \</del>	FACU	¹ Indicators of hydric soil and wetland hydrology must
4. Quercus velutina				be present, unless disturbed or problematic.
5. Sassafras albidum		- <del>- 1</del>	FACU	Definitions of Vegetation Strata:
6. traxinus americana.		<u> </u>	FACU	Tree – Woody plants 3 in. (7.6 cm) or more in diameter
7. Parthenocissus quinquefolia	_2_	. <u> </u>	FACU	at breast height (DBH), regardless of height.
8		-		Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
9.	· · · · · · ·			, ,
10				Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
11	-			Woody vines – All woody vines greater than 3.28 ft in
12				height.
K:I A		= Total Co	ver	
Woody Vine Stratum (Plot size: NA )				
- American services and the services of the se				
2	<u> </u>			
3				Hydrophytic
4.				Vegetation
		= Total Co	ver	Present? Yes No No
Remarks: (Include photo numbers here or on a separate s	sheet.)			
			4	
Black dak dominas			ICARC	K torest
		7		

SOIL

Sampling Point: PBG-

	-	o the depth	n needed to document the indicator or confirm	the absence	of indicato	rs.)
Depth (inches)	Matrix Color (moist)	%	Redox Features  Color (moist) % Type¹ Loc²	Texture		Remarks
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4-12	107R 4/4	100		L	22	loose rocky
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¹Type: C=C	oncentration D=Den	letion RM=F	Reduced Matrix, CS=Covered or Coated Sand Gra	nins. 21 oc	ation: PI =	Pore Lining, M=Matrix.
Hydric Soil			Todacca Mann, de Covolea di Coalca Carla Cit			matic Hydric Soils ³ :
Histosol	· ·	_	Polyvalue Below Surface (S8) (LRR R,	_	. ,	(LRR K, L, MLRA 149B)
	oipedon (A2) istic (A3)		MLRA 149B) Thin Dark Surface (S9) (LRR R, MLRA 149B)			ox (A16) ( <b>LRR K, L, R</b> ) or Peat (S3) ( <b>LRR K, L, R</b> )
	en Sulfide (A4)		Loamy Mucky Mineral (F1) (LRR K, L)			(LRR K, L)
	d Layers (A5)	-	Loamy Gleyed Matrix (F2)	_		Surface (S8) (LRR K, L)
	d Below Dark Surface ark Surface (A12)	e (A11) _	Depleted Matrix (F3) Redox Dark Surface (F6)			(S9) (LRR K, L)  Masses (F12) (LRR K, L, R)
	Mucky Mineral (S1)		Depleted Dark Surface (F7)		-	ain Soils (F19) (MLRA 149B)
	Sleyed Matrix (S4)	-	Redox Depressions (F8)			6) (MLRA 144A, 145, 149B)
	Redox (S5) I Matrix (S6)				arent Mater hallow Darl	ial (TF2) < Surface (TF12)
	rface (S7) (LRR R, N	ILRA 149B)			Explain in l	
3	£ 10					
	Layer (if observed):		land hydrology must be present, unless disturbed	or problemand	<i>.</i>	
Type:						3.4.7
Depth (in			Allowania and the second secon	Hydric Soil		
Remarks:	^		^ ^ 1	\	4	
We	11 dirai	() e_	lupland soil. I	1245	Nest	M. S. Comment
		and the second	- Crotesile in the			·
COLAS	y nyeun	romerous Super	San Comment			
•	<i>*</i>					

#### WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Applicant/Owner: PFL Investigator(s): KRY CTR S Landform (hillslope, terrace, etc.): Tology S Slope (%): Tology S Soil Map Unit Name: Wyoming growth S Are climatic / hydrologic conditions on the site typical for this time of year Are Vegetation N, Soil N, or Hydrology N significantly of Are Vegetation N, Soil N, or Hydrology N naturally probability.	disturbed? Are "Normal Circumstances" present? Yes No plematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes No  Yes No	Is the Sampled Area within a Wetland?  If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report  Wetland Located in a  and with a hydrologic of  water Lischard Many	toe of slope lawform position egine based on ground male/malified and may
HYDROLOGY	- peen a talmbang.
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
X Surface Water (A1) X Water-Stained L	.eaves (B9) Drainage Patterns (B10)
High Water Table (A2) Aquatic Fauna (I	B13) Moss Trim Lines (B16)
✓ Saturation (A3)	315) Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfid	e Odor (C1) Crayfish Burrows (C8)
Sediment Deposits (B2) Oxidized Rhizos	spheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Rec	duced Iron (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Red	duction in Tilled Soils (C6) X Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surfa	ace (C7) X Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in	i i
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
Field Observations:	A //
Surface Water Present? Yes No Depth (inches):	: <u> </u>
Water Table Present? Yes No _X Depth (inches):	:
Saturation Present? Yes X No Depth (inches):	: Wetland Hydrology Present? Yes No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos	s. previous inspections), if available:
gaaga, mananng nan production pro	-, -, -, -, -, -, -, -, -, -, -, -, -, -
Remarks: Saturation to surface	
wholeralsoenters for paint in the wortheas	to orner pischaffes tolthe
I was in the fact of the fact of	Call St.
maets 3 primary and &	our secondary hydrologic

#### **VEGETATION** – Use scientific names of plants.

Sampling Point: PRG-2

Tree Stratum (Plot size: 30')	Absolute	Dominant Species?	t Indicator	Dominance Test worksheet:
1. Alvus serrulata	<u> </u>	y y	OBL	Number of Dominant Species
2. Batula Nigea	5		FACW	That Are OBL, FACW, or FAC: (A)
3. Acet rubtum	10	<del>-/\</del>	FAC	Total Number of Dominant Species Across All Strata:  (B)
		<del>-7</del>		
4				Percent of Dominant Species That Are OBL, FACW, or FAC:  (A/B)
5				(45)
6				Prevalence Index worksheet:
7		-		Total % Cover of: Multiply by:
(<		= Total Co	ver	OBL species x 1 =
Sapling/Shrub Stratum (Plot size:)	, ,	\.	- 62	FACW species x 2 =
1. Alous serrulata	15		OBL	FAC species x 3 = FACU species x 4 =
2. Her carran		<u>-N</u>	FAC	UPL species x5 =
3. Lindera Denzoin		$\overline{N}$	# ACW	Column Totals: (A) (B)
4				( )
5				Prevalence Index = B/A =
6				Hydrophytic Vegetation Indicators:
7				Rapid Test for Hydrophytic Vegetation
	18	= Total Co	ver	
Herb Stratum (Plot size: 5)				Prevalence Index is ≤3.0¹
1. Impatieus capensis	15	·Y	FACW	Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
2. Carex SD.	1.	N	FACW-OB	
3. Eulalia Vininea	10	Y	FAC	
4. Rosa multiflora		N	FACU	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. Lindera benzoin	3		FACE	Definitions of Vegetation Strata:
6				Tree – Woody plants 3 in. (7.6 cm) or more in diameter
7				at breast height (DBH), regardless of height.
9				Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
10				Herb – All herbaceous (non-woody) plants, regardless
11				of size, and woody plants less than 3.28 ft tall.
12.				Woody vines – All woody vines greater than 3.28 ft in
	<u> </u>	= Total Co	ver	height.
Woody Vine Stratum (Plot size:)				
1. NA				
2				
3				Hydrophytic
4				Vegetation V
		= Total Co	ver	Present? Yes No
Remarks: (Include photo numbers here or on a separate	-11			
A Leuse and vigora	au s	Service Co	und!	at allers is
lacated in the co		m Proc.	may have a firm	to PEO Partial
N The Co	T War	la V	and the second	. p & goulden . I A woman . If we are a common so with
a blacks we sixt to	A A /	f agreement for the		



SOIL

Sampling Point: Pto-2

Depth	ription: (Describe t Matrix			x Features			n the absence	oi maicatore,
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	<u>Texture</u>	Remarks
0-2	10 JR 3/2	100			THE REPORT OF THE PERSON NAMED IN POST OF	mpscand24-kims49909	Organic_	saturated greasy
2-6	2.575/	100			THE AMERICAN STREET, MICHINGS AND ASSESSED.		51_	sat wracted
6-12	2.57 4/1	7:0	107833	30			SL	saturated, gravelly
		-		······································	<del></del>			
Type: C=Co	oncentration, D=Depl	etion RM=	:Reduced Matrix CS	=Covered	or Coate	d Sand G	rains ² l o	cation: PL=Pore Lining, M=Matrix.
Hydric Soil I		Cuon, rawi-	rteduced Matrix, Oc	-covereu	or Coale	u oanu o		for Problematic Hydric Soils ³ :
Black Hi Hydroge Stratified Depleted Thick Da Sandy M Sandy R Stripped Dark Sui	pipedon (A2)	ILRA 149B		ce (S9) ( <b>Li</b> lineral (F1) Matrix (F2) (F3) face (F6) Surface (F7 ions (F8)	rrr, m ) (Lrr k	LRA 149E	Coast 5 cm M Dark S Polyva Thin D Iron-M Piedm Mesic Red P Very S Other	Muck (A10) (LRR K, L, MLRA 149B) Prairie Redox (A16) (LRR K, L, R) Mucky Peat or Peat (S3) (LRR K, L, R) Surface (S7) (LRR K, L) slue Below Surface (S8) (LRR K, L) Park Surface (S9) (MLRA 149B) Parent Floodplain Soils (F19) (MLRA 149B) Parent Material (TF2) Parallow Dark Surface (TF12) Parallow Dark Surface (TF12)
	Layer (if observed):	on and we	tianu nydroiogy mus	t be preser	nt, unles	S distuibet	a or probleman	U.
Type:	see bel	<u>au)</u>						<b>~</b>
Depth (ind	ches):		· · · · · · · · · · · · · · · · · · ·				Hydric Soil	Present? Yes No
1	462 h							
NOT	est (	tive	ayer	wa	5 0	.bse	rued	harge.
			1 Jean					
,								

#### WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Applicant/Owner:  Investigator(s):  Landform (hillslope, terrace, etc.):  Slope (%):  Soil Map Unit Name:  Are climatic / hydrologic conditions on the site typical for this time of year? Yes  Are Vegetation  Nor Hydrology  Section, To  Sec	
Are Vegetation N, Soil N, or Hydrology N naturally problematic?  SUMMARY OF FINDINGS – Attach site map showing sampling.	(If needed, explain any answers in Remarks.)  ag point locations, transects, important features, etc.
Hydrophytic Vegetation Present?  Yes X No Is the with the second of the	ne Sampled Area nin a Wetland?  Yes No  ss, optional Wetland Site ID:  water. Pand Full of
edge and scrub/shrub and for	ested wetland borders.
HYDROLOGY  Wetland Hydrology Indicators:  Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)	Moss Trim Lines (B16) Dry-Season Water Table (C2) 1) Crayfish Burrows (C8) Living Roots (C3) Saturation Visible on Aerial Imagery (C9) (C4) Stunted or Stressed Plants (D1) Tilled Soils (C6) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5)
Surface Water Present?  Water Table Present?  Yes No Depth (inches):   Saturation Present?  (includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous	Wetland Hydrology Present? Yes No
Remarks: Soil boring taken on earnest Harinary and 3 second indicators. "Other primary and 3 second indicators." Other primary and specific plants - Lemna specific plants - Lemna specific plants - Lemna specific plants.	Adary hydrologic Vindicator = torus Couckweel

#### VEGETATION - Use scientific names of plants.

Sampling Point: DPBG-3 Absolute Dominant Indicator NA **Dominance Test worksheet:** Tree Stratum (Plot size: _ % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: Total Number of Dominant Species Across All Strata: Percent of Dominant Species That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x 1 = ____ = Total Cover FACW species _____ x 2 = ____ Sapling/Shrub Stratum (Plot size: FAC species ____ x 3 = ____ FACU species _ ____ x 4 = ___ UPL species _____ x 5 = ____ Column Totals: (A) _____(B) Prevalence Index = B/A = _____ Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation Dominance Test is >50% = Total Cover Prevalence Index is ≤3.01 Herb Stratum (Plot size: Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) N Problematic Hydrophytic Vegetation¹ (Explain) FA 1 ¹Indicators of hydric soil and wetland hydrology must 0 be present, unless disturbed or problematic. **Definitions of Vegetation Strata:** FAU Tree – Woody plants 3 in. (7.6 cm) or more in diameter 1 0 at breast height (DBH), regardless of height. Ac Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. 3  $\label{eq:herb-All} \textbf{Herb} - \textbf{All herbaceous (non-woody) plants, regardless} \\ \text{of size, and woody plants less than 3.28 ft tall.}$ Woody vines - All woody vines greater than 3.28 ft in height. 137 = Total Cover Woody Vine Stratum (Plot size: _____) Hydrophytic Vegetation Present? = Total Cover Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: <u>DPBG</u>-3

(inches)	Matrix Color (moist) %	Redox Fe		Loc ²	Toytura	Remarks
0-5	$\frac{\text{Color (moist)}}{7.5 \times 2.5} \frac{\%}{100}$	Color (moist)	% Type'	LOC	Texture SL	
<u> </u>	(1) (2) (4)	7/1054			1	wet stick saturate
) * I_	GRY2 710B 90	<u> 7,5 1R                                   </u>		<u> </u>	Lance	grave MEDENT
ype: C=Co	oncentration, D=Depletion, R	M=Reduced Matrix, CS=C	overed or Coate	d Sand Gra		ation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ :
Black His Hydroge Stratified Depleted Thick Da Sandy M Sandy G Sandy R Stripped	pipedon (A2)	Polyvalue Below St MLRA 149B) Thin Dark Surface Loamy Mucky Mine Loamy Gleyed Mat Depleted Matrix (F: Redox Dark Surface Depleted Dark Surface Redox Depressions	(S9) (LRR R, MI eral (F1) (LRR K rix (F2) 3) e (F6) face (F7)	.RA 149B)	Coast I  5 cm M  Dark S  Polyval  Thin Da  Iron-Ma  Piedmo  Mesic S  Red Pa  Very S	luck (A10) (LRR K, L, MLRA 149B) Prairie Redox (A16) (LRR K, L, R) lucky Peat or Peat (S3) (LRR K, L, R) lurface (S7) (LRR K, L) lue Below Surface (S8) (LRR K, L) ark Surface (S9) (LRR K, L) anganese Masses (F12) (LRR K, L, R) ont Floodplain Soils (F19) (MLRA 149B) Spodic (TA6) (MLRA 144A, 145, 149B) arent Material (TF2) hallow Dark Surface (TF12) (Explain in Remarks)
	f hydrophytic vegetation and	wetland hydrology must be	e present, unless	disturbed	or problematio	
Type:	- 11 V	tesil			Hydric Soil	Present? Yes X No
Depth (inc		acuited	lanc'		L	
	< hallow	LA WILL GIM	O-CHIV	2 0	1 )	
	Shallow red soil be	Edinning	at 5"	inc	legth	and extending
Gley	red soil be	eginning 12." This	at 5"	in c	leth a'h	and extending alt" soil that
Gley to	red soil be at least	eginning 12." This high bulk	at 5"	in c	defth a"ti	and extending aht" soil that I perches
Gley to: like	y has a	eginning 12. This high bulk ater (ex	at 5" layer lever	in c	depth a"ti and tion!	and extending oft" soil that & perches ). This boting
Gley to: like sus	red soil be at least yhas a face w staken n	eginning 12. This high bulk ater (ex	at 5" layer lever	in c	depth a"ti and tion!	and extending oft" soil that & perches ). This boting
Gley to like	red soil be at least yhas a face w staken n	eginning 12. This high bulk ater (ex	at 5" layer lever	in c	depth a"ti and tion!	and extending oft" soil that & perches ). This boting

### **APPENDIX C**

**NRCS Soil Series Descriptions** 

LOCATION ARNOT Established Series Rev. RLM-STS-JDC 01/2008 NY PA

### **ARNOT SERIES**

The Arnot series consists of shallow, somewhat excessively to moderately well drained soils formed in loamy till. Bedrock is at depths of to 10 to 20 inches. Slope ranges from 0 to 70 percent. Saturated hydraulic conductivity in the mineral soil is moderately high or high. Mean annual temperature is 47 degrees F, and mean annual precipitation is 38 inches.

**TAXONOMIC CLASS:** Loamy-skeletal, mixed, active, mesic Lithic Dystrudepts

**TYPICAL PEDON:** Arnot channery silt loam, on a 6 percent slope in an idle area. (Colors are for moist soil unless specified otherwise.)

**Ap--** 0 to 6 inches; very dark grayish brown (10YR 3/2), light brownish gray (10YR 6/2) dry, channery silt loam; weak medium and fine granular structure; friable; many fine and medium roots; 20 percent rock fragments; strongly acid; abrupt smooth boundary. (2 to 10 inches thick.)

**Bw1--** 6 to 15 inches; dark yellowish brown (10YR 4/4) very channery silt loam; weak fine and medium subangular blocky parting to weak fine granular structure; friable; many fine and medium roots; 35 percent rock fragments; strongly acid; abrupt smooth boundary.

**Bw2--** 15 to 17 inches; light olive brown (2.5Y 5/4) very channery silt loam; weak thin platy structure; friable; common fine roots; many fine pores; 50 percent rock fragments; few medium faint yellowish brown (10YR 5/6) soft masses of iron accumulation; strongly acid; abrupt smooth boundary. (Combined thickness of the Bw horizons is 2 to 16 inches thick.)

**2R--** 17 inches; gray (5Y 5/1) fine grained sandstone bedrock.

**TYPE LOCATION:** Cortland County, New York; Town of Truxton, 2 1/4 miles south east of Crain Mills at junction of roads running west-southwest and west-northwest. USGS Cuyler, NY topographic quadrangle; Latitude 42 degrees, 41 minutes, 0 seconds N. and Longitude 75 degrees, 59 minutes, 2 seconds W. NAD 1927.

**RANGE IN CHARACTERISTICS:** Solum thickness and depth to bedrock range from 10 to 20 inches. Rock fragments of dominantly sandstone, siltstone, or shale range from 35 to 70 percent as a weighted average of the particle-size control section. Texture of the

fine-earth fraction is silt loam or loam throughout the profile. Reaction in unlimed areas ranges from extremely acid through moderately acid throughout the profile.

The A or Ap horizon has hue of 5YR through 2.5Y, or is neutral, value of 2 through 4, and chroma of 0 through 3. Dry colors have the same hue with value of 5 or 6 and chroma of 2 through 4. Structure is weak or moderate granular. Consistence is very friable or friable. Some pedons have a very friable or friable E horizon 1 to 3 inches thick with grayish colors.

The B horizon has hue of 2.5YR through 2.5Y, value of 4 through 6, and chroma of 3 through 6. Structure is very weak to moderate, fine or medium, subangular blocky; granular; or weak thin or medium platy. Consistence is friable or firm. Some pedons have few or common redoximorphic features in the lower part.

Some pedons have a C or 2Cr horizon that can range to 80 percent rock fragments.

The 2R horizon is hard sandstone, siltstone or shale. The bedding is horizontal and in many places the rock types are interbedded.

**COMPETING SERIES:** The <u>Klinesville</u>, <u>Nassau</u>, <u>Sylvatus</u>, and <u>Weikert</u> series are members of the same family. Klinesville soils are residual soils formed predominantly in red shale. Nassau soils have rock fragments dominated by shale or slate. Sylvatus soils are dominated by fragments of phylitte and slate and have a warmer soil temperature. Weikert soils have kaolinite as a significant component of the clay fraction.

**GEOGRAPHIC SETTING:** Arnot soils developed in a thin mantle of till of Wisconsin age. The till is derived mainly from acid sandstone, siltstone, and shale. In some places the regolith is a mixture of till and residuum. Slope ranges from 0 to 70 percent. The climate is humid and temperate. Mean annual precipitation ranges from 35 to 45 inches; mean annual temperature ranges from 45 to 50 degrees F.; and mean annual frost-free period ranges from 120 to 180 days. Elevation ranges from 1000 to 1800 feet above sea level.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Bath, Cadosia, Chippewa, Lackawanna, Lordstown, Maplecrest, Mardin, Morris, Oquaga, Tuller, Valois, Volusia and Wellsboro soils. Bath, Cadosia, Chippewa, Maplecrest, Mardin, Lackawanna, Morris, Valois, Volusia and Wellsboro soils developed in deep glacial till. Lordstown and Oquaga soils are moderately deep. Tuller soils are somewhat poorly to poorly drained.

**DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY:** Somewhat excessively drained to moderately well drained. The potential for surface runoff is medium to very high. Saturated hydraulic conductivity in the mineral soil is moderately high or high.

**USE AND VEGETATION:** Mainly forested. Some areas remain in rough pasture and hay land. Native vegetation is oak, beech, sugar maple, black cherry, hemlock, and white pine.

**DISTRIBUTION AND EXTENT:** The glaciated Allegheny Plateau and Catskills of New York, and northern Pennsylvania. MLRA 101 and 140. The series is of large extent.

MLRA OFFICE RESPONSIBLE: Amherst, Massachusetts.

**SERIES ESTABLISHED:** Cortland County, New York, 1957.

**REMARKS:** The Arnot series is considered to be the lithic analogue of the Lordstown and Oquaga series.

Diagnostic horizons and other features associated with the typical pedon are:

- 1. Ochric Epipedon the zone from the surface to 6 inches (Ap horizon).
- 2. Cambic horizon the zone from 6 to 17 inches (Bw horizons).
- 3. Lithic subgroup as evidenced by bedrock at 17 inches.

National Cooperative Soil Survey U.S.A.

LOCATION ATHERTON
Established Series
Rev. MGC-JWW-SWF
03/2003

NY ME NJ OH PA

### ATHERTON SERIES

The Atherton series consists of deep, poorly drained and very poorly drained soils formed in water-sorted materials. They are nearly level soils on outwash plains, terraces and kame-kettle landforms. Permeability is moderate or moderately slow in the solum and moderate or moderately rapid in the substratum. Slope ranges from 0 to 3 percent. The mean annual temperature is about 49 degrees F, and the mean annual precipitation is about 40 inches.

**TAXONOMIC CLASS:** Fine-loamy, mixed, active, nonacid, mesic Aeric Endoaquepts

**TYPICAL PEDON:** Atherton silt loam - hay. (Colors are for moist soils.)

**Ap--** 0 to 9 inches; very dark gray (10YR 3/1) silt loam; moderate coarse granular structure; friable; many fine roots; common fine pores; few medium distinct dark red (2.5YR 3/6) masses of iron accumulation in the matrix; moderately acid; abrupt smooth boundary. (6 to 9 inches thick.)

**Bg--** 9 to 22 inches; gray (5Y 5/1) silt loam; massive; friable; few fine roots in upper 6 inches; few fine pores; many (30 percent) medium distinct light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix; 5 percent coarse fragments; moderately acid; clear wavy boundary. (3 to 16 inches thick.)

**2Bw--** 22 to 38 inches; dark yellowish brown (10YR 4/4) gravelly silt loam; massive; friable; few pores; many (35 percent) medium and coarse distinct gray (5Y 5/1) iron depletions in the matrix; 25 percent coarse fragments; slightly acid; clear smooth boundary. (0 to 25 inches thick.)

**2C--** 38 to 60 inches; dark grayish brown (10YR 4/2) gravelly loam; massive with crude stratification; few pores; common medium distinct gray (5Y 5/1) iron depletions and common coarse distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; 25 percent coarse fragments; slightly acid.

**TYPE LOCATION:** Steuben County, New York, Campbell Township. 1/2 mile north of Highway 333 in depressional area in terrace adjacent to Cohocton River. USGS Campbell, NY topographic quadrangle; Latitude 42 degrees, 14 minutes, 12 seconds N. and Longitude 77 degrees, 12 minutes, 27 seconds W., NAD 1927.

RANGE IN CHARACTERISTICS: The thickness of the solum ranges from 20 to 44 inches. Rock fragments range from 0 to 20 percent in horizons in the upper part of the solum including up to 15 percent greater than 3 inches in diameter. The weighted average rock fragment content ranges from 0 to 35 percent in the particle control section, including up to 5 percent greater than 3 inches in diameter. Rock fragments in the substratum ranges to 60 percent. Unless limed, reaction ranges from strongly acid to neutral in the A horizon and from moderately acid to slightly alkaline in the B and C horizons.

The A horizon has hue of 10YR or 2.5Y, value of 2 or 3 and chroma of 0 through 2. Texture is loam, silt loam or silty clay loam in the fine earth fraction. Structure is weak or moderate granular or fine subangular blocky. Consistence is friable or very friable. In pedons with A horizons thickness can range from 1 to 6 inches.

In uncleared areas A horizons are 4 to 8 inches thick and have color value of 2 or 3 moist and 4 or 5 dry. They may be underlain by E horizons 1 to 6 inches thick that have chroma of 0 or 1.

The Bg horizon has hue of 5YR through 5Y, value of 4 or 5 and chroma of 0 through 2 and has redoximorphic features. Texture is loam, silt loam or silty clay loam in the fine earth fraction. Consistence is friable or firm.

The Bw or IIBw horizon, which is usually in contrasting materials, has hue of 5YR through 5Y, value of 4 through 6 and chroma of 3 or 4 and it has distinct or prominent redoximorphic features. Texture is loam, silt loam or silty clay loam in the fine earth fraction with thin layers of gravel, sand, or silty clay in some pedons. They are massive or they have moderate prismatic or blocky structure. Consistence is friable or firm.

The C or 2C horizon has hue of 5YR through 5Y, value of 4 through 6 and chroma of 2 or 4 and it has distinct or prominent redoximorphic features. They are stratified with texture in the fine earth fraction typically ranging from loam to silty clay loam, but including textures from sand to silty clay.

**COMPETING SERIES:** The <u>Kendaia</u> series is in the same family. Kendaia soils have carbonates within a depth of 40 inches and lack stratification within 40 inches.

**GEOGRAPHIC SETTING:** The Atherton soils are nearly level soils in depressions in glacial outwash terraces, older stream terraces, and kame-kettle landforms. Slope ranges from 0 to 3 percent. The soil formed in water-sorted material which ranges widely in texture among layers below 20 inches. Mean annual precipitation ranges from 30 to 50 inches, mean annual air temperature from 45 degrees to 52 degrees F. and mean growing season from 120 to 200 days.

GEOGRAPHICALLY ASSOCIATED SOILS: The well drained <u>Chenango</u>, <u>Hoosic</u> and <u>Tunkhannock</u> soils, the moderately well drained <u>Braceville</u> and <u>Castile</u> soils and the somewhat poorly drained <u>Red Hook</u> soils are other members of drainage sequences in

which Atherton soils are the wettest member. <u>Tioga</u> and <u>Barbour</u> soils are on nearby first bottoms and <u>Allard</u> and <u>Unadilla</u> soils on silt-mantled terraces. <u>Lordstown</u>, <u>Bath</u> and related soils are on adjoining uplands.

**DRAINAGE AND PERMEABILITY:** Poorly to very poorly drained. The potential for surface runoff is very low. Permeability is moderate or moderately slow in the solum and moderate or moderately rapid in the substratum.

**USE AND VEGETATION:** Where undrained, the soil is in woodlots mostly of elm and soft maple, is idle or is pastured. Drained areas are used for growing corn, small grains, hay and pasture.

**DISTRIBUTION AND EXTENT:** Southern and eastern New York, eastern Ohio, western and northern Pennsylvania. MLRA 100, 101, 139, 140, 144A, and 146. The series is moderately extensive.

MLRA OFFICE RESPONSIBLE: Amherst, Massachusetts

**SERIES ESTABLISHED:** Licking County, Ohio, 1930.

**REMARKS:** This series has been used in MLRA 146. All soils in this area are now frigid. It will be removed when this area is updated.

The pedon description for the Atherton series was updated to modern terminology. The Atherton series typical pedon needs to be updated in the field.

Diagnostic horizons and other features recognized in the typical pedon:

- (1) Ochric epipedon the zone from the surface to 9 inches (Ap horizon).
- (2) Cambic horizon the zone from 9 to 38 inches (Bg and IIBg horizons).

National Cooperative Soil Survey U.S.A.

LOCATION BRACEVILLE
Established Series
Rev. DGG-EAW
02/2000

PA+NJ NY OH

### **BRACEVILLE SERIES**

The Braceville series consists of very deep, moderately well drained soils formed in glacial outwash of stratified sand, silt, and gravel. They are on terraces, benches, fans, and moraines. Slopes range from 0 to 25 percent. Permeability is moderately slow to slow. Mean annual precipitation is 40 inches. Mean annual temperature is about 49 degrees F.

**TAXONOMIC CLASS:** Coarse-loamy, mixed, active, mesic Typic Fragiudepts

**TYPICAL PEDON:** Braceville gravelly loam - cultivated on a 3 to 8 percent slope. (Colors are for moist soil unless otherwise noted.)

**Ap--**0 to 8 inches, dark grayish brown (10YR 4/2) gravelly loam; weak medium granular structure; friable, nonsticky, slightly plastic; 15 percent rock fragments; strongly acid; abrupt smooth boundary. (6 to 11 inches thick.)

**Bw1**--8 to 18 inches, yellowish brown (10YR 5/4) gravelly loam; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; 20 percent rock fragments; strongly acid; clear wavy boundary. (5 to 15 inches thick.)

**Bw2--18** to 24 inches, yellowish brown (10YR 5/4) gravelly loam; common medium distinct light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; 20 percent rock fragments; strongly acid; abrupt wavy boundary. (4 to 14 inches thick.)

**Bx--24** to 36 inches, brown (10YR 5/3) gravelly loam; common medium distinct grayish brown (10YR 5/2) and yellowish brown (10YR 5/6) mottles; grayish brown (10YR 5/2) faces of prisms; weak very coarse prismatic structure parting to weak medium platy; firm, brittle; few faint clay films lining pores; 30 percent rock fragments; strongly acid; gradual wavy boundary. (8 to 35 inches thick.)

C--36 to 60 inches, grayish brown (2.5Y 5/2) stratified sand and gravel; common medium distinct gray (N 5/) streak-like mottles; single grain; strongly acid.

**TYPE LOCATION:** Mercer County, Pennsylvania, East Lackawannock Township, two miles southwest of Mercer.

RANGE IN CHARACTERISTICS: Solum thickness ranges from 30 to 55 inches. Depth to the fragipan ranges from 15 to 30 inches. Depth to bedrock is from 5 to 50 feet or more. Depth to low chroma mottles ranges from 16 to 30 inches. The solum or C horizons are stratified within 40 inches and stratified sand and gravel is at depths of 30 to 72 inches. Rock fragments of dominately gravel range from 0 to 30 percent in the A and Bw horizons and from 20 to 50 percent in the Bx horizon. Reaction, where not limed, ranges from very strongly acid to moderately acid above the Bx, and from strongly acid to slightly acid in the Bx and C horizons.

The A horizon has hue of 2.5Y through 7.5YR, value of 3 or 4, and chroma of 2 through 4. It is sandy loam, loam or silt loam in the fine earth.

The Bw horizon has hue of 2.5Y through 7.5YR, value of 4 or 5, chroma of 3 through 6, and it can be mottled. It is sandy loam, loam, or silt loam in the fine earth. Structure is weak fine or medium subangular blocky. Consistency is friable.

The Bx horizon has hue of 2.5Y through 7.5YR, value of 4 or 5, chroma of 3 through 6, and it is mottled. It is sandy loam, loam, or silt loam in the fine earth. Structure is weak very coarse prismatic parting to weak medium or thick platy. Consistency is firm and brittle. Some pedons have thin BC horizons.

The C horizon has hue of 5Y through 5YR. It is usually gravely loamy sand or sandy loam and includes stratified layers of sand, gravel, sandy loam, loam, or silt loam.

**COMPETING SERIES:** <u>Bath</u>, <u>Broadalbin</u>, <u>Ira</u>, <u>Lackawanna</u>, <u>Mardin</u>, <u>Rushford</u>, <u>Sodus</u>, <u>Swartswood</u>, <u>Wellsboro</u>, and <u>Wurtsboro</u> soils are in the same family.

All of the listed series lack stratified materials within the series control section, do not have C horizons that have loamy sand textures or have Cd horizons. Montauk soils lack Bx horizons and lack mottles above a depth of 30 inches.

The <u>Atherton</u>, Bridgeville, <u>Fredon</u>, <u>Jimtown</u>, <u>Ludlow</u>, <u>Montauk</u>, <u>Nantucket</u>, <u>Red Hook</u>, <u>Rexford</u>, <u>Sciotoville</u>, and <u>Wethersfield</u> soils are in related families. All of these soils except Rexford and Sciotville soils lack fragipans.

<u>Rexford</u> soils have a horizon with 50 percent or more redoximorphic depletions with chroma of 2 or less within a depth of 20 inches of the mineral surface and redoximorphic concentrations with 12 inches of the surface. <u>Sciotoville</u> soils have an argillic horizon.

**GEOGRAPHIC SETTING:** Braceville soils are nearly level to moderately steep soils on terraces, beaches, fans, and moraines. Slopes range from 0 to 25 percent. The soils formed in glacial outwash of stratified sand, silt, and gravel derived largely from noncalcareous gray sandstone and shale, but contain small amounts of reddish rocks and limestone. Some pedons have a thin silty mantle. Climate is humid and temperate, with mean annual precipitation of 34 to 44 inches; average annual temperature of 45 degrees to 52 degrees F., and the growing season is 120 to 170 days.

**GEOGRAPHICALLY ASSOCIATED SOILS:** <u>Alton, Atherton, Chenango, Conotton, Fredon, Red Hook, Rexford, Riverhead,</u> and <u>Tunkhannock</u> soils are on nearby landscapes. Alton, Chenango, Conotton, Riverhead, and Tunkhannock soils are well drained or somewhat excessively drained, lack fragipans, and commonly are on uplands above the Braceville soils. Atherton soils are poorly or very poorly drained on depressions or lowlands. Fredon, Red Hook, and Rexford soils have a horizon with dominant chroma of 2 or less within a depth of 20 inches.

**DRAINAGE AND PERMEABILITY:** Moderately well drained. Runoff is slow to medium and permeability is moderately slow to slow.

**USE AND VEGETATION:** About 85 percent is cleared and used for growing crops and pasture. Woodlands are dominately northern hardwoods.

**DISTRIBUTION AND EXTENT:** Northern Pennsylvania, southern New York, New Jersey and northeastern Ohio. Series is of moderate extent.

MLRA OFFICE RESPONSIBLE: Amherst, Massachusetts

**SERIES ESTABLISHED:** Trumbull County, Ohio, 1914.

#### **REMARKS:**

S-5= PA0014; Pedon S69PA-010-005 PSU Data and 18 Engineering Data Samples taken in PA.

Diagnostic Horizons and Features:

- 1. Ochric Epipedon from 0 to 9 inches assume dry color greater than 5/3.
- 2. Cambic Horizon from 8 to 24 inches.
- 3. Fragipan form 24 to 36 inches.
- 4. Aquic Conditions redoximorphic concentrations occur in the Bw2 and low chroma redox depletions occur in the Bx horizon.

LOCATION CHENANGO Established Series Rev. MGC-ERS-SWF 08/2004 NY NJ OH PA

### **CHENANGO SERIES**

The Chenango series consists of very deep, well and somewhat excessively drained soils formed in water-sorted material on outwash plains, kames, eskers, terraces, and alluvial fans. Slope ranges from 0 to 60 percent. Mean annual temperature is 47 degrees F, and mean annual precipitation is 36 inches.

TAXONOMIC CLASS: Loamy-skeletal, mixed, superactive, mesic Typic Dystrudepts

**TYPICAL PEDON:** Chenango gravelly silt loam on a 3 percent slope in a cultivated field. (Colors are for moist soil unless otherwise noted.)

**Ap--** 0 to 8 inches; very dark grayish brown (10YR 3/2) gravelly silt loam, light brownish gray (10YR 6/2) crushed and dry; weak fine and medium granular structure; friable; many fine roots; 20 percent pebbles; moderately acid; abrupt smooth boundary. (4 to 10 inches thick.)

**Bw1--** 8 to 12 inches; dark yellowish brown (10YR 4/4) gravelly silt loam; very weak fine subangular blocky and very weak very fine granular structure; very friable; many fine roots; common fine pores; 15 percent dark grayish brown (10YR 4/2) material filling earthworm channels; 30 percent pebbles; strongly acid; gradual smooth boundary.

**Bw2--** 12 to 20 inches; dark yellowish brown (10YR 4/4) very gravelly silt loam; very weak fine and medium subangular blocky structure; friable; few fine roots; common fine pores; 40 percent pebbles; strongly acid; gradual wavy boundary. (Combined thickness of the Bw horizon is 4 to 30 inches.)

**BC**-- 20 to 30 inches; brown (10YR 4/3) very gravelly loam; massive; friable; few fine roots; common fine and medium pores; 50 percent pebbles; strongly acid; clear wavy boundary. (0 to 18 inches thick.)

**2C**-- 30 to 72 inches; dark grayish brown (10YR 4/2), grayish brown (10YR 5/2), and brown (10YR 4/3) extremely gravelly loamy coarse sand; upper surface of pebbles have thin caps of dark grayish brown (10YR 4/2) loamy material; single grain except massive in caps; loose; few roots in upper part; 10 percent soft dark brown and dark yellowish brown weathered pebbles; strongly acid in the upper part grading to slightly acid with depth.

**TYPE LOCATION:** Tioga County, New York; 3 miles north of Owego, 100 feet east of road and 120 feet south of farm house. USGS Candor, NY topographic quadrangle; Latitude 42 degrees, 8 minutes, 52 seconds N. and Longitude 76 degrees, 15 minutes, 42 seconds W., NAD 1927.

**RANGE IN CHARACTERISTICS:** Solum thickness ranges from 24 to 50 inches. Depth to bedrock is greater than 60 inches. Rock fragments range from pebbles to flagstones. Rock fragment content ranges from 10 to 50 percent in the A horizon, 15 to 60 percent in the B horizon, and 30 to 70 percent in the C horizon. Depth to carbonates as coatings on pebbles is more than 72 inches.

The Ap horizon has hue of 7.5YR through 2.5Y, value of 3 through 5, and chroma of 2 or 3. Texture of the fine earth fraction ranges from sandy loam to silt loam. Structure is weak or moderate granular or subangular blocky. Consistence is very friable or friable. Unlimed reaction ranges from very strongly acid through moderately acid.

The B horizon has hue of 7.5YR through 2.5Y, value of 4 through 6, and chroma of 3 through 6, with 7.5YR hue restricted to the upper part. Texture of the fine earth fraction is fine sandy loam, sandy loam, loam, very fine sandy loam, or silt loam, with an average of less than 50 percent fine and coarser sand. Structure is very weak to moderate subangular blocky or granular, or it is massive. Consistence ranges from very friable through firm. Reaction ranges from very strongly acid through moderately acid.

The BC horizon, where present, has a hue of 7.5YR through 2.5Y, value of 4 through 6, and chroma of 3 through 6. The texture is very fine sandy loam, fine sandy loam, sandy loam, or silt loam in the fine earth fraction and averages less than 50 percent fine sand and coarse sand. Structure is weak or very weak subangular blocky or the material is massive. Consistence ranges from very friable to firm. Reaction ranges from very strongly acid to neutral.

The 2C horizon has hue of 10YR or 2.5Y, value of 3 through 5, and chroma of 2 through 4. Texture of the fine earth fraction is loamy fine sand through coarse sand. Some pedons have a C horizon that has very channery analogues of sandy loam, loam, or silt loam. It is massive or single grain. Reaction ranges from strongly acid through slightly alkaline.

**COMPETING SERIES:** The <u>Centralpark</u> (T), <u>Oquaga</u>, and <u>Tunkhannock</u> series are in the same family. The Centralpark series is formed in a mantle of anthrotransported materials. The Oquaga soils lack stratified materials in the lower part of the substratum. Tunkhannock soils have hues of 7.5YR or redder throughout the B horizon.

The <u>Berks</u>, <u>Brownsville</u>, <u>Calvin</u>, <u>Cardiff</u>, <u>Centralpark</u> (T), <u>Highsplint</u>, Konnarock(T), <u>Lippitt</u>, <u>Northcove</u>, <u>Parker</u>, Slyco, <u>Watt</u> and <u>Wyoming</u> series were in the same family, but have not been classified to the 8th Edition of the Keys to Soil Taxonomy. Berks, Brownsville, Calvin, Cardiff, Highsplint, Lippitt, and Parker soils lack stratified materials in the lower part of the substratum. Konnarock(T), <u>Sylco</u>, and Watt soils have bedrock

within 40 inches. Wyoming soils have a weighted average of more than 50 percent sand coarser than very fine sand in the particle-size control section.

**GEOGRAPHIC SETTING:** Chenango soils are nearly level to very steep soils on outwash plains, alluvial fans, valley terraces and associated kames, eskers, and fluvial parts or moraines. Slope ranges from 0 to 60 percent. The soils formed in water-sorted gravelly and loamy drift. In some places the soils formed in alluvial deposits. The parent material is derived from gray sandstone, shale, and siltstone and lesser amounts of material from limestone and igneous rocks. Mean annual precipitation ranges from 30 to 42 inches, mean annual temperature ranges from 45 to 50 degrees F, and the mean annual frost-free season ranges from 130 to 180 days. Elevation ranges from 300 to 1,500 feet above sea level.

GEOGRAPHICALLY ASSOCIATED SOILS: Atherton, Braceville, Castile and Red Hook are wetter soils in the same drainage sequence. Tioga and Middlebury soils are on nearby flood plains. Allard and Unadilla soils are on nearby silt-mantled terraces. Lordstown, Mardin, and related soils are on adjoining uplands.

**DRAINAGE AND PERMEABILITY:** Well and somewhat excessively drained. The potential for surface runoff ranges from negligible to high. Permeability is moderate to moderately rapid in the solum and rapid in the substratum.

**USE AND VEGETATION:** Most lesser sloping areas have been cleared. They are used mainly for growing hay, corn, and small grains, but vegetables and grapes are important locally. More sloping areas are used mainly for growing pasture and hay. Woodlots contain sugar maple, red maple, American beech, ash, hemlock, and white pine in northernmost areas; oak and hickory are more conspicuous in the southern part of the series range.

**DISTRIBUTION AND EXTENT:** Central and southern New York, northern New Jersey and Pennsylvania, and northeastern Ohio. MLRA 100, 101,127,139, 140, 144A, 147, and 148. The series is extensive.

MLRA OFFICE RESPONSIBLE: Amherst, Massachusetts

**SERIES ESTABLISHED:** Reconnaissance Survey of Northern Pennsylvania, 1909.

**REMARKS:** Diagnostic horizons and other features recognized in the typical pedon are:

- 1) Ochric epipedon from 0 to 8 inches (Ap horizon).
- 2) Cambic horizon from 8 to 30 inches (Bw and BC horizons).

ADDITIONAL DATA: Characterization data is available for: 2 pedons from Tioga County, New York (S54NY-54-6 and S58NY-12-1); and 2 pedons from Pike County, Pennsylvania (S64PA-52-5 and S64PA-52-10).

LOCATION HOLLY Established Series Rev. RAR-JRS-LER 07/2005 OH IL NY PA WV

## **HOLLY SERIES**

The Holly series consists of very deep, very poorly and poorly drained soils formed in loamy alluvium on flood plains. Permeability is moderate or moderately slow in the solum and moderate or moderately rapid in the underlying material. Slope ranges from 0 to 2 percent. Mean annual precipitation is about 36 inches, and mean annual temperature is about 51 degrees F.

**TAXONOMIC CLASS:** Fine-loamy, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts

**TYPICAL PEDON:** Holly silt loam - idle. (Colors are for moist soil unless otherwise stated.)

- A-- 0 to 3 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; slightly acid; clear wavy boundary. (2 to 8 inches thick.)
- **Bg1--** 3 to 9 inches; dark gray (5Y 4/1) silt loam; weak medium subangular blocky structure; friable; common fine prominent brown (7.5YR 4/4) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.
- **Bg2--** 9 to 14 inches; dark gray (5Y 4/1) silt loam; weak coarse subangular blocky structure; friable; common medium prominent yellowish red (5YR 4/6) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.
- **Bg3--** 14 to 27 inches; gray (5Y 5/1) sandy loam; weak coarse subangular blocky structure; friable; common medium and fine prominent brown (7.5YR 4/4) and strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; slightly acid; clear wavy boundary. (Combined thickness of the Bg horizons is 10 to 32 inches.)
- C1-- 27 to 35 inches; gray (N 5/0) loam; massive; friable; common medium prominent yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; slightly acid; clear wavy boundary.
- **C2--** 35 to 43 inches; dark gray (N 4/0) sandy loam; massive; friable; slightly alkaline; clear wavy boundary.

**2C3--** 43 to 60 inches; dark greenish gray (5BG 4/1) gravelly sand; single grain; loose; slightly alkaline.

**TYPE LOCATION:** Summit County, Ohio; Bath Township, about 1 1/2 miles northwest of Montrose; 1,100 feet east of Hametown Road and 2,200 feet south of Granger Road, T. 3 N., R. 12 W. USGS West Richfield, OH topographic quadrangle: Latitude 41 degrees, 8 minutes, 57 seconds N. and Longitude 81 degrees, 39 minutes, 36 seconds W., NAD 1927.

**RANGE IN CHARACTERISTICS:** Thickness of the solum ranges from 20 to 44 inches. Thickness of loamy alluvium over other materials ranges from 40 to more than 60 inches. The average clay content in the particle size control section ranges from 18 to 30 percent.

The A or Ap horizon has hue of 10YR, value of 2 to 4 (6 or more dry), and chroma of 1 or 2. It is silt loam, loam, silty clay loam, or sandy loam. Structure is commonly weak or moderate, fine to coarse, granular. In some pedons structure type is subangular blocky. Rock fragment content ranges from 0 to 10 percent by volume. It ranges from strongly acid to neutral.

The Bg horizon has hue of 10YR, 2.5Y, 5Y, or is neutral; value of 4 to 6; and chroma of 2 or less. It commonly is silt loam or loam and less commonly sandy loam or silty clay loam. Thin layers (less than 4 inches) with coarser or finer texture are present in some pedons. Structure is weak or moderate, fine to coarse, subangular blocky. Rock fragment content ranges from 0 to 15 percent by volume. It ranges from strongly acid to neutral in the upper part and from moderately acid to neutral in the lower part.

The Cg horizon has hue of 10YR to 5GY or is neutral, value of 4 to 6, and chroma of 0 to 2. It commonly is silt loam, loam, sandy loam, or clay loam. Below 40 inches the soil typically is stratified and includes textures of loamy sand, sand, or their gravelly analogues. Thin strata of silty clay loam are in some pedons. Rock fragment content ranges from 0 to 25 percent by volume. It ranges from strongly acid to slightly alkaline.

**COMPETING SERIES:** The <u>Hatboro</u> series is in the same family. Hatboro soils have sola with thicknesses of 30 to 60 inches, and contain an appreciable amount of mica.

**GEOGRAPHIC SETTING:** Holly soils are on broad flat areas and in slight depressions on flood plains receiving alluvium from upland areas of low-lime drift and noncalcareous sandstone and shale. Slope ranges from 0 to 2 percent. Elevation ranges from 570 to 1,170 feet above msl. Mean annual precipitation is 29 to 43 inches, and mean annual temperature is 47 to 54 degrees F. The frost-free period is 120 to 198 days.

**GEOGRAPHICALLY ASSOCIATED SOILS:** These are the <u>Carlisle</u>, <u>Chagrin</u>, <u>Chili</u>, <u>Fitchville</u>, <u>Lobdell</u>, <u>Orrville</u>, <u>Sebring</u>, <u>Wayland</u>, <u>Wheeling</u>, and <u>Willette</u> soils. Wayland soils with dark surfaces and Carlisle or Willette soils that formed in organic materials typically are in deeper depressions in the landscape. The well drained Chagrin soils,

moderately well drained Lobdell soils, and somewhat poorly drained Orrville soils are in a toposequence with Holly soils; all are in higher floodplain positions than the low lying Holly soils. Chili, Fitchville, Sebring, and Wheeling soils have argillic horizons and are on terraces of nearby landscapes; in addition, Chili and Wheeling soils formed in stratified outwash materials, and Fitchville and Sebring soils formed in lacustrine sediments.

**DRAINAGE AND PERMEABILITY:** Very poorly and poorly drained. The potential for surface runoff is negligible to low. Permeability is moderate or moderately slow in the solum and moderate or moderately rapid in the underlying material. The depth to an intermittent apparent seasonal high water table is +1.0 to 1.0 from October to June in normal years. Subject to rare to frequent flooding.

**USE AND VEGETATION:** Some areas of Holly soils have been cleared and used for pasture or cultivation. Many areas are used as natural areas for wetland wildlife habitat. Native vegetation is soft maple, elder, willow, and other trees tolerant of wet sites.

**DISTRIBUTION AND EXTENT:** Illinois, Ohio, southern New York, northwestern Pennsylvania, and West Virginia. MLRA's 101, 114, 124, 125, 126, 127, 128, 139, 140, 147, and 148. The series is of large extent, about 248,000 acres.

MLRA OFFICE RESPONSIBLE: Amherst, Massachusetts.

**SERIES ESTABLISHED:** Coffee County, Tennessee, 1908.

**REMARKS:** Diagnostic horizons and features recognized in this pedon are:

- 1. Ochric epipedon 0 to 9 inches (A and Bg1 horizon).
- 2. Cambic horizon 3 to 27 inches (Bg1, Bg2 and Bg3 horizons).
- 3. Aguic conditions 0 to 60 inches.

Acreage based on 2004 data.

The alkaline phase mapped in an earlier survey likely will be recorrelated as a new series when its area of use is updated.

### **MORRIS SERIES**

The Morris series consists of very deep, somewhat poorly drained soils formed in till from red sandstone, siltstone, and shale. They have a dense fragipan layer that restricts root penetration and water movement. Slopes range from 0 to 25 percent. Mean annual precipitation is 41 inches, and mean annual temperature is 48 degrees F.

TAXONOMIC CLASS: Coarse-loamy, mixed, active, mesic Aeric Fragiaquepts

**TYPICAL PEDON:** Morris channery loam-woodland. (Colors are for moist soil unless otherwise noted.)

0e--0 to 1 inch; very dark brown (10YR 2/2) humus mat overlain by thin leaf litter.

A--1 to 5 inches; dark grayish brown (10YR 4/2) channery loam; moderate medium granular structure; friable, nonsticky, nonplastic; many roots; 25 percent rock fragments; very strongly acid; clear wavy boundary. (1 to 8 inches thick)

**Bw1**--5 to 9 inches; brown (7.5YR 4/4) channery loam; moderate fine subangular blocky structure; friable; nonsticky, nonplastic; many roots; 20 percent rock fragments; few medium faint brown (10YR 5/3) redoximorphic depletions; very strongly acid; clear wavy boundary.

**Bw2**--9 to 16 inches; pinkish gray (7.5YR 6/2) channery loam; weak medium subangular blocky structure; friable; nonsticky, nonplastic; common roots; 20 percent rock fragments; common medium distinct light brown (7.5YR 6/4) redoximorphic concentrations and gray (N 5/0) redoximorphic depletions; very strongly acid; clear wavy boundary. (Combined thickness of the Bw horizons is 6 to 20 inches.)

**Bx1**--16 to 43 inches; brown (7.5YR 4/4) channery loam; gray (N 6/0) faces of prisms; moderate very coarse prismatic structure parting to weak medium platy and blocky; very firm, brittle, slightly sticky, slightly plastic; few roots along prisms; common faint clay film in pores and few faint clay films on faces of peds; 15 percent rock fragments; common medium distinct gray (N 6/0) redoximorphic depletions; strongly acid; diffuse wavy boundary. (15 to 40 inches thick)

**Bx2**--43 to 66 inches; reddish gray (5YR 5/2) channery loam; gray (N 6/0) faces of prisms; moderate very coarse prismatic structure parting to moderate thick platy; few faint clay films in pores and few faint clay films on faces of peds; common faint black coatings on plates; 25 percent rock fragments; common medium distinct gray (N 6/0) redoximorphic depletions and light brown (7.5YR 6/4) redoximorphic concentrations; strongly acid.

**TYPE LOCATION:** Pike County, Pennsylvania; Blooming Grove Township, 1 1/4 miles west of village of Blooming Grove.

**RANGE IN CHARACTERISTICS:** Solum thickness is greater than 40 inches. Depth to the fragipan ranges from 10 to 22 inches. Depth to bedrock is 60 inches or more. Rock fragments of angular or rounded sandstone, siltstone or shale range from 10 to 40 percent in the A and Bw horizons, and from 15 to 50 percent in the Bx and C horizons. They average less than 35 percent in the control section. Reaction ranges from very strongly acid to moderately acid in the upper part of the solum, and strongly acid to slightly acid in the lower part of the solum.

The A or Ap horizon has hue of 5YR through 10YR, value of 3 through 5, and chroma of 1 through 4. In uncultivated areas, the A horizon has hue of 5YR through 10YR, value of 2

through 4, and chroma of 1 or 2. Some pedons have an E horizon with hue of 5YR through 10YR, value of 3 through 6, and chroma of 2 or 3. Texture of the fine-earth fraction is loam or silt loam.

The Bw horizon above 20 inches has hue of 5YR through 10YR, value of 3 through 7, and chroma of 1 through 6. Texture of the fine-earth fraction is loam or silt loam. Some pedons have Bg of Eg horizons above the fragipan. The B horizon has redoximorphic features having chroma of 2 or less, or has chroma of 1 or less if redoximorphic features are absent within a depth of 20 inches from the surface. A subhorizon, from about 6 to 30 inches, has in 50 percent or more of the matrix chroma of 3 or more, or chroma of 2 if there are no redoximorphic concentrations.

The Bx horizon has hue of 2.5YR through 7.5YR, value of 3 through 5, and chroma of 2 through 6. Faces of prisms range in hue from 2.5YR through 10YR, value from 5 through 7, and chroma from 1 through 3. Texture of the fine-earth fraction is loam, silt loam, or silty clay loam.

Some pedons have a C horizon colors are similar to the Bx horizon. Texture of the fine-earth fraction is loam or silt loam.

**COMPETING SERIES:** The <u>Scriba</u> series is currently the only soil in the same family. Scriba soils have more than 45 percent sand in the particle-size control section. The <u>Rexford</u> series was in the same family, but has not been classified for CEC activity class. Rexford soils have stratified materials in the series control section.

**GEOGRAPHIC SETTING:** Morris soils are in till plains and slightly concave uplands. Slopes are dominantly 2 to 15 percent but range from about 0 to 25. The soils formed in firm glacial till derived from reddish sandstone, siltstone and shale. Mean annual precipitation ranges from 32 to 50 inches; mean air temperature ranges from 46 degrees to 50 degrees F.; and the frost free period ranges from about 120 to 165 days. Elevation ranges from 300 to 1700 feet above sealevel.

**GEOGRAPHICALLY ASSOCIATED SOILS:** These are the <u>Norwich, Wellsboro</u>, and <u>Lackawanna</u> soils which are in a drainage sequence with Morris soils. Lackawanna soils do not have redoximorphic features above the fragipan. Norwich soils are poorly drained and occur in nearby lower depressions or flat broader areas of the till plain. <u>Arnot, Lordstown</u>, and <u>Oquaga</u> soils are on nearby bedrock controlled landforms. These soils have bedrock within 40 inches of the surface.

**DRAINAGE AND PERMEABILITY:** Somewhat poorly drained. The potential for surface runoff ranges from very low through medium. Permeability above the fragipan is moderate and is slow or very slow in the fragipan.

**USE AND VEGETATION:** Many areas have been cleared but much is now idle. Hay, pasture, and small grains are the principal crops, but some areas are cropped to corn. Red maple, elm, hemlock, black ash, sugar maple, white pine, and oaks are the dominant trees in wooded areas.

**DISTRIBUTION AND EXTENT:** Southern New York, northern Pennsylvania, and northwestern New Jersey. MLRA's 127 and 140. The series is of moderate extent.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Amherst, Massachusetts

**SERIES ESTABLISHED:** Chenango River Project, New York, 1936.

**REMARKS:** Diagnostic horizons and features recognized in this pedon are:

- 1. Ochric epipedon the zone from the surface to a depth of about 5 inches (A horizon).
- 2. Cambic horizon the zone from 5 inches to a depth of 16 inches (Bw1 and Bw2 horizons).
- 3. Fragipan the zone from 16 inches to a depth of about 66 inches (Bx1 and Bx2 horizons).
- 4. Aquepts Suborder the zone from 9-16" (Bw2 horizon) faces of peds are 2 chroma with redox concentrations
- 5. Aeric Subgroup chroma of 3 or more in 50 percent or more of the matrix in a horizon between the Ap and a depth of 30 inches (Bx1 horizon)

Soil Interpretation Record No: PA0018, PA0019

LOCATION OQUAGA Established Series Rev. LWK-OWR-STS 03/2003 NY NJ PA

## **OQUAGA SERIES**

The Oquaga series consists of moderately deep, somewhat excessively drained soils formed in a thin mantle of till over sandstone, siltstone, and shale bedrock on nearly level to very steep uplands. Slope ranges from 0 to 70 percent. Permeability is moderate. Mean annual air temperature is 49 degrees F. and mean annual precipitation is 42 inches.

TAXONOMIC CLASS: Loamy-skeletal, mixed, superactive, mesic Typic Dystrudepts

**TYPICAL PEDON:** Oquaga very channery silt loam, forested. (Colors are for moist soil.)

**A--** 0 to 4 inches; dark reddish brown (5YR 3/3) very channery silt loam, light reddish brown (5YR 6/3) dry; weak fine subangular blocky structure; very friable; many fine, common medium and coarse roots; 40 percent rock fragments; strongly acid; clear smooth boundary. (2 to 5 inches thick.)

**Bw1--** 4 to 11 inches; dark red (2.5YR 3/6) and red (2.5YR 4/6) very channery loam; weak coarse subangular blocky structure parting to fine granular structure; very friable; many fine, common medium and coarse roots; many fine irregular pores; 36 percent coarse fragments; strongly acid; clear wavy boundary.

**Bw2--** 11 to 28 inches; reddish brown (2.5YR 4/4) very channery loam; weak medium subangular blocky structure; very friable; many fine and few medium roots in the upper part of the horizon, many fine roots in the lower part; many fine irregular pores; 45 percent rock fragments; strongly acid; gradual wavy boundary. (Combined thickness of the Bw horizon is 16 to 32 inches.)

**BC**-- 28 to 34 inches; reddish brown (2.5YR 4/4) and dark reddish brown (2.5YR 3/4) very channery loam; massive; friable; few medium roots; 45 percent rock fragments; strongly acid; abrupt smooth boundary. (0 to 6 inches thick.)

**2R--** 34 inches plus; weak red (10R 4/3) thinly bedded shale bedrock.

**TYPE LOCATION:** Sullivan County, New York; Town of Bethel, 0.35 mile west on NY Rte. 17B from the intersection of route 17B and White Lake Road, then 0.35 miles north and 0.25 miles west on a gravel road; Elevation 1400 feet. USGS Bethel, NY topographic quadrangle; Latitude 41 degrees, 40 minutes, 51 seconds N. and Longitude 74 degrees, 51 minutes, 01 second W. NAD 1927.

**RANGE IN CHARACTERISTICS:** Depth to bedrock ranges from 20 to 40 inches. Content of rock fragments ranges from 15 to 60 percent in surface horizons and from 25 to 85 percent in individual layers in the remainder of the soil. Unless limed, reaction ranges from extremely acid to moderately acid throughout the soil.

Some pedons have a thin O horizon.

The A or Ap horizon has hues ranging from 2.5YR to 10YR, values of 2.5 to 5, and chromas of 2, 3 or 4. Dry color value is 6 or more. It is channery or very channery, and the fine earth fraction is silt loam, loam, or sandy loam. It has granular or subangular blocky structure, and very friable or friable consistence. Some pedons have an E horizon at a depth of less than 5 inches.

The Bw horizon has hues of 2.5YR to 7.5YR, values of 3 to 6, and chromas of 3 to 8. The fine earth fraction is silt loam or loam. It has weak or very weak granular or subangular blocky structure and very friable to firm consistence.

The BC horizon has properties similar to the B and C horizons.

The C or 2C horizon, when present, have hues of 10R to 7.5YR, values of 3 to 5, and chromas of 2 to 4. It is sandy loam, loam or silt loam in the fine earth fraction. It is massive, with or without plate-like divisions.

**COMPETING SERIES:** The <u>Chamate</u>, <u>Chenango</u>, and <u>Tunkhannock</u> series are in the same family. Chamate soils are developed in residuum or colluvium. Chenango and Tunkhannock soils are very deep.

**GEOGRAPHIC SETTING:** Oquaga soils are in uplands and formed in a thin mantle of reddish till with lithology dominated by the local and underlying reddish sandstone, siltstone, and shale. Slope ranges from 0 to 70 percent. The climate is humid and temperate. Mean annual precipitation ranges from 35 to 50 inches; mean annual air temperature from 46 degrees to 52 degrees F., and mean growing season from 120 to 180 days.

**GEOGRAPHICALLY ASSOCIATED SOILS:** These are the shallow <u>Arnot</u> and <u>Tuller</u> soils and the very deep <u>Lackawanna</u>, <u>Wellsboro</u>, and <u>Morris</u> soils.

**DRAINAGE AND PERMEABILITY:** Somewhat excessively drained. Internal drainage is medium. The potential for surface runoff is negligible to very high. Permeability is moderate or moderately rapid.

**USE AND VEGETATION:** Most of the soil is forested or used for unimproved native pasture. Hay, small grains, and corn are produced on the gentler slopes. Native vegetation is sugar maple, beech, white pine, white ash, oak and hemlock.

**DISTRIBUTION AND EXTENT:** Southern New York, northern Pennsylvania, and northwestern New Jersey. MLRA 127, 140, and 144A. The series is extensive with an estimated more than 100,000 acres.

MLRA OFFICE RESPONSIBLE: Amherst, Massachusetts

SERIES ESTABLISHED: Allegany County, New York, 1946.

**REMARKS:** A new pedon was selected since the Allegany Co. pedon may no longer fit the series concept. This series was used in MLRA 127. The use of a series with glacial parent material in MLRA 127 is questionable.

Diagnostic horizons and other features recognized in the typical pedon are:

- 1. Udic soil moisture regime (a humid, temperate climate).
- 2. Ochric epipedon from 0 to 4 inches (A horizon)
- 3. Cambic horizon from 4 to 28 inches (Bw and BC horizons)

Characterization data is available for 1 pedon from Sullivan Co. NY (S79NY105 9).

LOCATION POPE
Established Series
Rev. JHN-SJH-DBD-DHK-JDM
10/2005

KY+AL GA IN MD MO NJ NY OH PA TN VA WV

### POPE SERIES

The Pope series consists of very deep, well drained soils formed in alluvium on flood plains. Permeability is moderate or moderately rapid. Slopes range from 0 to 4 percent. Mean annual precipitation is about 48 inches and mean annual air temperature is about 53 degrees F. near the type location.

TAXONOMIC CLASS: Coarse-loamy, mixed, active, mesic Fluventic Dystrudepts

**TYPICAL PEDON:** Pope fine sandy loam, in a cultivated field on a nearly level flood plain. (Colors are for moist soil unless otherwise stated.)

**Ap**--0 to 8 inches; brown (10YR 4/3) fine sandy loam; moderate medium granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary. (4 to 12 inches thick)

**Bw1--**8 to 26 inches; dark yellowish brown (10YR 4/4) fine sandy loam; few faint brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; very friable; common fine roots; few fine pores; very strongly acid; gradual wavy boundary.

**Bw2--**26 to 42 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine and medium subangular blocky structure; very friable; few very fine roots; few fine pores; very strongly acid; gradual wavy boundary. (Combined thickness of the Bw horizon is 16 to 50 inches)

C--42 to 85 inches; dark yellowish brown (10YR 4/4) fine sandy loam; single grain; loose; few thin layers of sandy loam and loamy sand; very strongly acid.

**TYPE LOCATION:** Rowan County, Kentucky on Craney Creek; 0.4 mile east of the hamlet of Craney and 50 feet north of Craney Creek about 1/4 mile northeast of its confluence with the North Fork of the Licking River; 38 degrees, 04 minutes, 05 seconds N. latitude and 82 degrees, 20 minutes and 55 seconds W. Longitude; NAD 1983.

**RANGE IN CHARACTERISTICS:** Thickness of the solum ranges from 30 to 60 inches. Depth to bedrock is more than 60 inches. Rock fragments, mostly sandstone gravels and channers, range from 0 to 30 percent in the solum and 0 to 75 percent in the substratum. Reaction ranges from strongly acid through extremely acid, unless limed.

The Ap or A horizons have hue of 10YR, value of 3 to 6 and chroma of 3 to 6. If value is 3, dry color is 6 or more. Fine-earth texture is fine sandy loam, sandy loam, loam, or silt loam.

The Bw horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6. Some pedons have iron depletions with chroma of 2 or less below 40 inches. Fine-earth texture is sandy loam, fine sandy loam, very fine sandy loam, loam or silt loam.

The C or 2C horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6. Some pedons have iron depletions with chroma of 2 or less. Fine-earth texture is loamy sand, loamy fine sand, fine sandy loam, sandy loam, loam, or sandy clay loam, or stratified layers of these textures. Some pedons have stratified sand layers below 40 inches.

COMPETING SERIES: The Comus and Linden series are members of the same family. Comus soils formed in alluvium high in mica. Linden soils allow 5YR or redder hue in the Bw horizon. Linden soils have redder colors in the solum. Series in closely related families are McNulty, Occum and Wenonah. These soils are all in a superactive CEC activity class. Additionally, McNulty soils occur in areas where mean annual precipitation ranges from 60 to 90 inches. Occum soils formed in alluvium derived mostly from gneiss, granite and schist. Wenonah soils formed in post glacial alluvium from glacial drift and contain more feldspars and weatherable minerals.

**GEOGRAPHIC SETTING:** Pope soils are on flood plains with slopes mainly less than 4 percent. They formed in alluvium weathered from Pennsylvanian aged acid sandstone, siltstone, and shale. Near the OSD site average annual air temperature ranges from 48 to 57 degrees F. and the average annual precipitation from 42 to 54 inches.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Allegheny, Atkins, Clymer, Cotaco, Cuba, Gilpin, Jefferson, Matewan, Monongahela, Morehead, Muskingum, Philo, Rowdy, Shelocta and Stendal series. Allegheny, Atkins, Cotaco, Gilpin, Jefferson, Monongahela, Muskingum, Rowdy and Shelocta soils are fine-loamy. Cuba, Morehead and Stendal soils are fine-silty. Allegheny, Clymer, Cotaco, Gilpin, Jefferson, Monongahela and Shelocta soils have argillic horizons. Atkins soils are poorly drained. Cotaco and Morehead soils are moderately well or somewhat poorly drained. Monongahela and Philo soils are moderately well drained. Stendal soils are somewhat poorly drained. Gilpin, Matewan and Muskingum soils are moderately deep to bedrock. Monongahela soils have fragipans.

**DRAINAGE AND PERMEABILITY:** Well drained; runoff class is negligible to low and permeability is moderate or moderately rapid. Flooding frequency is normally rare or occasional, but some areas flood frequently. Seasonal high water table is greater than 6 feet.

**USE AND VEGETATION:** Largely cultivated to corn, sorghum, small grains, tobacco, hay, pasture and vegetables. Native vegetation is mixed, deciduous hardwood forests of mainly tulip poplar, white oak, river birch, sycamore, beech and hickory.

**DISTRIBUTION AND EXTENT:** Pope soils are found mainly in MLRAs 124, 125, 126, 128 and 116B, consisting of mountain and plateau areas of Kentucky, Georgia, Maryland, Missouri, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia. Pope soils are also mapped less extensively in Alabama, Indiana, New Jersey and New York. The extent is large.

MLRA OFFICE RESPONSIBLE: Lexington, Kentucky

**SERIES ESTABLISHED:** Pope County, Arkansas; 1913.

**REMARKS:** Pope soils were classified in the Alluvial great soil group in the 1938 classification system. The 7/99 and 12/99 revisions update Pope to 8th edition standards. The CEC activity class placement is based on similar geographically associated soils such as Philo and Stendal. Competing series were also updated.

10/05 revision added location data and a review of over 40 pedons in KY that revealed only 2 instances of 7.5YR color in the Bw horizon, confirming that Pope is centered on the more yellow hues that differentiate it from the Linden Series.

Diagnostic horizons recognized in this pedon are:

Ochric epipedon: The zone from 0 to 8 inches (Ap horizon)

Cambic horizon: The zone from 8 to 42 inches (Bw1 and Bw2 horizons) MLRAs: 115, 116B, 124, 125, 126, 127, 128, 140, 144A, 147, 148, 149A

Revised: 4/94-JHN, WHC, JMR; 7/99-SJH, DBD; 12/99-BAW, DHK; 10/05 JDM

LOCATION REXFORD Established Series Rev. BHC-GDM 1/87 PA

## **REXFORD SERIES**

The Rexford series consists of very deep, somewhat poorly drained to poorly drained soils on terraces and moraines. They formed in glacial outwash or stream terraces derived mainly from sandstone and shale. Slopes range from 0 to 15 percent.

**TAXONOMIC CLASS:** Coarse-loamy, mixed, mesic Aeric Fragiaquepts

**TYPICAL PEDON:** Rexford silt loam-cultivated. (Colors are for moist soil.)

**Ap**--0 to 8 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable, slightly sticky, slightly plastic; many fine roots; 10 percent rock fragments; slightly acid, abrupt wavy boundary. (6 to 10 inches thick)

**Bw**--8 to 12 inches; yellowish brown (10YR 5/4) loam; common fine distinct grayish brown (10YR 5/2) mottles; weak fine subangular blocky structure; friable, slightly sticky, slightly plastic; many fine roots; 10 percent rock fragments; moderately acid; clear wavy boundary. (2 to 6 inches thick)

**Bg--12** to 17 inches; grayish brown (10YR 5/2) loam; common fine distinct yellowish brown (10YR 5/6) mottles; weak fine and medium subangular blocky structure; firm, slightly sticky, slightly plastic; common very fine roots; 10 percent rock fragments; moderately acid; gradual wavy boundary. (3 to 12 inches thick)

**2Bx1--**17 to 30 inches; brown (7.5YR 5/4) gravelly loam; many fine distinct gray (10YR 6/1) and strong brown (7.5YR 5/6) mottles; moderate very coarse prismatic structure parting to moderate medium and thick platy; very firm, brittle, slightly sticky, slightly plastic; few faint clay films in pores; 25 percent rock fragments; strongly acid; gradual wavy boundary. (8 to 20 inches thick)

**2Bx2--**30 to 38 inches; dark brown (7.5YR 4/4) gravelly loam; many coarse prominent light gray (10YR 7/2) and strong brown (7.5YR 5/8) mottles; moderate very coarse prismatic structure parting to moderate thick platy and weak fine subangular blocky; very firm, brittle, slightly sticky, slightly plastic; very few faint clay films in pores; 15 percent rock fragments; strongly acid; abrupt wavy boundary. (5 to 12 inches thick)

**2C1--**38 to 44 inches; brown (10YR 5/3) very gravelly sandy loam; massive; firm, nonsticky, nonplastic; 40 percent gravel; strongly acid; abrupt wavy boundary. (0 to 30 inches thick)

**2C2-**-44 to 60 inches; olive brown (2.5Y 4/4) stratified sand and gravel; single grain; loose; strongly acid.

**TYPE LOCATION:** Tioga County, Pennsylvania; Covington Township, about 3 1/2 miles south of Mansfield, about 0.4 miles east of intersection of PA 660 and US 15.

**RANGE IN CHARACTERISTICS:** Solum thickness ranges from 24 to 50 inches. Depth to bedrock is more than 60 inches. Depth to stratified sand and gravel ranges from 35 to 72 inches. Depth to the fragipan ranges from 15 to 24 inches. Rock fragments range from 0 to 40 percent in A, B and Bx horizons and from 15 to 75 percent in the C horizon. Unlimed, the reaction ranges from very strongly to moderately acid above the fragipan and from strongly to slightly acid in the C horizon.

The A horizon has hue of 7.5YR through 2.5Y, value of 3 or 4, and chroma of 1 or 2. It is sandy loam, loam or silt loam in the fine-earth.

The B horizons have hue of 7.5YR through 2.5Y, value of 4 through 6, and dominant chromas of 1 or 2, with individual horizons with chroma 3 to 6 and are mottled. The Bw horizon of some pedons are free of mottling. The B horizons above the fragipan are sandy loam, loam or silt loam in the fine-earth.

The Bx horizons have hue of 5YR through 5Y, value of 4 through 6, and chroma of 1 through 4. They have both high and low chroma mottles. They are sandy loam, loam, or silt loam in the fine-earth. The secondary structure in some pedon is subangular blocky.

The C horizon has hue of 5YR through 5Y, value of 4 or 5, and chroma of 3 to 6. It is silt loam, loam or sandy loam in the fine-earth and ranges to stratified sand and gravel.

**COMPETING SERIES:** The Morris and Scriba series are in the same family. The Morris and Scriba soils do not have stratified material within the series control section.

Atherton, Braceville, Erie, Fredon, Halsey, Phelps, Red Hook and Volusia series are in related families. Atherton, Fredon, Halsey, Phelps and Red Hook soils do not have fragipans. Braceville soils do not have dominant chroma of 2 or less on ped faces within a depth of 20 inches. The Erie and Volusia soils have more than 18 percent clay within the series control section.

**GEOGRAPHIC SETTING:** Rexford soils are on nearly level to strongly sloping glacial outwash or stream terraces and water sorted moraines. Slopes range from 0 to 15 percent. The soils developed in water sorted materials derived largely from gray sandstone and shale. Climate is humid temperature with mean annual precipitation of 34 to 45 inches; mean annual temperature ranges from 45 to 52 degrees F., and the frost-free season ranges from 120 to 170 days.

GEOGRAPHICALLY ASSOCIATED SOILS: <u>Atherton</u>, <u>Braceville</u>, <u>Fredon</u>, <u>Halsey</u>, <u>Phelps</u>, <u>Red Hook</u>, <u>Alton</u>, <u>Chenango</u>, <u>Howard</u> and <u>Tunkhannock</u> soils are formed in

glacial outwash and the  $\underline{Barbour}$ ,  $\underline{Pope}$  and  $\underline{Tioga}$  soils are on nearby floodplains. None of these soils have fragipans.

**DRAINAGE AND PERMEABILITY:** Somewhat poorly drained to poorly drained. Runoff is slow to medium; permeability is slow in the fragipan.

**USE AND VEGETATION:** Most areas are cleared and used for hay and grain crops and pasture. Smaller areas are woodlands with stands dominantly of mixed northern hardwoods.

**DISTRIBUTION AND EXTENT:** Pennsylvania. The series is of moderate extent.

MLRA OFFICE RESPONSIBLE: Amherst, Massachusetts

**SERIES ESTABLISHED:** Venango County, Pennsylvania, 1971.

**REMARKS:** The Rexford soils were formerly in the Red Hook and Fredon series.

### WAYLAND SERIES

The Wayland series consists of very deep, poorly drained and very poorly drained, nearly level soils formed in recent alluvium. These soils are in low areas or slackwater areas on flood plains. Saturated hydraulic conductivity is moderately high or high in the mineral soil. Slope ranges from 0 through 3 percent. Mean annual temperature is 49 degrees F. and mean annual precipitation is 36 inches.

**TAXONOMIC CLASS:** Fine-silty, mixed, active, nonacid, mesic Fluvaquentic Endoaquepts

**TYPICAL PEDON:** Wayland silt loam, on a 1 percent slope in a pasture of native grasses. (Colors are for moist soil.)

**A--** 0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam; light brownish gray (10YR 6/2) dry; strong medium and coarse granular structure; friable; common fine prominent yellowish brown (10YR 5/8) masses of iron accumulation within old root channels; neutral; clear smooth boundary (4 to 9 inches thick.)

- **Bg1**-- 6 to 12 inches; dark grayish brown (10YR 4/2) silt loam; weak fine and medium subangular blocky structure; friable; slightly sticky; many fine roots in upper part; common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; slightly acid; clear smooth boundary.
- **Bg2--** 12 to 18 inches; grayish brown (10YR 5/2) silt loam; weak fine and medium subangular blocky structure; friable; slightly sticky; many fine roots in upper part; common medium distinct yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; slightly acid; clear wavy boundary. (Combined thickness of the Bg horizon ranges from 12 to 24 inches thick.)
- **C1**-- 18 to 46 inches; gray (5Y 5/1) silt loam; massive; friable; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; neutral; abrupt wavy boundary.
- **C2**-- 46 to 72 inches; gray (5Y 6/1) silty clay loam; massive; firm in place, slightly plastic; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; slightly effervescent; slightly alkaline.

**TYPE LOCATION:** Chautauqua County, New York; in the town of Kiantone; 1/4 mile south of the intersection of U.S. Highway 62 and New York State Route 60, 1/4 mile east of U.S. Highway 62. USGS Jamestown, NY topographic quadrangle; Latitude 42 degrees, 03 minutes, 06 seconds N. and Longitude 79 degrees, 11 minutes, 38 seconds W., NAD 1927.

**RANGE IN CHARACTERISTICS:** Thickness of the solum ranges from 15 through 30 inches. Thickness of the silty deposits over stratified materials ranges from 36 inches through more than 60 inches. Bedrock is deeper than 60 inches. Depth to carbonates ranges from 24 through 60

inches. Rock fragments are commonly absent but can range up to 5 percent by volume within a depth of 36 inches and from 0 through 30 percent below depths of 36 inches. Rock fragments are mostly gravel or cobbles.

The A or Ap horizon has hue of 10YR or 2.5Y, value of 2 through 4, and chroma of 1 or 2, or it is neutral. It is fine sandy loam, silt loam or silty clay loam with or without mucky analogs. It has moderate or strong, fine through coarse, granular or subangular blocky structure. Reaction ranges from strongly acid through neutral. Thickness of the A horizon ranges from 2 through 6 inches.

The B horizon, up to 24 inches thick, has hue of 7.5YR through 5Y, value of 3 through 6, and chroma of 0 through 2. The texture is silt loam or silty clay loam. Structure is weak or moderate, fine, medium, or coarse subangular blocky through weak or moderate, coarse prismatic. Consistence is friable or firm and usually contains high chroma redoximorphic features. Reaction ranges from strongly acid through neutral.

The C horizon has hue of 7.5YR through 5Y or has gleyed hues including 5BG, 5GY, and 5G, with value of 3 through 6, and chroma of 1 or 2, or the horizon is neutral. It is silt loam or silty clay loam. The C horizon is massive. It is friable or firm and usually contains high chroma redoximorphic features. Reaction ranges from strongly acid through moderately alkaline.

The 2C horizon, where present, has color ranges similar to the C horizon. Texture ranges from fine sandy loam through silty clay loam in the fine-earth fraction. Reaction ranges from moderately acid through moderately alkaline.

**COMPETING SERIES:** The Melvin, Rahm, and Stanhope series are in the same family. Melvin soils have a mean annual temperature of greater than 50 degrees and are formed in alluvium of non-glacial origin. Rahm soils have a buried acid paleosol within 40 inches. Stanhope soils lack carbonates within 60 inches.

The <u>Aetna</u>, <u>Atkins</u>, <u>Holderton</u>, <u>Saco</u>, <u>Shoals</u>, <u>Sloan</u>, <u>Stendal</u>, <u>Wakeville</u>, and <u>Wyalusing</u> series are similar soils in related families. Aetna soils have a buried mollic epipedon. Atkins and Stendal soils are strongly acid throughout; in addition, Atkins soils have a fine-loamy particle-size control section. Holderton soils have a coarse-loamy particle-size control section, Wakeville soils have a coarse-silty particle-size control section, and both soils have dominant chroma of 3 or more in a subhorizon between 10 and 30 inches. Saco and Shoals soils have a coarse-silty particle-size control section. Sloan soils have a mollic epipedon. Wyalusing soils have a coarse-loamy over sandy or sandy skeletal particle-size control section.

**GEOGRAPHIC SETTING:** Wayland soils are on nearly level or depressed parts of flood plains of streams receiving runoff from uplands that contain some calcareous drift. They are mainly in or bordering areas of Wisconsin glaciation. Slope ranges from 0 through 3 percent. The climate is humid temperate. Mean annual precipitation ranges from 30 through 45 inches; mean annual temperature ranges from 47 through 50 degrees F., and mean frost-free period ranges from 110 through 160 days. The elevation ranges from 150 through 1700 feet above sea level.

**GEOGRAPHICALLY ASSOCIATED SOILS:** These are the <u>Chenango</u>, <u>Hamlin</u>, <u>Howard</u>, <u>Middlebury</u>, <u>Palmyra</u>, <u>Teel</u>, <u>Tioga</u>, and <u>Wakeville</u> series. Chenango, Howard, and Palmyra soils do not have aquic moisture regimes and formed in adjacent gravelly outwash deposits. Well drained Hamlin, moderately well drained Teel, and somewhat poorly drained Wakeville soils are in a drainage sequence with Wayland soils. Middlebury and Tioga soils also formed in alluvial deposits but do not have aquic moisture regimes and have coarse-loamy particle-size control sections.

**DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY:** Poorly and very poorly drained. The potential for surface runoff is negligible to very high. Saturated hydraulic conductivity is moderately high or high in the mineral soil. An apparent water table is at the surface or to a depth of 0.5 feet below the surface with occasional ponding.

**USE AND VEGETATION:** Native vegetation is red maple, alder, willow, and other trees tolerant of wet sites. Some areas have been cleared and drained, and are used for growing pasture or crops.

**DISTRIBUTION AND EXTENT:** Southern and western New York, northern Pennsylvania and north-eastern Ohio. MLRA's 101, 139, 140, 142 and 144A. The soils are of large extent.

MLRA OFFICE RESPONSIBLE: Amherst, Massachusetts

**SERIES ESTABLISHED:** Steuben County, New York, 1931.

**REMARKS:** Wayland series were classified as Entisols and classified to Mollic Fluvaquents. Most pedons have a B horizon and those pedons with a B horizon will now classify as Inceptisols and classified to Fluvaquentic Endoaquepts to the eighth edition. Older surveys using Wayland series need to consider which classification is suitable for their surveys.

Diagnostic horizons and other features recognized in this pedon are:

- 1. Ochric epipedon the zone from 0 to 6 inches (A horizon).
- 2. Cambic horizon the zone from 6 to 18 inches (Bg horizons).

LOCATION WEIKERT
Established Series
Rev. AWD-WRK-REP-ART
05/2004

PA+IN KY MD OH VA WV

### WEIKERT SERIES

The Weikert series consist of shallow, well drained soils formed in material that weathered from interbedded gray and brown acid shale, siltstone, and fine-grained sandstone on gently sloping to very steep areas on uplands. Slope ranges from 0 to 100 percent. Permeability is moderately rapid. Mean annual precipitation is about 42 inches, and the mean annual air temperature is about 52 degrees F.

**TAXONOMIC CLASS:** Loamy-skeletal, mixed, active, mesic Lithic Dystrudepts

**TYPICAL PEDON:** Weikert channery silt loam, in a cultivated field on 8 to 15 percent slopes. (Colors are for moist soil unless otherwise noted.)

**Ap--0** to 7 inches; brown (10YR 4/3) channery silt loam; weak fine granular structure; friable, nonsticky and nonplastic; many fine and medium roots; 30 percent angular and subangular shale channers; strongly acid, clear smooth boundary. (5 to 9 inches thick)

**Bw**--7 to 14 inches; yellowish brown (10YR 5/4) very channery silt loam; weak fine subangular blocky structure; friable, nonsticky and nonplastic; common fine roots; 50 percent angular and subangular shale channers; strongly acid; gradual wavy boundary. (3 to 12 inches thick)

C--14 to 18 inches; yellowish brown (10YR 5/4) extremely channery silt loam; massive; friable; nonsticky and nonplastic; few fine roots; common distinct sily and clay deposits on channers; 70 percent angular and subangular shale channers; very strongly acid; clear wavy boundary. (0 to 8 inches thick)

**R**--18 inches; dark gray (10YR 4/1) fractured acid shale and siltstone bedrock.

**TYPE LOCATION:** Franklin County, Pennsylvania; Hamilton Township, 3 miles west of Chambersburg, 2000 feet west of the intersection of Pennsylvania routes 4008 and 4010, 1000 feet south of route 4008; Chambersburg, PA topographic quadrangle; Latitude 39 degrees, 57 minutes, and 46 seconds N. and Longitude 77 degrees, 44 minutes, and 3 seconds W. NAD 27

**RANGE IN CHARACTERISTICS:** Solum thickness ranges from 8 to 20 inches. Depth to bedrock ranges from 10 to 20 inches. Rock fragments range from 5 to 50 percent in the A or Ap horizon, from 35 to 60 percent in the Bw horizon, and from 60 to 85 percent in the C horizon. The sand fraction and rock fragments have a low content of feldspars,

hydrobiotite, and chlorite. Unlimed reaction ranges from moderately acid to very strongly acid in the A or Ap horizon and moderately acid to extremely acid in the Bw and C horizons.

The A or Ap horizon has hue of 7.5YR or 10YR, value of 3 through 5, and chroma of 2 through 4. Texture is silt loam, or channery or very channery silt loam. Undisturbed pedons have a thin dark A horizon underlain by a 2 to 5 inch thick yellowish brown E horizon.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 through 6, and chroma of 3 through 6. Texture is very channery silt loam or very channery loam. The fine-earth fraction has about 10 to 25 percent clay, 40 to 60 percent silt, and 20 to 40 percent sand. Structure of the Bw is weak or moderate, fine or medium subangular blocky. Moist consistence is friable or very friable, nonsticky or slightly sticky, and nonplastic or slightly plastic.

The C horizon has hue of 7.5YR, 10YR, or 2.5Y, value of 4 through 6, and chroma of 3 through 8. Texture is extremely channery silt loam or extremely channery loam with common interstitial pores. The fine-earth fraction is much like the horizon above but has massive or platy bedrock controlled structure.

Some pedons have a Cr horizon beginning at depths of less than 20 inches. Fractures are less than 4 inches apart but displacement of the pieces is rare. Some of the fragments are coated with silt films.

The R consists of shale, siltstone, fine-grained sandstone, or alternate beds of such material. The bedrock is sometimes fractured.

**COMPETING SERIES:** These are the Arnot, Klinesville, Nassau, and Sylvatus series in the same family. Arnot and Nassau soils are formed in a thin mantle of glacial till or congeliturbate. Arnot and Nassau soils appear similar in the field but analytical data show 10 to 40 percent of the clay fraction of Weikert is kaolinite, whereas this mineral is lacking in the Arnot and Nassau soils. Sylvatus soils contain fragments of metasediments, primarily phyllite and slate. Klinesville soils have inherited hues redder than 7.5YR.

<u>Bugley</u>, <u>Rohan</u>, and <u>Unicoi</u> are a related family. They are all semiactive. In addition, Bugley soils have rock fragments of schist in the solum. Rohan soils have carbonaceous bedrock. Unicoi soils have a much higher content of feldspar, hydrobiotite, and chlorite in the sand fraction.

**GEOGRAPHIC SETTING:** Weikert soils are on gently sloping to very steep convex dissected uplands formed in weathered residuum from interbedded gray and brown acid shale, siltstone, and fine-grained sandstone. Slope gradients range from 0 to 100 percent. The climate is humid and temperate with an mean annual precipitation of 36 to 50 inches, mean annual air temperatures of 46 to 57 degrees F., and a growing season of 120 to 200 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These include Allenwood, Bedington, Berks, Cavode, Ernest, Gilpin, Hartleton, Muskingum, Rayne, Westmoreland, and Wharton series. All these soils are deeper than 20 inches to bedrock. In addition, Allenwood, Bedington, Gilpin, Rayne, and Westmoreland soils have argillic horizons and are nonskeletal. The subsoils of Cavode, Ernest, and Wharton soils have low chroma redoximorphic features.

**DRAINAGE AND PERMEABILITY:** Well drained. The potential for surface runoff is neglegible to high. Permeability is moderately rapid to rapid.

**USE AND VEGETATION:** Most is cleared and used for cropland and pasture or is idle. Forested areas are mixed, deciduous hardwoods.

**DISTRIBUTION AND EXTENT:** Pennsylvania, Maryland, Ohio, Indiana, West Virginia, Virginia, and Kentucky. The series is of large extent. MLRA's 120, 124, 125, 126, 127, 128, 130, 140, 147, 148.

MLRA OFFICE RESPONSIBLE: Morgantown, West Virginia

**SERIES ESTABLISHED:** Union County, Pennsylvania, 1939.

**REMARKS:** In 1994 the Type Location was visited and redescribed as part of the MLRA 147 update in Pennsylvania, West Virginia, and Maryland.

Some pedons sampled as Weikert have a CEC class of semiactive.

In some areas the Weikert series may include somewhat excessively drained soils.

Soils that are now within the range of the Weikert series were correlated as Montevallo (thermic) in several published soil surveys.

Diagnostic horizons and features recognized in this pedon are: Ochric epipedon - from a depth of 0 to 7 inches (Ap horizon). Cambic horizon - from a depth of 7 to 14 inches (Bw horizon). Lithic contact at a depth of 18 inches (R horizon)

**ADDITIONAL DATA:** Lab samples number S93PA-055-039 and S93PA-055-040, taken from the same county as the type location, were used as the basis for placing this series into the active CEC activity class.

### WELLSBORO SERIES

The Wellsboro series consists of very deep moderately well and somewhat poorly drained soils formed in till derived from red sandstone, siltstone, and shale. Slope ranges from 0 to 50 percent. Permeability is moderate in the surface and upper subsoil layers and slow or very slow in the lower subsoil and substratum. Mean annual precipitation is 41 inches. Mean annual temperature is 48 degrees F.

TAXONOMIC CLASS: Coarse-loamy, mixed, active, mesic Typic Fragiudepts

**TYPICAL PEDON:** Wellsboro silt loam - cropland. (Colors are for moist soils unless otherwise noted.)

**Ap**--0 to 7 inches; dark brown (7.5YR 3/2) silt loam, light brown (7.5YR 6/3) dry; weak fine granular structure; friable; many roots; 10 percent rock fragments; moderately acid (limed); abrupt smooth boundary. (5 to 12 inches thick.)

**Bw1--7** to 11 inches; reddish brown (5YR 4/4) silt loam; weak fine subangular blocky structure; friable; slightly sticky, slightly plastic; many roots; 10 percent rock fragments; moderately acid; clear wavy boundary.

**Bw2--11** to 18 inches; reddish brown (2.5YR 4/4) loam; moderate medium subangular blocky structure; friable; slightly sticky, slightly plastic; many roots; 10 percent rock fragments; strongly acid; abrupt wavy boundary.

**Bw3**--18 to 22 inches; reddish brown (5YR 4/4) channery loam; moderate medium subangular blocky structure; friable; few roots; 15 percent rock fragments; common medium distinct yellowish red (5YR 5/8) iron concentrations and gray (5YR 6/1) iron depletions; very strongly acid; abrupt wavy boundary. (Combined thickness of the Bw horizons is 5 to 26 inches.)

**Bx1--**22 to 31 inches; dark reddish brown (2.5YR 3/4) gravelly loam; moderate very coarse prismatic structure parting to weak medium subangular blocky; firm; brittle, slightly sticky, slightly plastic; very few faint clay films in pores; weak red (10R 5/2) thin silt coats on faces of prisms; 20 percent rock fragments; very strongly acid; diffuse boundary. (5 to 30 inches thick.)

**Bx2--**31 to 52 inches; dusky red (10R 3/4) gravelly loam; weak very coarse prismatic structure parting to moderate medium platy; firm; brittle; weak red (10R 5/2) coatings on faces of prisms decreasing in thickness with depth; few faint clay films and few black Mn coats on face of plates and in pores in the interior of prisms; 25 percent rock fragments; very strongly acid; diffuse boundary. (0 to 30 inches thick.)

**Cd**--52 to 72 inches; dusky red (10R 3/4) gravelly loam; moderate medium plate-like divisions; firm; 15 percent rock fragments; very strongly acid.

**TYPE LOCATION:** Columbia County, Pennsylvania; Sugarloaf Township, 2 miles south southeast of village of Central, 2.4 miles east intersection of Pa. routes 118 and 487 (old route 254), 6/10 miles south on township road and 150 feet west into field. USGS Red Rock, PA topographic quadrangle; Latitude 41 degrees, 16 minutes, 11 seconds N. and Longitude 76 degrees, 21 minutes, 35 seconds W. NAD 1927.

RANGE IN CHARACTERISTICS: Solum thickness is greater than 40 inches. Depth to the fragipan ranges from 12 to 30 inches. Depth to bedrock is 60 inches or more. Rock fragments of subangular and rounded sandstone, siltstone or shale range from 5 to 40 percent in the A and B horizons, and from 15 to 45 percent in the Bx and C horizons. Typically rock fragments average about 5 to 25 percent by volume above the fragipan and 15 to 40 percent by volume in and below the fragipan. The control section has less than 35 percent rock fragments by volume. Reaction commonly ranges from very strongly acid through moderately acid unless limed but the range includes extremely acid.

The Ap horizon has hue of 5YR through 10YR, value of 3 or 4, and chroma 2 or 3. Dry color value is 6 or more. Texture is loam or silt loam in the fine-earth fraction.

Pedons in wooded areas have an A horizon with hue of 5YR through 10YR, value of 2 through 4, and chroma of 1 or 2. These pedons also may have an E horizon with hue of 5YR through 10YR, value of 3 through 6, and chroma of 2 or 3. Texture is loam, silt loam, or fine sandy loam in the fine-earth fraction.

A B/E horizon may also be present in some pedons. Colors and textures of the B part of the B/E are similar to those of the Bw horizon. The E part of the B/E has color and texture similar to the E horizon.

The Bw horizon above 20 inches has hue of 2.5YR through 10YR, value of 4 to 6, and chroma of 3 through 6. The lower part of the Bw horizon includes subhorizons with chroma of 2. The Bw horizon has both high and low chroma redoximorphic features. Texture is loam or silt loam in the fine-earth fraction.

Some pedons have an E' horizon above the fragipan. Texture is fine sandy loam, loam, or silt loam in the fine-earth fraction.

The Bx horizon has chroma of 10R through 5YR, value of 3 through 5, and chroma of 2 through 4. Faces of prisms range in hue from 10R through 7.5YR, value of 4 through 7, and chroma of 2 or 3. Texture is sandy loam, loam, or silt loam in the fine-earth fraction. Structure of the Bx horizon is weak or moderate, coarse or very coarse prismatic. Prisms have platy, blocky, or massive interiors.

The Cd horizon is similar in color and texture to the Bx horizon.

**COMPETING SERIES:** The <u>Bath</u>, <u>Braceville</u>, <u>Broadalbin</u>, <u>Ira</u>, <u>Lackawanna</u>, <u>Mardin</u>, Rushford(T), <u>Sodus</u>, <u>Swartswood</u>, and <u>Wurtsboro</u> series are in the same family. The Bath, Broadalbin, and Mardin soils have hue of 7.5YR or yellower in the fragipan. Braceville soils

have stratified sand and gravel within the series control section. Ira, Sodus, Swartswood, and Wurtsboro soils have less than 60 percent silt plus very fine sand in the particle-size control section. Lackawanna soils do not have redoximorphic features above the fragipan. Rushford(T) soils have a silty lacustrine substratum with few or no rock fragments.

**GEOGRAPHIC SETTING:** Wellsboro soils are on nearly level to steep glaciated uplands. Slope ranges from 0 to 50 percent. The soils developed in firm till derived from reddish sandstone, siltstone, and shale. Mean annual precipitation ranges from 32 to 50 inches, mean annual air temperature ranges from 45 to 50 degrees, F., and the frost free season ranges from about 110 to 165 days.

**GEOGRAPHICALLY ASSOCIATED SOILS:** The <u>Lackawanna</u>, <u>Morris</u>, and <u>Norwich</u> soils are in a drainage sequence with Wellsboro. Morris soils have dominant chroma of 2 or less within 20 inches. Norwich soils have dominant chromas of 2 or less in all horizons below the Ap, or below 6 inches. <u>Arnot</u>, <u>Lordstown</u>, <u>Maplecrest</u>, and <u>Oquaga</u> soils are nearby. Arnot soils are shallow to bedrock; Lordstown and Oquaga soils are moderately deep. Maplecrest soils are well drained and lack a fragipan.

**DRAINAGE AND PERMEABILITY:** Moderately well and somewhat poorly drained. The potential for surface runoff is low to very high. Internal drainage is slow. Permeability is moderate in the surface and upper subsoil and slow or very slow in the fragipan and substratum.

**USE AND VEGETATION:** Many areas have been cleared and are used for growing hay, small grain, pasture, and potatoes. Some areas are idle. Woodlots contain sugar maple, American beech, red oak and white pine.

**DISTRIBUTION AND EXTENT:** The glaciated Allegheny Plateau of northwestern New Jersey, southern New York and northern Pennsylvania. MLRA 140. The series is extensive.

MLRA OFFICE RESPONSIBLE: Amherst, Massachusetts

**SERIES ESTABLISHED:** Tioga County, Pennsylvania, 1929.

**REMARKS:** Diagnostic horizons and features recognized in this pedon are:

- 1. Ochric epipedon the zone from the surface of the soil to a depth of about 7 inches (Aphorizon).
- 2. Cambic horizon the zone from 7 to 22 inches (Bw horizon).
- 3. Fragipan the zone from 22 to 52 inches (Bx horizon).
- 4. Udic soil moisture regime (a humid, temperate climate).

Soil Interpretation Record No: PA0027, PA0028, PA0227

The activity class is based on pedon S86NY025-5 from Delaware County, NY.

LOCATION WYOMING Established Series Rev. GDM-JRH 02/2000 PΑ

## WYOMING SERIES

The Wyoming series consists of very deep, somewhat excessively drained soils formed in gravelly, water-sorted material derived from red and gray sandstone, siltstone, and shale. Slopes range from 0 to 45 percent. Permeability is rapid. Mean annual precipitation is 39 inches. Mean annual temperature is 50 degrees F.

TAXONOMIC CLASS: Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

**TYPICAL PEDON:** Wyoming very gravelly sandy loam - woodland. (Colors are for moist soil unless otherwise noted.)

**Ap-**-0 to 7 inches; dark brown (10YR 3/3) very gravelly sandy loam; weak fine granular structure; very friable, nonsticky, nonplastic; many roots; 35 percent rock fragments; very strongly acid; abrupt smooth boundary. (5 to 12 inches thick)

**Bw**--7 to 15 inches; dark brown (7.5YR 4/4) very gravelly sandy loam; weak fine subangular blocky structur; very friable, nonsticky, nonplastic; common roots; 50 percent rock fragments; very strongly acid; gradual wavy boundary. (5 to 20 inches thick)

**BC**--15 to 25 inches; dark brown (7.5YR 4/4) extremely gravelly coarse sandy loam; weak fine subangular blocky structure; very friable, nonsticky, nonplastic; common roots; 60 percent rock fragments; very strongly acid; gradual wavy boundary. (0 to 18 inches thick)

C--25 to 65 inches; brown (10YR 4/3) extremely gravelly loamy coarse sand, with stratified sand and gravel; single grain; loose, nonsticky, nonplastic; 65 percent rock fragments; very strongly acid.

**TYPE LOCATION:** Wyoming County, Pennsylvania; Mehoopany Township, 2 1/2 miles east of Mehoopany, 2 miles east of intersection of Routes 65006 and T435, 100 feet west of T435.

**RANGE IN CHARACTERISTICS:** Solum thickness ranges from 18 to 35 inches. Depth to bedrock is commonly 10 feet or more. Rock fragments, dominantly of water-rounded sandstone or siltstone up to 8 inches in size, range from 15 to 50 percent by volume in the A horizon, from 20 to 60 percent in the B horizon and from 35 to 75 percent in the BC and C horizons. The soil ranges from extremely acid to moderately acid in all horizons, unless limed.

The Ap horizon has hue of 10YR through 5YR, value of 3 through 5, and chroma of 2 through 4. Undisturbed pedons have a thin A horizon and some pedons have an E horizon. Texture is fine sandy loam, sandy loam or loam in the fine-earth fraction.

The B horizon has hue of 10YR through 2.5YR, value of 4 or 5, and chroma of 3 or 4. Texture is coarse sandy loam, sandy loam or fine sandy loam in the fine-earth fraction with an average or more than 50 percent fine sand or coarser. Some pedons have a BA horizon.

The C horizon has hue of 10YR through 2.5YR, value of 4 or 5, and chroma of 2 through 4. Texture is sandy loam, loamy sand or sand in the fine-earth fraction but texture above a depth of 25 inches is sandy loam.

COMPETING SERIES: The Berks, Blasdell, Calvin, Cardiff, Chenango, Dekalb, Hazleton, Itswoot, Lehew, Lippitt, Manlius, Oquaga, Parker, Remote, Sylco, Tunkhannock, Warwick, and Watt series are in the same family. Berks, Blasdell, and Cardiff soils have B horizon textures of silt loam and loam. Calvin, Dekalb, Lehew, Lippitt, Manlius, Oquaga, Sylco, and Watt soils have bedrock between 20 and 40 inches. Chenango and Tunkhannock soils have B horizons whose texture is silt loam, loam or sandy loam with less than 50 percent sand coarser than very fine sand in the particle-size control section. Hazleton soils contain angular rock fragments and have B horizon texture of loam and sandy loam with less than 50 percent of fine sand coarser than very fine sand in the particle-size control section. Itswoots soils have sola thicker than 40 inches. Parker soils contain rock fragments of gneiss. Remote soils have more than 22 percent clay in the particle-size control section. Warwick soils have color value of 3 or less in the lower part of the series control section.

**GEOGRAPHIC SETTING:** Wyoming soils are nearly level to very steep soils on outwash terraces, moraines, kames, eskers, and valley trains. Slope gradients range from about 0 to 45 percent. They formed in gravelly, water-sorted material derived from red and gray sandstone, siltstone, and shale. The climate is humid and temperate. Mean annual precipitation ranges from 32 to 45 inches. Mean annual air temperature ranges from 45 to 55 degrees F., and the frost-free season ranges from 120 to 180 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These include the competing <a href="Chenango">Chenango</a> and <a href="Tunkhannock">Tunkhannock</a> series and the <a href="Barbour">Barbour</a>, <a href="Barbour">Braceville</a>, <a href="Linden">Linden</a>, <a href="Lordstown">Lordstown</a>, <a href="Modelsboro">Mardin</a>, <a href="Oquaga">Oquaga</a>, <a href="Pope">Pope</a>, and <a href="Wellsboro">Wellsboro</a> series. The Barbour, Linden, and Pope soils are on floodplains. Braceville</a>, <a href="Mardin">Mardin</a>, and Wellsboro soils have a fragipan. Lordstown and Oquaga soils have bedrock within 40 inches.

**DRAINAGE AND PERMEABILITY:** Somewhat excessively drained. Runoff is slow to medium. Permeability is rapid.

**USE AND VEGETATION:** Most gently sloping areas are cleared and used for general farm crops. Some areas are being urbanized. Wooded areas contain maple, beech, ash, oak, hemlock and white pine.

**DISTRIBUTION AND EXTENT:** Pennsylvania and possibly New Jersey. The series is of moderate extent. Pennsylvania has about 40,000 acres.

MLRA OFFICE RESPONSIBLE: Amherst, Massachusetts

**SERIES ESTABLISHED:** Crawford County, Pennsylvania, 1973.

**REMARKS:** Diagnostic horizons and features recognized in this pedon are:

- a. Ochric epipedon the zone from the surface of the soil to a depth of about 7 inches (Aphorizon).
- b. Cambic horizon the zone from 7 to 15 inches (Bw horizon).

## APPENDIX D

**Rare Species Information** 

**D-1** 

## U.S. Fish and Wildlife Service

A request for updated information concerning species of special concern was submitted to the USFWS by PPL Bell Bend LLC on 20 September 2010. A response from the USFWS is anticipated.



## United States Department of the Interior



#### FISH AND WILDLIFE SERVICE

Pennsylvania Field Office 315 South Allen Street, Suite 322 State College, Pennsylvania 16801-4850

January 18, 2008

Rod Krich UniStar Nuclear Energy, LLC 750 East Pratt Street, 14th Floor Baltimore, MD 21202-3106

RE: USFWS Project #2008-0518

Dear Mr. Krich:

This responds to your letter of December 21, 2007, requesting information about federally listed and proposed endangered and threatened species within the area affected by the proposed nuclear powered steam electric plant located in Luzerne County, Pennsylvania. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

The project is within the range of the Indiana bat (*Myotis sodalis*), a species that is federally listed as endangered. Indiana bats hibernate in caves and abandoned mines during the winter months (November through March), and use a variety of upland, wetland and riparian habitats during the spring, summer and fall. Indiana bats usually roost in dead or living trees with exfoliating bark, crevices or cavities. Female Indiana bats form nursery colonies under the exfoliating bark of dead or living trees, such as shagbark hickory, black birch, red oak, white oak, and sugar maple, in upland or riparian areas.

Land-clearing, especially of forested areas, may adversely affect Indiana bats by killing, injuring or harassing roosting bats, and by removing or reducing the quality of foraging and roosting habitat. To determine whether the proposed project will affect Indiana bats, we will need additional project information, including site plans and a detailed project description, that describe how much forest disturbance will occur (area, tree species, and size classes).

This response relates only to endangered or threatened species under our jurisdiction, based on an office review of the proposed project's location. No field inspection of the project area has been conducted by this office. Consequently, this letter is not to be construed as addressing potential Service concerns under the Fish and Wildlife Coordination Act or other authorities.

To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.

If you have any questions regarding this matter, please contact Pam Shellenberger of my staff at 814-234-4090.

Sincerely,

David Densmore

Supervisor

**D-2** 

# Pennsylvania Department of Conservation and Natural Resources



# RECEIVED NOV 01 2010

## **BUREAU OF FORESTRY**

Date November 1, 2010

PNDI Number: 21008

Terry L. Harpster PPL Bell Bend, LLC 38 Bomboy Lane, Suite 2 Berwick, PA 18603

FAX: 570-802-8119(Hard copy will not follow)

Re: Bell Bend Nuclear Power Plant

County: Luzerne

Township: Salem

Dear Mr. Harpster,

Thank you for submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number 21008 for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources of concern under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

There are no plant species or geologic features of concern in your project area. There are two terrestrial invertebrates of concern that were known to be in the project area.

Euphydras phaeton, Baltimore Checkerspot, habitat is wet meadows, bogs, and marshes with flight in June through August. Larval food is Turtlehead, Hairy Beardtongue, English plantain, Foxglove and White Ash and the adult food is nectar from Milkweed, Virburnums and Wild Rose.

Poanes massasolt, Mulberry Wing, habitat is freshwater marshes or bogs with flight in late June through mid August. Larval food is Carex stricta and adult food is any flower nectar.

When more detailed project information becomes available, please submit this project to our office for further review of potential impacts to these terrestrial species.

This response represents the most up-to-date summary of the PNDI data files and is valid for one (1) year from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on-site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered. Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map.

This finding applies to impacts to DCNR only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure the U.S. Fish and Wildlife Service, PA Game Commission, and the Pennsylvania Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us

Hichard Shockey, Environmental Review Manager FOR Chris Firestone, Wild Plant Program Mgr.

Ph: 717-772-0263 ~ c-rshockey@state.pa.us

Sincerely,

conserve

sustain

enjoy



# Pennsylvania Department of Conservation and Natural Resources

**Bureau of Forestry** 

March 24, 2008

George Wrobel

**CEG GNA Engineering** 

FAX: 585.771.3392 (hard copy will NOT follow—page 1 of 2)

Pennsylvania Natural Diversity Inventory Review, PNDI Number	019535
Unistar Nuclear Energy/ Berwick, PA NPP-1	
Salem Township; Luzerne County	

Dear Mr. Wrobel.

This responds to your request for information on species of special concern within the area under evaluation for this project. We screened this project for potential impacts to species and resources of special concern under the Department of Conservation and Natural Resources' responsibility, which includes plants, natural communities, terrestrial invertebrates and geologic features only.

PNDI records indicate that species and communities of special concern under DCNR's jurisdiction are known to occur in the vicinity of the above-mentioned project. Please see the attached list for butterfly species found in the project area. If any earth disturbance is planned or more detailed project information becomes available, please submit this project to our office for further review of potential impacts to the attached species list.

This response represents the most up-to-date summary of the PNDI data files and is good for one (1) year from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on-site. A field survey of any site may reveal previously unreported populations. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

This finding applies to impacts to plants, natural communities, terrestrial invertebrates and geologic features only. To complete your review of state and federally-listed species of special concern, please be sure the U.S. Fish and Wildlife Service, the PA Game Commission and the Fish and Boat Commission has been contacted regarding this project either directly or by performing a search with the online PNDI ER Tool found at <a href="https://www.naturalheritage.state.pa.us">www.naturalheritage.state.pa.us</a>.

Rebieca H. Bosen
Rebecca H. Bowen, Environmental Review Specialist, PNHP
DCNR/BOF/PNDL PO Box 8552, Harrisburg, PA 17105 ~ Ph: 717-772-0258 ~ F: 717-772-0271 ~ <u>c-rbowcn@state.pa.us</u>

Stewardship

Partnership

Service

Bureau of Forestry

March 20, 2008

PNDI 019535

Invertebrates of Special Concern (no plant or geological features hits)

Scientific	Common	Status	Habitat	Larval Food	Adult Food	Flight
Enodia anthedon	Northern Pearly-Eye	S3S4	damp deciduous woods usually near marshes or waterways; mixed or grassy woodlands	various grasses	dung, fungi, carrion, sap from willows poplars birches	June-Aug
Euphydras phaeton	Baitimore Checkerspot	S2S4	wet meadows, bogs, marshes	turtlehead, hairy beardtongue, english plantain, foxglove, white ash	nectar from milkweed, vibumums, wild rose	June-Aug
Poanes massasoit	Mulberry Wing	S3	freshwater marshes or bogs	carex stricta	any flower nectar	late June-mid Aug
Polites mystic	Long Dash	S3	open, moist areas including meadows, marshes, prairie swales, streamsides, woods edges	bluegrasses	milkweed, selfheal, mountain laurel, tick trefoil	May-Aug

^{*} These species are known to reside on site. Please make plans that attempt to minimize impacts to the potential habitats of these species. Also note, if any earth disturbance is planned or more detailed project information becomes available, please submit this project to our office for further review of potential impacts to the attached species list.

12:33

**D3** 

**Pennsylvania Game Commission** 



# COMMONWEALTH OF PENNSYLVANIA Pennsylvania Game Commission

# 2001 ELMERTON AVENUE HARRISBURG, PA 17110-9797

"To manage all wild birds, mammals and their habitats for current and future generations."

### ADMINISTRATIVE BUREAUS:

ADMINISTRATION	717-707-5670
HUMAN RESOURCES	717-787-7838
FISCAL MANAGEMENT	717-787-7314
CONTRACTS AND	
PROCUREMENT	717-787-5594
LICENSING	
OFFICE SERVICES	
WILDLIFE MANAGEMENT	
INFORMATION & EDUCATION.	
WILDLIFE PROTECTION	
WILDLIFE HABITAY	
MANAGEMENT	717,787,8818
REAL ESTATE DIVISION	
	/1/-/0/-0000
AUTOMATED TECHNOLOGY	
SERVICES	717-787-1078

www.pgc.slate.pa.us

RECEIVED DEC 28 2010

BUREAU OF WILDLIFE HABITAT MANAGEMENT 717-787-6818

December 28, 2010

Large Project Review

Mr. Bradley A. Wise PPL Bell Bend, LLC Two North Ninth Street (GENGL4) Allentown, Pennsylvania 18101-1179

Re: Bell Bend Nuclear Power Plant Project - Proposed Electrical Plant Salem Township, Luzerne County, Pennsylvania

Dear Mr. Wise,

Thank you for submitting the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number Bell Bend Nuclear Power Plant Project for review. The Pennsylvania Game Commission (PGC) screened this project for potential impacts to species and resources of concern under PGC responsibility, which includes birds and mammals only.

### Potential Impact Anticipated

PNDI records indicate species or resources of concern are located in the vicinity of the project. The PGC has received and thoroughly reviewed the information that you provided to this office, as well as PNDI data, and has determined that potential impacts to the following endangered species may be associated with your project:

Scientific Name	Common Name	PA Status	Federal Status
Myotis sodalis	Indiana Bat	ENDANGERED	ENDANGERED

### Next Steps

Indiana bats are a federally listed endangered species under the jurisdiction of the U.S. Fish and Wildlife Service. As a result, our agency defers comments on potential impacts to Indiana bats to the U.S. Fish and Wildlife Service.

This response represents the most up-to-date summary of the PNDI data files and is valid for one (1) year from the date of this letter. An absence of recorded information does not necessarily

imply actual conditions on site. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

Should the proposed work continue beyond the period covered by this letter, please resubmit the project to this agency as an "Update" (including an updated PNDI receipt, project narrative and accurate map). If the proposed work has not changed and no additional information concerning listed species is found, the project will be cleared for PNDI requirements under this agency for an additional year.

This finding applies to impacts to birds and mammals only. To complete your review of state and federally-listed threatened and endangered species and species of special concern, please be sure that the U.S. Fish and Wildlife Service, the PA Department of Conservation and Natural Resources, and/or the PA Fish and Boat Commission have been contacted regarding this project as directed by the online PNDI ER Tool found at www.naturalheritage.state.pa.us.

Sincerely,

Olivia A. Braun

**Environmental Planner** 

Division of Environmental Planning & Habitat Protection

Bureau of Wildlife Habitat Management Phone: 717-787-4250, Extension 3128

Fax: 717-787-6957

e-Mail: OBraun@state.pa.us

### A PNHP Partner



### OAB/oab

cc: Pamela Shellenberger, U.S. Fish & Wildlife Service

Librandi Mumma, PGC

DuBrock, PGC

Brauning, PGC

Butchkoski, PGC

Turner, PGC

Terry L. Harpster, PPL

File

Fax sent by : 917177872832

PGC LAW ENFORCEMENT

04-11-08 07:52

Pu: 2/2



COMMONWEALTH OF PENNSYLVANIA

# PENNSYLVANIA GAME COMMISSION

2001 ELMERTON AVENUE, HARRISBURG, PA 17110-9797

April 10, 2008

Mr. Rod Krich UniStar Nuclear Energy, LLC 750 E. Pratt Street, 14th Floor Baltimore, MD 21202-3106

In re: PNDI Search Database Search

UniStar Nuclear Energy, LLC, Berwick, PA NPP-1 Project

Salem Township, Luzerne County, PA

Dear Mr. Krich:

This is in response to your fax dated December 21, 2007 regarding the potential impacts of the project on special concern species of birds or mammals recognized by the Pennsylvania Game Commission (PGC).

Our office review has determined that your project area is located in proximity to known bat hibernacula. If a new nuclear powered steam electric plant is developed on the proposed project area, bats of the following species of bats may be impacted: the Small-footed Myotis (Myotis leibii), the Northern Myotis (Myotis septentrionalis), the Little Brown (Myotis lucifugus), the Big Brown (Eptesicus fuscus), and the Pipistrelle (Pipistrellus subflavus). If a decision is made to develop the plant, the activities associated with the development, and subsequent operation and maintenance of the plant facilities and grounds should be coordinated with the PGC. This determination may be reconsidered if project plans change or extend beyond the present project area, or if additional information becomes available on state species.

If you have any questions, please contact me at (717) 787-4250. Please be advised that this determination is only valid for one year from the date of this letter.

Very truly yours,

James R. Leigey

Wildlife Impact Review Coordinator

Division of Environmental

Planning and Habitat Protection

Bureau of Wildlife Habitat Management

Cc: File

ADMINISTRATIVE BUREAUS:

PERSONNEL: 717-787-7836 ADMINISTRATION: 717-787-5570 AUTOMOTIVE AND PROCURMENT: 717-787-6594
LICENSE DIVISION: 717-787-2084 WILDLIFE MANAGEMENT: 717-787-5529 INFORMATION & EDUCATION: 717787-6286
WILDLIFE PROTECTION: 717-787-5740 WILDLIFE HABITAT MANAGEMENT: 717-787-6818 REAL ESTATE: 717-787-6568
AUTOMATED TECHNOLOGY SYSTEMS: 717-787-4076

**D-4** 

Pennsylvania Fish and Boat Commission



# Pennsylvania Fish & Boat Commission

RECEIVED MAR 1 4 2011

**Division of Environmental Services Natural Diversity Section** 

450 Robinson Lane Bellefonte, PA 16823-9620 (814) 359-5237 Fax: (814) 359-5175

March 10, 2011

IN REPLY REFER TO

SIR# 35087

BRADLEY WISE PPL TWO NORTH NINTH ST ALLENTOWN, PA 18101

RE:

Secondary Species Impact Review (SIR) #35087

BELL BEND NUCLEAR POWER PLANT

SALEM Township, LUZERNE County, Pennsylvania

Dear Mr. WISE:

I have examined the map accompanying your recent correspondence, which shows the location for the above referenced project. Based on records maintained in the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files, the following rare or protected species are known from the vicinity of the project site:

Common Name	Scientific Name	PA Status
Northern cricket frog	Acris crepitans	endangered
Yellow lampmussel	Lampsilis cariosa	rare
Green floater	Lasmigona subviridis	rare

You sent additional information related to this project in response to our letter of October 14, 2010. According to our review of the wetland delineation report, the field survey of terrestrial fauna, and the proposed project plan, we do not anticipate adverse impacts from the proposed project to the northern cricket frog, which has not been confirmed on the site.

However, it has come to our attention that the proposed water withdrawal as well as the intake and outfall structures, have the potential to adversely impact the freshwater mussel species of concern. Preliminary mussel surveys confirmed the presence of rare mussels in the project area. These survey results were referenced in the wetland delineation report, but this office has not yet received the survey results. Additional mussel surveys and instream flow analysis are planned in 2011. The results of this work should be forwarded to this office for review of the potential impacts from the proposed project to the Commonwealth's freshwater mussel resources.

Note that this office performed no field inspection of the project area. Consequently, comments in this letter are not meant to address other issues or concerns that might arise concerning matters under Pennsylvania Fish and Boat Commission jurisdiction or that of other authorities. If you have any questions regarding this response, please contact Nevin Welte at 412-586-2334 and **refer to the SIR** 

Our Mission:

www.fish.state.pa.us

SIR #35087 WISE Page 2

**number at the top of this letter**. Thank you for your cooperation and attention to this matter of nongame species conservation.

Sincerely,

Natural Diversity Section

CAU/NW/mr

Cc:

Tom Shervinski, PFBC

Mark Hartle, PFBC

Eugene Trowbridge, PADEP Jennifer Kagel, USFWS



# Pennsylvania Fish & Boat Commission

RECEIVED OCT 2 5 2010

Division of Environmental Services Natural Diversity Section 450 Robinson Lane Bellefonte, PA 16823-9620

(814) 359-5237 Fax: (814) 359-5175

October 14, 2010

IN REPLY REFER TO SIR# 35087

BRADLEY WISE
PPL
TWO NORTH NINTH ST
BERWICK, PA 18603

RE: Species Impact Review (SIR) - Rare, Candidate, Threatened and Endangered Species

BELL BEND NUCLEAR POWER PLANT

**UPDATE TO SIR 27486** 

SALEM Township, LUZERNE County, Pennsylvania

Dear Mr. WISE:

I have examined the map accompanying your recent correspondence, which shows the location for the above referenced project. Based on records maintained in the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files, the following rare or protected species are known from the vicinity of the project site:

Common Name	Scientific Name	PA Status
Northern cricket frog	Acris crepitans	endangered
Yellow lampmussel	Lampsilis cariosa	rare
Green floater	Lasmigona subviridis	rare

The Northern cricket frog is a small (less than 2") frog species found in a wide variety of habitats including permanent bodies of water such as slow-moving streams, ponds, lakes, marshes, bogs, and swamps, but also semi-permanent ponds and seasonal forest pools. Breeding occurs from May to August with metamorphosed froglets emerging July to September. The Northern cricket frog occurs in small, isolated populations in eastern Pennsylvania. These small populations are threatened by pollution, and filling/clearing of wetlands and breeding habitat.

If wetlands, waterways, or vernal pools are to be directly or indirectly impacted by the project activity, we will need to conduct a more thorough evaluation of the potential adverse impacts to the northern cricket frog. Please provide us with the following information to assist us with our review: detailed project plans including a project narrative, identification and delineation of wetlands or streams within the direct and indirect impact area, and color photographs (dated, labeled, and keyed to a map) of wetlands, vernal pools, or waterways expected to be impacted. A habitat assessment or presence/absence survey may be requested for the species of concern.

Freshwater mussels are the most imperiled taxonomic group in North America. Nearly half of the species known to occur in the Commonwealth are now extirpated (locally extinct) from Pennsylvania. We

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. www.fish.state.pa.us

SIR #35087. WISE Page 2

are concerned about direct and indirect (i.e., runoff) effects that the proposed project may have on the species of concern. Freshwater mussel species are extremely vulnerable to physical (i.e., siltation, dredging, trenching, rip-rap) and chemical (i.e., pH, temperature, dissolved oxygen, organic contaminants, heavy metals) changes to their aquatic environment. Therefore, we recommend construction techniques that eliminate in-stream work, sedimentation and changes to water quality. I recommend that you avoid any in-stream disturbance or water quality degradation in the Susquehanna River during and after the project installation. Storm sewers and retention basins should be designed so as to minimize/remove all silt from the water before it is released into the river. Strict erosion and sedimentation control measures, as well as best management practices should be employed.

If wetlands or water bodies *are not* to be disturbed by the proposed activity, and provided that best management practices are employed and strict erosion and sedimentation control measures are maintained, I do not foresee any adverse impacts to the species of concern listed above or any other rare or protected species under Pennsylvania Fish and Boat Commission jurisdiction.

Note that this office performed no field inspection of the project area. Consequently, comments in this letter are not meant to address other issues or concerns that might arise concerning matters under Pennsylvania Fish and Boat Commission jurisdiction or that of other authorities. If you have any questions regarding this response, please contact Kathy Gipe at 814-359-5186 and refer to the SIR number at the top of this letter. Thank you for your cooperation and attention to this matter of nongame species conservation.

Christopher A. Urban, Chief Natural Diversity Section

CAU/KDG/mr



# Pennsylvania Fish & Boat Commission

established 1866

Division of Environmental Services Natural Diversity Section 450 Robinson Lane Bellefonte, PA 16823-9620 (814) 359-5237 Fax: (814) 359-5175

# IN REPLY REFER TO: SIR# 27486

George Wrobel UniStar Nuclear Energy, LLC 750 East Pratt Street, 14th Floor Baltimore, Maryland 21202 April 14, 2008

RE:

Species Impact Review (SIR) - Rare, Candidate, Threatened and Endangered Species

Berwick, PA NPP-1

Salem Township, Luzerne County, Pennsylvania

Dear Mr. Wrobel:

I have examined the map accompanying your recent correspondence, which shows the location for the above-referenced project. Based on records maintained in the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files, one rare or protected species is known from the vicinity of the project area:

Common Name	Scientific Name	PA Status
Eastern hognose snake	Heterodon platyrhinos	Special Concern
Yellow lampmussel	Lampsilis cariosa	Special Concern
Green floater	Lasmigona subviridis	Special Concern

Freshwater mussels are the most imperiled taxonomic group in North America. Nearly half of the species known to occur in the Commonwealth are now extirpated (locally extinct) from Pennsylvania. We are concerned about direct and indirect (i.e., runoff) effects that the proposed project may have on the species of concern. Freshwater mussel species are extremely vulnerable to physical (i.e., siltation, dredging, trenching, rip-rap) and chemical (i.e., pH, temperature, dissolved oxygen, organic contaminants, heavy metals) changes to their aquatic environment. Therefore, we recommend construction techniques that eliminate in-stream work, sedimentation and changes to water quality. I recommend that you avoid any in-stream disturbance or water quality degradation during and after the project installation. Storm sewers and retention basins should be designed so as to minimize/remove all silt from the water before it is released into the stream. Strict erosion and sedimentation control measures, as well as best management practices should be employed.

Provided that these recommendations are followed, in-stream work is avoided, strict E&S control measures are maintained, and best management practices are employed, we do not foresee any significant adverse impacts from the proposed activity to the freshwater mussel species of special concern or any other rare or protected species under Pennsylvania Fish & Boat Commission jurisdiction.

Our Mission:

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If you have any questions regarding this response, please contact Nevin Welte at 814-359-5234 and **refer to the SIR number at the top of this letter**. Thank you for your cooperation and attention to this matter of endangered species conservation and habitat protection.

Sincerely,

Christopher A. Urban, Chief Natural Diversity Section

CAU/NW/mr

# APPENDIX E

**Qualifications Of Wetlands Delineators** 



# **ELIZABETH VAN EPS GARLO, NHCWS**

# Community Ecologist/ Wetland Scientist

Ms. Garlo has over 20 years experience in various aspects of marine, estuarine, freshwater, and wetlands ecology. She has been program manager, principal investigator, and principal taxonomist for various benthic ecology, environmental quality, impingement, and entrainment investigations. She has written many environmental reports on impacts from nuclear power plants, pipeline and cable crossings, thermal outfalls, aquaculture etc. Ms. Garlo's primary areas of technical expertise are benthic ecology and taxonomy and wetlands delineation and assessment.

#### SELECTED PROJECT EXPERIENCE

Entergy Nuclear Operations, Inc. Whiteplains, NY (2004-Present) - Hudson River Ichthyoplankton Laboratory. Larval Fish Taxonomist.

FPL Energy Seabrook Nuclear Station, LLC, Seabrook, NH (1987-Present) - Environmental Monitoring in the Hampton-Seabrook Area. Data Analyst, Report Author, Arthropod and Mollusc Taxonomist.

Northeastern Utilities: Deerfield - Madbury transmission line upgrade, Deerfield, NH (2009) -Wetland boundary delineation. Wetlands Scientist.

AREVA: Bell Bend Nuclear Power Plant (proposed), Berwick, PA (2007 and 2009) - 640 acre wetland boundary delineation, and site walk with USACE. Wetlands Scientist.

Calais LNG: Calais, ME. (2008) – design, implement, analyze data and write up a benthic ecology survey for a proposed 1000 ft pier in the St. Croix River estuary. Environmental and Resource Report Author.

Quoddy Bay LNG, Eastport, ME (2006) - Wetland boundary delineation and vernal pool identification. Wetlands Scientist.

Epsilon Assoc., Inc., Maynard, MA (2003 and 2006) - Eelgrass, submerged aquatic vegetation and shellfish survey: Preferred and alternative cable routes to Nantucket Island. Report Author, Data Analyst for pre- and post- construction reports.

Algonquine Gas Transmission Co. and TRC Environmental, Boston, MA. (2003-2004) - HubLine Pipeline Project Benthic Habitat Survey. Arthropod Taxonomist, Data Analyst, Report Author.

## **EDUCATION**

M.S. 1982, Zoology, North Carolina State University-minor, Statistics

B.S. 1967, Biology Southern Methodist University-minor, English

#### PROFESSIONAL EXPERIENCE

2002-Present	Normandeau Associates
1999-2001	Blue Moon Environmental
1997-1998	New England
	Environmental Associates
1994-1997	New Hampshire Dept. of
	Environmental Services,
	Wetlands Bureau
1994-1996	University of New
	Hampshire
1987-1994	Normandeau Associates
1982-1984	Battelle New England
	Research Laboratory
1979-1981	North Carolina State
	University (Res. Assistant)
1971-1978	Ichthyological Associates
1968-1971	Fishery Development
	Institute, Santiago, Chile
	(Peace Corps)

### PROFESSIONAL AFFILIATIONS

Estuarine Research Federation NH Assoc. Natural Resource Scientists New England Estuarine Research Society Royal Commission of Jubail, Saudi Arabia (2002) - Environmental Impact Study of Seawater Cooling Discharges. Report Author, Data Analyst.

Maine Department of Marine Resources, W. Boothbay Harbor, ME. (2002) - Maine Aquaculture Review – Impacts of Salmon Farms. Report Author, Data Analyst.

Algonquine Gas Transmission Co. and Duke Energy, Portland, ME (1994) - Extensive wetlands flagging for the gas pipeline in Maine. Wetlands Scientist.

New Hampshire Department of Transportation (1990) - Route 101/51 EIS (NH). Wetlands delineation and quantitative plant survey. Wetlands Scientist.

U.S. Mineral Management Service (1982-1984) - Georges Bank Benthic Survey for offshore oil drilling. Chief Crustacean Taxonomist.

Metropolitan District Commission (1982-1984) - Deer Island Sewage Treatment Environmental Impact Study (MA). Field Biologist, Arthropod Taxonomist.

Consolidated Edison (1983) - Hudson River Fish Study (NY). Report Author.

General Public Utilities (1978-1979) - Profile-wire Intake Screen Feasibility Study, Forked River, NJ. Tested experimental intake screens for operation, biofouling, entrainment and impingement. Research Coordinator.

Public Service Electric and Gas Co. of NJ (1971-1977) - Atlantic Generating Station Baseline Monitoring Study, Absecon, NJ. Benthic Invertebrate Section Leader.

### **FOREIGN LANGUAGE**

Spanish

#### SPECIAL TRAINING

Wetlands Scientist; certified by NH Board of Natural Scientists; 2000-present.

Larval Fish Taxonomy and Ecology; Virginia Institute Marine Sci.; 2006.

Wetland Soils and Plants. University of New Hampshire; 1989.

Aquaculture. Virginia Institute of Marine Science, Watchapregue, VA; 1979.

SCUBA diver. NAUI; 1967.

#### SELECTED PRESENTATIONS

Pembroke, A.E. and E. V. Garlo. 2004. Hubline Pipeline Project Benthic Habitat Survey. Poster Presentation. The Coastal Society: 19th International Conference. RI.

### SELECTED PEER-REVIEWEDD ARTICLES AND PUBLICATIONS

Van Eps, E. 1972. Growth and reproduction of the bay scallop, *Chlamys purpurata*, in natural and artificial conditions in Mejillones Bay, Chile. Sci. Bull. 117. Fish. Devel. Inst., Santiago, Chile.

Garlo, E.V. 1977. Opistobrachia found in the vicinity of Little Egg Inlet, New Jersey with notes on three species new to the state. Nautilus. 91(1): 23-28.

Normandeau Associates, Inc.

Elizabeth Van Eps Garlo, NHCWS

Garlo, E.V., C.B. Milstein, and A.E. Jahn. 1979. Impact of hypoxic conditions in the vicinity of Little Egg Inlet, New Jersey in summer 1976. Estu. Coast. Mar. Sci. 8: 421-432.

Garlo, E.V. 1980. Abundance and distribution of benthic macroinvertebrates near Little Egg Inlet, New Jersey form 1972-1974. Internl. Rev. Gesam. Hydrobiol. 65(3): 361-372.

Milstein, C.B., G.J. Miller, and E.V. Garlo. 1981. Crustaceans new or rare to New Jersey waters. Bull. N.J. Academy Sci. 26(1): 30-32.

Garlo, E.V. 1982. A comparison of surf clam populations immediately after hypoxic conditions in 1976 and one year later. J. Shellfish Res. 2(1): 59-64.

Pembroke, A.E. and E. V. Garlo. 2004. Hubline Pipeline Project Benthic Habitat Survey. Poster Presentation. The Coastal Society: 19th International Converence. Newport, RI



# KEITH R. MAURICE

# Senior Scientist

Mr. Maurice has over 30 years' experience in wetlands studies, fisheries science, and aquatic biology. He is currently responsible for providing a wide range of wetlands services to insure that projects comply with state and federal wetlands regulations, and qualify for necessary wetlands permits.

His duties include wetlands delineations, rare plant and animal surveys, environmental impact assessments, design of wetlands mitigation sites, preparation of applications for state and Federal wetlands permits, and project related meetings with

#### **EDUCATION**

M.A. 2000, Geography and Planning, West Chester University

B.S. 1980, Biology, State University of New York

# PROFESSIONAL EXPERIENCE

1983-Present Normandeau Associates 1980-1983 Ichthyological Associates

### **PROFESSIONAL AFFILIATIONS**

Society of Wetland Scientists Philadelphia Botanical Club

### **PROFESSIONAL CERTIFICATIONS**

Certified Wetland Delineator

regulatory officials. He also performs ecological evaluations in support of remediation activities at brownfield sites and coordinates environmental GIS mapping projects.

#### SELECTED PROJECT EXPERIENCE

AREVA/UniStar Bell Bend Power Plant (2008-Present) – Environmental services in support of power plant siting in Luzerne County, Pennsylvania. Wetlands delineations, plant community mapping, impact assessment, regulatory compliance consulting, and agency meetings. Lead Wetlands Biologist.

Waste Management (1989-Present) - Wetlands delineations, impact assessments, mitigation design plans, technical reports, and state/federal wetlands permit applications for several landfill expansions in Lackawanna County, Pennsylvania. Project Manager and Biologist.

Reading Area Water Authority (2010) - Environmental regulatory compliance and sediment evaluation services for a reservoir maintenance dredging project in Berks County, Pennsylvania. Biologist

AREVA/Unistar Bell Bend Power Plant (2009) - Evaluation of alternative power plant sites and transmission corridors based on impacts to wetlands, rare species and publicly owned forest lands. Lead Wetlands Scientist.

Penn Wind/PA Solar (2009) – Best management practices manual for protection of eastern spadefoot toad during construction of a solar energy facility in Northumberland County, Pennsylvania. Biologist

First Wind (2009) - Fatal flaw analysis for a wind energy project in northeastern West Virginia. Biologist.

Glatfelter Paper Company (2009) - Wetlands delineations, bog turtle habitat surveys, PADEP Chapter 105 Exceptional Value Wetlands evaluations and wetlands permitting consultations for closure of an industrial landfill in York County, Pennsylvania. Project Manager and Biologist.

The H&K Group (1997-2009) – Wetlands delineations, regulatory compliance services, and post-construction monitoring of wetlands mitigation sites for quarry expansions and commercial developments in eastern Pennsylvania. Project Manager and Biologist.

Fisher Mines Thomas Northeast Tract (2007-2008) - Wetlands permitting, impact assessment, rare species screens, wetlands mitigation planning and meetings with regulatory officials for a surface coal mine expansion in Lycoming County, Pennsylvania. Biologist.

Evergreen Landscape Associates (2004-2008) - Wetlands services for municipal parks in Chester County, Pennsylvania. Wetlands delineations, technical reports, rare species screens and applications for state and federal wetlands permits. Project Manager and Biologist.

Jacques Whitford Company (2003-2008) - Environmental regulatory compliance services for utilities and commercial development in southeastern Pennsylvania. Wetlands delineations, bog turtle habitat surveys, technical reports, and environmental regulatory compliance consulting. Project Manager and Biologist.

Jacques Whitford Company (2007-2008) - PADEP Act 2 Land Recycling Program screening level ecological risk assessments at former manufactured gas plant sites. Project Manager and Biologist.

SAIC (2007) - PADEP ecological screening and evaluation of ecological receptors for brownfield site remediation in Dauphin County, Pennsylvania. Biologist.

Owens-Corning (2007) - NJDEP Environmentally Sensitive Areas GIS maps and Protection Plan for an industrial facility in the New Jersey Meadowlands to prevent impacts to ecologically sensitive natural resources by an accidental discharge of hazardous materials from the site. Project Manager and Biologist.

Brown and Caldwell (2006-2007) - Restoration and post-construction monitoring of wetland and upland habitats at a remediated Superfund Site in the New Jersey Pinelands. Project Manager and Biologist.

HNTB (2003-2007) - Wetlands delineations, rare species habitat surveys, and preparation of an application for New Jersey Pinelands Commission Public Development Approval for highway improvements in Ocean County, New Jersey. Project Manager and Biologist.

Waste Management (2000-2007) - Natural stream channel design for a 1-mile stream diversion that replicated channel structure and flow patterns of an intermittent headwater stream in northeastern Pennsylvania. EPA Rapid Bioassessment Protocols were then used to evaluate aquatic invertebrate habitat and assess development of riparian communities along the constructed channel. Biologist.

Waste Management (2000-2006) - Designed a 10.5-acre wetlands mitigation site to replace wetlands impacted by a landfill expansion in Lackawanna County, Pennsylvania. Conducted post-construction monitoring for five years following PADEP and U.S. Army Corps protocols. Principal Designer.

PPL Corporation (2006) – Mapped submerged aquatic vegetation and fisheries habitat for a 12-mile reach of the Susquehanna River in south-central Pennsylvania for use in GIS analyses. Biologist.

Brown and Caldwell (2005-2006) - Surveys for rare species/habitats in support of Superfund site remediation in Atlantic County, New Jersey. Project Manager and Biologist

Ocean County NJ Engineers' Office (2003-2006) - Conducted post-construction monitoring inspections and coordinated invasive plant control measures for a wetlands mitigation site. Biologist.

Johnson and Johnson (2002-2006) - Delineated wetlands at business campuses in New Jersey and Pennsylvania, and assisted with regulatory compliance tasks. Project Manager and Biologist.

Klienshmidt (2005) - Conducted a Phase I bog turtle habitat survey for a hydropower project on the Susquehanna River in Lancaster County, Pennsylvania. Project Manager and Biologist.

Mangi Environmental (2004-2005) - Endangered Species Act Section 7 consultations for 20-miles of realignments to a multi-use recreation trail in the Delaware Water Gap National Recreation Area including preparation of a Biological Assessment, obtaining rare species clearances and overseeing GIS mapping for the realigned trail sections. Project Manager and Biologist.

Exelon Power (2004-2005) - Environmental permitting, impact assessment, and sampling/regulatory evaluation of sediment for maintenance dredging at power plants in southeastern Pennsylvania. Biologist.

Jacques Whitford Company (2002-2005) - NJDEP Site Remediation Program baseline ecological evaluations of hazmat sites to assess contaminant migration pathways and determine potential impacts to nearby ecologically sensitive natural resources. Project Manager and Biologist.

Delaware County Solid Waste Authority (1996-2005) – Wetlands delineations, impact assessments, applications for PADEP and US Army Corps wetlands permits, and mitigation site design and post-construction monitoring for several landfill expansions in Berks County, Pennsylvania. Biologist.

Exelon Power (2004) - Prepared a summary of environmental regulatory approvals necessary for the installation of security facilities at three nuclear power stations in southeastern Pennsylvania. Biologist.

Chemsol (2002-2004) - Construction supervision and post-construction monitoring of created wetlands at a Superfund site in Middlesex County, New Jersey. Biologist.

Chester County, PA Department of Parks and Recreation (1999-2003) - Prepared a design plan for creating and enhancing over 40-acres of wetlands, vernal pools, and riparian zones. Particular emphasis was placed on habitat for migratory waterfowl, amphibians and rare species. Principal Designer.

Brown and Caldwell (2002) - Delineated wetlands at a New Jersey Meadowlands Superfund site and for proposed developments at an industrial park in Morris County, New Jersey. Project Manager/Biologist.

Browning Ferris International (2002) – Surveys for bog turtle habitat and bog turtles at a landfill expansion site in southeastern Pennsylvania. Project Manager and Biologist.

Southeastern Pennsylvania Transit Authority (2001) - Wetlands delineation and regulatory compliance services in support of improvements to a commuter rail line station. Project Manager and Biologist.

The H&K Group (2001) - Identified wetlands that were especially well suited for detecting potential hydrologic impacts from a nearby quarry operation based on proximity to the quarry, vegetation cover, hydrologic regime, and landscape position. Project Manager and Biologist.

Cowan Associates (2001) - Evaluated potential impacts for the proposed enclosure of a 250-feet section of intermittent stream in Bucks County, Pennsylvania. Project Manager/Biologist.

Allegheny Electric Corporation (2000-2001) - GIS mapping and analyses for the relicensing of a hydropower project on the Potomac River in Washington County, Maryland. Biologist.

PECO Energy Company (1996-2001) - Environmental regulatory compliance services for construction of a bridge and dredging of cooling water intake bays at a nuclear power station on the Susquehanna River in York County, Pennsylvania. Project Manager and Biologist.

Killam Associates (2000) – Wetlands delineation and regulatory compliance services for a municipal sewer line and outfall on the Schuylkill River in southeastern Pennsylvania. Project Manager and Biologist.

Osram-Sylvania (1999) – Stream and wetland evaluations for an ecological risk assessment of chromium contaminated groundwater at a site in Tioga County, Pennsylvania. Project Manager and Biologist.

U.S. Army Corps of Engineers (1998) - Delineated wetlands along a 3.5-mile reach of the South River and prepared an application for an NJDEP Letter of Interpretation for a proposed flood control project in Middlesex County, New Jersey. Biologist.

The Home Depot (1997) - Wetlands permitting for a retail outlet center in Chester County, Pennsylvania. Project Manager and Biologist.

PECO Energy Company (1996) - Siting feasibility studies for electric substations and wetlands services for construction of a natural gas transmission line in southeastern, Pennsylvania. Biologist.

NJ Department of Transportation (1996) - Delineated wetlands for several highway projects spread throughout the state. Biologist.

### **SPECIAL TRAINING**

OSHA-40 Hour Safety Certification and 8 Hour Safety Certification Refresher (Current)

Field Indicators of Hydric Soils in the Coastal Plain - Association of Profession Soil Scientists, 2009

Regional Delineation Manual Supplements Implementation and Use - U.S. Army Corps of Engineers, 2009

Ecological Risk Assessment Training - NJDEP, 2004 and PADEP, 2009

New Jersey Regionalized Water Budget Manual - Rutgers University, 2008

US Army Corps of Engineers and Pennsylvania DEP Wetlands Regulatory Update, 2008

Threatened and Endangered Species in New Jersey - Rutgers University, 1998 & 2007

NEPA and Transportation Decision Making - PA Department of Transportation, 2005

Constructed Wetlands for Waste/Storm Water Treatment - Environmental Concern, 2005

Hydric Soils and Use of Field Indicators - NRCS and US Army Corps of Engineers, 2005

Bog Turtles and the Environmental Review Process in Pennsylvania, 2004

Normandeau Associates, Inc.

Keith R. Maurice

NJDEP Freshwater Wetlands Regulations and Stream Encroachment Regulations -Rutgers University 2003

Bioengineering for Stream Restoration - Eagle Hill Seminars in Ecological Restoration, 1999

Wetland Hydrology and Wetland Planting Techniques - Environmental Concern, 1997

Wetlands Construction - Wetland Training Institute, 1995

Certified in Habitat Evaluation Procedures: U.S. Fish and Wildlife Service, 1992

Wetland Delineation Training - US Army Corps of Engineers, 1988; Chesapeake Bay Program Federal Wetlands Task Group, 1989; Institute for Wetland & Environmental Education & Research, 1998

Numerous courses and seminars in plant taxonomy, wetlands ecology, soils, hydrology, and geographic information systems

### SELECTED PEER-REVIEWED ARTICLES AND PUBLICATIONS

Maurice, K. R., Joan M. Welch, Christopher P. Brown, and Roger E. Latham. 2004. Pocono Mesic Till Barrens in Retreat: Topography, Fire and Forest Contagion Effects. Landscape Ecology 19: 603-620.

Maurice, K. R., R. W. Blye, and P. L. Harmon. 1987. Increased Spawning by American Shad Coincident with Improved Dissolved Oxygen in the Tidal Delaware River. Common Strategies of Anadromous and Catadromous Fishes, An International Symposium, American Fisheries Society Symposium. 1:79-88.

# JAMES D. MONTGOMERY, PH.D.

ECOLOGY III, INC. • 804 SALEM BOULEVARD • BERWICK PA 18603 Telephone: 570-542-2191 • Fax: 570-542-1625

TITLE

Terrestrial Studies Director

### EDUCATION

COOK COLLEGE, RUTGERS UNIVERSITY, NEW BRUNSWICK, NJ Methodology of Delineating Wetlands (1991) Understanding Soil Conditions of Wetlands (1991)

NATIONAL WETLANDS INSTITUTE
Wetlands Classification Training (1989)

NATIONAL ECOLOGY RESEARCH CENTER, COLORADO STATE UNIVERSITY Habitat Evaluation Procedure (1988)

University of Virginia Field Course in Pteridology (Summer 1972)

SMITHSONIAN INSTITUTION
Summer Institute in Systematics (Jun-Jul 1970)

RUTGERS UNIVERSITY, NEW BRUNSWICK, NJ Ph.D. (1964), M.S. (1961)

BUCKNELL UNIVERSITY, LEWISBURG, PA B. S. (1959)

#### CERTIFICATION

Wetland Delineator - Baltimore District, U. S. Army Corps of Engineers

# WETLAND DELINEATIONS AND EVALUATIONS

1989-present: Over 400 wetland delineations and evaluations performed for various clients.

J. D. Montgomery - Page 2

#### EXPERIENCE

ECOLOGY III, INC., 804 SALEM BOULEVARD, BERWICK, PA 18603 TERRESTRIAL STUDIES DIRECTOR, 1985-PRESENT

- PERFORM WETLAND DELINEATIONS AND EVALUATIONS FOR ENGINEERING AND DEVELOPMENT FIRMS AND INDIVIDUALS, INCLUDING DETECTION OF WETLAND PRESENCE, MARKING OF WETLAND BOUNDARIES, AND SECURING CORPS OF ENGINEERS JURISDICTION DETERMINATIONS.
- SUPERVISE FLORA AND VEGETATION MONITORING WITH RESPECT TO THE INFLUENCE OF THE SUSQUEHANNA STEAM ELECTRIC STATION.
- COLLECT ENVIRONMENTAL SAMPLES FOR THE RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM AND EMERGENCY RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM.

ICHTHYOLOGICAL ASSOCIATES, INC., R. R. #1, BERWICK, PA 18603 TERRESTRIAL RESEARCH DIRECTOR, 1977-1986

SAME RESPONSIBILITIES AS LISTED FOR ECOLOGY III, INC.

ICHTHYOLOGICAL ASSOCIATES, INC., 301 FOREST DRIVE, ITHACA, NY 14850 ENVIRONMENTAL BIOLOGIST, 1974-1977

STUDIES OF FLORA AND VEGETATION AT VARIOUS SITES INCLUDING ABSECON, NJ
(PROPOSED UNDERGROUND CABLE ROUTE IN SALT MARSH), THREE MILE ISLAND,
PA (QUANTITATIVE STUDIES OF VEGETATION IN RELATION TO POSSIBLE COOLING
TOWER SALT DRIFT), AND STAMFORD, NY (PROPOSED PUMPED STORAGE
RESERVOIR SITE AND TRANSMISSION RIGHTS-OF-WAY).

WARDLAW COUNTY DAY SCHOOL, PLAINFIELD, NJ INSTRUCTOR, 1973-1974

SECONDARY LEVEL COURSES IN BIOLOGY AND CHEMISTRY

University of Pennsylvania, Philadelphia, PA Instructor, 1973

 SUMMER GRADUATE COURSE IN ECOLOGY AND SYSTEMATICS FOR DEPARTMENT OF LANDSCAPE ARCHITECTURE.

ALLENTOWN COLLEGE, CENTER VALLEY, PA INSTRUCTOR, 1973 (TEMPORARY POSITION)

• COURSES TAUGHT: GENERAL BIOLOGY AND GEOBIOLOGY.

UPSALA COLLEGE, EAST ORANGE, NJ ASSISTANT PROFESSOR

 COURSES TAUGHT: GENERAL BIOLOGY, PLANT TAXONOMY, PLANT MORPHOLOGY, PRINCIPLES OF EVOLUTION, AND ECOLOGY.

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# PROFESSIONAL ORGANIZATIONS

AMERICAN FIRN SOCIETY
AMERICAN SOCIETY OF PLANT TAXONOMISTS
BRITISH PTERIDOLOGICAL SOCIETY
ECOLOGICAL SOCIETY OF AMERICA
PHILADELPHIA BOTANICAL CLUB

### PROFESSIONAL PUBLICATIONS

MONTGOMERY, J. D. AND D. E. FAIRBROTHERS. 1992. NEW JERSEY FERNS AND FERN ALLIES, RUTGERS UNIV. PRESS., NEW BRUNSWICK, NJ. 293 PP.

MONTGOMERY, J. D. AND W. H. WAGNER, JR. 1993. *DRYOPTERIS* IN FLORA OF NORTH AMERICA NORTH OF MEXICO. 2 + VOLS. UNIV. PRESS, NEW YORK, NY.

MONTGOMERY, J. D. 2000. *EQUISETACEAE* AND *SELACINE ILLACEAE* IN THE PLANTS OF PENNSYLVANIA BY A. F. RHOADS AND T. A. BLOCK, UNIV. OF PENNSYLVANIA PRESS, PUBLADELPHIA.

PARKS, J. C. AND J. D. MONTGOMERY. 2000. FERNS IN THE PLANTS OF PENNSYLVANIA BY A. F. RHOADS AND T. A. BLOCK. UNIV. OF PENNSYLVANIA PRESS, PHILADELPHIA.

OVER 40 ARTICLES PUBLISHED IN SCIENTIFIC JOURNALS.



# CHRISTOPHER JOHN ROCHE

# **Project Biologist**

Mr. Roche has over 9 years' experience in the areas of wetlands, conservation biology, wildlife biology, and natural resources management. He is responsible for providing a wide range of wetlands and terrestrial ecological services to insure that projects comply with state and federal regulations, and qualify for necessary permits. He has worked in a variety of ecosystems throughout the continental U.S. and the Territory of Guam with a variety of government, commercial, and residential clients, including over 20 military facilities.

His duties include wetlands delineations, rare plant and animal surveys and monitoring, electrofishing for fish community surveys, macroinvertebrate sampling, environmental impact assessments, and preparation of applications for state and Federal wetlands permits.

#### **EDUCATION**

Certificate of Graduate Study (In-progress); Ecology, Evolution, and Organismal Biology; Villanova University

B.S. 1998, Environmental Studies, Richard Stockton College of New Jersey

# PROFESSIONAL EXPERIENCE

2008-Present Normandeau Associates e²M, Inc.

2001-2002 Matrix Environmental and

Geotechnical Services

2000-2001 Hillmann Environmental

Group, LLC

## **PROFESSIONAL AFFILIATIONS**

The Wildlife Society (Northeast Section and Pennsylvania Chapter member)
Society for Conservation Biology

### SELECTED PROJECT EXPERIENCE

AREVA (2008-Present) – Year-long wetlands delineation, plant community, regulatory compliance consulting, and impacts assessment. Wetlands Biologist.

DMJM Harris (2008-Present) – Monitored an active bald eagle nest at the Philadelphia Navy Yard (PNY) and documented the successful fledging of one juvenile bird. Currently monitoring the behavior of the adult birds and juvenile as they continue to utilize the PNY, Delaware River, and surrounding areas of both PA and NJ for perching, roosting, and foraging. Biologist.

Fisher Mining Co. (2008) – Macroinvertebrate sampling in support of ecological studies to evaluate the effectiveness of a treatment facility on acid mine drainage into Otter Run, Lycoming Co., PA. Sampling conducted using rock baskets placed at reference and experimental stations. Biologist.

Aventis Pasteur (2008) – Fish sampling in support of ecological studies on the impact of discharge from a veterinary pharmaceutical plant on Swiftwater Creek in the Pocono Mountains in northeast PA. Biologist.

Exelon Energy (2008) – Fish sampling in support of ecological studies for the Limerick Generating Station Water Supply Modification Demonstration Project and Wadesville Mine Pool Withdrawal and Stream Flow Augmentation Demonstration Project. Biologist.

U.S. Coast Guard (USCG) (2008) – Assisted in the preparation of a Programmatic Environmental Impact Statement (PEIS) for the Future of the Long Range Aids to Navigation (LORAN) Program. The PEIS provides a general level of analysis of environmental impacts on the 24 LORAN Stations, 24 Monitoring Sites, and the LORAN Support Unit (LSU) for each of the four proposed actions: (1) Decommission the USCG LORANC Program and Terminate the North American LORANC Signal, (2) Transfer Management of

the LORANC Program to another government agency, (3) Automate, Secure, and Unstaff LORANC Locations, and (4) No Action Alternative. Primary author of the existing conditions and environmental consequences sections for the following resource areas: geology and soils, wetlands and waters of the U.S., migratory birds and bats, and threatened and endangered species. Biologist.

Exelon Energy (2008) – Fish sampling in the East Branch Perkiomen Creek, part of the Point Pleasant Water Diversion Project, Bucks and Montgomery Counties, PA. Biologist.

Confidential Client (2008) – Assisted in the preparation of the marine geology and sediments resource areas for the Safe Harbor Energy LNG Deepwater Port License Application. The deepwater port consists of three components: an artificial island; LNG receiving, storage, and regasification facility; and a subsea pipeline in the New York Bight off Long Island, NY. Assessed existing conditions and environmental consequences sections for the marine geology and sediments resource sections. Biologist.

Woodard & Curran (2008) – Data search, literature synthesis, and reference annotation for potential effects regarding the construction of a proposed onshore and nearshore LNG Terminal in the intertidal and marine estuarine portion of the St. Croix River in the vicinity of Calais, ME. Analysis of the proposed Vessel Route was also conducted. Information gathered and summarized for coastal and marine avifauna.

National Park Service (NPS) (2008) – Assisted in the preparation of an EA addressing the replacement of a failing seawall and concrete woven mattress with a new sheet pile wall and riprap slope in the American Memorial Park (AMME) located on the island of Saipan, Commonwealth of the Northern Mariana Islands (CNMI). Primary author of existing conditions and environmental consequences sections for the following resource areas: geology and soils, groundwater, water quality, biotic communities, and coastal resources. Prepared a coastal consistency determination for the NPS to ensure compliance with the Coastal Zone Management Act. Biologist.

U.S. Customs and Border Protection (CBP) (2007-2008) – Conducted an Environmental Due Diligence Assessment (EDDA) prior to construction of new fence sections on the U.S. – Mexico border for CBP's El Paso Sector in TX and NM. Utilizing American Society of Testing and Materials (ASTM) Standards, the proposed site was investigated primarily to identify Recognized Environmental Conditions (REC). Biologist.

CBP (2007-2008) – Assisted in the preparation of an EIS addressing construction of new fence sections on the U.S. – Mexico border for CBP's San Diego and El Centro Sectors in CA and Marfa Sector in TX. Primary author of existing conditions and environmental consequences sections for the following resource areas: geology and soils, hydrology and groundwater, floodplains, and wetlands and waters of the U.S. Biologist.

CBP (2007-2008) – Assisted in the preparation of an EIS addressing construction of new fence sections on the U.S. – Mexico border for CBP's Rio Grande Valley Sector in TX. Primary author of existing conditions and environmental consequences sections for the geology and soils resource areas. Biologist.

Air National Guard (ANG) (2007-2008) – Primary author of the Wildland Fire Management Plan (WFMP) for Smoky Hill Air National Guard Range (ANGR) in KS. Compiled National Wildfire Coordinating Group (NWCG) and ANG wildland firefighting monitoring requirements, attack plan procedures, and training requirements; wildfire and prescribed burn records; and data on cultural and natural resources on the Range into one comprehensive document that caters specifically to the needs of Smoky Hill

ANGR wildland firefighters. Created adaptive management protocols designed to protect life, property, and sensitive resources on the Range; restore the natural role of fire to this grassland ecosystem; and successfully implement the military mission. Biologist.

ANG (2007-2008) – Conducted electroshock surveys of a pond and two stream sections on McEntire Joint Air National Guard Base (JANGB) in SC for determination of fish diversity and abundance. Surveyed natural areas on Base for the presence of herpetofauna and to determine ideal areas for a coverboard survey. Coverboards were placed in select locations as refugia and checked weekly in March and April to determine diversity and abundance of herpetofauna. Diversity and abundance data for fish and herpetofauna were then used to create a Fish, Reptile, and Amphibian Management Plan for McEntire JANGB. Biologist.

ANG (2006-2008) – Primary author of the Fish and Wildlife Management Plan (FWMP) for Warren Grove Range in NJ. Incorporated years of research conducted on the Range into one comprehensive document to direct fish and wildlife management on Warren Grove Range and develop adaptive management protocols which serve to protect biodiversity as well as successful implementation of the military mission. Biologist.

USAF Pacific Air Forces (PACAF) (2006-2008) - Primary author of the 2008 Integrated Natural Resources Management Plan (INRMP) for Andersen AFB on the Territory of Guam. Responsibilities included collection of field data and directing the research of climate, topography, geology, soils, surface water, ground water, wetlands, vegetative cover, fauna, and threatened and endangered species and developing adaptive management protocols which serve to protect biodiversity as well as successful implementation of the military mission. Biologist.

ANG (2005-2008) – Primary author of INRMPs for Selfridge Air National Guard Base (ANGB) in MI, Warren Grove Range in NJ, and Smoky Hill ANGR in KS. Responsibilities included directing the research of the climate, topography, geology, soils, surface water, ground water, wetlands, vegetative cover, fauna, and threatened and endangered species and developing adaptive management protocols which serve to protect biodiversity as well as successful implementation of the military mission. Successfully coordinated with the pertinent State wildlife agencies and USFWS Field Offices to fulfill Sikes Act requirements. Biologist.

Confidential Client (2007) – Assisted in the preparation of the terrestrial geology and soils resource areas for the onshore pipeline portion of the Port Dolphin LNG Deepwater Port License Application. The deepwater port consists of three components: two submerged unloading and mooring buoys, an offshore pipeline, and an onshore pipeline in the Gulf of Mexico off Tampa Bay, FL. Biologist.

U.S. Air Force Reserve Command (AFRC) (2007) – Conducted electroshock surveys of two ponds on Dobbins Air Reserve Base (ARB) in GA for determination of fish diversity and abundance. Surveyed natural areas on Dobbins ARB for the presence/absence of several rare plant and animal species. Biologist.

U.S. Air Force (USAF) Air Mobility Command (AMC) (2007) – Delineated wetlands for the AMC on a portion of Fort Dix in NJ as part of a project to link Fort Dix and McGuire AFB. Delineation performed in order to assist in project planning to avoid or minimize impacts to potential jurisdictional wetlands and buffers. Responsibilities included collection of wetland field data, utilizing a Trimble GPS unit to input wetland data points, and assisting with identification of soil types and vegetation. Biologist.

USAF AMC (2007) – Delineated wetlands on Moody Air Force Base (AFB) in GA to determine jurisdictional wetlands Base-wide. Responsibilities included collection of wetland field data, utilizing a Trimble GPS unit to input wetland data points, and assisting with identification of soil types and vegetation. Biologist.

ANG (2006-2007) – One of the primary authors of an INRMP for the Hardwood Air-to-Ground Range and Volk Field Combat Readiness Training Center (CRTC) in WI. Responsibilities included directing the research of the climate, topography, geology, soils, surface water, ground water, wetlands, vegetative cover, fauna, and threatened and endangered species and developing adaptive management protocols which serve to protect biodiversity as well as successful implementation of the military mission. Biologist.

Defense Logistics Agency (DLA) (2006-2007) – Primary author of the 2007 INRMP for the Defense Distribution Depot Susquehanna Pennsylvania (DDSP) in New Cumberland, PA. Responsibilities included collection of field data and directing the research of the climate, topography, geology, soils, surface water, ground water, wetlands, vegetative cover, fauna, and threatened and endangered species and developing adaptive management protocols which serve to protect biodiversity as well as successful implementation of the military mission. Successfully coordinated with the PA Game Commission (PAGC), PA Department of Conservation and Natural Resources (PADCNR), PA Fish and Boat Commission (PAFBC), and USFWS – PA Region and Region 5 Offices to fulfill Sikes Act requirements. Biologist.

ANG (2006) – Delineated wetlands and assessed functions and values of wetlands for the 179th Airlift Wing of the OHANG on Mansfield Lahm Municipal Airport in Mansfield, OH to determine jurisdictional wetlands for the RED HORSE Beddown Site. Responsibilities included collection of wetland field data, utilizing a Trimble GPS unit to input wetland data points, and assisting with identification of soil types and vegetation. Coordinated with OH Department of Natural Resources to determine if threatened and endangered species occurred within the boundaries of the Project Area. Biologist.

USAF AMC (2005-2006) – Delineated wetlands on McGuire AFB in NJ to determine jurisdictional wetlands Base-wide and prepared an application for an NJ Pinelands Commission (NJPC) Application for Development. Responsibilities included collection of wetland field data, utilizing a Trimble GPS unit to input wetland data points, and assisting with identification of soil types and vegetation. Biologist.

ANG (2005-2006) – Delineated wetlands on Hardwood Air-to-Ground Range and Volk Field CRTC to reconfirm jurisdictional wetlands on the Installations and determine if any new jurisdictional wetlands were present. Responsibilities included collection of wetland field data, utilizing a Trimble GPS unit to input wetland data points, and assisting with identification of soil types and vegetation. Biologist.

New Mexico Army National Guard (NMARNG) (2004-2006) – Primary author of the 2006 INRMP for four NMARNG Training Sites: Camel Tracks, Roswell WETS, Black Mountain, and Happy Valley. Responsibilities included collection of field data and directing the research of the climate, topography, geology, soils, surface water, ground water, wetlands, vegetative cover, fauna, and threatened and endangered species on each Training Site as well as developing adaptive management protocols which serve to protect biodiversity as well as successful implementation of the military mission. Successfully coordinated with NM Department of Game and Fish (NMDGF) and USFWS – NM Ecological Services Field Office to fulfill Sikes Act requirements. Biologist.

AMC (2004-2005) – Primary author of the 2005 INRMP for Fairchild AFB in WA. Responsibilities included collection of field data and directing the research of the Installation's climate, topography,

geology, soils, surface water, ground water, wetlands, vegetative cover, fauna, and threatened and endangered species and developing adaptive management protocols which serve to protect biodiversity as well as successful implementation of the military mission. Successfully coordinated with the WA Division of Fish and Wildlife (WADFW), WA Natural Heritage Program (WANHP), and USFWS – Upper Columbia Fish and Wildlife Office to fulfill Sikes Act requirements. Biologist.

Arkansas Army National Guard (ARARNG) (2004-2005) – Performed an Environmental Baseline Survey (EBS) at an ARARNG Facility Maintenance Shop in Jonesboro, AR. Utilizing ASTM Standards, the proposed site was investigated primarily to identify REC. A findings report was then generated from the data collected in the field and the results of Federal and State environmental database searches. Biologist.

AFRC (2003-2005) – Primary author of the 2005 INRMP for Westover ARB in MA. Responsibilities included collection of field data and directing the research of the Installation's climate, topography, geology, soils, surface water, ground water, wetlands, vegetative cover, fauna, and threatened and endangered species and developing adaptive management protocols which serve to protect biodiversity as well as successful implementation of the military mission. Coordinated with the MA Division of Fish and Wildlife (DFW) and USFWS – Northeast Regional Office to fulfill Sikes Act requirements. Biologist.

AFRC (2004) – Delineated wetlands on Westover ARB in MA to reconfirm jurisdictional wetlands on Base and determine if any new jurisdictional wetlands were present. Responsibilities included collection of wetland field data, utilizing a Trimble GPS unit to input wetland data points, and assisting with identification of soil types and vegetation. Biologist.

USAF AMC (2004) – Delineated wetlands, conducted Federally-listed bog turtle habitat and swamp pink surveys, and mapped invasive species on McGuire AFB in NJ prior to privatization of the housing areas in the north portion of the Base. Responsibilities included collection of wetland field data, utilizing a Trimble GPS unit to input wetland data points, and assisting with identification of soil types and vegetation. Biologist.

U.S. Army (2004) – Performed an EBS prior to a proposed land transfer from Fort Hood in Killeen, TX to the Texas A&M University System (TAMUS). Utilizing ASTM Standards, the proposed site was investigated primarily to identify REC. Biologist.

AFRC (2003-2004) – One of the primary authors of the 2004 INRMP for March ARB in CA. Responsibilities included collection of field data and assisting the Project Manager in directing the research of the Installation's climate, topography, geology, soils, surface water, ground water, wetlands, vegetative cover, fauna, and threatened and endangered species and developing adaptive management protocols which serve to protect biodiversity as well as successful implementation of the military mission. Biologist.

ANG (2002-2004) – Inputted data collected in the fall of 2002 on the Hardwood Air-to-Ground Range and Volk Field CRTC in WI and selected vegetative cover types to formulate a Fall Biological Survey Report. In the spring of 2003, collected wildlife habitat suitability data using USFWS HEP as well as GPS data of wild lupine locations to assist in assessing reproductive habitat for the Federally-listed Karner Blue Butterfly. In the summer of 2003, collected accuracy assessment data for the development of a vegetative key for the vegetative alliances on these Installations. Biologist.

ANG (2002-2004) - Inputted data collected in the fall of 2002 on Selfridge ANGB in MI to formulate a

Fall Biological Survey Report. In the spring of 2003, collected accuracy assessment field data for vegetative cover types identified in the Fall Biological Survey and assisted in the recording of bat calls utilizing AnaBat II. Using data collected during the spring site visit, generated a vegetative key and photo-interpretation key for vegetative alliances on Base as well as an assessment of Indiana bat habitat for the Spring Biological Survey Report. In the summer of 2003, collected wildlife habitat suitability data using USFWS habitat evaluation procedure (HEP) and generated Summer Biological Survey Report to determine habitat suitability for wildlife on Selfridge ANGB. These three reports were then compiled into a Comprehensive Biological Survey Report. Biologist.

AFRC (2003) – One of the primary authors of the Erosion & Sedimentation Control and Grading Plan for Youngstown ARB in OH. Responsibilities also included the collection of field data and ensuring that the final document was to the satisfaction of the clients. Project Manager/Biologist.

USAF (2003) – Delineated wetlands in response to proposed changes to the west side of Manchester Road on Pope AFB in NC. Responsibilities included collection of wetland field data, utilizing a Garmin GPS unit to input wetland data points, and assisting with identification of soil types and vegetation. Assisted in the creation of a wetland delineation map utilizing GIS.

ANG (2003) – Created a dichotomous key to implement the Warren Grove Range Erosion and Sedimentation Control and Roads Maintenance Plan.

AFRC (2003) – Performed an EBS of the Claiborne Air-to-Ground Weapons Range in LA in response to proposed expansion of the buffer zone. Utilizing ASTM Standards, the proposed site was investigated primarily to identify REC. Responsibilities included successful coordination with the U.S. Forest Service (USFS) as the Range is located entirely within the Evangeline Unit of the Calcasieu Ranger District in the Kisatchie National Forest. Biologist.

AFRC (2003) – Assisted in the preparation of several EAs addressing construction activities and military airspace modifications on March ARB in CA. Primary author of the existing conditions and environmental

consequences sections for the following resource areas: biological resources, water resources, and geological resources. Biologist.

NPS (2002-2003) – Performed a Phase I site assessment of Curry Village and the East Yosemite Valley in Yosemite National Park (YOSE). Utilizing ASTM Standards, the proposed site was investigated primarily to identify REC. Biologist.

Utah Army National Guard (UTARNG) (2002-2003) – Assisted in the preparation of several EAs for the UTARNG addressing construction activities and military training activities for several sites in throughout the state. Primary author of the existing conditions and environmental consequences sections for the following resource areas: biological resources, water resources, and geological resources. Biologist.

NJ Turnpike Authority (NJTA) (2002) – Assisted the Project Manager in the preparation of a threatened and endangered species survey report for the Newark Bay Bridge prior to a bridge repainting project. Assisted in designing the methodology for and performing the threatened and endangered species survey for the NJ state-listed peregrine falcon. Documented the presence of a nesting pair of peregrine falcons under the Newark Bay Bridge, and provided management strategies designed to assist the recovery of these sensitive species while allowing the project to commence. Biologist.

Verizon Wireless (2001-2002) – Delineated wetlands and conducted Phase I Environmental Site Assessments (ESAs) and NEPA screenings of proposed cellular tower and collocation sites throughout the state of NJ. Wetlands were identified and mapped to assist the client in applying for any necessary permits through the NJDEP. Utilized ASTM Standards to identify REC and identified threatened and endangered species habitat, historic sites, and historic structures. Biologist.

NJTA (2001-2002) – Assisted a diverse group of scientists in preparing Executive Order (EO) 215 EAs for the Grand Street Ramp Extension of the NJ Turnpike in Jersey City, NJ and the Route 9 Ramp Extension of the Garden State Parkway in Sayreville, NJ analyzing construction activities on biological resources, especially threatened and endangered species and wetlands, hazardous materials and wastes, cultural resources, land resources, aesthetic resources, water resources, and air quality in accordance with the requirements of the Clean Air Act. Conducted informal consultations with the USFWS as a part of these EAs. Biologist.

NJTA (2001-2002) – Assisted in the preparation and review of the EIS for the Route 92 Corridor project in Plainsboro, NJ. Assisted a diverse group of scientists in analyzing the affects of the highway construction activities on biological resources, especially threatened and endangered species and wetlands, hazardous materials and wastes, cultural resources, land resources, aesthetic resources, water resources, and air quality in accordance with the requirements of the Clean Air Act. Biologist.

Verizon (2001) – Performed air quality monitoring at Verizon's 140 West building in response to the World Trade Center (WTC) disaster. This building was immediately adjacent the WTC and responsible for phone service to lower Manhattan. The collapse of the WTC resulted in the interruption of this service and the rupture of diesel and kerosene tanks in the sub-basement. Monitored the air quality of the areas occupied by workers and assisted in the remediation of these areas to reestablish safe levels. Industrial Hygienist.

Various Commercial Clients (2001) – Performed Phase I ESAs on various properties throughout NJ and NY for various commercial clients. Utilizing ASTM Standards, the proposed site was investigated primarily to identify REC. Biologist.

Various Commercial Clients (1999-2001) – Performed indoor air quality investigations of commercial office buildings for the purpose of maintaining a database and in response to occupant complaints. These investigations consisted of the measurement of various common indoor air quality contaminants selected after consultation with the client. The information was then analyzed and findings issued to the client in report form with recommendations to remediate if necessary. Industrial Hygienist.

Various Commercial Clients (1999-2001) – Performed investigations of commercial buildings and private residences in response to complaints of microbial contamination. A visual inspection of the structure was conducted and samples of potential microbial growth were collected using sterile swabs and air sampling techniques. The samples were then sent to a lab for culture and the results analyzed and presented to the clients in a report format with recommendations if remediation was necessary. Assisted in the preparation of and implementation of this remediation. Industrial Hygienist.

NPS (May-July 1998) – Completed a voluntary internship as a biological research assistant in Carlsbad Caverns National Park (CAVE). Responsibilities included the collection of mountain lion scat and the observation of tracks and scrapes on a predetermined transect. Assisted in the cataloging of transect data for an ongoing study on mountain lion population density and dispersion on park lands. Additional responsibilities included field observation and data collection for an ongoing study of brown-headed

cowbird nest parasitism on neo-tropical migrants, particularly the NM state-listed Bell's vireo. Conducted removal of invasive exotic plant and animal species on park lands, particularly American bullfrog in the Rattlesnake Springs Preserve. Collected and cataloged plant species on CAVE lands and determined if native or exotic to assist in the park's native re-vegetation plans. Biologist.

#### SPECIAL TRAINING

Systematic Conservation Planning: Concepts, Case Studies, and Application of Software Short Course; June 24, 2006

USAF UXO Safety Training, 2007

Habitat Evaluation Procedure (HEP) Training – Syracuse University, July 2003

Freshwater Wetlands Rules Revisions – Rutgers University, 2001

Using Microbial Communities to Assess Ecological Function of Salt Marshes – Rutgers University, 2001

Bioremediation of Petroleum Contaminated Salt Marshes – Rutgers University, 2001

Threatened and Endangered Species of Northern New Jersey – Rutgers University, 2001

Environmental Audits and Site Assessments – Rutgers University, 2001

Introduction to Wetland Identification – Rutgers University, 2000

GIS for Environmental Evaluations – Rutgers University, 2000

NIOSH/OSHA 40-hour Hazardous Materials Safety and Handling Course



# JAYME B. SCHAEFFER

# Field Biologist

As a field biologist for Normandeau, Mr. Schaeffer has biological sampling experience surveying fish communities using electrofishing, seining, and ichthyoplankton netting techniques and assisted with the collection of benthic macroinvertebrate samples with sediment grab samplers. He also has experience collecting ichthyoplankton, fish, and crab samples as required for Clean Water Act 316(b) studies.

In addition, Mr. Schaeffer has training and experience in environmental sampling and measurement and has collected groundwater and surface water, and sediment samples for laboratory analysis.

#### **EDUCATION**

B.S. 2003, Wildlife and Fisheries Science, The Pennsylvania State

University

### PROFESSIONAL EXPERIENCE

2005-Present Normandeau Associates2005 Bower's Marine

2005 Cabela's Inc. 2004 Lendacki Construction

#### PROFESSIONAL AFFILIATIONS

The Wildlife Society

Pennsylvania Society for Ornithology

### SELECTED PROJECT EXPERIENCE

AREVA/UniStar Bell Bend Nuclear Power Plant (2007-Present) - Extensive year-long survey of terrestrial vertebrates, wetlands and upland habitats including birds, mammals, reptiles and amphibians. Also assisted in fisheries data collection in multiple water bodies around proposed site (Salem Township, Luzerne County, PA). Biologist.

Exelon Power (2005-Present) - Schuylkill Generating Station. Responsible for installing, operating, and maintaining entrainment and impingement sampling equipment for an ichthyoplankton study on the Schuylkill River in Pennsylvania. Field Biologist.

Exelon Power (2005-Present) - Fairless Hills Steam Generating Station. Responsible for installing, operating, and maintaining entrainment and impingement sampling equipment for an ichthyoplankton study on the tidal Delaware River in Pennsylvania. Field Biologist.

Exelon Power (2005-Present) – Eddystone Generating Station. Responsible for installing, operating, and maintaining entrainment and impingement sampling equipment for an ichthyoplankton and blue crab study on the tidal Delaware River in Pennsylvania. Field Biologist.

Hunting Ridge/Sandy Hill Landfills (2005-Present) - Collection of ground and surface water, leachate samples and monitoring methane levels of groundwater wells and along landfill boundaries. Environmental Technician.

Waste Management, Inc. (2005-Present) - Collection of filter cake samples from treatment plant at G.R.O.W.S. Landfill (Bucks County, PA.). Sampling and analysis program required for delisting of filter cake as a hazardous waste. Field Technician.

Exelon Power (2005-Present) - Cromby Generating Station. Responsible for installing, operating, and maintaining entrainment and impingement sampling equipment for an ichthyoplankton study on the Schuylkill River in Pennsylvania. Field Biologist.

Reading Anthracite Company (2008) – Wind RTE & Wildlife. Conducted a wildlife and habitat survey as requested by the Pennsylvania Game Commission in response to a PNDI review for a proposed wind power project in Schuylkill County. Included a hibernacula survey for Northern myotis and small-footed bats as well as an Indiana bat mist net survey and an Allegheny woodrat habitat survey. Field Biologist.

AREVA (2008) – Conducted an Indiana bat survey at the site of the proposed Bell Bend Nuclear Power Plant in Pennsylvania. Field Biologist.

North East Ecological Services (2006) – Setup and monitoring of two perspective sites for wind power generation in Lycoming County, PA. Monitoring done using "Anabat" technology for the detection of Pennsylvania bats. Biologist.

Clipper Wind Energy/TetraTech (2006) - Determined species composition, spatial and temporal distribution of birds at a proposed wind energy site in Finger Lakes region of western New York (Paragon Wind Energy Project, Hornby NY). Determined identity and abundance of migrating land birds, colonial nesters and waterfowl, spring and summer 2006. These data were reported to the client with a discussion of the timing, height and duration of migration and potential impacts of rotating turbines on birds. Biologist.

Geryville Materials, Inc. (2006) –Conducted an Indiana Bat Mist Net Survey on a 700-acre proposed quarry site in Lower Milford Township, Lehigh County, PA. Field Biologist.

Environ Inc. (in association with Biodiversity Research Institute) (2006) - Penobscot River Mercury Study. Extensive study to assess mercury concentrations in water, sediment, invertebrates, fish, birds, and mammals in the Penobscot River from Millonocket Maine south to Islesboro. Work included live trapping of minks and otters, with blood and fur collection, as well as coordination with local trappers to secure carcasses, which were analyzed for fur and tissue. Project Biologist.

Exelon, LLC (2006) – Amergen Facility. Assisted with the installation and removal of fish containment booms and the monitoring of aquatic conditions during a reactor outage at a nuclear generating facility. During the event, field teams of biologists monitored the facilities discharge canal looking for any stressed or dying fish or marine organisms, conducted water temperature surveys, and collected target fish species for analytical and beneficial use purposes. Biologist.

Cummmings/Riter Consultants, Inc. (2005) – Collection of fish tissue for PCB contaminant analysis in the Shenango River at Sharon, PA. These samples involved the use of an electrofishing unit to obtain a representative sample of resident fish species in the vicinity of a superfund site. Biologist.

#### **SPECIAL TRAINING**

National Safety Council- Adult CPR & First Aid

Bat Ecology and Identification Summer 2006. Cal Butchkowski Pennsylvania Game Commission