ENFORCEMENT REFERRAL
OIL & GAS MANAGEMENT PROGRAM

Case Name: PGE Reed Run 2145 Well Pad Site

Well Permit # 105-21500

Municipality: Roulette Twp.

County Potter

Efacts Inspection #: 1826567 **Complaint ID#** _____

Violations and Inspector Recommendations

See inspection report – encroachment without a Chapter 105 permit. Well pad site built on top of an EV wetland. Excavations intercepted and diverted flow from this wetland and stream complex. Nancy Mullens – US Army Corps Pittsburgh District – immediately issued a stop work order to PGE. The Corps should be consulted for the appropriate mitigation for the impacts. However, I recommend that DEP pursue its own enforcement action for this violation, considering the other outstanding violations at this site relating to Chapter 102.

Penalty Assessment/Calculation Comments:

Specialist/Inspector: _____ Date: _____

Recommendations/Comments:

O&G Supervisor: John W. Ryder 9-10-09 Date: _____

CommentsActions:

O&G Program Manager Jennifer W Means Date: 9/21/09

CommentsActions: Received response from PGE's counsel. May need to review prior to further action.

3930-FM-WM0133 Rev. 4/2009

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATERSHED MANAGEMENT

DEP Data Records	Inspection Record # 1826567
Complaint Record #	Enforcement Record #
Permit # 105-21500	

WATER OBSTRUCTION AND ENCROACHMENT INSPECTION REPORT

DEP/CCD Office	NCRO - O&G	Phone 570-327-3636	Project Type: Natural Gas Well - "Reed Run 2145"
Address	208 West Third Street, Suite 101		Location: Card Creek Road, Susquehannock State Forest
	Williamsport, PA 17701		County: Potter
Owner/Permittee	Pennsylvania General Energy Corporation	Phone	Municipality: Roulette Twp.
Mailing Address	120 Market Street		Water Course or Body of Water: Healey Hollow
	Warren, PA 16365		Latitude: 41° 43' 41.73" N
			Longitude: 78° 10' 5.39" W

Type of Inspection:
☐ ADMIN - Administrative / File Review ☐ CONST - Construction Progress ☐ OTHER _____
☒ CEI - Compliance Evaluation ☐ FUI - Follow-up Inspection
☐ COMPL - Complaint Inspection ☐ INCDT - Incident response

INSPECTION FINDINGS

Failure to:	Violation? *(Check if yes)*
Obtain a Chapter 105 permit	☒ [105.11] 693.6/18
Operate or maintain permitted project	☐ [105.51] 693.13/18
Acknowledge permit conditions	☐ [105.42] 693.18
Maintain a valid permit	☐ [105.43] 693.18

Failure to:	Violation? *(Check if yes)*
Perform work according to specifications	☐ [105.44] 693.18
Implement Erosion and Sediment Control Plan	☐ [105.46] 693.18
Obtain Department approval for Environmental Assessment	☐ [105.15] 693.18
Other:	☐ [ ]

Inspection Results Code:
☐ NOVIO (No violations noted) ☐ OUTST (Outstanding violations) ☐ RECUR (Recurring violations)
☐ VIOIC (Violations noted and immediately corrected) ☐ VIOLS (Violation(s) noted) ☒ VOV (New and outstanding violations noted) ☐ VRV (New and recurring violations noted)

Describe site conditions and violations, including all pertinent dimensions and the actual or planned impacts to watercourses or bodies of water. For permitted work, confirm compliance or specify violations.

PGE permanently impacted an EV forested wetland and stream complex both by severely altering the topography and the placement of fill material. They have permanently impacted Waters of the Commonwealth by converting forested wetlands, filling in wetlands, altering hydrology, and intercepting and diverting flow. Significant hydrological indicators were noted in two site visits several weeks apart, including the presence of surface water, saturation visible on aerial imagery, sparsely vegetated concave surfaces, water-stained leaves, microtopographic relief. Hydromorphic adaptions of plants were also noted, including prop roots, hummocks, and shallow root systems. Hydrophytic vegetation was also present, including Clinton's Wood Fern (Dryopteris clintonania - FACW+), which was dominant in the wetland mosaic. Nancy Mullens - US Army Corps Pittsburgh District - immediately issued a verbal stop work order to PGE by phone and will follow up with a formal letter. The Corps will also be following up with DCNR Bureau of Forestry, who is the landowner, for several encroachments that occurred along Card Creek Road, presumably in support of PGE's activities. Other violations were noted on site by WQS Mark Barbier relating to Chapter 102 violations. A significant amount of sediment was deposited off site and in the nearby stream (Healey Hollow). E&S controls were not adequate.

Sketch attached? ☐ Yes ☒ No **Photos taken?** ☒ Yes ☐ No **Additional information attached?** ☐ Yes ☒ No

Inspector name (print): Andrew D. Klinger	Inspector Signature: Andrew D. Klinger	Date and Time: 9/1/2009 10:05 AM
Inspector was accompanied by: ☐ Owner ☐ Permittee ☒ Other: Nancy Mullens - US ARMY CORPS	Signature of Owner/Permittee: Print Name:	Date:

The Owner/Permittee's signature acknowledges that they have read the report and received a copy and that they were given the opportunity to discuss it with the inspector. The signature does not necessarily mean that they agree with the report.

☐ White – DEP ☐ Yellow – Owner/Permittee

5500-PM-OG0002 Rev 3/97

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Oil and Gas Management Program
WELL LOCATION PLAT

DEP USE ONLY	DEP Application Tracking #	G: ACO 6/16/08
	Permit # 115-21500	C:
	Project #	

Top Hole Location
NAD 27 (±0.02")

Denotes location of well on topo map.

True Latitude: NORTH
41° 43' 41.50"

True Longitude: WEST
78° 10' 06.36"

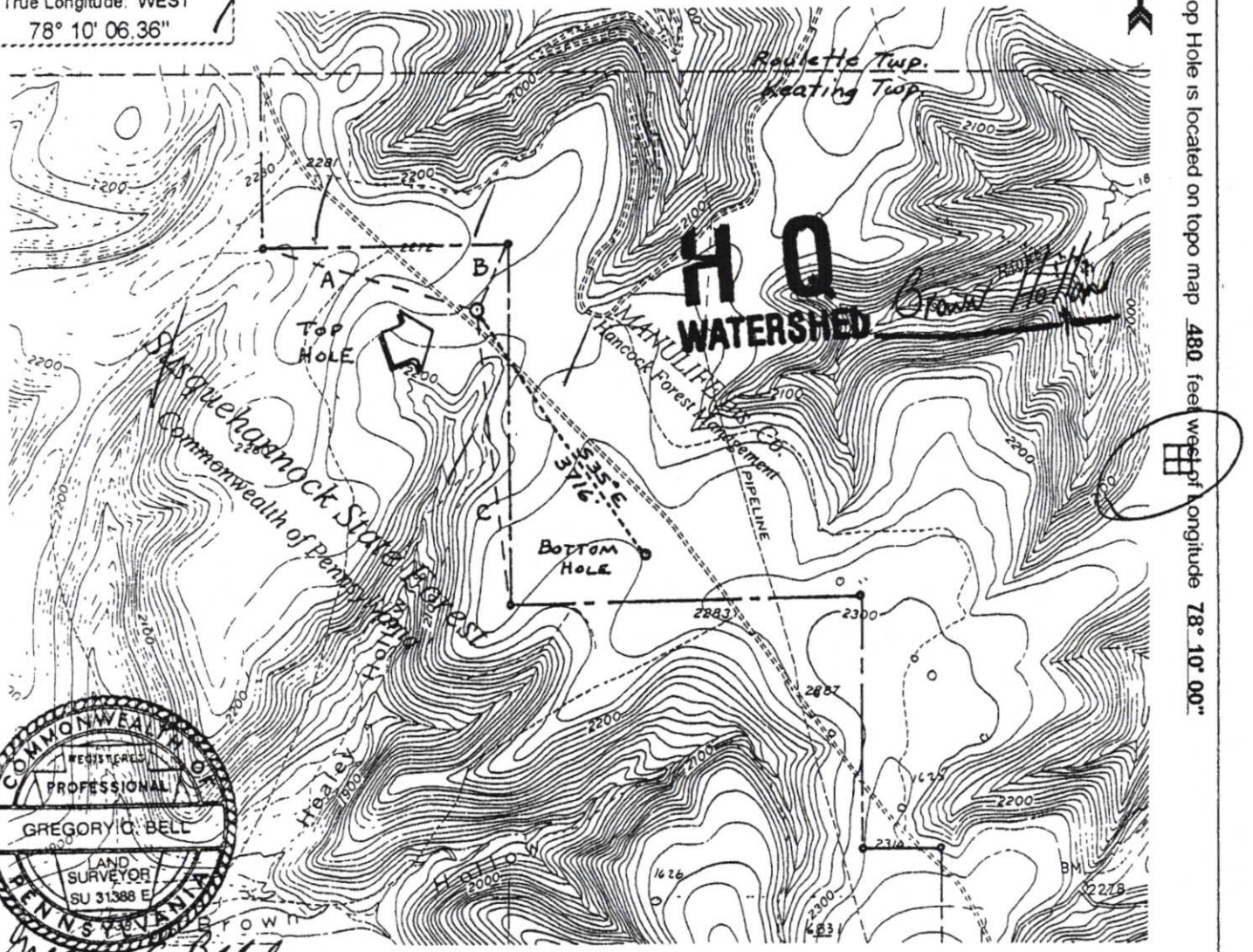
Top Hole is located on topo map **7945** feet south of Latitude **41° 45' 00"**

NOTE: Large Tract, Limits of ownership are too extensive to show at this scale.

Location Ties

A - S 73°35' E - 2780'
B - S 25°32' W - 916'
C - N 7°04' W - 3696'

SP Grid



Top Hole is located on topo map **480** feet west of longitude **78° 10' 00"**

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
GREGORY C. BELL
LAND SURVEYOR
SU 31388 E
PENNSYLVANIA

Gregory C. Bell

Surveyor or Engineer: Gregory C. Bell, PLS
Heritage Surveys (814) 225-3484

Date: May 28, 2008

Scale: 1" = 2000'

Tract Acreage

Lat & Long Metadata
Method: TOPCON (L2) GPS Accuracy: 2 ± ft Datum: NAD 27

Elevation Metadata
Method: Topo Interpolation Accuracy: 10 ± ft. Datum: NAD 27

Survey Date: 5/28/08

Applicant / Well Operator Name	DEP ID #	Well (Farm) Name	Well #	Serial #
Pennsylvania General Energy Co., LLC	213205	Reed Run	2145	

Address	County - Code	Municipality	Well Type
120 Market Street, Warren, PA 16365	Potter - 53	Keating Twp	Gas

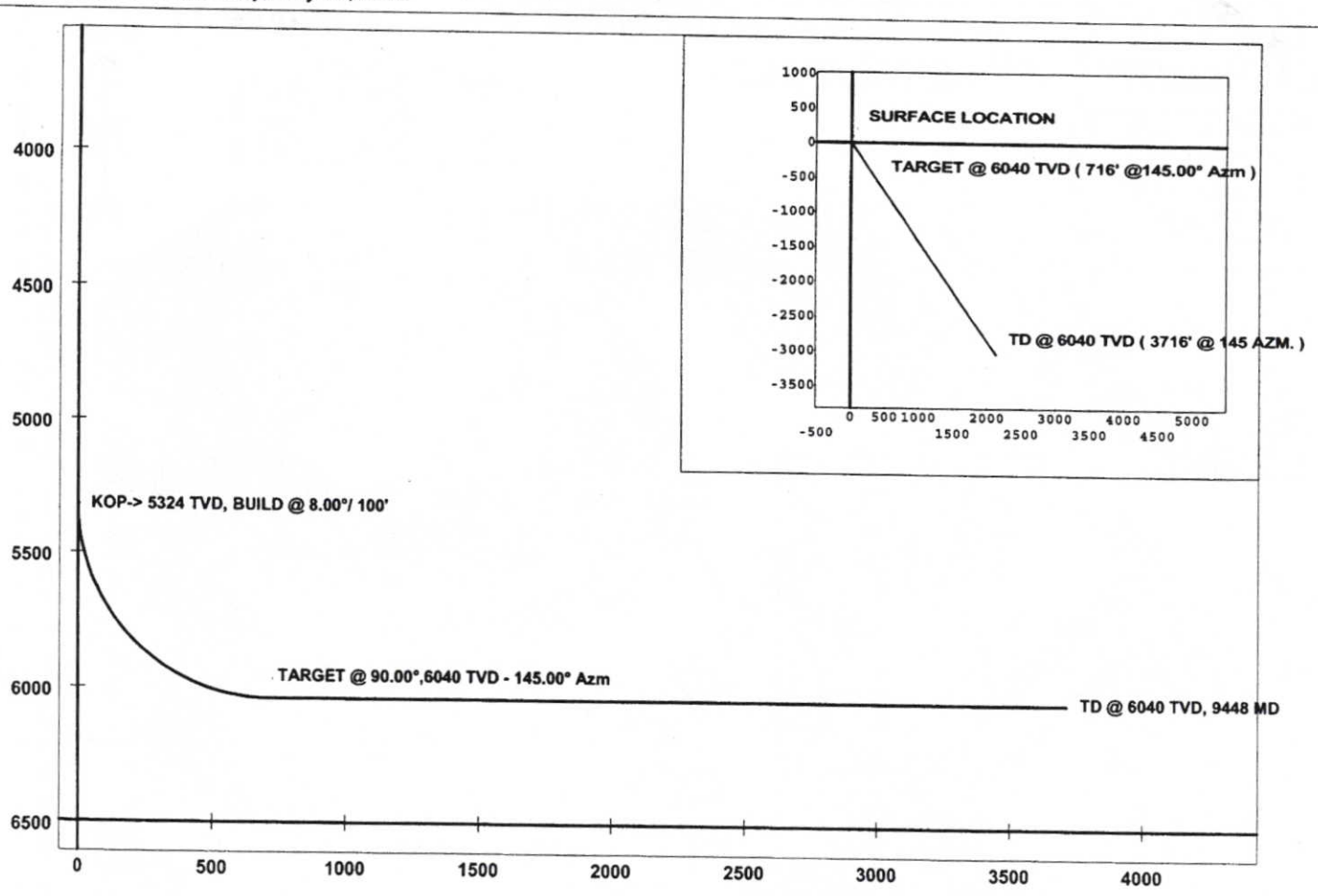
Surface Landowner	USGS 7 5' Quadrangle Map Name	DEP Map #	Map Section
Commonwealth of Pennsylvania	Keating Summit	520	2

~~Surface Lessee (if any)~~	Angle & Course of Deviation (Drilling)	Surface Elevation	Anticipated Total Depth
Susquehannock State Forest	S 35° E - 3716'	2240 topo	6040 TVD

RECEIVED
JUN 09 2008
ENVIRONMENTAL PROTECTION

Surface Owner or Water Purveyor with a Water Supply within 1000 ft.	Approximate Course and Distance to Water Supply	Owner, Lessee, or Operator of Workable Coal Seam	Name of Coal Seam Owned, Leased, or Operated
none			

Company: PGE
Lease/Well: REED RUN
Location: POTTER COUNTY
State/Country: PA / USA
File name: C:\WINSERVE\PENDING\2008\REEDRUN.SVY
Date/Time: Wednesday, May 21, 2008



105-21500

Reed Run Well# 2145

Inspection ID = 1826567

DEPARTMENT OF THE ARMY
PITTSBURGH DISTRICT, CORPS OF ENGINEERS
WILLIAM S. MOORHEAD FEDERAL BUILDING
1000 LIBERTY AVENUE
PITTSBURGH, PA 15222-4186

REPLY TO
ATTENTION OF

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

September 4, 2009

Operations Division
Regulatory Branch
2009-1904

Ms. Kendra Parisella
Pennsylvania General Energy Company, LLC
120 Market Street
Warren, Pennsylvania 16365

Dear Ms. Parisella:

I refer to a site inspection on September 1, 2009 by Nancy Mullen of this office, regarding the placement of fill into wetlands associated with the access road to Wells 2361 and 2368 and adjacent to the pad for these wells in Keating Township, Potter County, Pennsylvania. A tributary to Healy Hollow appears to also be impacted.

Please be advised that this is a violation of Sections 301 (33 U.S.C. 1311) and 404 (33 U.S.C. 1344) of the Clean Water Act. Violations of the Clean Water Act provide civil fines of not more than $10,000 per day of violation, criminal fines of up to $25,000 per day of violation, imprisonment and/or injunctive relief including restoration of the area to its pre-project condition. If further work (except for erosion and sedimentation controls) is performed at this location after receipt of this cease and desist order, I must seek immediate legal action to halt such activity.

Please recognize that it is not the intent of the Corps of Engineers to impose monetary fines or initiate legal action if this matter can be resolved informally. As stated in an e-mail dated September 3, 2009, Pennsylvania General Energy will have Moody and Associates perform a wetland delineation. Once this report has been completed, please submit a copy to our office.

If you have any questions, please contact Nancy Mullen at 412-395-7170.

Sincerely,

Scott A. Hans
Chief, Regulatory Branch

Copies Furnished:

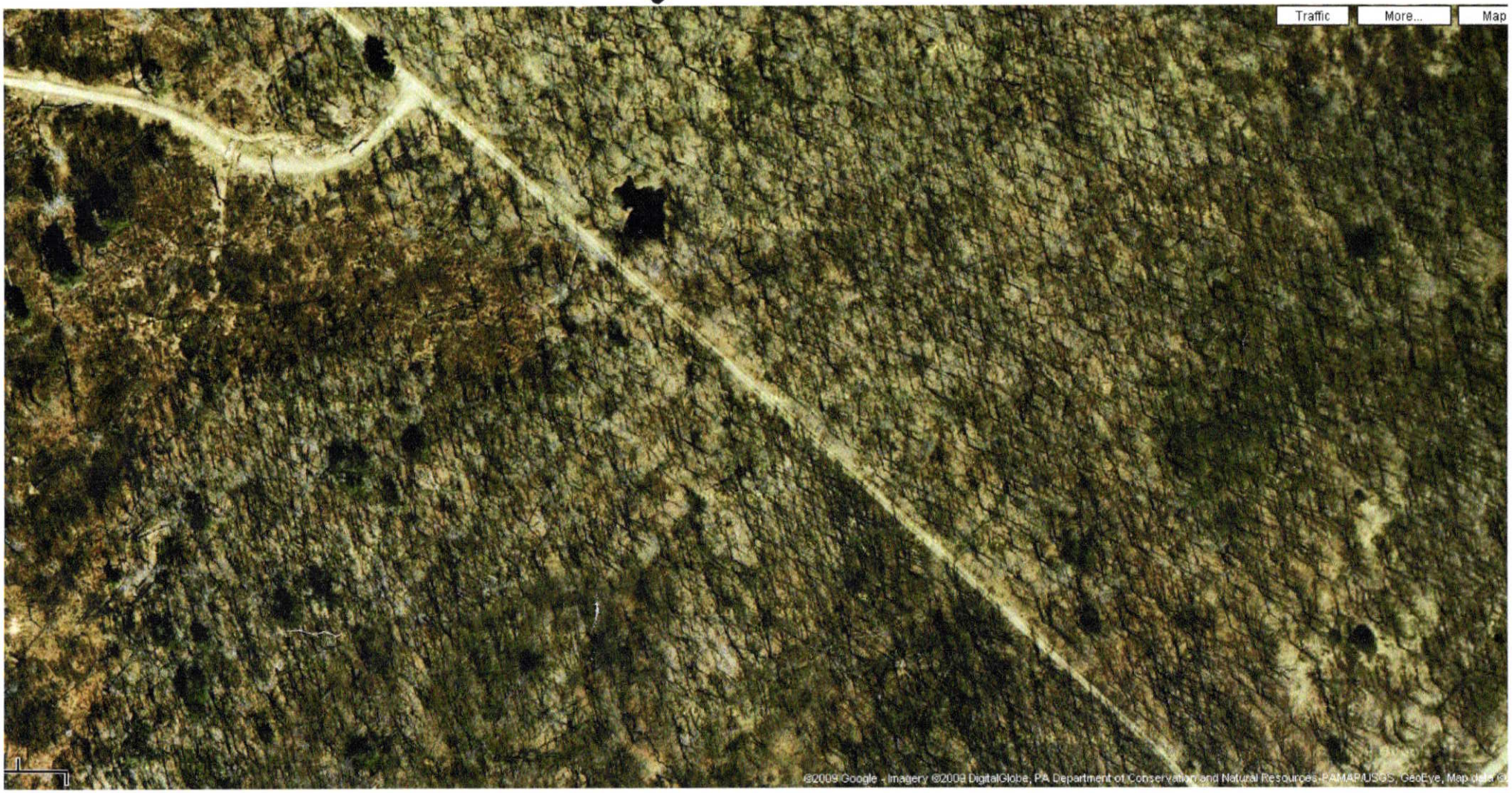
USFWS Pennsylvania Field Office

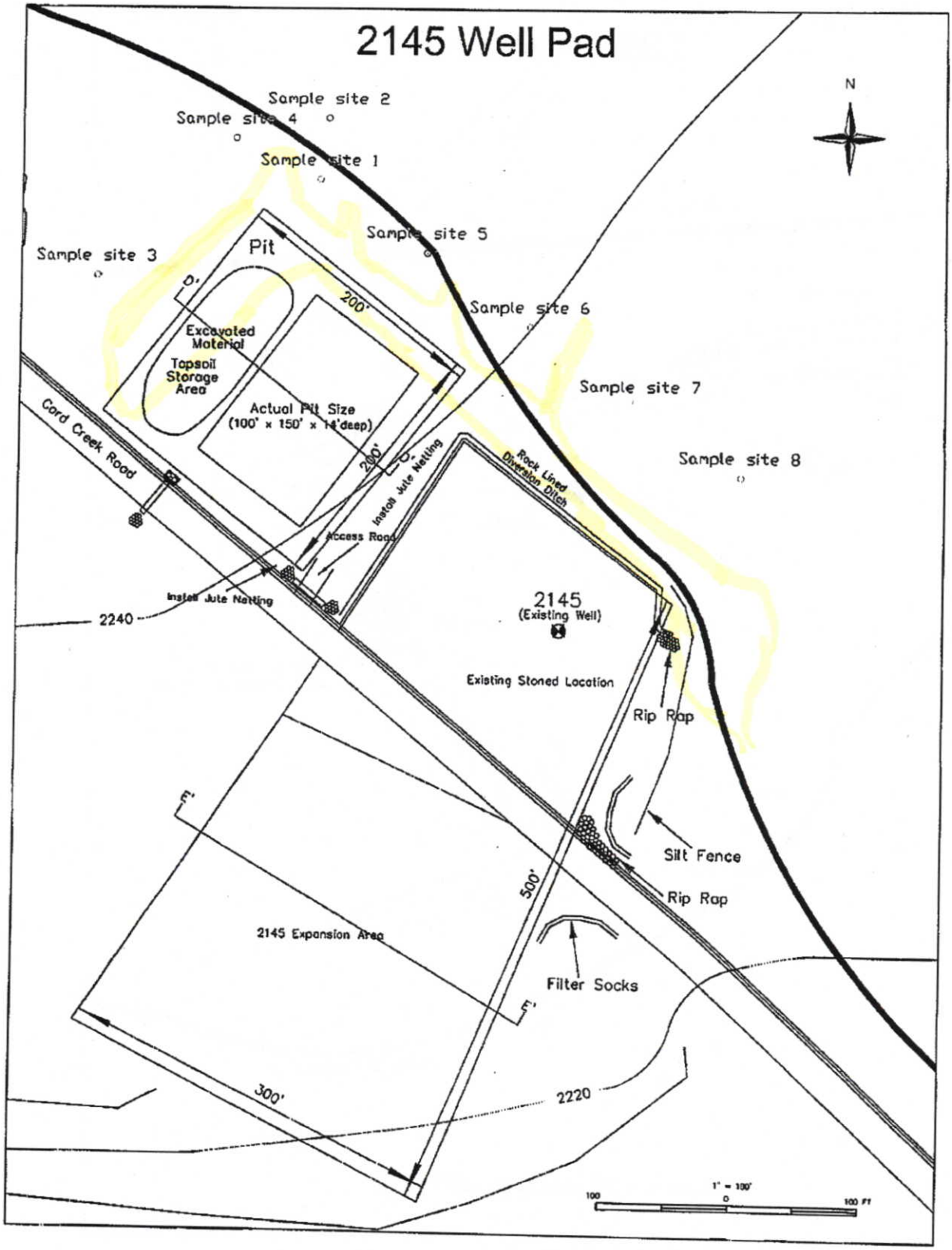
USEPA Region III

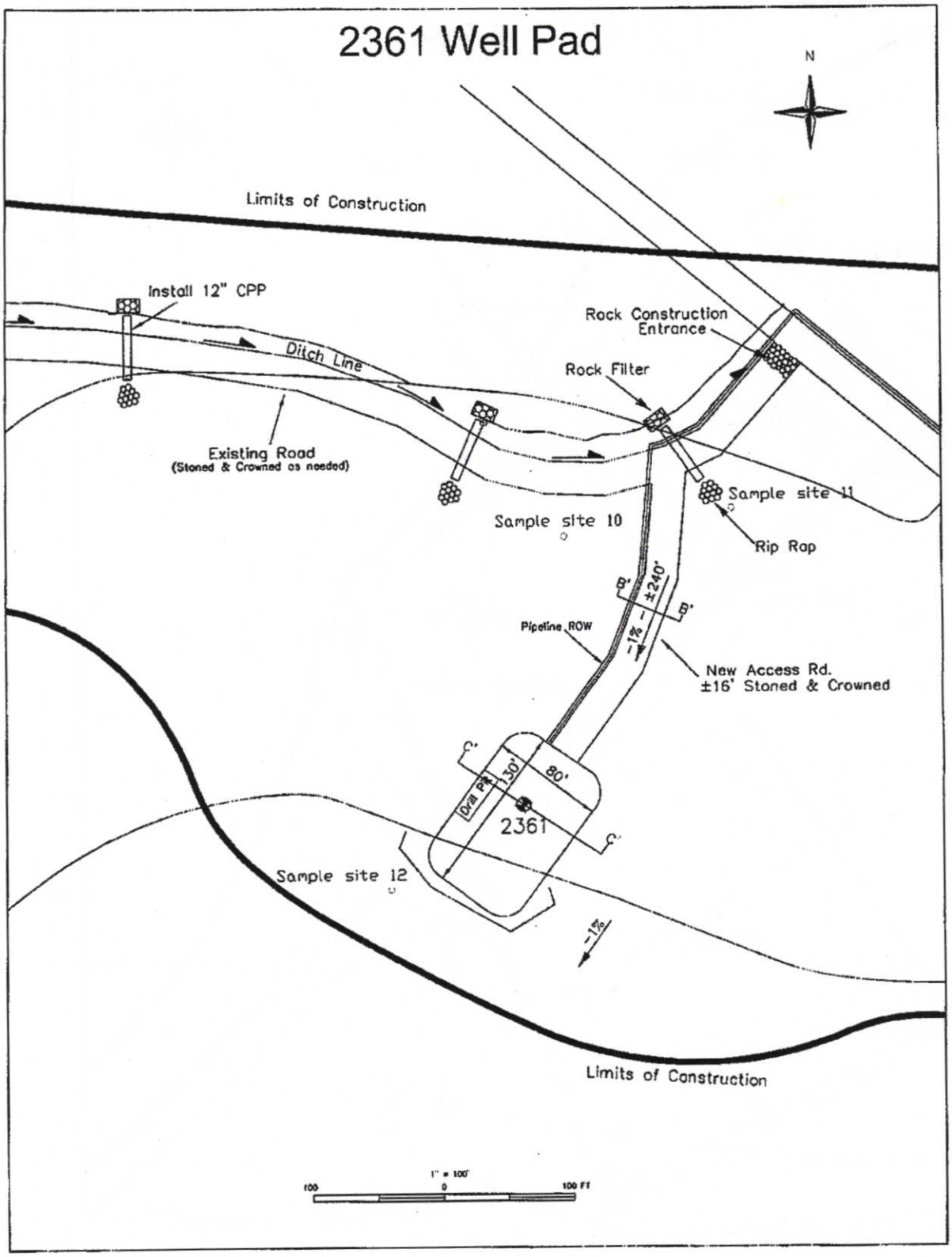
Potter County Conservation District

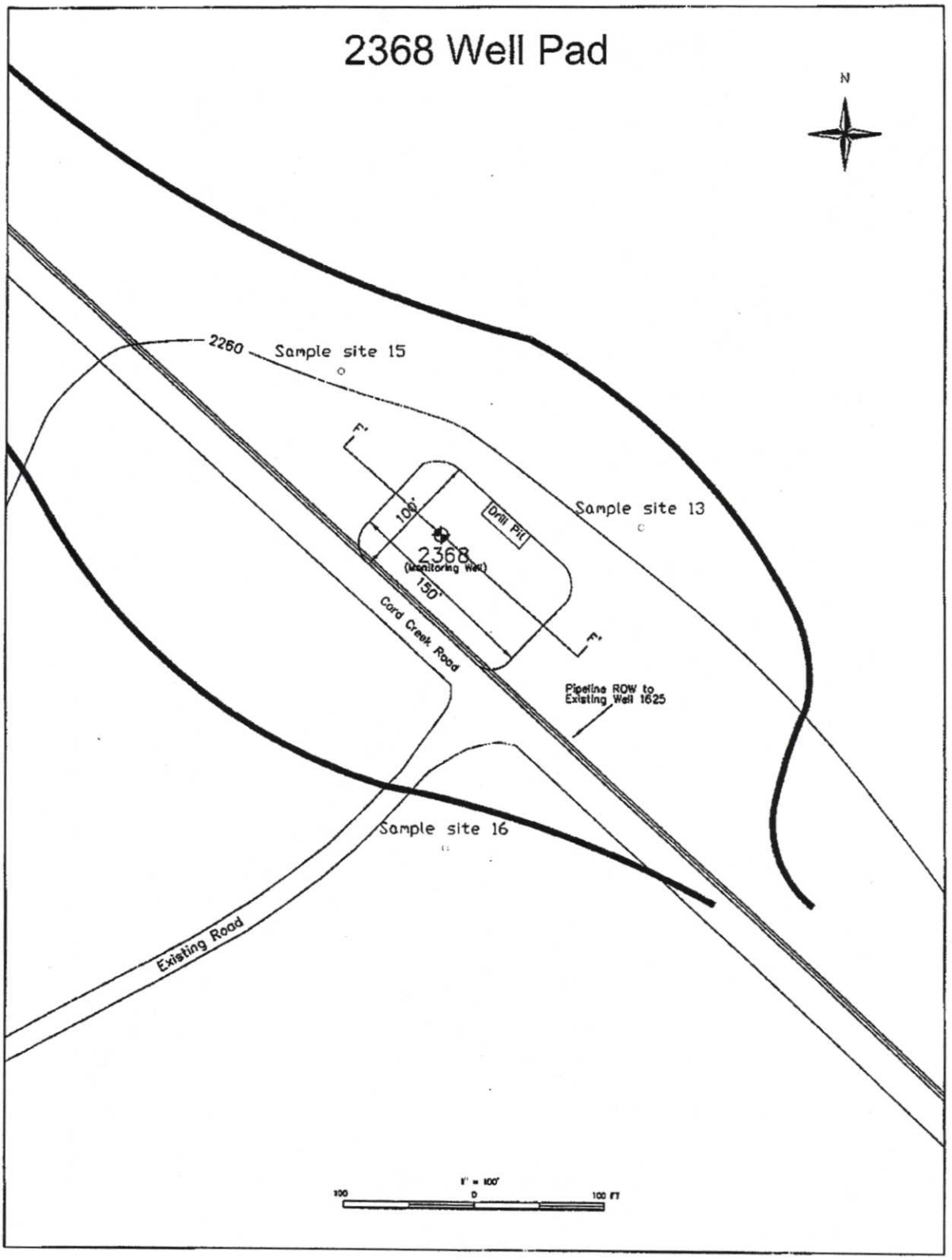
Andy Klinger
PaDEP Northcentral

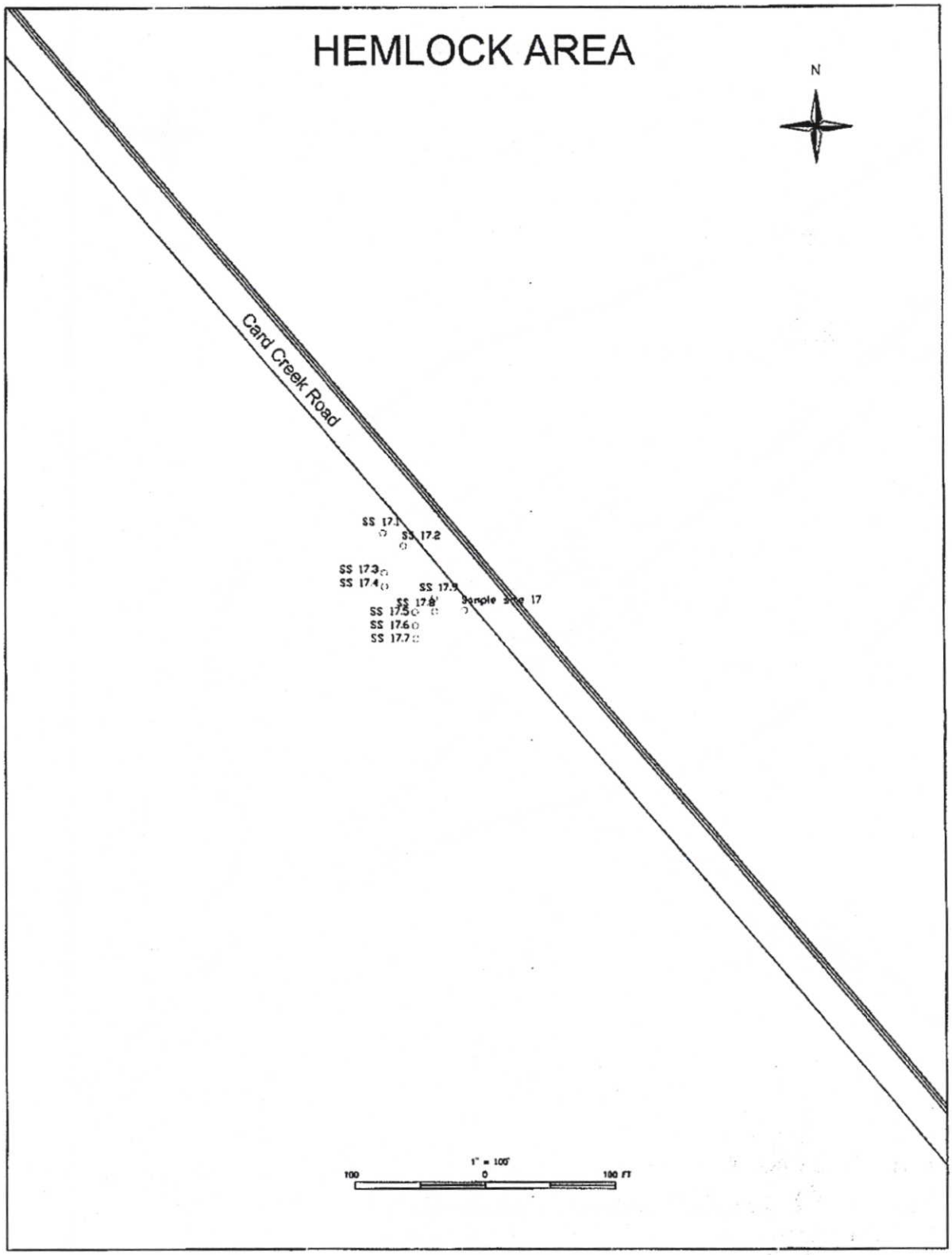
Precise lat/Lon of well head from plat is southeast outlet of ponded area.




2145 Well Pad
N
Sample site 2
Sample site 4
Sample site 1
Sample site 5
Sample site 3
Pit
D'
200'
Excavated Material
Topsoil Storage Area
Actual Pit Size (100' x 150' x 14'deep)
Sample site 6
Sample site 7
Sample site 8
Cord Creek Road
Install Jute Netting
Rock Lined Diversion Ditch
Access Road
Install Jute Netting
2240
2145
(Existing Well)
Existing Stoned Location
Rip Rap
E'
Silt Fence
500'
Rip Rap
2145 Expansion Area
Filter Socks
E'
300'
2220
100
1" = 100'
0
100 FT


2361 Well Pad
N
Limits of Construction
Install 12" CPP
Ditch Line
Rock Construction Entrance
Rock Filter
Existing Road
(Stoned & Crowned as needed)
Sample site 11
Sample site 10
Rip Rap
B'
±240'
B'
Pipeline ROW
-1% -
New Access Rd.
±16' Stoned & Crowned
C'
Drill Pit
130'
80'
2361
C'
Sample site 12
-1%
Limits of Construction
1" = 100'
100
0
100 FT


2368 Well Pad
N
2260
Sample site 15
Sample site 13
Sample site 16
100'
150'
Drill Pit
2368
(Monitoring Well)
Cord Creek Road
Pipeline ROW to
Existing Well 1625
Existing Road
1" = 100'
100
0
100 FT


HEMLOCK AREA
N
Card Creek Road
SS 17.1
SS 17.2
SS 17.3
SS 17.4
SS 17.5
SS 17.6
SS 17.7
Sample area 17
1" = 100'
100
0
100 FT

PENNSYLVANIA GENERAL ENERGY COMPANY, L.L.C.

120 Market Street
Warren, PA 16365

Phone: 814-723-3230
Fax: 814-723-3502

September 17, 2009

Mr. Scott A. Hans
Chief, Regulatory Branch
Operations Division
Department of the Army
Pittsburgh District, Corps of Engineers
William S. Moorhead Federal Building
1000 Liberty Avenue
Pittsburgh, PA 15222-4186

Mr. John Ryder
Water Quality Specialist Supervisor
Department of Environmental Protection (DEP)
208 West Third Street, Suite 101
Williamsport, PA 17701

Re: Reed Run, Potter County, PA Well Sites; U.S. Army Corps of Engineers (ACOE) Cease and Desist Order dated September 4, 2009 (Received September 11, 2009) (**Exhibit A** hereto) and Pennsylvania Department of Environmental Protection Administrative Hold Concerning Pending ESCGP-1 Requests (Compliance Hold) (**Exhibit B** hereto)

Dear Messrs. Hans and Ryder,

On behalf of Pennsylvania General Energy Company ("PGE"), this letter responds to the above-referenced communications concerning alleged impacts on "wetlands" associated with the development of one or more well sites in the Reed Run area of Potter County, Pennsylvania. As indicated below, PGE engaged the services of Moody and Associates to conduct a wetland delineation of the Reed Run project area, applying the criteria set forth in the 1987 Wetland Delineation Manual. Based on that delineation effort, we respectfully believe that most of the areas described in the above-referenced communications and in several other messages discussed below do not qualify as "wetlands" under either Section 404 of the Clean Water Act or the Pennsylvania Dam Safety and Encroachments Act and 25 Pa. Code Ch. 105. However, our investigations did reveal one relatively small wetland area within the Reed Run area project adjacent to Card Creek Road where some amount of stone inadvertently encroached into the area,

and PGE is fully prepared to remove that material and restore the affected area. Because PGE takes environmental compliance very seriously, we would like to schedule a conference as expeditiously as possible to address and resolve these issues.

BACKGROUND

We are including below a history of the development of the Reed Run project area and the communications relating to PGE's activities. **Exhibit C** hereto provides a map of the Reed Run project area for your reference.

The Reed Run project area comprises three natural gas well sites: Nos. 2145, 2361, and 2368. I should note at the outset that the ACOE September 4, 2009 letter, which was not received until September 11, is the first time that PGE was informed of potential wetland concerns regarding well sites 2361 and 2368, as all prior communications had solely referred to well site 2145.

Initial Site Planning and E&S Permitting

On February 2, 2009, PGE representatives, including Ms. Oyler and Ms. Parisella, met with Mr. Beaver of the Potter County Conservation District (PCCD) in Coudersport to introduce and discuss the planned Reed Run activities. PGE sent a notice of intent (NOI) to utilize Pennsylvania's ESCGP-1 to the PCCD via regular mail on February 11, 2009.

On February 25, 2009 PGE received a letter from Mr. Beaver indicating that the erosion and sedimentation (E&S) control plan was inadequate in some particulars and requesting additional information. In response to that letter, on March 17, 2009, PGE representatives met with Mr. Beaver and three DEP personnel, one of whom was Darrel Smeal, in Coudersport to discuss the E&S plans. As a result of this meeting, a revised E&S plan was hand-delivered to Mr. Beaver on March 20, 2009. On March 27, 2009 PGE received a Reed Run E&S approval letter from PCCD along with approval of coverage under the ESCGP-1.

Following extensive planning and permitting activities, construction of the subject matter Reed Run well sites and pits commenced in late April 2009 and occurred throughout the spring and summer months of 2009.

Work Related to Card Creek Road

There appears to be some confusion concerning what PGE did or did not do with respect to Card Creek Road, and the nature/ownership of that road. Card Creek Road was initially referred to as public road in all of the pre-construction meetings PGE had with the Department of Conservation and Natural Resources (DCNR) Bureau of Forestry and Hancock Forest Management, Inc. (HFM). HFM and DCNR are the surface land owners of lands adjoining the road.

For our purposes, the section of Card Creek Road at issue extends for a distance of 2.17 miles from the intersection of Reed Run Road to the PGE Well Site 2361 access road turnoff. Based on our further research, Card Creek Road is not a State (PennDOT), county, or township road, but rather was apparently constructed or adopted by the Pennsylvania Bureau of Forestry and is operated as a Bureau of Forestry road .

In telephone conversations with one of our staff members, Ms. Mullen indicated that the DCNR Bureau of Forestry had stated or suggested that PGE had undertaken efforts to widen the road in order to accommodate the movement of equipment. This may have been permissible as far as the surface landowners were concerned however, to be clear, PGE did not and has not at any time undertaken the widening of Card Run Road. In Reed Run site pre-construction meetings with the land surface owners, PGE did not seek authorization for nor discuss the widening of the road; and such widening was not necessary for transfer of the drilling rig or other equipment to the well sites.

During preconstruction meetings and in the course of our construction activities, both the DCNR Bureau of Forestry and HFM requested the placement of surfacing material at low and soft spots on the road encountered or caused by PGE heavy equipment and load hauling activities. Accordingly, PGE's construction contractors, Belser and Hale Inc., placed numerous truckloads of sandstone and limestone at low and soft spots within the existing road right-of-way in order to improve the road surface traction and load bearing capacity. HFM specifically requested that PGE place stone in the road at the soft area or bad spot identified below and discussed in Mr. Parker's wetland determination report.

The PGE timber contractor, Sheffield Land and Timber, with the permission of the surface owners, "daylighted" various sections of Card Creek Road for the purpose of permitting sunlight to penetrate the forest canopy and better dry out the road. This occurred in late July, 2009. As part of that effort, the soft area or "Hemlock Area" in the road was daylighted. In preconstruction meetings it was decided that no trees would be felled into the wet areas adjoining the road at this location, as it appeared that this was a possible depression-type wetland area. Accordingly, all trees cut in this area were cut with machinery allowing the picking and placement of the trees onto the road, without their being felled onto the ground. The trees cut at the site, consisting of mostly small hemlocks, were dragged down the road and placed at Well Site 2368. These trees are evident at this site at this time should you choose to view them.

Well Site 2145 Issues

The first indication that PGE received of a potential "wetland issue" arose in relation to an inspection conducted on August 6, 2009, by DEP's Mark A. Barbier of Well Site 2145. The Inspection Report for that inspection (**Exhibit E**) cites two E&S issues (both of which were addressed and corrected), and also mentions the "appearance of a wetland … located north of the fill pile." (See Exhibit E, pg. 2).

PGE responded to the items identified in the August 6th inspection report by letter dated August 31, 2009 (**Exhibit G**). Our August 31, 2009 response to Mr. Barbier's report

regarding Well Site 2145 confirmed resolution on August 10, 2009 of the E&S issues raised in the August 6, 2009 inspection report. We noted in that response PGE's belief that the area in question was not a wetland. The enclosed Wetland Delineation Report prepared by Moody & Associates confirms that the area referenced in the August 6 inspection report is not and was not a wetland.

PGE subsequently received an e-mail from the ACOE's Ms. Mullen referring to Well Site 2145 (**Exhibit D**), apparently relating to observations from an inspection conducted on or about September 1. The e-mails and telephone communications referred to concerns relating to sediment discharges, and also referred to an area "behind the pad" as "containing indicators of wetlands, including hydrophytic vegetation, mosaic patterns, buttressed roots, and more" and also stated that "there is also some stone in a wetland behind Well 2145 that needs to be removed." As reported in the e-mail jointly addressed to Ms. Mullen and Mr. Barbier on September 9 (**Exhibit H**), the E&S issues were addressed with the addition of silt fence and filter socks to areas below the well pad and additional rock filters in existing ditches, as well as additional jute netting to side slopes between the flowback pit. With respect to the concerns expressed regarding potential wetland areas, again we have attempted to investigate these areas, and the Moody & Associates Wetland Delineation Report has found that the areas in question do not qualify as wetlands.

We note that Well Site 2145 is not mentioned in the ACOE's letter of September 4, 2009, and thus we are not sure what its current status may be from the ACOE's perspective.

Well Sites 2361 and 2368 Issues

The ACOE's letter of September 4 (received on September 11, 2009) was our first notice of any potential wetland issues related to Well Sites 2361 and 2368. All previous communications by e-mail or telephone from either DEP or ACOE addressed only PGE's activities at Well Site 2145 and possible impacts along Card Creek Road.

The only inspection report we are aware of relating to either Well Sites 2361 or 2368 was an August 6, 2009 Inspection Report prepared by DEP's Mark Barbier (**Exhibit F**). That inspection report refers solely to Well Site 2368. To PGE's knowledge, no DEP report exists for Well Site 2361.

Please note that no potential wetlands issues are noted in Mr. Barbier's report at **Exhibit F** with respect to Well Site 2368, and neither of these inspection reports (**Exhibit E** and **Exhibit F**) make any reference to issues along Card Creek Road.

WETLANDS DETERMINATION REPORT

PGE engaged Neal Parker of Moody & Associates, a soil scientist and certified wetlands delineator with 32 years of experience with the USDA Soils Conservation Service (now known as the Natural Resources Conservation Services), to complete a wetland delineation of the areas of apparent concern in the Reed Run project area. Mr. Parker

completed a report dated September 17, 2009 that covers the entire Reed Run project area, including Well Sites 2361, 2368, 2145 and all of Card Creek Road, which is attached as **Exhibit I.**

The report establishes that PGE's construction activities at or adjacent to Well Sites 2361, 2368 and 2145 have not impacted wetlands. Further, the study shows that there is no braided stream, watercourse, or tributary located immediately east of the well pad at Well Site 2145. The storm scour feature (shallow gullying) now evident at that location was not and would not have been evident at the site until such time as sufficient heavy rains and resultant surface water loads would have massed in sufficient volume to lead to the creation of this feature. Those scour feature conditions were apparently created when felled tree branches and slash acted as shallow dams, and then released water during heavy rains. It is clear that the scouring or shallow gulling did not occur until after Well Site 2145 was constructed.

The Moody & Associates delineation report, however, did identify a small area of wetlands adjacent to Card Creek Road, with irregular width dimensions averaging approximately six feet (6) in width by forty-five (45) feet in length, where it appears that stone placed on the road surface either fell into or as a result of road use pushed into the wetland area. That encroachment was not by design, but entirely inadvertent. In any event, PGE proposes to remove that stone and other material that encroached into the subject wetland and restore the affected wetland area. Attached as **Exhibit J** is a proposed restoration plan.

CONCLUSION AND REQUEST FOR CONFERENCE

We believe that most of the areas described in the ACOE's September 4 letter are not jurisdictional wetlands, as documented in the enclosed wetlands delineation report. With respect to the one area that the determination report indicates is a wetland, PGE would propose to implement the enclosed restoration plan. In turn, we would hope and expect that ACOE would promptly authorize PGE to resume its business activities.

Based on the foregoing, PGE respectfully requests a conference as quickly as possible for purposes of clarifying any remaining issues and expediting a resolution of this matter.

Sincerely,

Pennsylvania General Energy Company, L.L.C.

By: _____
Craig L. Mayer, Esq., General Counsel

SEP 1 1 2009

DEPARTMENT OF THE ARMY
PITTSBURGH DISTRICT, CORPS OF ENGINEERS
WILLIAM S. MOORHEAD FEDERAL BUILDING
1000 LIBERTY AVENUE
PITTSBURGH, PA 15222-4186

REPLY TO
ATTENTION OF

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

September 4, 2009

Operations Division
Regulatory Branch
2009-1904

Ms. Kendra Parisella
Pennsylvania General Energy Company, LLC
120 Market Street
Warren, Pennsylvania 16365

Dear Ms. Parisella:

I refer to a site inspection on September 1, 2009 by Nancy Mullen of this office, regarding the placement of fill into wetlands associated with the access road to Wells 2361 and 2368 and adjacent to the pad for these wells in Keating Township, Potter County, Pennsylvania. A tributary to Healy Hollow appears to also be impacted.

Please be advised that this is a violation of Sections 301 (33 U.S.C. 1311) and 404 (33 U.S.C. 1344) of the Clean Water Act. Violations of the Clean Water Act provide civil fines of not more than $10,000 per day of violation, criminal fines of up to $25,000 per day of violation, imprisonment and/or injunctive relief including restoration of the area to its pre-project condition. If further work (except for erosion and sedimentation controls) is performed at this location after receipt of this cease and desist order, I must seek immediate legal action to halt such activity.

Please recognize that it is not the intent of the Corps of Engineers to impose monetary fines or initiate legal action if this matter can be resolved informally. As stated in an e-mail dated September 3, 2009, Pennsylvania General Energy will have Moody and Associates perform a wetland delineation. Once this report has been completed, please submit a copy to our office.

If you have any questions, please contact Nancy Mullen at 412-395-7170.

Sincerely,

Scott A. Hans
Chief, Regulatory Branch

Exhibit A

Copies Furnished:

USFWS Pennsylvania Field Office

USEPA Region III

Potter County Conservation District

Andy Klinger
PaDEP Northcentral

Exhibit A

Craig Mayer

From: Amber D. Oyler
Sent: Wednesday, September 09, 2009 1:47 PM
To: Robert Kuntz; Robert Payne; Kendra Parisella; Doug Kuntz; Craig Mayer
Cc: Ted Bailey
Subject: FW: ESCGP / Reed Run site

FYI

From: Ryder, John [mailto:jryder@state.pa.us]
Sent: Wednesday, September 09, 2009 1:45 PM
To: Amber D. Oyler
Cc: Means, Jennifer
Subject: ESCGP / Reed Run site

Amber,

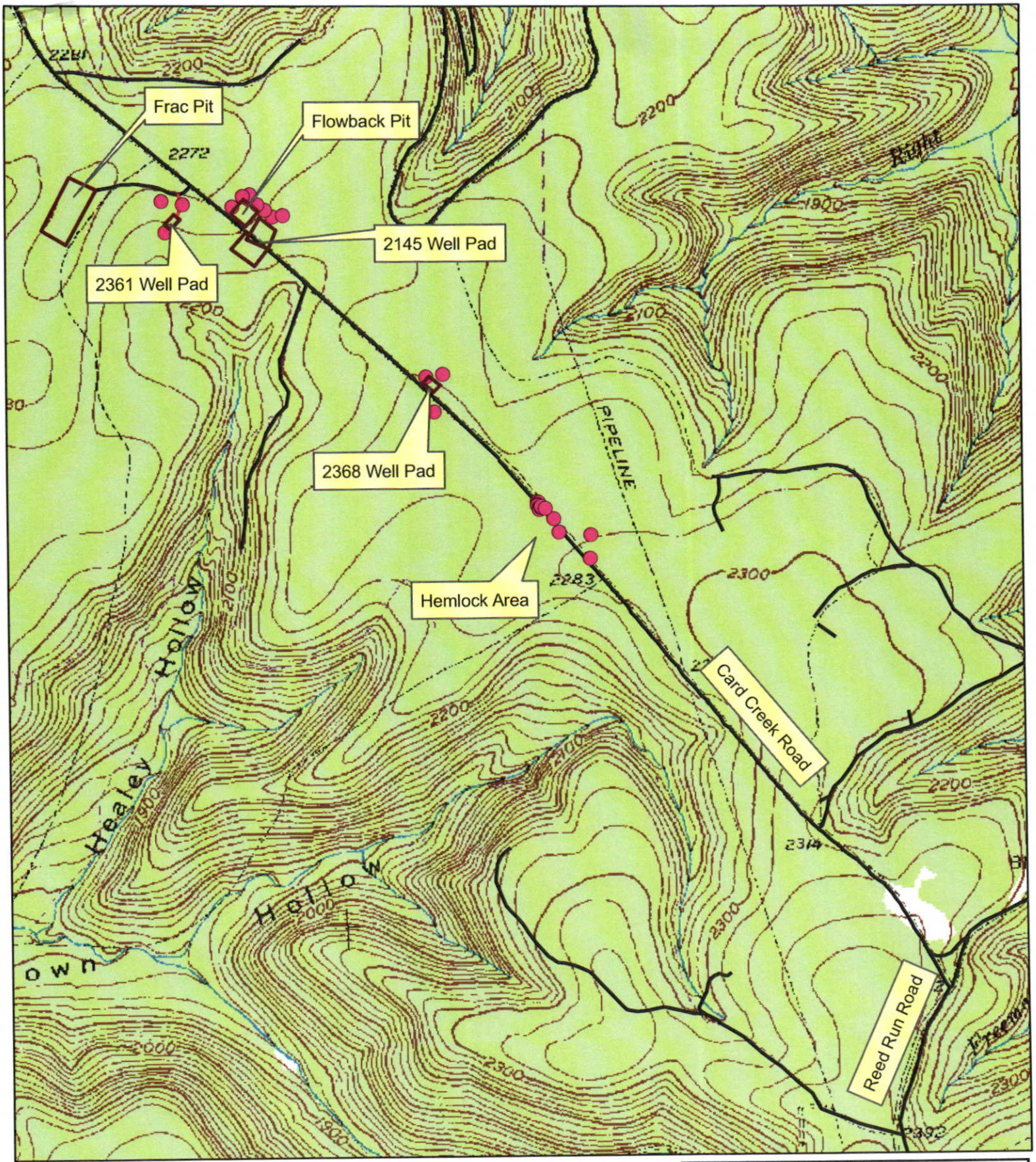
I spoke with our program manager earlier today and she wanted me to convey to you that we are holding your pending ESCGP until there is further progress on violations at the Reed Run site. Their seem to be multiple issues at this location and I realize you are also working with the U.S. Army Corps of Engineers on these issues. I also saw some e-mail correspondence that indicated PGE was intending to have a consultant perform a wetland delineation at the site. Please work with Andrew Klinger and Mark Barbier of our staff to resolve these issues.

Thanks,

John

John Ryder | Water Quality Specialist Supervisor
Department of Environmental Protection
208 West Third Street, Suite 101, Williamsport, PA 17701
Phone: (570) 327-0533 | Fax: (570) 327-3420
www.depweb.state.pa.us

Exhibit B



Keating Summit Locations
Moody GPS_LOCATIONS
Existing Roads

0 500 1,000 2,000 3,000 Feet

1 inch = 1,300 feet

Keating Township	**Date:** 15 September, 2009
Potter County	Pennsylvania

N

Exhibit C

Craig Mayer

From: Mullen, Nancy J LRP [Nancy.J.Mullen@usace.army.mil]
Sent: Friday, September 04, 2009 10:48 AM
To: Amber D. Oyler
Cc: Robert Kuntz; Doug Kuntz; Craig Mayer; Robert Payne; Kendra Parisella; Klinger, Andy
Subject: RE: Keating Summit Project Area

Amber, to address your concerns:

1. The Bureau of Forestry stated that while this is a public road, they believe PGE performed the installation of the rock on the roadway (and inadvertently in wetlands along the road) to get the rig to the well site.
2. The area described below may not be the only wetland. In the area behind the pad, numerous indicators of wetlands were noted. These include but are not limited to hydrophytic vegetation, mosaic patterns, buttressed roots, and more.
3. A stream was also noted above the diversion ditch. It appears this stream may have been cut off from the channel downstream of your diversion ditch.

Please do continue to monitor and maintain your BMPs. I will let PaDEP address the problem with the sediment flowing into the stream and other deficiencies with the controls.

Are you planning on placing a pipeline along the road to transport the gas?
If this is so, there may be wetland and/or stream impacts.

I will be drafting a letter to your company. I will be indicating that there is also some stone in a wetland behind Well 2145 that needs to be removed.

Any questions, please let me know.

Thanks,

Nancy

-----Original Message-----
From: Amber D. Oyler [mailto:amberoyler@penngeneralenergy.com]
Sent: Thursday, September 03, 2009 3:42 PM
To: Mullen, Nancy J LRP
Cc: Robert Kuntz; Doug Kuntz; Craig Mayer; Robert Payne; Kendra Parisella
Subject: Keating Summit Project Area

Dear Ms. Mullen,

I appreciate you dropping off the BMP inspection sheets that you mistakenly took from our 2145 Keating Summit location. I also wanted to follow up on our phone conversation from Tuesday (September 1st). On Wednesday, September 2nd, PGE conducted a field visit to this location. Our findings were the
following:

1. Card Creek Road is a public road on DCNR and private property.
Logging trucks frequently travel this road as well as state and public vehicles.
2. In regards to the area next to our flowback pit that you described as
a 'wetland': Based on our field visit we do not believe this area to be a wetland. The added heavy rains that we have received in the area, in conjunction with our construction activities, added to the saturation of the ground and ponding of water. The stockpiling of topsoil down slope of this area has also contributed to this ponding of water.
3. In regards to the braided streams: This area is actually runoff from
the diversion ditch located on the back side of the well pad. Sediment ran out of our

Exhibit D

diversion ditch into the vegetative filter strip (wooded area) during the extended period of heavy rains that the area recently received.
The runoff can clearly be traced back from the wooded area to our diversion ditch.

PGE has contracted with Moody and Associates, Inc to conduct a wetlands survey. The survey will be completed by a certified wetlands assessor. The results of this survey will be forwarded to you as well as the appropriate DEP officials in Williamsport, as you requested.

Please note that the pre-construction preparation for this project took a large amount of effort on both the part of the DCNR and PGE, as well as the Potter County Conservation District and Darrell L. Smeal, Director of the Watershed Management Program of the DEP. Many meetings between January 2009 and March 2009 - both in the field and at the Conservation District's office were held between PGE and these departments. At no time was it suggested that a wetland existed in this project area. All our maps and plans were stamped by the Conservation District, and a non-expedited ESCGP-1 was approved by the DEP.

We would like to continue monitoring and maintaining our BMP's. Are we permitted by you to do so at this time? We appreciate your consideration.

Sincerely,

Amber Oyler

Pennsylvania General Energy Company, L.L.C.

120 Market Street

Warren, PA 16365

814-723-3230

amberoyler@penngeneralenergy.com

Exhibit D

5500-FM-OG0016a Rev. 5/2009

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS MANAGEMENT PROGRAM

INSPECTION REPORT

DEP USE ONLY	Inspection Record # 1819508
Complaint Record #	Enforcement Record #

DEP Office Address	Northcentral Regional Office	Phone: 570-327-3636	Permit or Reg. # 37-105-21500
	208 West Third Street, Suite 101	Fax: 570-327-3565	Project #
	Williamsport, PA 17701-6448		Farm Name & Well # REED RUN 2145
Oper Name Address	PENNSYLVANIA GENERAL ELECTRIC		County Potter
	120 Market St.		Municipality KEATING TWP.
	WARREN, PA 16365		Latitude: ° ' " N
		DEP ID #	Longitude: ° ' " W

RECEIVED SEP 18 2009 OIL & GAS

Inspection Code:
- ☐ BDREL – Bond Release
- ☐ CEI – Compliance Evaluation
- ☐ COMPL – Complaint Inspection
- ☐ DRALT – Drilling or Alteration
- ☐ FLWUP - Following
- ☐ PLUG – Plugging
- ☐ RDSPR – Road Spreading
- ☐ RESTR – Site Restoration
- ☒ RTNC - Routine

Other: ☐ Permit Expired ☐ Alt/Meth. ☐ Annulus Open ☐ Cement Returns ☐ Recommend Bond Release

Location	Insp.	Violation
Site ID Sign	X	
Well Tag	X	
Distance Restrict		
E/S Plan on Site	X	25 PA Code §102.4(b)(5)
E/S Controls	X	25 PA Code §102.4(b)(1)
Encroachments	X	
Site Restoration	X	
Drilling-Plugging		
Notification		
B.O.P.		
Casing		
Monument		
Waste Mgmt.		
Top Hole Water		
Fluids Mgmt.		
Impoundment/pit	X	
Pollution Prevent.	X	
Residual Waste		

Driller's Log Information — Depth:

Fresh Water Amt / Depth	Salt Water Amt / Depth	Coal Thickness / Depth	Formations Oil / Depth	Formations Gas / Depth

Drilling / Plugging

Filling Material & Plugs	From	To	Casing & Tubing Size	Pulled	Left

Compliance Assistance	Code	Code	Inspection Results	Code VIOLS

Remarks: 1220- Access road runs Northwest/Southeast, intersecting the site. A well head is present on the east portion of the well pad. An impoundment is located on the north portion of the well pad, east of the road.
Two E & S mailboxes present. One contianing E & S plan for well pad. One containing ESCGP-1 (Keating Summit) plans. Neither set of plans adequatly depict site conditions at the well pad/impoundment location.

E & S parameter controls on site include vegetated slopes, brush piles and silt fence. Impoundment holding minimal water and fenced with chicken wire.

Sample No.	Location/Description	DEP Rep:	
	NOTE: COPY SENT TO OPERATOR	(signature)	Date: 8/6/2009
		(print name) Mark A. Barbier	Time:

Exhibit E

☐ White – Regional File ☐ Yellow – Operator ☐ Pink – Inspector ☐ Goldenrod – Company File

INSPECTION REPORT PAGE 2

Remarks (Continued): The fill pile located north of the impoundment is completely exposed. No indication that seed or mulch has been applied.

By not dipicting site conditions on the E & S plan and by not stabilizing the fill pile, PGE has violated 25 PA Code § 102.4 (b)(5) and 25 PA Code § 102.4(b)(1) respectivley.

The appearance of a wetland is located north of the fill pile. An on-site conversation with Contrator Kevin Mayer Belser Hale Inc. indicated that he released the build up of water today (8/06/2009). He cut a channel to tie into preexisting road ditch. The water flows between the fill pile and impoundment. The water ultimately outlets at the south eastern portion of the site. The entire eastern portion of off site has the apearence of a wooded wetland. At the time of inspection, no delination report known to exist. Potential Chapter 105 violations will be reffered to Andy Klinger O&G Biologist.

PERMIT OR REGISTRATION NUMBER	DEP Rep: (signature)	Date: 8/6/2009
	(print name) Mark A. Barbier	Time:

Exhibit E

5500-FM-OG0016b Rev. 5/2004

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS MANAGEMENT PROGRAM

Notice of Violation(s)

Law / Reg.	Section	Description of Violation
25 PA Code	**§ 102.4 (b)(5)**	Failure to accurately depict site conditions on E & S plan.
25 PA Code	**§ 102.4 (b)(1)**	Failure to implement and maintain erosion and control BMPs required to minimize the potential for accelerated erosion.

Instructions / Response

Please provide a written response within 10 days receipt of this letter, as to when the above listed violations were or will be corrected, and what steps are being taken to prevent their recurrence. If applicable, please include the description of activities you will pursue to achieve compliance with the statutes or regulations cited above. Address your reply to the DEP representative named below.

☒ Written response requested. ☒ Include explanation of cause of violation(s).
☒ Explain what you … ☒ have done, or will do … to correct the situation and achieve compliance.
☐ Include the schedule or anticipated time frame for compliance activities you intend to carry out.

Comments:

Please provide the written report to Mark A. Barbier, Williamsport Oil and Gas Program, at the address provided on page one (1) of the inspection report.

RECEIVED
SEP 18 2009
OIL & GAS

Permit Reg. No.	Date	DEP Rep.	Cert. Mail #	Date
105-21500	8/62009	Mark A. Barbier	N/A	N/A

Exhibit E

5500-FM-OG0016a Rev. 5/2009

AUG 14 2009

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS MANAGEMENT PROGRAM

DEP USE ONLY	Inspection Record # 1819535
Complaint Record #	Enforcement Record #

INSPECTION REPORT

DEP Office Address	Northcentral Regional Office	Phone: 570-327-3636	Permit or Reg. # 37-105-21576
	208 West Third Street, Suite 101	Fax: 570-327-3565	Project #
	Williamsport, PA 17701-6448		Farm Name & Well # REED RUN 2368
Oper Name	PENNSYLVANIA GENERAL ELECTRIC		County Potter
Address	120 Market St.		Municipality KEATING TWP.
	WARREN, PA 16365		Latitude: ° ' " N
		DEP ID #	Longitude: ° ' " W

Inspection Code:
- ☐ BDREL – Bond Release
- ☐ CEI – Compliance Evaluation
- ☐ COMPL – Complaint Inspection
- ☐ DRALT – Drilling or Alteration
- ☐ FLWUP - Following
- ☐ PLUG – Plugging
- ☐ RDSPR – Road Spreading
- ☐ RESTR – Site Restoration
- ☒ RTNC - Routine

Other: ☐ Permit Expired ☐ Alt/Meth. ☐ Annulus Open ☐ Cement Returns ☐ Recommend Bond Release

Location	Insp.	Violation
Site ID Sign	X	
Well Tag	X	
Distance Restrict		
E/S Plan on Site	X	
E/S Controls	X	
Encroachments		
Site Restoration	X	
Drilling-Plugging		
Notification		
B.O.P.		
Casing		
Monument		
Waste Mgmt.		
Top Hole Water		
Fluids Mgmt.		
Impoundment/pit	X	
Pollution Prevent.		
Residual Waste		

Driller's Log Information — Depth:

Fresh Water Amt / Depth	Salt Water Amt / Depth	Coal Thickness / Depth	Formations Oil / Depth	Formations Gas / Depth

Drilling / Plugging

Filling Material & Plugs	From	To	Casing & Tubing Size	Pulled	Left

Compliance Assistance	Code	Code	**Inspection Results**	Code NOVIO

Remarks: 1156- No E & S Plan Found. Well Permit posted (on tree). Site/Company signage present. Pit Reclaimed. Site graded back to near original contours. Parameter well vegetated. Well pad face not vegetated, mix of stone and dirt. No signs of erosion at time of inspection. Well head present. No well tag apparent. Site near or completely restored. No violations noted.

I will follow-up with E &S plan availability and/or restoration report. Please contact me (570)327-0514

RECEIVED
SEP 18 2009
OIL & GAS

Sample No.	Location/Description	DEP Rep:	
	NOTE: COPY SENT TO OPERATOR	(signature)	Date: 8/6/2009
		(print name) Mark A. Barbier	Time:

Exhibit F

☐ White – Regional File ☐ Yellow – Operator ☐ Pink – Inspector ☐ Goldenrod – Company File

PENNSYLVANIA GENERAL ENERGY COMPANY, L.L.C.

120 Market Street
Warren, PA 16365

Phone: 814-723-3230
Fax: 814-723-3502

August 31, 2009

Mr. Mark A. Barbier
Northcentral Regional Office
208 West Third Street, Suite 101
Williamsport, PA 17701-6448

Re: Inspection Report of 8/6/2009; PGE Well #2145

Dear Mr. Barbier,

The following information is provided in response to your request for an explanation of the cause of the cited violations and iteration of the corrective steps taken to address the violations.

With respect to the Section 102.4 (b) (1) Notice, our environmental compliance coordinator, Mr. Bob Payne, met with our field superintendent, Mr. Craig Dean, on 7 August, 2009 to examine the absence of seed and mulch on the fill pile. Mr. Dean contacted our reclamation contractor, the Smerker Co., who seeded and mulched the fill pile on 10 August, 2009. Mr. Dean counseled our reclamation contractor to ensure compliance with BMPs.

With respect to the Section 102.4 (b) (5) Notice, Mr. Payne personally amended the E&S Plan on or about August 10, 2009 to show the location of a drill pit and the solidification pit. These two features were pointed out to Mr. Payne by our excavation contractor as the features of concern that you had mentioned to our contractor. They had not been shown on the Plan and are presumed to be the site conditions not accurately depicted on the E&S Plan. We have also notified our environmental technicians to be certain to include all site features on E&S Plans. The Notice does not specify the "conditions" that were not adequately depicted. Accordingly, absent further specificity we are unable to provide further comment. To clarify this subject as necessary, Mr. Payne has scheduled an 8 September, 2009 meeting with you at the well.

PGE has scheduled a day-long E&S training conference to be held on 18 September, 2009 for all of our field contractors. The meeting will address required BMPs and stress PGE's insistence that all contract work be completed to the highest standards.

With respect to your comment on page 2 of the report about a potential Chapter 105 violation regarding the presence of a wetland north of the fill pile, PGE respectfully asserts that there is no wetland north of the fill pile.

It is PGE's expectation and hope that the foregoing is a satisfactory response to your 6 August, 2009 letter.

Sincerely,

Pennsylvania General Energy Company, L.L.C.

By: Craig L. Mayer, General Counsel

Cc. Dave Straub, Vice President
PGE Regulatory File

Exhibit G

Craig Mayer

From: Amber D. Oyler
Sent: Wednesday, September 09, 2009 9:50 AM
To: Nancy.J.Mullen@usace.army.mil; marbarbier@state.pa.us
Cc: Kendra Parisella; Robert Payne; Craig E. Dean; Craig Mayer
Subject: RE: Keating Summit Project Area

Ms. Mullen,

As requested by Mark Barbier, Water Quality Specialist, DEP, requested that PGE notify you that we will be addressing some of his concerns at the Keating Summit Project area. PGE will be adding silt fence or filter socks to areas below the well pad in order to prevent further sedimentation. We will also be installing rock filters in existing ditches as well as adding some jute netting to the side slopes between the flow back pit and the pad. If you have any questions please feel free to let us know. Thank you,

Amber Oyler
Pennsylvania General Energy Company, L.L.C.
120 Market Street
Warren, PA 16365
814-723-3230
amberoyler@penngeneralenergy.com

Exhibit H

WETLAND DETERMINATION

PENNSYLVANIA GENERAL ENERGY, LLC
KEATING TOWNSHIP
POTTER COUNTY, PENNSYLVANIA
MOODY PROJECT NO. 09-264 LN

September 17, 2009

Submitted to:

Mr. Craig Mayer
General Counsel
Pennsylvania General Energy Company, LLC
120 Market Street
Warren, PA 16365

Prepared by:

Neal Parker
Soil Scientist

Reviewed by:

A. Lee Nageotte, P.G.
Project Geologist

Exhibit I

Moody and Associates, Inc.
Ground Water and Environmental Professionals Since 1891
11548 Cotton Road, Meadville, PA 16335 • Phone: 814/724-4970 FAX: 814/724-4973 • Visit us online @ www.moody-s.com

WETLAND DETERMINATION
KEATING TOWNSHIP
POTTER COUNTY, PENNSYLVANIA

TABLE OF CONTENTS

LIST OF ATTACHMENTS

WETLAND DETERMINATION
KEATING TOWNSHIP
POTTER COUNTY, PENNSYLVANIA

EXECUTIVE SUMMARY

Moody and Associates, Inc. (Moody) conducted wetland determinations at three well sites; Well 2145, Well 2361, and Well 2368, and at a section of Card Creek Road named "Hemlock" at the request of Pennsylvania General Energy, LLC (PGE). Site examinations were done on September 4, September 11 and September 14, 2009. At all four locations, the vegetation, soils and hydrology were examined at various points adjacent to the sites as to represent a typical example of the preconstruction site condition.

The determinations at the well sites found no wetlands impacted by activities at the well sites.

The Card Creek Road area named Hemlock for this report was examined and determined to contain a wetland.

There was also an issue of surface water flow conditions on the north side of Well 2145. This area was examined and determined not to be a hydrology condition relating to wetlands but rather a storm event that was impacted by felled timber damming and channeling the flow.

INTRODUCTION

Moody was initially retained by PGE to determine if jurisdictional wetlands were present at an existing well site (Well 2145). Neal Parker from Moody examined the Well 2145 site with Amber Oyler, Environmental Technician PGE, on September 4, 2009 to perform a wetland determination. A follow-up examination was made by Mr. Parker with Craig Mayer, General Counsel PGE, on September 11, 2009.

Mr. Parker examined the surface water flow conditions on the north side of Well 2145 on September 4 and September 14, 2009.

In addition, Well Sites 2361 and 2368 were examined on September 11, 2009 and wetland determinations were conducted. The issue of the wetland area on the south side of Card Creek Road was also examined on September 11, 2009 by Mr. Mayer and Mr. Parker. This area was named Hemlock because of the hemlock trees adjacent to the area. Mr. Parker returned to the area on September 14, 2009 to examine the Hemlock site along the road.

Wetland determinations were conducted by Neal Parker, Soil Scientist with Moody. Mr. Parker has over thirty years prior service experience with the USDA Soil Conservation Service SCS)/Natural Resources Conservation Service (NRCS). While serving with the SCS/NRCS, he has worked as a Soil Conservationist and then District Conservationist in four locations in Pennsylvania. He also served as an NRCS Soil Scientist for Northwest Pennsylvania. He was certified in Regulatory IV Jurisdictional Wetlands Delineations as a NRCS agency person and he is also certified in Hydric Soils for Wetland Delineation by the USDA NRCS Wetlands Science Institute. He holds a B.S. Degree in Environmental Resource Management from the Pennsylvania State University with a Soil Science core. He is a member of the Pennsylvania Association of Professional Soil Scientists.

METHODS

Wetland determination procedures contained in the 1987 US Army Corps of Engineers Wetland Delineation Manual (the Manual) were followed. The wetland determinations were completed relative to the Paragraph 26 of the Manual. All three diagnostic environmental characteristics listed in Paragraph 26 Section b were examined in the field for the determinations: vegetation, soils and hydrology.

The final determinations were based on Paragraph 26 Section c - the technical approach for the identification and delineation of wetlands as stated: "Except in certain situations defined in this manual, evidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland determination."

It is noted that hydrology is not an easy indicator to verify. Paragraph 46 of the Manual states: The term "wetland hydrology" encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on the characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively. Such characteristics are usually present in areas that are inundated or have soils that are saturated to the surface for a sufficient duration to develop hydric soils and support vegetation typically adapted for life in periodic anaerobic soil conditions. Hydrology is often the least exact of the three parameters, and indicators of hydrology are sometimes difficult to find in the field. However, it is essential to establish that a wetland area is periodically inundated or has saturated soils during the growing season.

Field Examinations

The routine determination procedures followed for wetland determinations. Data Form 1 data was completed.

Plant identifications were made on site and referenced and rated with the aid of descriptions and taxonomic keys in the web sites and manuals listed in References – Plants. Hydrophytic ratings were confirmed off site.

Soil hydric determinations were made by examining a soil sample on site for hydric indicators and the aid of descriptions and taxonomic keys in the web sites and manuals listed in References – Soils.

The sites were examined for soil saturation, surface inundation and other hydrology indicators. Photographs of plants and the soil profile were used to document the determination.

Other Examinations

The surface water flow on the north side of the well pad for Well 2145 was examined and documented. Photographs were taken and the area was marked in the field.

Wetland Delineation

For the one instance where a jurisdictional wetland was identified, wetland boundaries were marked in the field using the Manual methods.

RESULTS

Well 2145

Location: The Well Site 2145 is located 3.1 miles Northeast of Keating Summit, Keating Township in Potter County Pennsylvania. It is located on the east side and adjacent to Card Creek Road 2.0 miles north of the intersection of Card Creek Road and Reed Run Road. The site is an existing well pad, lined pond with a spoil area on the north and east side of the pad and pond. The slope of the area is 2 to 5 percent.

Sample sites: 1, 2, 3, 4, 5, 6, 7 & 8.

Vegetation: The trees were dominantly Red Maple (*Acer rubrum*) (FAC), American Beech (*Fagus granifolia*) (FACU) and Striped Maple (*Acer pensylvanicum*) (FACU). Black Cherry (1) (*Prunus serotina*) FACU was also found in small numbers. The American Beech and Striped Maple dominated Sapling stratus. The Herbs stratus vegetation consisted of New York Fern (*Thelypteris noveboracenis*) (FAC), Flat Branched Tree Clubmoss (*Dendrolycopodium obscurum*) (FAC), and Hay-scented Fern (*Dennstaedtia punctilobula*) (UPL). There was less than 50 percent of the vegetation that was obligate, facultative-wet or facultative. The vegetation on all sample sites was not dominantly hydrophidic.

Soils: The NRCS Web Soil Survey showed all three well sites and access road area to be located on two different soil mapping units: CpB, Cookport very channery loam 3 to 8% slopes, extremely stony and NsB, Nolo channery sandy loam, sandy variant, 0 to 12 percent slopes, extremely stony. Both soils are listed on the NRCS Hydric Soils List. The Cookport very channery loam, 3 to 8% slopes, extremely stony, does not meet the criteria for a hydric soil but does contain an average of 5% of Nolo soils (hydric) in depressional areas. Nolo channery sandy loam, sandy variant, 0 to 12 percent slopes, extremely stony, is classified as 100% hydric.

The field examination found that neither the Cookport nor Nolo at Well Site 2145 had surface stones nor was the soil surface layer for either channery. Except for one stone in the soil sample #3, no stones were found in any of the surface or B horizons. The saturation described in the

NRCS Brief Soil Description for Nolo was not represented in the soil sample # 5. This sample was taken where the area was mapped as Nolo. Based on this, the soil mapping units mapped for this site were not represented by the soil samples or site observations taken. Cookport very stony loam, 3 to 8% slope contained no depressional areas. The slope on site did not exceed 5%. Sample sites 2, 3 and 4 were found to be not hydric. Sample sites 1, 5, 6, 7 and 8 were hydric.

Hydrology: There were no hydrologic conditions observed. The soils were not saturated and there was no inundation.

There was a request to delineate the "braided stream" which was adjacent but to the north side of the pad area. This delineation was completed as requested by PGE. It appeared that the surface water flow impacts to vegetation resulted from the felled timber in the area collecting, ponding, and diverting flow from one or more severe rainfall events. This conclusion was based on the fact that the impacts to vegetation occurred only along the side of the pad where the timber was laid. The vegetation (New York Fern) was dying off and decaying in and among the felled timber. Also the flow was greatly dispersed down slope of the northeast pad corner. There was no direct channel flow from the north east corner of the well pad to the road ditch at the south east corner of the well pad.

Determination: Non-wetland

Well 2361

Location: The Well 2361 site is located 970 feet west of well 2145. It is accessed by a road off of Card Creek Road 870 feet northwest of well 2145.

Sample Sites: 10, 11 & 12. Note there was no Sample 9.

Vegetation: The trees were dominantly American Beech (*Fagus granifolia*) (FACU) and Black Cherry (*Prunus serotina*) (FACU). Red Maple (*Acer rubrum*) (FAC) was also found in small numbers. The American Beech and Black Cherry dominated the saplings stratus with some Red Maple also present. The Herbs stratus vegetation was dominated by Common Blackberry (*Rubus*

allegheniensis) (FACU-), New York Fern (*Thelypteris noveboracenis*) (FAC), Flat Branched Tree Clubmoss (*Dendrolycopodium obscurum*) (FAC), and Intermediate Woodfern (*Dryopteris intermedia*) (FACU). There was less than 50 percent of the vegetation that was obligate, facultative-wet or facultative. The vegetation was not dominantly hydrophidic.

Soils: NRCS Web Soil Survey shows Well Site 2361 to be located on and access road area to be located on CpB, Cookport very channery loam 3 to 8% slopes. This soil is listed on the NRCS Hydric Soils List as partially hydric. The Cookport very channery loam 3 to 8% slopes, extremely stony does not meet the criteria for a hydric soil but does contain an average of 5% of Nolo soils (hydric) in depressional areas.
Sample sites 10, 11 and 12 were not hydric.

Hydrology: There were no hydrologic conditions observed. The soils were not saturated and there was no inundation.

Determination: Non-wetland

Well 2368

Location: The well is located 1,340 feet southeast of well 2145 adjacent to and on the north side of Card Creek Road.

Sample Sites: 13, 15 & 16. Note there was no Sample 14.

Vegetation: The trees were dominantly Eastern Hemlock (*Tsuga canadenis*) (FACU), American Beech (*Fagus granifolia*) (FACU) and Red Maple (*Acer rubrum*) (FAC). The American Beech and Striped Maple (*Acer pensylvanicum*) (FACU) dominated the Sapling stratus. The Herbs stratus vegetation consisted of New York Fern (*Thelypteris noveboracenis*) (FAC), Flat Branched Tree Clubmoss (*Dendrolycopodium obscurum*) (FAC), and Striped Maple (*Acer pensylvanicum*) (FACU). There was less than 50 percent of the vegetation that was obligate, facultative-wet or facultative. The vegetation was not dominantly hydrophidic.

Soils: NRCS Web Soil Survey showed the Well Site 2368 to be located on two different soil mapping units: CpB, Cookport very channery loam 3 to 8% slopes, extremely stony, and the NsB Nolo channery sandy loam, sandy variant, 0 to 12 percent slopes, extremely stony. Both soils are listed on the NRCS Hydric Soils List. The Cookport very channery loam 3 to 8% slopes, extremely stony, does not meet the criteria for a hydric soil but does contain an average of 5% of Nolo soils (hydric) in depressional areas. Nolo channery sandy loam, sandy variant, 0 to 12 percent slopes, extremely stony, is classified as 100% hydric. The well site and the access road are all on Cookport. Sample sites 13, 15 and 16 were found to be not hydric.

Hydrology: There were no hydrologic conditions observed. The soils were not saturated and there was no inundation.

Determination: Non-wetland

Hemlock Site:

This site is located 1,800 feet southeast of well site 2368 in an area adjacent to Card Creek Road on the southwest side of the road. The area in question is irregular shaped and is approximately 45 feet long by 7 feet wide. It is about 200 feet northwest of the state forest boundary.

Sample Site: 17.

Vegetation: The trees were dominantly Eastern Hemlock (*Tsuga canadenis*) (FACU), Yellow Birch (*Betula alleghaniensis*) (FAC) and Red Maple (*Acer rubrum*) (FAC). Eastern Hemlock was the only species in the Sapling stratus. The tree and saplings were on the fringe of the area. The Herbs stratus vegetation was dominated by Sedge (*Carex bullatta*) (OBL), Woolgrass (*Scirpus cyperinus*) (FACW+), Sensitive Fern (*Onoclea sensibilis*) (FACW). More than 50 percent of the vegetation in this area was obligate, facultative-wet or facultative. The vegetation was dominantly hydrophidic.

Soils: The NRCS Web Soil Survey showed this site to be located on NsB, Nolo channery sandy loam, sandy variant, 0 to 12 percent slopes, extremely stony. This soil is listed on the NRCS

Hydric Soils List. Nolo channery sandy loam, sandy variant, 0 to 12 percent slopes, extremely stony, is classified as 100% hydric. Sample site 17 was found to be hydric.

Hydrology: There were hydrologic conditions observed. The soils were saturated and there was inundation.

Determination: Wetland

CONCLUSIONS

The areas examined were chosen so as to be representative of the conditions prior to the well pads and pit/pond construction. The sample site locations were determined by a field observation of the vegetation and NRCS soil maps.

The Data Form 1 reports for all three well sites verify that the area does not meet all three conditions as described in Paragraph 26 Section c - the technical approach for the identification and delineation of wetlands.

It is the opinion of Moody that no jurisdictional wetlands have been impacted by the three well sites 2145, 2361, 2368. The surface water flow in question on the north side of Well 2145 was examined and determined from the vegetation that impacts to vegetation were from a single or multiple high rainfall storm event(s) within the past several months rather than the existence of hydrology meeting the wetland criteria. The effects of the storm flows were exacerbated by the felled timber in that area.

The Hemlock area along Card Creek Road met the wetland criteria. The vegetation was hydrophydic; the soil was mucky to a depth of 10 inches; and over 20% of the area was inundated. The area was also saturated at a depth of 14 inches.

APPENDIXES

Appendix 1 Definition of Wetland Indicators:*

OBL	Obligate Wetland	Occurs almost always (estimated probability 99%) under natural conditions in wetlands.
FACW	Facultative Wetland	Usually occurs in wetlands (estimated probability 67% to 99%), but occasionally is found in non-wetlands.
FAC	Facultative	Equally likely to occur in wetlands or non-wetlands (estimated probability 34% to 66%.
FACU	Facultative Upland	Usually occurs in non-wetlands (estimated probability 67% to 99%), but occasionally found on wetlands (estimated probability 1% to 33%).
UPL	Upland	Occurs almost always (estimated probability 99%) under natural conditions in non-wetlands.
NI	No Indicator	Insufficient information was available to determine indicator status.

* As described in the USDA Natural Resources Conservation Service *Plants Database Wetland Indicator Status*

Appendix 2 References - Plants:

USDA Natural Resources Conservation Service *Plants Database Wetland Indicator Status* http://plants.usda.gov/wetland.html

USGS Northern Prairie Wildlife Research Center Northeast *Wetland Flora Field Office Guide to Plant Species* http://www.npwrc.usgs.gov/resource/plants/florane/index.htm

USDI Fish and Wildlife Service's National Wetland Inventory *National List of Vascular Plant Species that Occur on Wetlands, 1996 National Summary. PDF format*

Pennsylvania Department of Conservation and Natural Resources Bureau of Forestry *Common Trees of Pennsylvania*

Peterson Field Guides 2005 *Ferns of Northeast and Central North America*

Lawrence Newcomb 1977 *Newcomb's Wildflower Guide*

George W.D. Symonds 1963 *The Shrub Identification Book*

Ann Fowler Rhoads and Timothy A. Block 2007 *The Plants of Pennsylvania An Illustrated Manual*

Appendix 3 References – Soils:

USDA Natural Resources Conservation Service's *Web Soil Survey*
(http://websoilsurvey.nrcs.usda.gov)

USDA Natural Resources Conservation Service's *Field Indicators of Hydric Soils in the United States A Guide for Identifying and Delineating Hydric Soils, Version 6.0 (2006)*
ftp://ftp-fc.sc.egov.usda.gov/NSSC/Hydric_Soils/FieldIndicators_v6_0.pdf

USDA Soil Conservation Service Soil Survey Staff 1951 *Soil Survey Manual Agricultural, Handbook No. 18*

USDA Soil Conservation Service Soil Survey Staff 1975 *Soil Taxonomy Agricultural, Handbook No. 436*

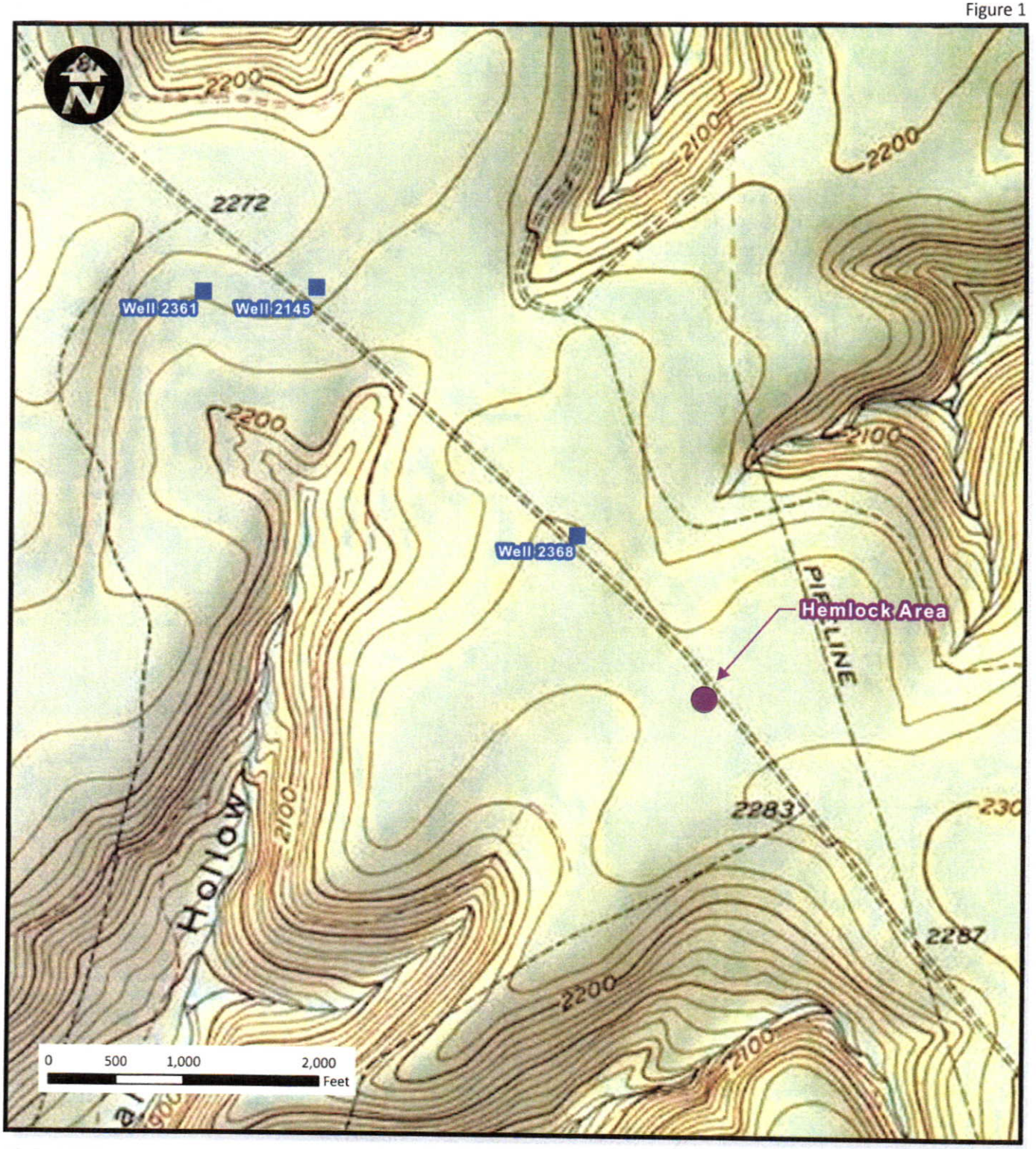
USDA Natural Resources Conservation Service *Soil Taxonomy Web Site*
http://soils.usda.gov/technical/classification/taxonomy/

ATTACHMENT A

Location Map

Site Map Showing Sampling Sites

Figure 1



1 inch = 1,000 feet

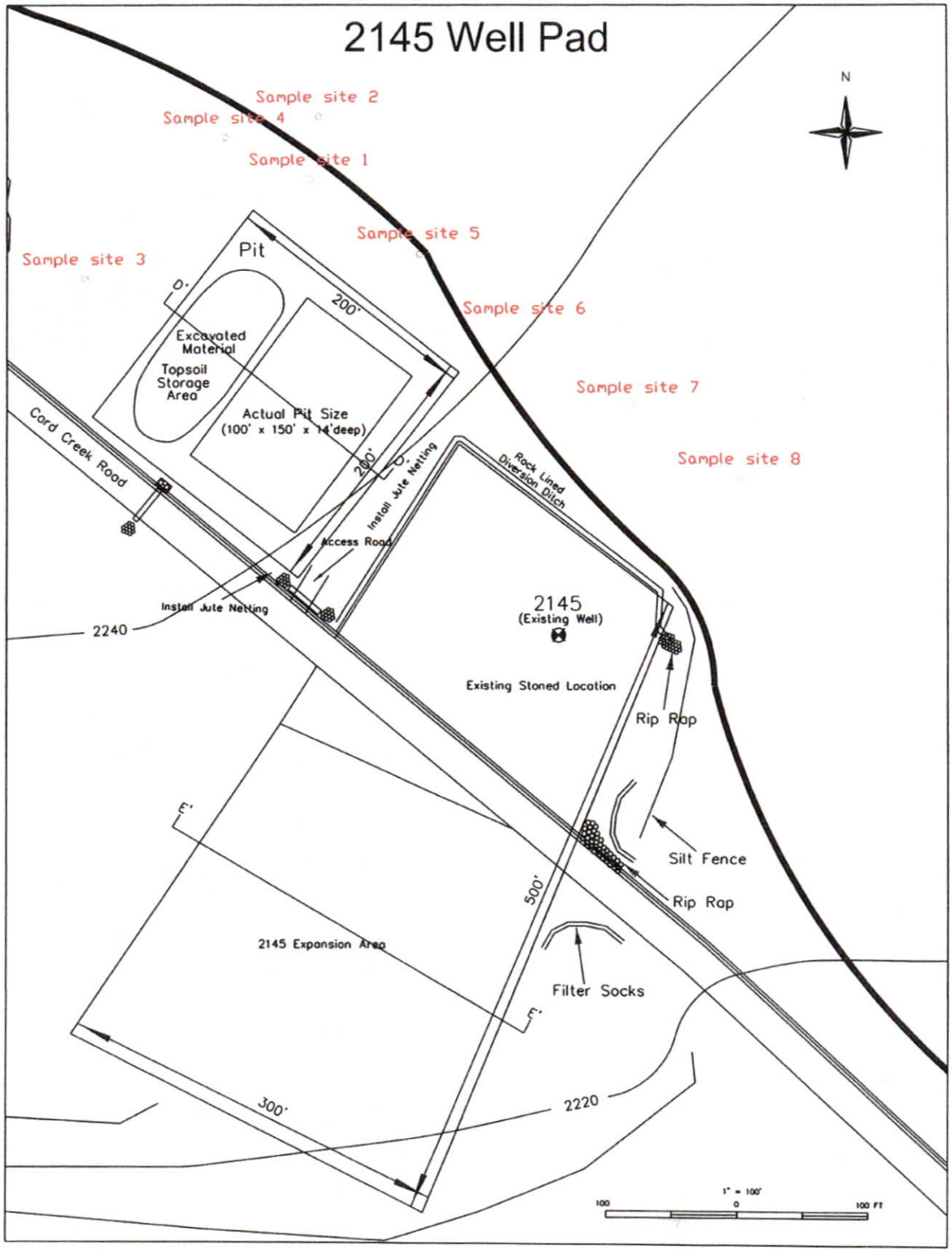
Map taken from: KEATING SUMMIT, PA USGS 7.5 Minute Quadrangle

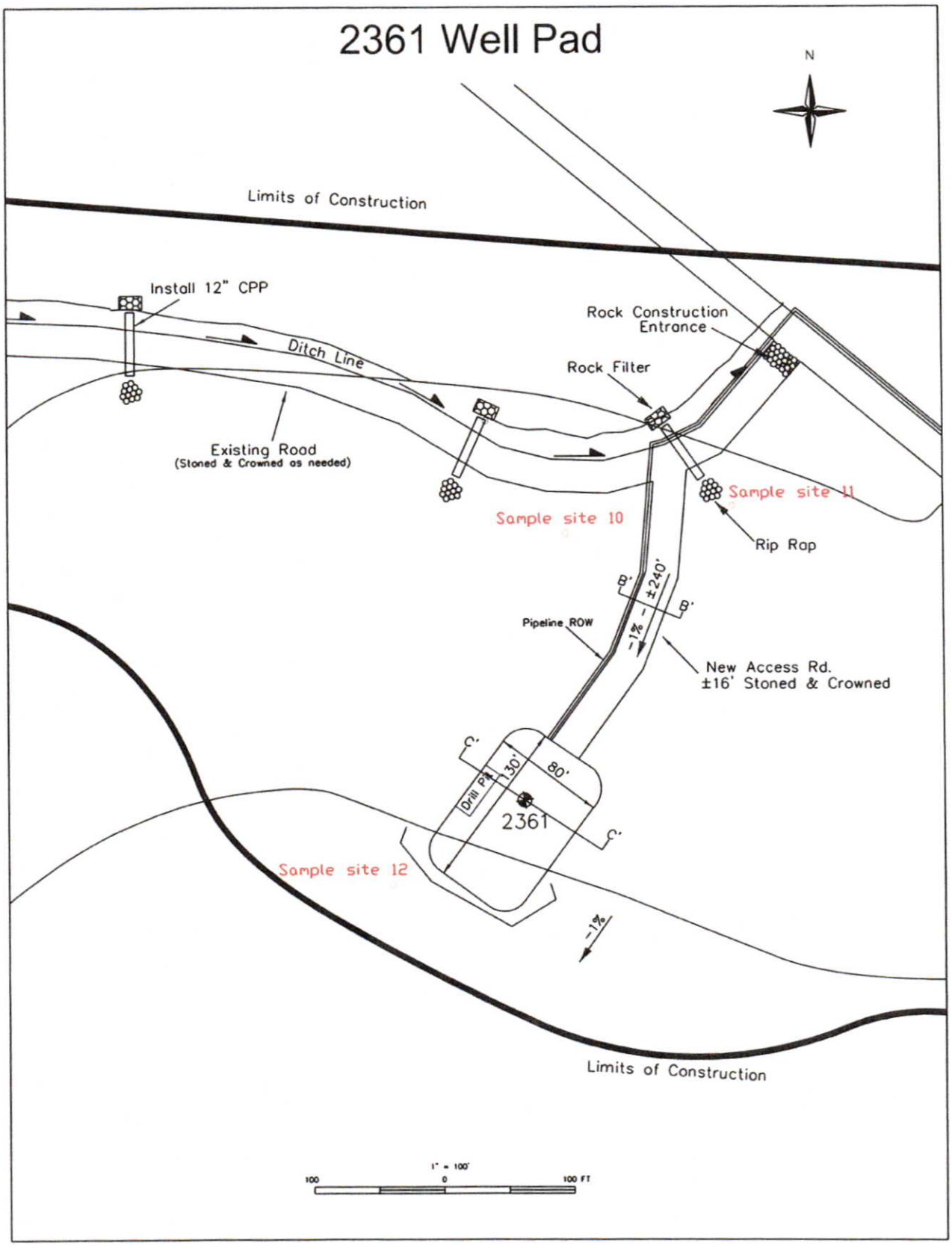
Site Location Map

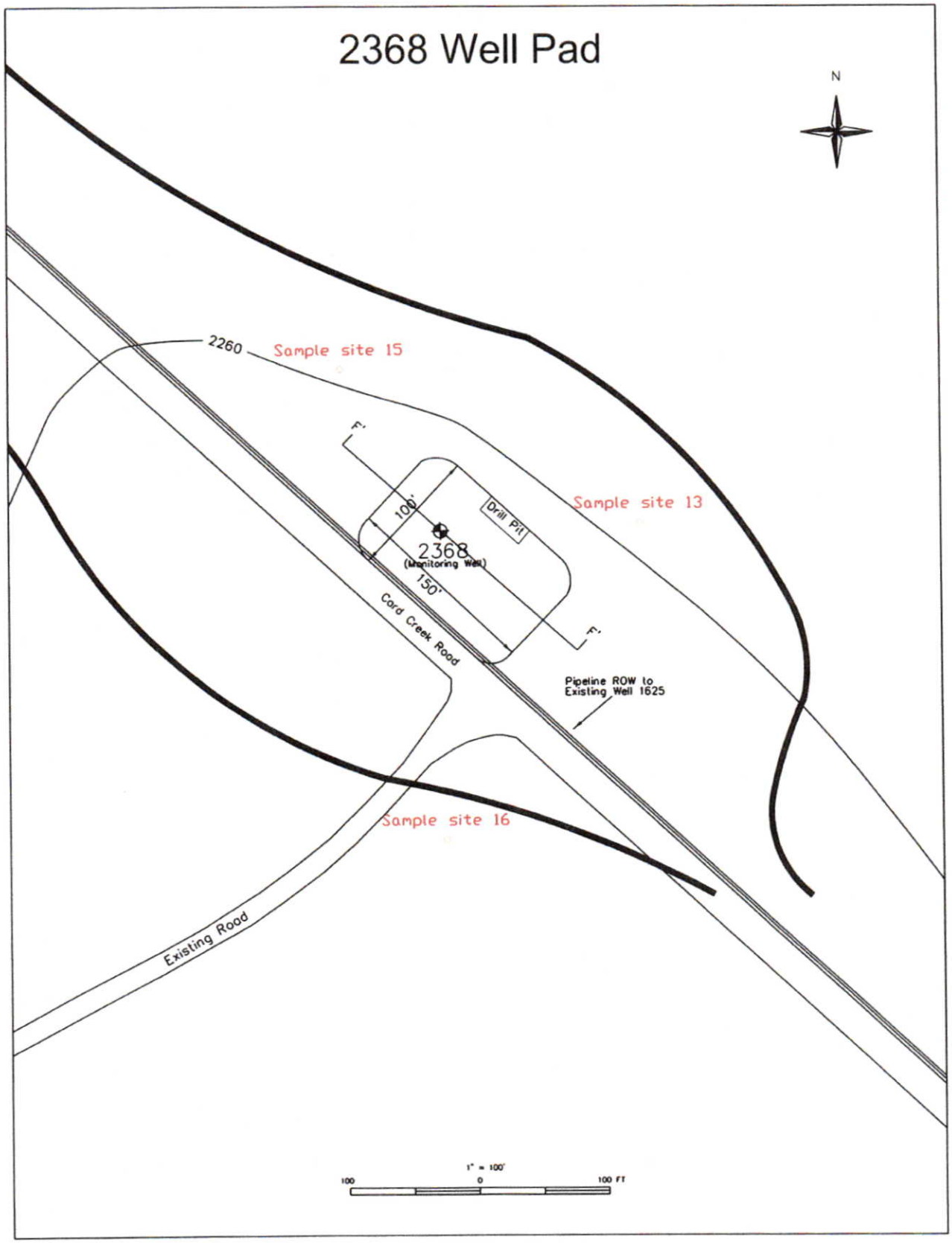
PGE Wetland Determination
Keating Township, Potter County, PA

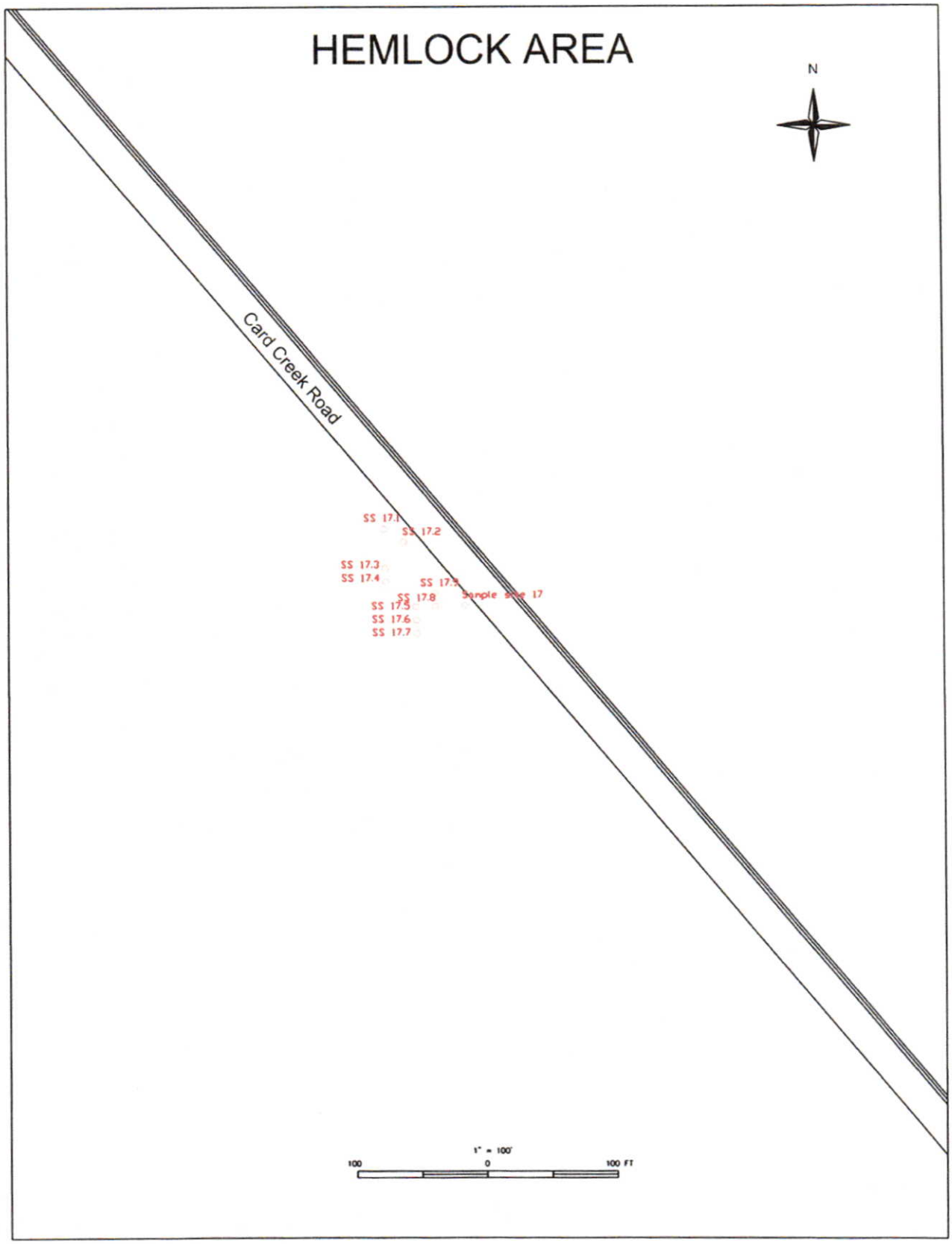
Drawn by: CJD
Date: 15 SEP 09
Project No.: 09-264 LN

Prepared by: Moody and Associates, Inc.


2145 Well Pad
N
Sample site 2
Sample site 4
Sample site 1
Sample site 5
Sample site 3
Sample site 6
Sample site 7
Sample site 8
Pit
D'
200'
Excavated Material
Topsoil Storage Area
Actual Pit Size (100' x 150' x 14'deep)
200'
D'
Install Jute Netting
Rock Lined Diversion Ditch
Cord Creek Road
Access Road
Install Jute Netting
2240
2145
(Existing Well)
Existing Stoned Location
Rip Rap
E'
Silt Fence
500'
Rip Rap
2145 Expansion Area
Filter Socks
E'
300'
2220
1" = 100'
100
0
100 FT


2361 Well Pad
N
Limits of Construction
Install 12" CPP
Ditch Line
Rock Construction Entrance
Rock Filter
Existing Road
(Stoned & Crowned as needed)
Sample site 10
Sample site 11
Rip Rap
8'
±240'
8'
-1% - 1%
Pipeline ROW
New Access Rd.
±16' Stoned & Crowned
C'
130'
80'
Drill Pit
2361
C'
Sample site 12
-1%
Limits of Construction
1" = 100'
100
0
100 FT


2368 Well Pad
N
2260
Sample site 15
Sample site 13
Sample site 16
100'
150'
Drill Pit
2368
(Monitoring Well)
Card Creek Road
Pipeline ROW to
Existing Well 1625
Existing Road
1" = 100'
100
0
100 FT


HEMLOCK AREA
N
Card Creek Road
SS 17.1
SS 17.2
SS 17.3
SS 17.4
SS 17.5
SS 17.6
SS 17.7
SS 17.8
Sample area 17
1" = 100'
100
0
100 FT

ATTACHMENT B

Wetland Determination Field Reports

Data Form 1 **Wetland Determination**

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-4-09

Project Name: Well 2145

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site 1; off of NE corner of site.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees	Indicator Status	Species Herbs	Indicator Status
1. Red Maple (*Acer rubrum*) (90% upper can)	FAC	5. New York Fern (*Thelypteris noveboracenis*)	FAC
2. Striped Maple (*Acer pensylvanicum*)	FACU	6. Flat Branched Tree Clubmoss (*Lycopodium obscurum*)	FAC
Saplings/shrubs		7. Deertongue (*Dichanthelium clandestinum*)	FAC+
3. American Beech (*Fagus granifolia*) 2	FACU		
4. Striped Maple (*Acer pensylvanicum*) 17	FACU		

Percent of species that are OBL, FACW, and/or FAC: 40% Other Indicators: None

Hydrophytic Vegetation: No Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Cookport Mapping Unit: CpB On Hydric Soil List? Yes (Partially Hydric)

Mottled: Yes Mottle Color: 10YR 6/8 Matrix Color: 10YR7/2

Gleyed: No Other Indicators: Oxidized root zones

Hydric Soil: Yes Basis Matrix chroma 2 and oxidized root zones

Hydrology:

Inundated: No Depth of Standing Water: 0 inches

Saturated Soil: No Depth of Saturated Soil: N/A

Other Indicators: None

Wetland Hydrology: No

Atypical Situation: No

Normal Circumstances? Yes Slightly above average rainfall August – 4.4 inches for area, Average 4.0 inches
No disturbance

Wetland Determination: Non Wetland

Data Form 1 **Wetland Determination**

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-4-09

Project Name: Well 2145

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site 2 approximately 100 ft east of NE corner of site.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees	Indicator Status	Species Herbs	Indicator Status
1. Red Maple (*Acer rubrum*)	FAC	6. New York Fern (*Thelypteris noveboracenis*)	FAC
2 Black Cherry (*Prunus serotina*) 1	FACU	7. Flat Branched Tree Clubmoss	
3. Striped Maple (*Acer pensylvanicum*)	FACU	(*Lycopodium obscurum*)	FAC
Saplings/shrubs			
4. American Beech (*Fagus granifolia*)	FACU		
5. Striped Maple (*Acer pensylvanicum*)	FACU		

Percent of species that are OBL, FACW, and/or FAC: 40% Other Indicators: None

Hydrophytic Vegetation: No Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Cookport Mapping Unit: CpB On Hydric Soil List? Yes (Partially Hydric)

Mottled: No Color: 10YR5/6

Gleyed: No Other Indicators: None

Hydric Soil: No Basis: lack of indicators

Hydrology:

Inundated: No Depth of Standing Water: 0 inches

Saturated Soil: No Depth of Saturated Soil: N/A

Other Indicators: None

Wetland Hydrology: No

Atypical Situation: No

Normal Circumstances? Yes Slightly above average rainfall August – 4.4 inches for area, Average 4.0 inches
No disturbance

Wetland Determination: **Non Wetland**

Data Form 1 Wetland Determination

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-4-09

Project Name: Well 2145

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site 3, Upslope of site approximately 150 feet from road.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees	Indicator Status	Species Herbs	Indicator Status
1 Yellowr Birch (*Betula papyrifera*)	FACU	4. Intermediate Woodfern	
2. American Beech (*Fagus granifolia*) (90%)	FACU	(*Dryopteris intermedia*)	FACU
Saplings/shrubs		5. Flat Branched Tree Clubmoss	
3. American Beech (*Fagus granifolia*) (100%)	FACU	(*Lycopodium obscurum*)	FAC

Percent of species that are OBL, FACW, and/or FAC: 5% Other Indicators: None

Hydrophytic Vegetation: No Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Cookport Mapping Unit: CpB On Hydric Soil List? Yes (Partially Hydric)

Mottled: Yes Mottle Color: 10YR7/6 Matrix Color: 10YR7/3

Gleyed: No Other Indicators: None

Hydric Soil: No Basis: Color and no other indicators.

Hydrology:

Inundated: No Depth of Standing Water: 0 inches

Saturated Soil: No Depth of Saturated Soil: N/A

Other Indicators: None

Wetland Hydrology: No

Atypical Situation: No

Normal Circumstances? Yes Slightly above average rainfall August – 4.4 inches for area, Average 4.0 inches
No disturbance

Wetland Determination: Non Wetland

Data Form 1 **Wetland Determination**

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-4-09

Project Name: Well 2145

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site 4 above back corner of pad.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees	Indicator Status	Species Herbs	Indicator Status
1. Red Maple (*Acer rubrum*)	FAC	5. Intermediate Woodfern	
2 Black Cherry (2) (*Prunus serotina*)	FACU	(*Dryopteris intermedia*)	FACU
3. American Beech (*Fagus granifolia*) (80%)	FACU	6. Flat Branched Tree Clubmoss	
Saplings/shrubs		(*Lycopodium obscurum*)	FAC
4. American Beech (*Fagus granifolia*) (100%)	FACU	7. Indian Cucumber Root (*Medeola virginiana*)	-------

Percent of species that are OBL, FACW, and/or FAC: 30% Other Indicators: None

Hydrophytic Vegetation: No Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Cookport Mapping Unit CpB On Hydric Soil List? Yes (Partially Hydric)

Mottled: Yes Mottle Color: 10YR6/6 Matrix Color: 10YR7/3

Gleyed: No Other Indicators: None

Hydric Soil: No Basis: Color and no other indicators

Hydrology:

Inundated: No Depth of Standing Water: 0 inches

Saturated Soil: No Depth of Saturated Soil: N/A

Other Indicators: None

Wetland Hydrology: No

Atypical Situation: No

Normal Circumstances? Yes Slightly above average rainfall August – 4.4 inches for area. Average 4.0 inches
No disturbance

Wetland Determination: Non Wetland

Data Form 1 **Wetland Determination**

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-4-09

Project Name: Well 2145

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site 5 approximately 40ft east of center of lined pond.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees	Indicator Status	Species Herbs	Indicator Status
1. Red Maple (*Acer rubrum*) (40%)	FAC	7. Hay-scented Fern (*Dennstaedtia punctilobula*)	UPL
2. American Beech (*Fagus granifolia*) (40%)	FACU	8. New York Fern (*Thelypteris noveboracenis*)	FAC
3. Black Cherry (2) (*Prunus serotina*)	FACU	9. Intermediate Woodfern (*Dryopteris intermedia*)	FACU
Saplings/shrubs			
5. American Beech (*Fagus granifolia*)	FACU		
6. Striped Maple (*Acer pensylvanicum*)	FACU		

Percent of species that are OBL, FACW, and/or FAC: 30% Other Indicators: None

Hydrophytic Vegetation: No Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Cookport Mapping Unit CpB On Hydric Soil List? Yes (Partially Hydric)

Mottled: Yes Mottle Color: 10YR 5/6 Matrix Color: 10YR7/1

Gleyed: No Other Indicators: none

Hydric Soil: Yes Basis: Color of matrix

Hydrology:

Inundated: No Depth of Standing Water: 0 inches

Saturated Soil: No Depth of Saturated Soil: N/A

Other Indicators: None

Wetland Hydrology: No

Atypical Situation: No

Normal Circumstances? Yes Slightly above average rainfall August – 4.4 inches for area, Average 4.0 inches
No disturbance

Wetland Determination: **Non Wetland**

Data Form 1 Wetland Determination

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-11-09

Project Name: Well 2145

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site # 6 - taped 100 feet SE of sampling area #5 and 75 feet from edge of well site.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees	Indicator Status	Species Herbs	Indicator Status
1. Red Maple (*Acer rubrum*) (40%)	FAC	5. Hay-scented Fern (*Dennstaedtia punctilobula*)	UPL
2. American Beech (*Fagus granifolia*) (50%)	FACU	6. Shining Firmoss (*Hyperzia lucindula*)	FACW-
3. Black Cherry (*Prunus serotina*) (15%)	FACU	7. Flat Branched Tree Clubmoss	
Saplings/shrubs		(*Lycopodium obscurum*)	FAC
4. American Beech (*Fagus granifolia*)	FACU		

Percent of species that are OBL, FACW, and/or FAC: 40% Other Indicators: None

Hydrophytic Vegetation: No Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Cookport Mapping Unit CpB On Hydric Soil List? Yes (Partially Hydric)

Mottled: Yes Mottle Color: 10YR 6/8 Matrix Color: 10YR7/2

Gleyed: No Other Indicators: none

Hydric Soil: Yes Basis: Color of matrix

Hydrology:

Inundated: No Depth of Standing Water: 0 inches

Saturated Soil: No Depth of Saturated Soil: N/A

Other Indicators: None

Wetland Hydrology: No

Atypical Situation: No

Normal Circumstances? Yes Slightly above average rainfall August – 4.4 inches for area, Average 4.0 inches
No disturbance

Wetland Determination: Non Wetland

Data Form 1 Wetland Determination

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-11-09

Project Name: Well 2145

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site # 7 - taped 100 feet SE of sampling area #6 and 45 feet from edge of well site.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees	Indicator Status	Species Herbs	Indicator Status
1. Red Maple (*Acer rubrum*) (30%)	FAC	6. Hay-scented Fern (*Dennstaedtia punctilobula*)	UPL
2. American Beech (*Fagus granifolia*) (60%)	FACU	7. New York Fern (*Thelypteris noveboracensis*)	FAC
3. Black Cherry (*Prunus serotina*) (10%)	FACU	9. Flat Branched Tree Clubmoss (*Lycopodium obscurum*)	FAC
Saplings/shrubs			
4. American Beech (*Fagus granifolia*) (70%)	FACU		
5. Striped Maple (*Acer pensylvanicum*) (30%)	FACU		

Percent of species that are OBL, FACW, and/or FAC: 30% Other Indicators: None

Hydrophytic Vegetation: No Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Nolo Mapping Unit NsB On Hydric Soil List? Yes

Mottled: Yes Mottle Color: 10YR 6/8 Matrix Color: 10YR7/2

Gleyed: No Other Indicators: none

Hydric Soil: Yes Basis: Color of matrix

Hydrology:

Inundated: No Depth of Standing Water: 0 inches

Saturated Soil: No Depth of Saturated Soil: N/A

Other Indicators: None

Wetland Hydrology: No

Atypical Situation: No

Normal Circumstances? Yes Slightly above average rainfall August – 4.4 inches for area, Average 4.0 inches

No disturbance

Wetland Determination: Non Wetland

Data Form 1 **Wetland Determination**

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-11-09

Project Name: Well 2145

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site # 8 - taped 100 feet SE of sampling area # 7 and 35 feet from edge of well site.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species	Indicator Status	Species	Indicator Status
Trees		Herbs	
1. Red Maple (*Acer rubrum*) (40%)	FAC	6. New York Fern (*Thelypteris noveboracensis*)	FAC
2. American Beech (*Fagus granifolia*) (50%)	FACU	7. Flat Branched Tree Clubmoss (*Lycopodium obscurum*)	FACU
3. Black Cherry (*Prunus serotina*) (10%)	FACU		
Saplings/shrubs			
4. American Beech (*Fagus granifolia*) (30%)	FACU		
5. Striped Maple (*Acer pensylvanicum*) (70%)	FACU		

Percent of species that are OBL, FACW, and/or FAC: 20% Other Indicators: None

Hydrophytic Vegetation: No Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Nolo Mapping Unit NsB On Hydric Soil List? Yes

Mottled: Yes Mottle Color: 10YR 6/8 Matrix Color: 10YR7/2

Gleyed: No Other Indicators: none

Hydric Soil: Yes Basis: Color of matrix

Hydrology:

Inundated: No Depth of Standing Water: 0 inches

Saturated Soil: No Depth of Saturated Soil: N/A

Other Indicators: None

Wetland Hydrology: No

Atypical Situation: No

Normal Circumstances? Yes Slightly above average rainfall August – 4.4 inches for area, Average 4.0 inches
No disturbance

Wetland Determination: **Non Wetland**

Data Form 1 Wetland Determination

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-11-09

Project Name: Well 2361

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site # 10 – right side of access road in new tree growth (as close to typical) GPS pt 2.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees	Indicator Status	Species Herbs	Indicator Status
1. Black Cherry (*Prunus serotina*) (100%)	FACU	4. Common Blackberry (*Rubus allegheniensis*)	FACU-
Saplings/shrubs		5. New York Fern (*Thelypteris noveboracenis*)	FAC
2. Black Cherry (*Prunus serotina*) (95%)	FACU	6. Deertogue (*Dichanthelium clandestinum*)	FAC+
3. Red Maple (*Acer rubrum*) (5%)	FAC		

Percent of species that are OBL, FACW, and/or FAC: 3% Other Indicators: None

Hydrophytic Vegetation: No Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Cookport Mapping Unit CpB On Hydric Soil List? Yes (Partially Hydric)

Mottled: No Color 10YR5/6

Gleyed: No Other Indicators: none

Hydric Soil: No Basis: Color and no other indicators

Hydrology:

Inundated: No Depth of Standing Water: 0 inches

Saturated Soil: No Depth of Saturated Soil: N/A

Other Indicators: None

Wetland Hydrology: No

Atypical Situation: No

Normal Circumstances? Yes Slightly above average rainfall August – 4.4 inches for area, Average 4.0 inches
No disturbance

Wetland Determination: Non Wetland

Data Form 1 Wetland Determination

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-11-09

Project Name: Well 2361

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site # 11 – left side of access road, 40 feet below public road and 40 feet left of access road (looking down to pad). GPS point #3.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees	Indicator Status	Species Herbs	Indicator Status
1. Black Cherry (*Prunus serotina*) (100%)	FACU	5. Common Blackberry (*Rubus allegheniensis*)	FACU-
Saplings/shrubs		6. Intermediate Woodfern	
2. Black Cherry (*Prunus serotina*)	FACU	(*Dryopteris intermedia*)	FACU
3. Red Maple (*Acer rubrum*) (18 inches high)	FAC	7. New York Fern (*Thelypteris noveboracensis*)	FAC
4. American Beech (*Fagus granifolia*)	FACU		

Percent of species that are OBL, FACW, and/or FAC: 20% Other Indicators: None

Hydrophytic Vegetation: No Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Cookport Mapping Unit CpB On Hydric Soil List? Yes (Partially Hydric)

Mottled: Yes Mottle Color: 10YR 6/8 Matrix Color: 10YR7/4

Gleyed: No Other Indicators: none

Hydric Soil: No Basis: Color and no other indicators

Hydrology:

Inundated: No Depth of Standing Water: 0 inches

Saturated Soil: No Depth of Saturated Soil: N/A

Other Indicators: None

Wetland Hydrology: No

Atypical Situation: No

Normal Circumstances? Yes Slightly above average rainfall August – 4.4 inches for area, Average 4.0 inches
No disturbance

Wetland Determination: Non Wetland

Data Form 1 Wetland Determination

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-11-09

Project Name: Well 2361

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site # 12 – below pad on right side – 20 feet above the end of the filter fence. GPS point #4.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species	Indicator Status	Species	Indicator Status
Trees		Herbs	
1. Black Cherry (*Prunus serotina*) (20%)	FACU	5. New York Fern (*Thelypteris noveboracensis*)	FAC
2. American Beech (*Fagus granifolia*) (80%)	FACU		
3. Red Maple (*Acer rubrum*) (3)	FAC		
Saplings/shrubs			
4. American Beech (*Fagus granifolia*)	FACU		

Percent of species that are OBL, FACW, and/or FAC: 40% Other Indicators: None

Hydrophytic Vegetation: No Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Cookport Mapping Unit CpB On Hydric Soil List? Yes (Partially Hydric)

Mottled: Yes Mottle Color: 10YR 6/8 Matrix Color: 10YR7/3

Gleyed: No Other Indicators: none

Hydric Soil: No Basis: Color and no other indicators

Hydrology:

Inundated: No Depth of Standing Water: 0 inches

Saturated Soil: No Depth of Saturated Soil: N/A

Other Indicators: None

Wetland Hydrology: No

Atypical Situation: No

Normal Circumstances? Yes Slightly above average rainfall August – 4.4 inches for area, Average 4.0 inches
No disturbance

Wetland Determination: Non Wetland

Data Form 1 Wetland Determination

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-11-09

Project Name: Well 2368

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site # 13 – behind well on right side. GPS point #5.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species	Indicator Status	Species	Indicator Status
Trees		Herbs	
1. Black Cherry (*Prunus serotina*)	FACU	4. Common Blackberry (*Rubus allegheniensis*)	FACU-
2. Red Maple (*Acer rubrum*) (80%)	FAC	5. Flat Branched Tree Clubmoss (*Lycopodium obscurum*)	FACU
Saplings/shrubs			
3. Red Maple (*Acer rubrum*)	FAC		

Percent of species that are OBL, FACW, and/or FAC: 30% Other Indicators: None

Hydrophytic Vegetation: No Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Cookport Mapping Unit CpB On Hydric Soil List? Yes (Partially Hydric)

Mottled: No Color 10YR5/7

Gleyed: No Other Indicators: none

Hydric Soil: No Basis: Color and no other indicators

Hydrology:

Inundated: No Depth of Standing Water: 0 inches

Saturated Soil: No Depth of Saturated Soil: N/A

Other Indicators: None

Wetland Hydrology: No

Atypical Situation: yes

Normal Circumstances? Yes Slightly above average rainfall August – 4.4 inches for area, Average 4.0 inches
No disturbance

Note: This area had been heavily timbered recently, changing the normal vegetation.

Wetland Determination: Non Wetland

Data Form 1 Wetland Determination

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-11-09

Project Name: Well 2368

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site # 15 – side of pad 40 feet off of the pad and 70 feet from the road. GPS point #6.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species	Indicator	Herbs	Status
Trees	Status	5. Flat Branched Tree Clubmoss	
1. Eastern Hemlock (*Tsuga canadenis*) (90%)	FACU	(*Lycopodium obscurum*)	FAC
2. Red Maple (*Acer rubrum*) (10)	FAC		
Saplings/shrubs			
3. Striped Maple (*Acer pensylvanicum*)	FACU		
4. Red Maple (*Acer rubrum*)	FAC		

Species Indicator

Percent of species that are OBL, FACW, and/or FAC: 10% Other Indicators: None

Hydrophytic Vegetation: No Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Cookport Mapping Unit CpB On Hydric Soil List? Yes (Partially Hydric)

Mottled: No Color 10YR5/6

Gleyed: No Other Indicators: none

Hydric Soil: No Basis: Color and no other indicators

Hydrology:

Inundated: No Depth of Standing Water: 0 inches

Saturated Soil: No Depth of Saturated Soil: N/A

Other Indicators: None

Wetland Hydrology: No

Atypical Situation: yes

Normal Circumstances? Yes Slightly above average rainfall August – 4.4 inches for area, Average 4.0 inches
No disturbance

Note: This area had been heavily timbered recently, changing the normal vegetation.

Wetland Determination: Non Wetland

Data Form 1 Wetland Determination

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-11-09

Project Name: Well 2368

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site # 16 – across from pad on other side of Card Creek Road. GPS point #7.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species	Indicator Status	Species	Indicator Status
Trees		Herbs	
1. Eastern Hemlock (*Tsuga canadenis*) (20%)	FACU	6. Flat Branched Tree Clubmoss (*Lycopodium obscurum*)	FAC
2. Red Maple (*Acer rubrum*) (30%)	FAC	7. New York Fern (*Thelypteris noveboracenis*)	FAC
3. American Beech (*Fagus granifolia*) (50%)	FACU		
Saplings/shrubs			
4. Striped Maple (*Acer pensylvanicum*)	FACU		
5. American Beech (*Fagus granifolia*)	FACU		

Percent of species that are OBL, FACW, and/or FAC: 10% Other Indicators: None

Hydrophytic Vegetation: No Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Cookport Mapping Unit CpB On Hydric Soil List? Yes (Partially Hydric)

Mottled: No Color 10YR6/4

Gleyed: No Other Indicators: none

Hydric Soil: No Basis: Color and no other indicators

Hydrology:

Inundated: No Depth of Standing Water: 0 inches

Saturated Soil: No Depth of Saturated Soil: N/A

Other Indicators: None

Wetland Hydrology: No

Atypical Situation: yes

Normal Circumstances? Yes Slightly above average rainfall August – 4.4 inches for area, Average 4.0 inches
No disturbance

Note: This area had been heavily timbered recently, changing the normal vegetation.

Wetland Determination: Non Wetland

Data Form 1 **Wetland Determination**

Prepared by: Neal Parker, Soil Scientist,
Moody and Associates, Inc.
11548 Cotton Road, Meadville, PA 16335

Applicant Name: Pennsylvania General Energy Corporation, LLC Date: 9-11-09

Project Name: Hemlock

Twp: Keating County: Potter Pennsylvania

Site Description: Sample site # 17 – along southwest side of Card creek Road 1800 feet south east of Well site 2368. GPS point 1.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species	Indicator Status	Species	Indicator Status
Trees		Herbs	
1. Eastern Hemlock (*Tsuga canadenis*) (20%)	FACU	6. Sedge (*Carex bullatta*)	OBL
2. Red Maple (*Acer rubrum*) (30%)	FAC	7. Woolgrass (*Scirpus cyperinus*)	FACW+
3. Yellow Birch (*Betula alleghaniensis*)	FAC	8. Sensitive Fern (*Onoclea sensibilis*)	FACW
Saplings/shrubs			
4. Eastern Hemlock (*Tsuga canadenis*) (20%)	FACU		

Note: Trees and Scrubs are on the perimeter.

Percent of species that are OBL, FACW, and/or FAC: 80% Other Indicators: None

Hydrophytic Vegetation: Yes Basis: Percent for FAC only and no OBL or FACW present

Soil:

Series: Nolo Mapping Unit NsB On Hydric Soil List? Yes

Mottled: No Color 7.5YR 7/1 at 11 inches (below muck)

Gleyed: Yes Other Indicators: Muck to 11 inches

Hydric Soil: Yes Basis: Color and other indicator (muck)

Hydrology:

Inundated: Yes Depth of Standing Water: 3 inches

Saturated Soil: Yes Depth of Saturated Soil: 14 inches

Other Indicators: None

Wetland Hydrology: Yes

Atypical Situation: Yes – this area was opened up – hemlock removed.

Normal Circumstances? No Slightly above average rainfall August – 4.4 inches for area, Average 4.0 inches

Some disturbance

Wetland Determination: Wetland

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist,

Moody and Associates, Inc. Date 9-4-09

Name PGE

Project Name Well 2145

County Potter Twp Keating

Site # & Description:

#1 NE of corner of pond GPS'd by Amber

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).

Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species	Species
Trees	Herbs
1. Red Maple 90% of upper canopy	11. N. 4 Fern 80%
2.	12. F.B Tree Clubmoss 5%
3. Striped Maple - lower canopy	13. In. Cuc. Root. 2%
4.	14. Deer tongue 10%
5.	15.
Saplings/shrubs	Woody Vines
6. Am. Beech (2)	16. None
7. Striped Maple (1?)	17.
8.	18.
9.	19.
10.	20.

Other Indicators:

Comments:

Data Form 1 **Wetland Determination**

Land slope 3%

Soil:

Series Cookport

Mapping Unit CpB On Hydric Soil List? Yes ✓ No Partially

Mottled Yes ✓ No

Mottle Color 10YR 6/8 Matrix Color 10YR 2/2

Gleyed Yes No ✓

Other Indicators None

Hydric Soil Yes ✓ No

Basis Munsell Color & Oxidized root zones

Hydrology:

Inundated Yes No ✓

Depth of Standing Water None

Saturated Soil Yes No ✓

Depth of Saturated Soil None

Other Indicators None

Wetland Hydrology Yes No ✓

Atypical Situation Yes No ✓

Normal Circumstances? Yes ✓ No

Wetland Determination Yes No ✓

Notes:

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist,

Moody and Associates, Inc. Date 9-4-09

Name PGE

Project Name Well 2145

County Potter Twp Keating

Site # & Description:
#2 Upslope from #1 away from well
GPS by Amber

Vegetation:
List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk

Species	Species
Trees	Herbs
1. Red Maple	11. NY Fern
2. B. Cherry (U)	12. F.B Tree Clubmoss
3. Striped Maple	13.
4.	14.
5.	15.
Saplings/shrubs	Woody Vines
6. Am Beech	16. None
7. Striped Maple	17.
8.	18.
9.	19.
10.	20.

Other Indicators:

Comments:

Data Form 1 **Wetland Determination**

Land slope 4%

Soil:

Series Cookport

Mapping Unit CpB On Hydric Soil List? Yes ~ No

Mottled Yes ~ No ✓ Partially

Mottle Color ~ Matrix Color ~

Gleyed Yes No ✓

Other Indicators None

Hydric Soil Yes No ✓

Basis Color of B 10YR 5/6

Hydrology:

Inundated Yes No ✓

Depth of Standing Water None

Saturated Soil Yes No ✓

Depth of Saturated Soil None

Other Indicators None

Wetland Hydrology Yes No ✓

Atypical Situation Yes No ✓

Normal Circumstances? Yes ~ No

Wetland Determination Yes ✓ No

Notes:

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist,

Moody and Associates, Inc. Date 4-4-09

Name PGE

Project Name WCH 2145

County Butler Twp Keating

Site # & Description:

#3 Above side ~~below~~ below pond.

GPS'd by Parker

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).

Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees	Species Herbs
1. Am. Beech. 85%	11. NY Fern.
2. Yellow Birch ~~2~~ 1	12. FB. Tree Clubmoss
3.	13.
4.	14.
5.	15.
Saplings/shrubs	Woody Vines
6. Am. Beech 100%	16. None
7.	17.
8.	18.
9.	19.
10.	20.

Other Indicators:

Comments:

Data Form 1 **Wetland Determination**

Land slope 2-3%

Soil:

Series Cookport

Mapping Unit CpB On Hydric Soil List? Yes ✓ No Partially

Mottled Yes ✓ No

Mottle Color 10YR 7/6 Matrix Color 10YR 7/3

Gleyed Yes No ✓

Other Indicators None

Hydric Soil Yes No ✓

Basis Color & Chroma of 3

Hydrology:

Inundated Yes No ✓

Depth of Standing Water None

Saturated Soil Yes No ✓

Depth of Saturated Soil None

Other Indicators None

Wetland Hydrology Yes No ✓

Atypical Situation Yes No ✓

Normal Circumstances? Yes ✓ No

Wetland Determination Yes No ✓

Notes:

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist,

Moody and Associates, Inc. Date 9-4-09

Name PG&E

Project Name Well 2145

County Potter Twp Keating

Site # & Description:

#4 Above corner of Pad/Road

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).

Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species	Species
Trees	Herbs
1. Red Maple	11. F.B. Tree Clubmoss
2. Am. Beech (80% +)	12. N.Y. Fern.
3. Bk Cherry (2)	13. Ind-Cuc. Root. <2%
4.	14.
5.	15.
Saplings/shrubs	Woody Vines
6. Am. Beech (100%)	16. None
7.	17.
8.	18.
9.	19.
10.	20.

Other Indicators:

Comments:

Data Form 1 **Wetland Determination**

Land slope 3%

Soil:

Series Cookport

Mapping Unit CpB On Hydric Soil List? Yes ✓ No

Mottled Yes ✓ No Partially

Mottle Color 10YR 6/6 Matrix Color 10YR 7/3

Gleyed Yes No ✓

Other Indicators None

Hydric Soil Yes No ✓

Basis Color & ~~wet~~ no other indicators

Hydrology:

Inundated Yes No ✓

Depth of Standing Water None

Saturated Soil Yes No ✓

Depth of Saturated Soil None

Other Indicators None

Wetland Hydrology Yes No ✓

Atypical Situation Yes No ✓

Normal Circumstances? Yes ✓ No

Wetland Determination Yes No ✓

Notes:

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist,

Moody and Associates, Inc. Date 9-11-09

Name TGE

Project Name Well 2145

County Potter Twp Keating

Site # & Description:
HS 40' behind center of Pond.

Vegetation:
List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species		Species	
Trees		Herbs	
1. R. Maple	40%	11. F. B. Tree Clubmoss	
2. Am Beech	40%	12. Deertongue	10%
3. Chun	10%	13. I Wood Fern.	
4. Birch/Gum	10%	14. ~~Hay~~ Fern ID. check Pic Red.	
5.	(check photo	15. NY Fern. Shiny Fir moss	
Saplings/shrubs		Woody Vines	
6. Am. Beech		16. None	
7. Sl. Maple		17.	
8.		18.	
9.		19.	
10.		20.	

Other Indicators:

Comments:

Data Form 1 **Wetland Determination**

Land slope 3%

Soil:

Series Cookport

Mapping Unit CpB On Hydric Soil List? Yes ~ No

Mottled Yes ✓ No Partially

Mottle Color 10YR 5/6 Matrix Color 10YR 7/1

Gleyed Yes No ~

Other Indicators None

Hydric Soil Yes ✓ No

Basis Matrix Chroma 1

Hydrology:

Inundated Yes No ✓

Depth of Standing Water None

Saturated Soil Yes No ✓

Depth of Saturated Soil —

Other Indicators None

Wetland Hydrology Yes No ✓

Atypical Situation Yes No ✓

Normal Circumstances? Yes ✓ No

Wetland Determination Yes No ✓

Notes

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist,

Moody and Associates, Inc. Date 9-11-09

Name PGE

Project Name Well 2145

County Potter Twp Keating

Site # & Description:

#6 100' downslope of #5 75' from edge of Turped. Site

GPS 11

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).

Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species		Species	
Trees		Herbs	
1. Am Beech	50%	11. I. Woodfern..	
2. Birch. ~~#6~~	5%	12. FB Tree Clubmoss.	
3. Cherry	15%	13. NY Fern. in open area	
4. R. Maple	40%	14. ~~Sorrel Type~~ ? ID	
5.		15. N. Wood Sorrel Photo	
Saplings/shrubs		Woody Vines	
6. Am. Beech	90%	16. None	
7. Sl. Maple	10%	17.	
8.		18.	
9.		19.	
10.		20.	

Other Indicators:

Comments:

Data Form 1 **Wetland Determination**

Land slope 3%

Soil:

Series Cookeport

Mapping Unit CpB On Hydric Soil List? Yes ✓ No

Mottled Yes ✓ No Partially

Mottle Color 10YR 6/8 Matrix Color 10YR 7/2

Gleyed Yes · No ✓

Other Indicators

Hydric Soil Yes ✓ No

Basis Matrix Chroma 2

Hydrology:

Inundated Yes No ✓

Depth of Standing Water None

Saturated Soil Yes No ✓

Depth of Saturated Soil None

Other Indicators None

Wetland Hydrology Yes No ✓

Atypical Situation Yes No ✓

Normal Circumstances? Yes ✓ No

Wetland Determination Yes No ✓

Notes:

Matrix Color of B1 5 - 9½"

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist.

Moody and Associates, Inc. Date 9-11-09

Name PGE

Project Name Well 2145

County Potter Twp Keating

Site # & Description:

#7 100' taped below #6 - 200' below #5

GPS #10 45' from edge of site

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).

Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species		Species	
Trees		Herbs	
1.	Am Beech 60%	11.	N.S. Fern
2.	R. Maple 30%	12.	NY Fern
3.	Bk Cherry 10%	13.	Int Woodfern & P.T. clubmoss
4.		14.	F.B. Tree Clubmoss
5.		15.	Shiny Firmoss
Saplings/shrubs		Woody Vines	
6.	Am. Beech 70%	16.	No Vines
7.	Striped Maple 30%	17.	
8.		18.	
9.		19.	
10.		20.	

Other Indicators:

Comments:

Data Form 1 **Wetland Determination**

Land slope

Soil:

Series Nolo

Mapping Unit NoB On Hydric Soil List? Yes ✓ No

Mottled Yes No

Mottle Color 10YR 6/8 Matrix Color 10YR 7/2

Gleyed Yes No ✓

Other Indicators None

Hydric Soil Yes ✓ No

Basis Matrix chroma: 2

Hydrology:

Inundated Yes No ✓

Depth of Standing Water None

Saturated Soil Yes No ✓

Depth of Saturated Soil None

Other Indicators None

Wetland Hydrology Yes No ✓

Atypical Situation Yes No ✓

Normal Circumstances? Yes ✓ No

Wetland Determination Yes No ✓

Notes:

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist,

Moody and Associates, Inc. Date_____

Name PGE

Project Name Well 2145

County Potter Twp Keating

Site # & Description:
#8 Behind well head. 40' from Pad.
GPS 12

Vegetation:
List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees		Species Herbs	
1.	Am. Beech 50%	11.	NY Fern only Fern
2.	R. Maple 40%	12.	F. & Tree Clubmoss.
3.	Blc Cherry. 10%	13.	
4.	Birch/Gum ? - ck photos bark yellow leaves.	14.	
5.		15.	
Saplings/shrubs		**Woody Vines**	
6.	Am Beech	16.	None
7.	St. Maple.	17.	
8.		18.	
9.		19.	
10.		20.	

Other Indicators:_____

Comments:

Data Form 1 **Wetland Determination**

Land slope 2-7%

Soil:

Series Nolo

Mapping Unit NoB On Hydric Soil List? Yes ✓ No_____

Mottled Yes ✓ No_____

Mottle Color 10YR6/8 Matrix Color 10YR 7/2

Gleyed Yes_____ No ✓

Other Indicators None

Hydric Soil Yes ✓ No_____

Basis Matrix Chroma 2

Hydrology:

Inundated Yes_____ No ✓

Depth of Standing Water None

Saturated Soil Yes_____ No ✓

Depth of Saturated Soil None

Other Indicators None

Wetland Hydrology Yes_____ No ✓

Atypical Situation Yes_____ No ✓

Normal Circumstances? Yes ✓ No_____

Wetland Determination Yes_____ No ✓

Notes:

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist,

Moody and Associates, Inc. Date 9-11-09

Name PGE

Project Name Well 23161

County Polk Twp Kenton

Site # & Description:

#10 GPS #32

To right side of Access Rd

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).

Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees		Species Herbs	
1.	Bk Cherry 25' Mat 3" Ave BHD	11.	~~Rattlesnake~~
2.		12.	Blackberry
3.		13.	N.Y Fern,
4.		14.	Deertongue,
5.		15.	
Saplings/shrubs	~~100%~~ 95	Woody Vines	
6.	Bk Cherry ~~100%~~	16.	
7.	~~R. Maple - 10~~	17.	
8.	Red Maple, - 5%	18.	
9.		19.	
10.		20.	

Other Indicators: None

Comments:

Data Form 1 **Wetland Determination**

Land slope 4%

Soil:

Series

Mapping Unit On Hydric Soil List? Yes No

Mottled Yes No ✓

Mottle Color — Matrix Color —

Gleyed Yes No ✓

Other Indicators None Color 10YR 5/6

Hydric Soil Yes No ✓

Basis No indicators

Hydrology:

Inundated Yes No ✓

Depth of Standing Water —

Saturated Soil Yes No ✓

Depth of Saturated Soil —

Other Indicators None

Wetland Hydrology Yes No ✓

Atypical Situation Yes No ✓

Normal Circumstances? Yes ✓ No

Wetland Determination Yes No ✓

Notes:

Timbered off ~10-15 yrs ~

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist,

Moody and Associates, Inc. Date 4-11-09

Name PGE

Project Name Wyll 2361

County Polk Twp Keating

Site # & Description:
#11 site 40 below public road GPS#3
40' to left of Accessroad.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).
Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees		Species Herbs	
1.	~~Tree~~ Bk Chery	11.	NY Fern.
2.		12.	B. Berry
3.		13.	Fern - ID sample
4.		14.	
5.		15.	
Saplings/shrubs		Woody Vines	
6.	Bk Cherry	16.	
7.	R. Maple. - 18" high.	17.	
8.	Am. Beech	18.	
9.		19.	
10.		20.	

Other Indicators:

Comments:

Data Form 1 **Wetland Determination**

Land slope 3

Soil:

Series

Mapping Unit On Hydric Soil List? Yes No

Mottled Yes ✓ No

Mottle Color 10YR 6/8 Matrix Color 10YR 3/4

Gleyed Yes No ✓

Other Indicators None

Hydric Soil Yes No ✓

Basis Color no other indicaters.

Hydrology:

Inundated Yes No —

Depth of Standing Water —

Saturated Soil Yes No —

Depth of Saturated Soil —

Other Indicators None

Wetland Hydrology Yes No —

Atypical Situation Yes No —

Normal Circumstances? Yes ✓ No

Wetland Determination Yes No ✓

Notes:

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist,

Moody and Associates, Inc. Date 9-11-09

Name PGE

Project Name Vogel 2001

County Platte Twp Keating

Site # & Description:

#12 below Pad to right side 20' above end of Fill Area

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).

Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees	Species Herbs
1. Beech 80%	11. ~~NY Fern~~ 100%
2. Blk Cherry 20%	12. Im. wood fern
3. R. Maple 3	13.
4.	14.
5.	15.
Saplings/shrubs	Woody Vines
6. Beech.	16.
7.	17.
8.	18.
9.	19.
10.	20.

Other Indicators:

Comments:

Data Form 1 **Wetland Determination**

Land slope 2

Soil:

Series

Mapping Unit On Hydric Soil List? Yes No

Mottled Yes ✓ No

Mottle Color 10YR 6/8 Matrix Color 10YR 7/3

Gleyed Yes No ✓

Other Indicators None

Hydric Soil Yes No ✓

Basis

Hydrology:

Inundated Yes No ✓

Depth of Standing Water —

Saturated Soil Yes No ✓

Depth of Saturated Soil —

Other Indicators None

Wetland Hydrology Yes No ✓

Atypical Situation Yes No ✓

Normal Circumstances? Yes ✓ No

Wetland Determination Yes No ✓

Notes: Extremely stony!

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist,

Moody and Associates, Inc. Date 4-11-09

Name PGE

Project Name Well 23685

County Potter Twp Keating

Site # & Description:

#13 behind well on right side GPS#5

Area Timbered.

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).

Indicate species with observed morphological or known physiological adaptations with an asterisk

Species Trees	Species Herbs
1. Red Maple.	11. Blackberry.
2. Cherry -	12. FB Tree Clubmoss.
3.	13.
4.	14.
5.	15.
Saplings/shrubs	Woody Vines
6. R. Maple	16.
7. B	17.
8.	18.
9.	19.
10.	20

Other Indicators:

Comments:

Data Form 1 **Wetland Determination**

Land slope 1%

Soil:

Series

Mapping Unit On Hydric Soil List? Yes No

Mottled Yes No ✓

Mottle Color — Matrix Color —

Gleyed Yes No ✓ Color 10YR5/7

Other Indicators

Hydric Soil Yes No

Basis

Hydrology:

Inundated Yes No —

Depth of Standing Water —

Saturated Soil Yes No —

Depth of Saturated Soil —

Other Indicators None

Wetland Hydrology Yes No —

Atypical Situation Yes ✓ No Timbered

Normal Circumstances? Yes ✓ No

Wetland Determination Yes No ✓

Notes:

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist,

Moody and Associates, Inc. Date 9-11-09

Name PGE

Project Name Well 2368

County Potter - Twp Keating

Site # & Description:
#15 Side of Pad. 40' off of Pad. 70' from road. GPS # 8

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers)

Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species Trees – Trimpled		Species Herbs	
1.	Hemlock	11.	~~Ground Pine~~ Club moss
2.	R. Maple	12.	FB Treated sample Clubmoss
3.		13.	
4.		14.	
5.		15.	
Saplings/shrubs		Woody Vines	
6.	~~Striped Maple~~	16.	
7.	Red maple	17.	
8.		18.	
9.		19.	
10.		20.	

Other Indicators:

Comments:

Data Form 1 **Wetland Determination**

Land slope 2%

Soil:

Series

Mapping Unit On Hydric Soil List? Yes No

Mottled Yes No ✓ 10YR5/6

Mottle Color — Matrix Color —

Gleyed Yes No ✓

Other Indicators None

Hydric Soil Yes No ✓

Basis

Hydrology:

Inundated Yes No ✓

Depth of Standing Water —

Saturated Soil Yes No —

Depth of Saturated Soil ✓

Other Indicators None

Wetland Hydrology Yes No ✓

Atypical Situation Yes No ✓

Normal Circumstances? Yes ✓ No

Wetland Determination Yes No ✓

Notes: Wetland depressional area, 15-20' behind sample site (away from pad)

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist,

Moody and Associates, Inc. Date 9-11-09

Name PGE

Project Name Well 2368

County _____ Twp _____

Site # & Description:

#16 Access Road

GPS 7

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).

Indicate species with observed morphological or known physiological adaptations with an asterisk

Species		Species	
Trees		Herbs	
1.	R. Maple	11.	NG. Fern,
2.	Beech	12.	FB Tree Clubmoss
3.	Cherry	13.	
4.		14.	
5.	Hemlock	15.	
Saplings/shrubs		Woody Vines	
6.	S. Maple,	16.	
7.	Beech,	17.	
8.		18.	
9.		19.	
10.		20.	

Other Indicators: _____

Comments:

Data Form 1 **Wetland Determination**

Land slope _____

Soil:

Series _____

Mapping Unit _____ On Hydric Soil List? Yes ____ No ____

Mottled Yes ____ No ✓ 10YR 6/4

Mottle Color _____ Matrix Color _____

Gleyed Yes ____ No ✓

Other Indicators _____

Hydric Soil Yes ____ No ____

Basis _____

Hydrology:

Inundated Yes ____ No ✓

Depth of Standing Water — _____

Saturated Soil Yes ____ No ✓

Depth of Saturated Soil — _____

Other Indicators Wet

Wetland Hydrology Yes ____ No ✓

Atypical Situation Yes ____ No ✓

Normal Circumstances? Yes ✓ No ____

Wetland Determination Yes ____ No ✓

Notes:

Data Form 1 **Wetland Determination**

Prepared By Neal A. Parker, Soil Scientist,

Moody and Associates, Inc. Date 9-14-09

Name PGE

Project Name Road #1 Hemlock

County Potter Twp Keating

Site # & Description:

17 GPS 1 -22 Small area adjacent to Card Creek Road Hemlock

Vegetation:

List the three dominate species in each vegetative layer (5 if only 1 or 2 layers).

Indicate species with observed morphological or known physiological adaptations with an asterisk.

Species		Species	
Trees		Herbs	
1.	Hemlock	11.	~~Sensitive~~ Fern
2.	R. Maple	12.	
3.	~~Birch/Grass photo~~ Yellow	13.	Samples Rushes Sedges
4.	~~Hemlock~~	14.	Bull Rush
5.		15.	
Saplings/shrubs		Woody Vines	
6.	Hemlock.	16.	None
7.		17.	
8.		18.	
9.		19.	
10.		20.	

Other Indicators:

Comments:

Carex bullata - Sedge

Woolgrass Scirpus cyperinus

Data Form 1 **Wetland Determination**

Land slope 0

Soil:

Series Nolo

Mapping Unit NsB On Hydric Soil List? Yes ✓ No

Mottled Yes No ✓

Mottle Color — Matrix Color —

Gleyed Yes ✓ No —

Other Indicators Muck to 11" then silt 7.5 YR 3/1 w/ organics / stains

Hydric Soil Yes ✓ No

Basis Total Reduction of Profile

Hydrology:

Inundated Yes ✓ No in 2% of area along road. ✓

Depth of Standing Water 1-2" ✓

Saturated Soil Yes ✓ No

Depth of Saturated Soil 14"

Other Indicators

Wetland Hydrology Yes ✓ No

Atypical Situation Yes ✓ No - This area was daylighted changing the veg. from hemlock

Normal Circumstances? Yes ✓ No

Wetland Determination Yes ✓ No

Notes:

GPS 23-24 State forest Landing

GPS-25-26 Open area S of #17

ATTACHMENT C

Soils Map and Descriptions
Hydric Soils Report

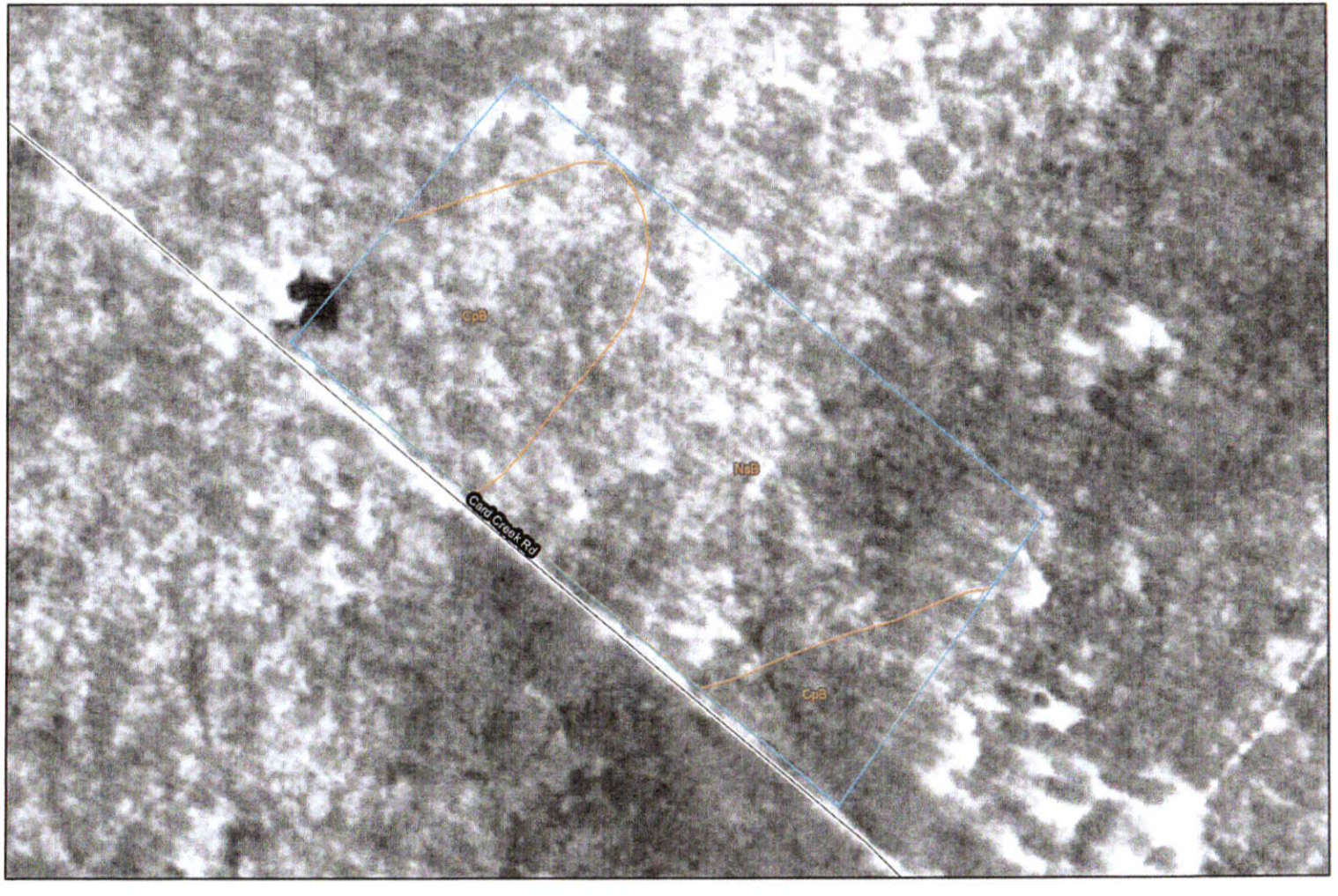
Soil Map—Potter County, Pennsylvania
(PGE Well2145)

78° 10' 16"

78° 9' 52"

41° 43' 48"

41° 43' 48"



41° 43' 36"

41° 43' 36"

78° 10' 17"

78° 9' 53"

Map Scale: 1:2,650 if printed on A size (8.5" x 11") sheet.

N

Meters
0 35 70 140 210

Feet
0 100 200 400 600

USDA Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:2,660 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Potter County, Pennsylvania
Survey Area Data: Version 5, May 8, 2008

Date(s) aerial images were photographed: 5/7/1993

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Potter County, Pennsylvania (PA105)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
CpB	Cookport channery loam, 3 to 15 percent, extremely stony	4.2	38.2%
NsB	Nolo channery sandy loam, sandy variant, 0 to 12 percent slopes, extremely stony	6.8	61.8%
Totals for Area of Interest		**11.0**	**100.0%**

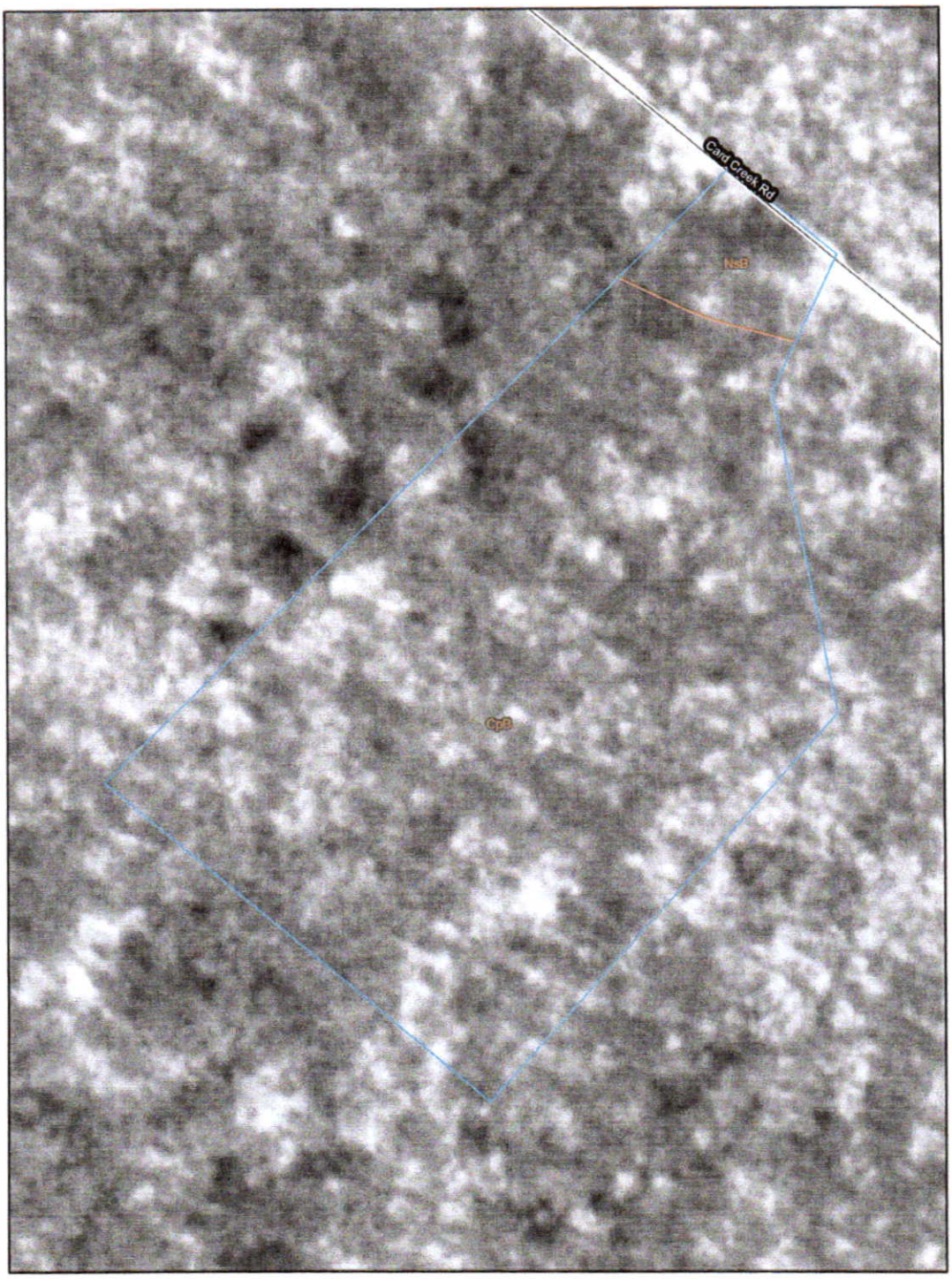
Soil Map—Potter County, Pennsylvania
(PGE Well 2361)

78° 10' 25"

78° 10' 14"

41° 43' 49"

41° 43' 48"



41° 43' 38"

41° 43' 37"

78° 10' 25"

78° 10' 14"

Map Scale: 1:1,620 if printed on A size (8.5" x 11") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:1,620 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Potter County, Pennsylvania
Survey Area Data: Version 5, May 8, 2008

Date(s) aerial images were photographed: 5/7/1993

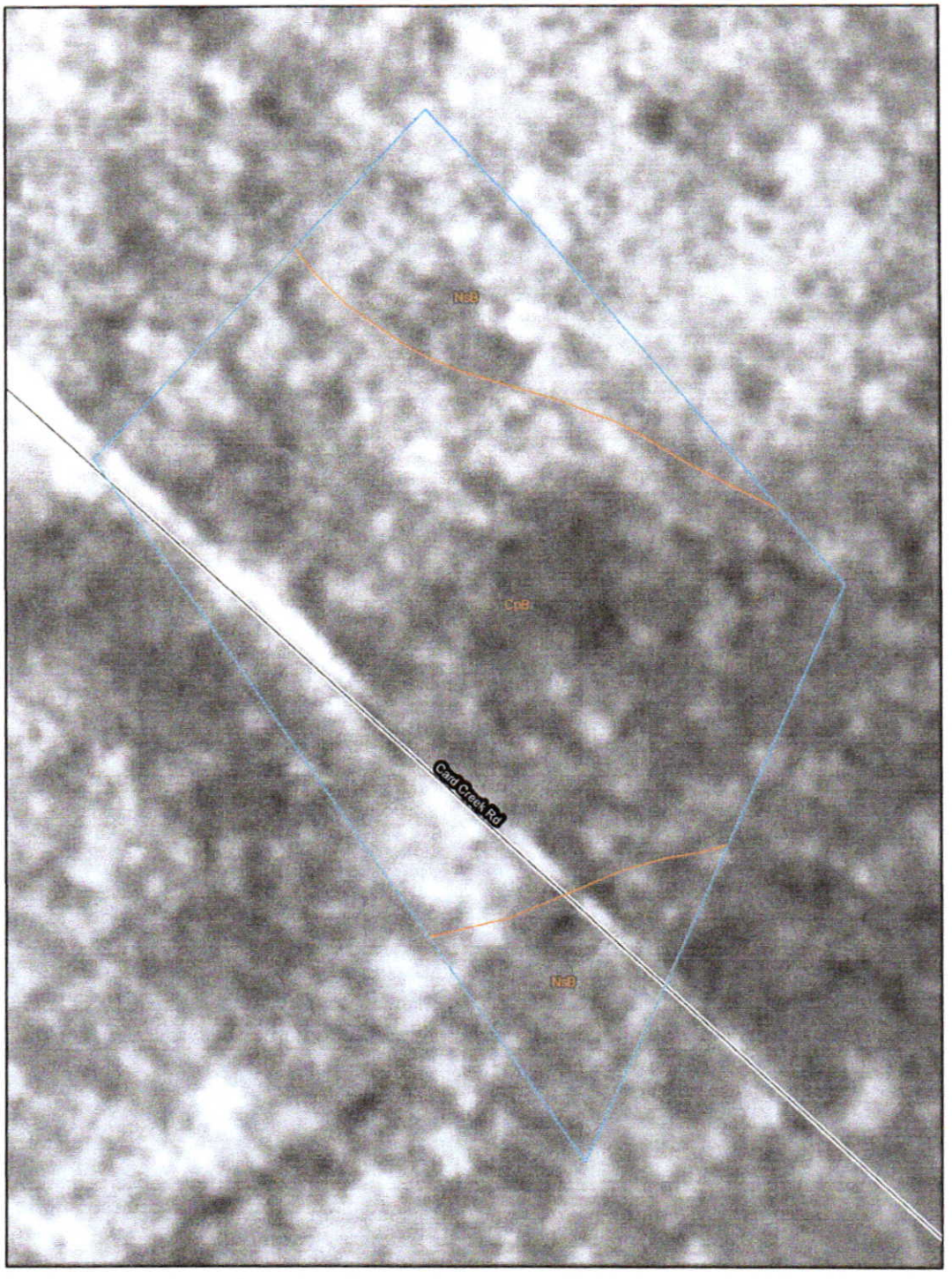
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Potter County, Pennsylvania (PA105)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
CpB	Cookport channery loam, 3 to 15 percent, extremely stony	5.8	94.1%
NsB	Nolo channery sandy loam, sandy variant, 0 to 12 percent slopes, extremely stony	0.4	5.9%
Totals for Area of Interest		**6.1**	**100.0%**

Soil Map—Potter County, Pennsylvania
(PGE Well 3268)

78° 9' 47"
78° 9' 40"
41° 43' 28"
41° 43' 21"



Map Scale: 1:981 if printed on A size (8.5" x 11") sheet

N

Meters
0 5 10 20 30

Feet
0 35 70 140 210

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:981 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Potter County, Pennsylvania
Survey Area Data: Version 5, May 8, 2008

Date(s) aerial images were photographed: 5/7/1993

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

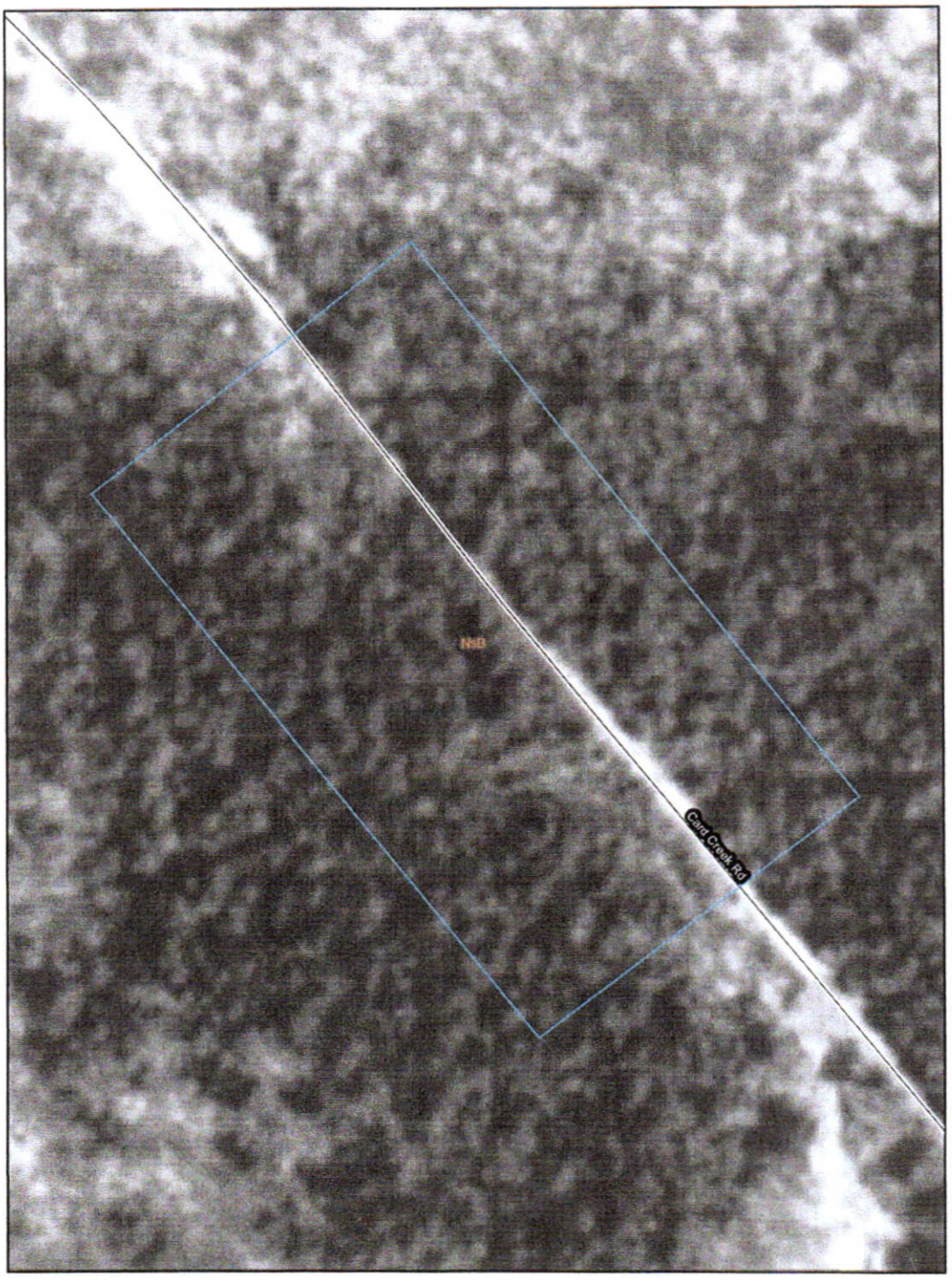
Map Unit Legend

Potter County, Pennsylvania (PA105)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
CpB	Cookport channery loam, 3 to 15 percent, extremely stony	1.9	73.8%
NsB	Nolo channery sandy loam, sandy variant, 0 to 12 percent slopes, extremely stony	0.7	26.2%
Totals for Area of Interest		**2.6**	**100.0%**

78° 9' 34"

78° 9' 25"

41° 43' 16"



41° 43' 16"

41° 43' 7"

41° 43' 7"

78° 9' 34"

78° 9' 25"

N

Map Scale: 1:1,370 if printed on A size (8.5" x 11") sheet.

Meters
0 10 20 40 60

Feet
0 50 100 200 300

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:1,370 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Potter County, Pennsylvania
Survey Area Data: Version 5, May 8, 2008

Date(s) aerial images were photographed: 5/7/1993

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Potter County, Pennsylvania (PA105)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
NsB	Nolo channery sandy loam, sandy variant, 0 to 12 percent slopes, extremely stony	3.7	100.0%
Totals for Area of Interest		**3.7**	**100.0%**

Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

Potter County, Pennsylvania

Map Unit: CpB—Cookport channery loam, 3 to 15 percent, extremely stony

Component: Cookport (85%)

The Cookport component makes up 85 percent of the map unit. Slopes are 3 to 15 percent. This component is on ridges on plateaus. The parent material consists of residuum weathered from acid sandstone. Depth to a root restrictive layer, bedrock, lithic, is 40 to 72 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 20 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Nolo variant (5%)

Generated brief soil descriptions are created for major components. The Nolo variant soil is a minor component.

Map Unit: NsB—Nolo channery sandy loam, sandy variant, 0 to 12 percent slopes, extremely stony

Component: Nolo variant (100%)

The Nolo variant component makes up 100 percent of the map unit. Slopes are 0 to 12 percent. This component is on depressions on plateaus. The parent material consists of residuum weathered from sandstone. Depth to a root restrictive layer, fragipan, is 16 to 30 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 3 inches during January, February, March, April, May, June, September, October, November, December. Organic matter content in the surface horizon is about 2 percent. Nonirrigated land capability classification is 7s. This soil meets hydric criteria.

Data Source Information

Soil Survey Area: Potter County, Pennsylvania
Survey Area Data: Version 5, May 8, 2008

Hydric Soils

This table lists the map unit components that are rated as hydric soils in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The criteria for hydric soils are represented by codes in the table (for example, 2B3). Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
   A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
   B. are poorly drained or very poorly drained and have either:
      i. a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
      ii. a water table at a depth of 0.5 foot or less during the growing season if saturated hydraulic conductivity (Ksat) is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
      iii. a water table at a depth of 1.0 foot or less during the growing season if saturated hydraulic conductivity (Ksat) is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long or very long duration during the growing season.
4. Soils that are frequently flooded for long or very long duration during the growing season.

References:

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. September 18, 2002. Hydric soils of the United States.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

Report—Hydric Soils

Hydric Soils– Potter County, Pennsylvania				
Map symbol and map unit name	**Component**	**Percent of map unit**	**Landform**	**Hydric criteria**
CpB—Cookport channery loam, 3 to 15 percent, extremely stony				
	Nolo variant	5	Depressions on plateaus	2B3
NsB—Nolo channery sandy loam, sandy variant, 0 to 12 percent slopes, extremely stony				
	Nolo variant	100	Depressions on plateaus	2B3

Data Source Information

Soil Survey Area: Potter County, Pennsylvania
Survey Area Data: Version 5, May 8, 2008

ATTACHMENT D

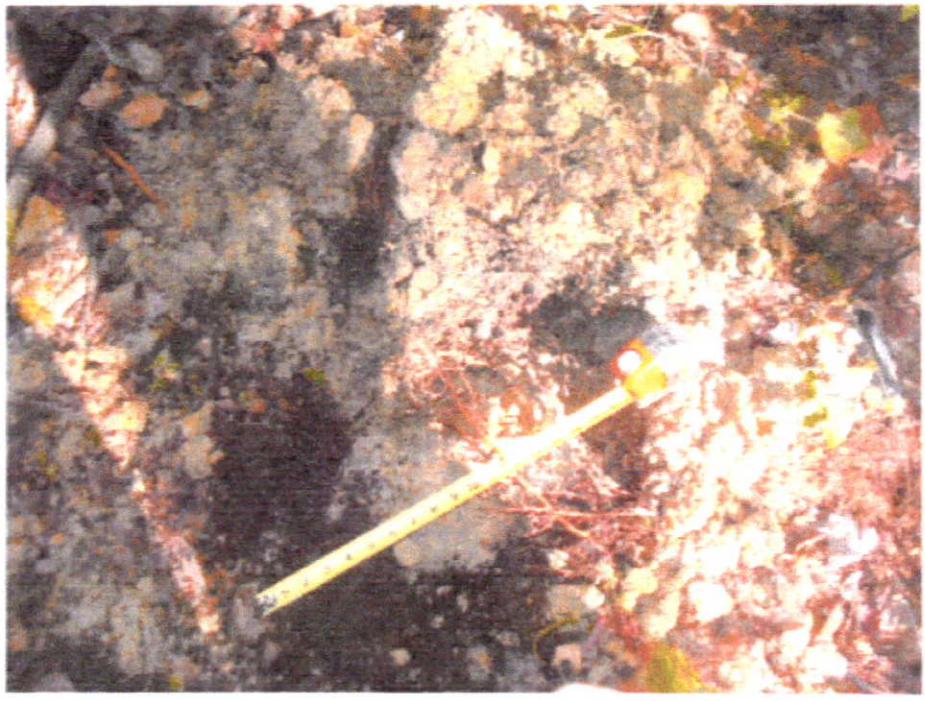
Site Photos

Sample Site 1 – Striped Maple & Red Maple (9-4-09)

Sample Site 1 – American Beech (9-4-09)

Sample Site 1 – Flat Branched Tree Clubmoss (9-4-09)

Sample Site 1 – New York Fern (9-4-09)



Sample Site 1 – Soil Sample (9-4-09)

Sample Site 2 – Red Maple (9-4-09)

Sample Site 2 – American Beech and New York Fern (9-4-09)

Sample Site 2 – Soil Sample (9-4-09)

Sample Site 3 – American Beech and Flat Branched Tree Clubmoss (9-4-09)

Sample Site 3 – New York Fern (9-4-09)

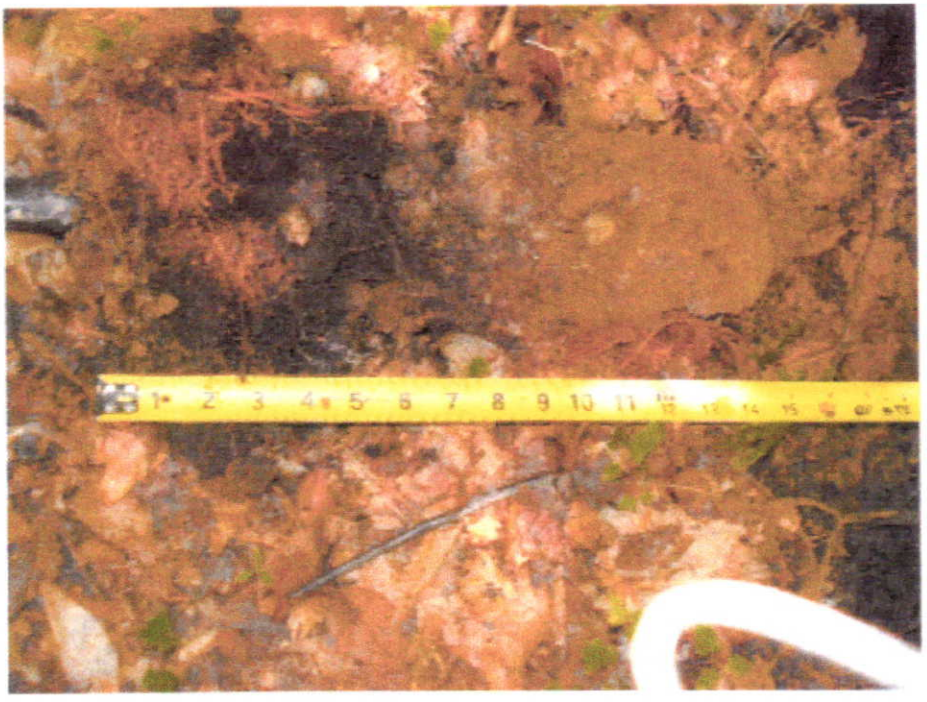
Sample Site 3 – American Beech (9-4-09)

Sample Site 3 – Soil Sample (9-4-09)

Sample Site 4 – American Beech and Flat Branched Tree Clubmoss (9-4-09)

Sample Site 4 – American Beech (9-4-09)

Sample Site 4 – American Beech (9-4-09)



Sample Site 4 – Soil Sample (9-4-09)

Sample Site 5 – New York Fern (9-4-09)

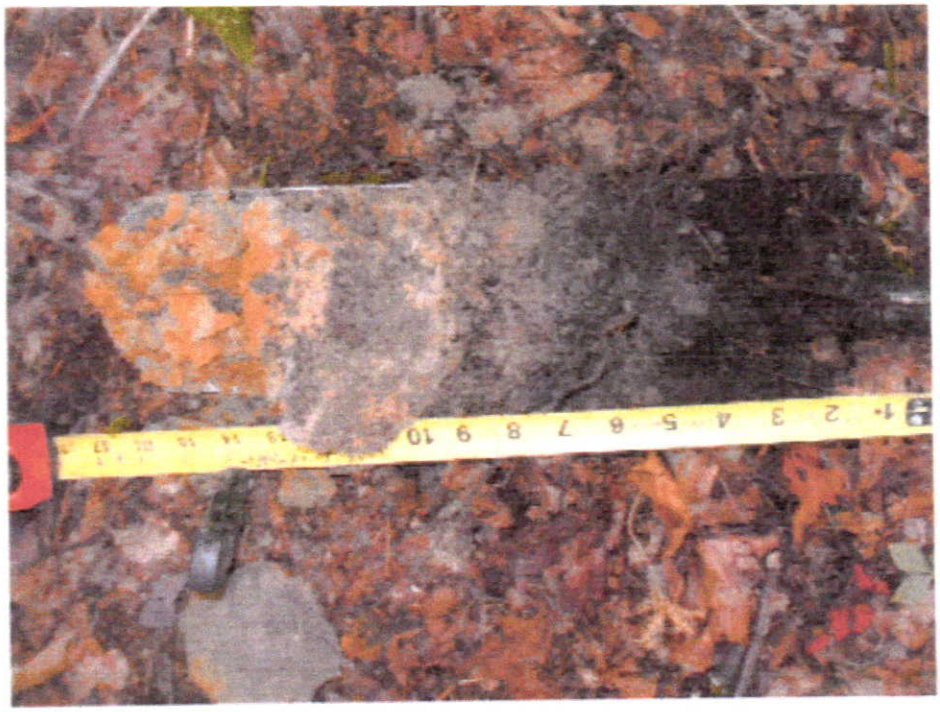
Sample Site 5 – New York Fern and Striped Maple (shrub) with site in background (9-4-09)

Sample Site 5 – Hay-Scented Fern, New York Fern and Striped Maple (9-4-09)

Sample Site 5 – Soil Sample (9-4-09)

Sample Site 6 – Hay-Scented Fern. New York Fern and Am Beech (9-11-09)

Sample Site 6 –American Beech (9-11-09)



Sample Site 6 –Soil Sample (9-11-09)

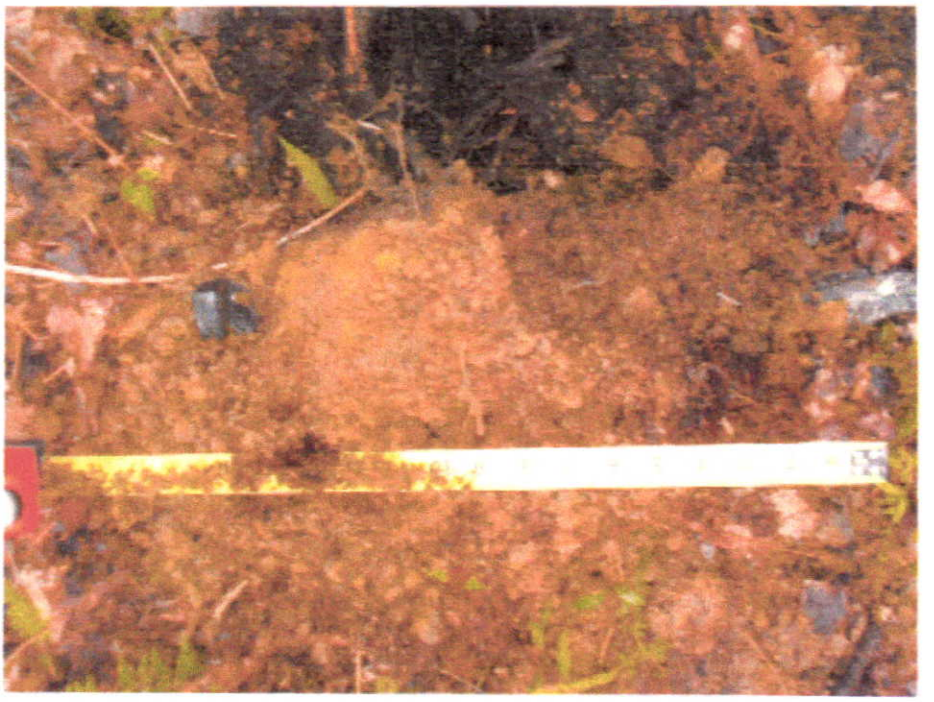
Sample Site 7 –American Beech (9-11-09)

Sample Site 7 –American Beech and Hay-scented Fern (9-11-09)

Sample Site 7 –Hay-scented Fern (9-11-09)

Sample Site 7 –Soil Sample (9-11-09)

Sample Site 8 –American Beech and New York Fern (9-11-09)



Sample Site 8 –Soil Sample (9-11-09)

Sample Site 10 – Black Cherry, Blackberry and New York Fern (9-11-09)

Sample Site 10 – Black Cherry, Blackberry and New York Fern (9-11-09)

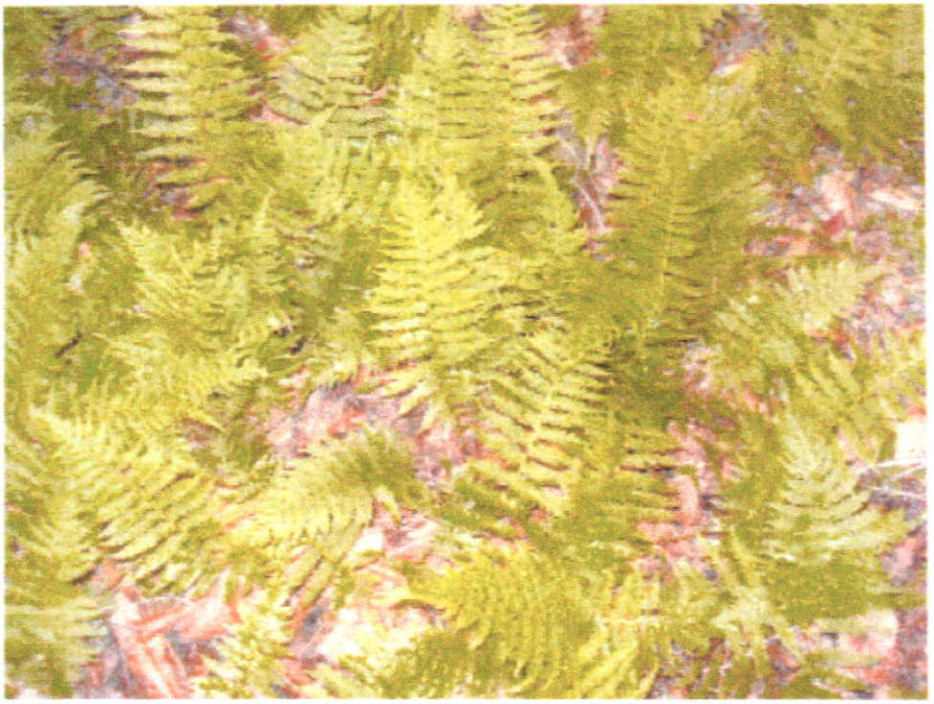
Sample Site 10 – Soil Sample (9-11-09)

Sample Site 11 – Black Cherry, Blackberry and New York Fern (9-11-09)

Sample Site 11 –Blackberry and Intermediate Woodfern Fern (9-11-09)

Sample Site 11 –Soil Sample (9-11-09)

Sample Site 12 – American Beech and Red Maple (9-11-09)

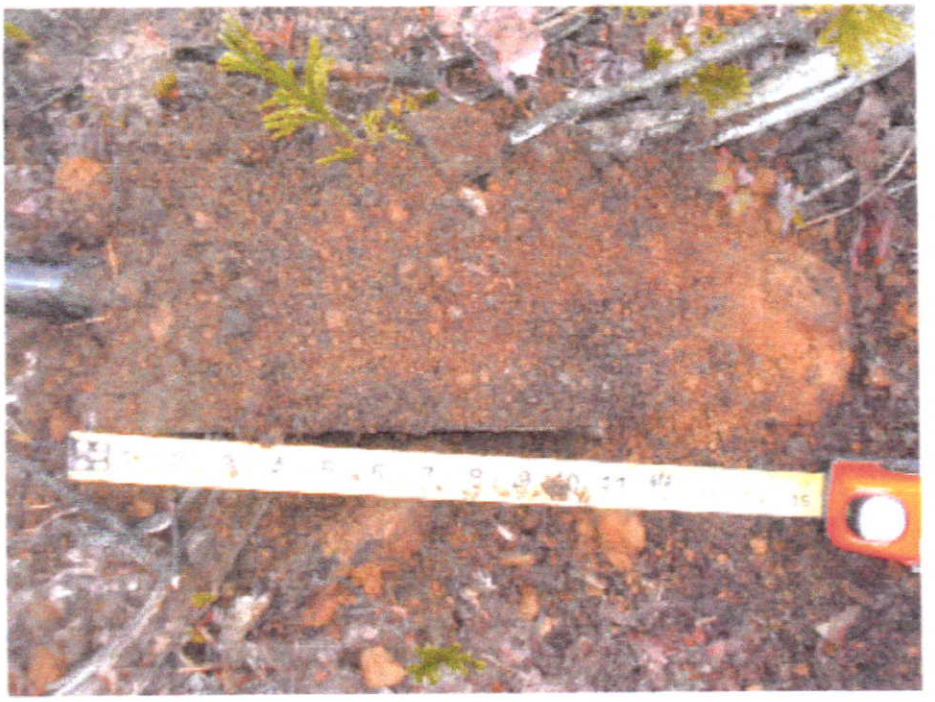


Sample Site 12 – New York Fern (9-11-09)

Sample Site 12 – Soil Sample (9-11-09)

Sample Site 13 – Red Maple Shrub and Trees (9-11-09)

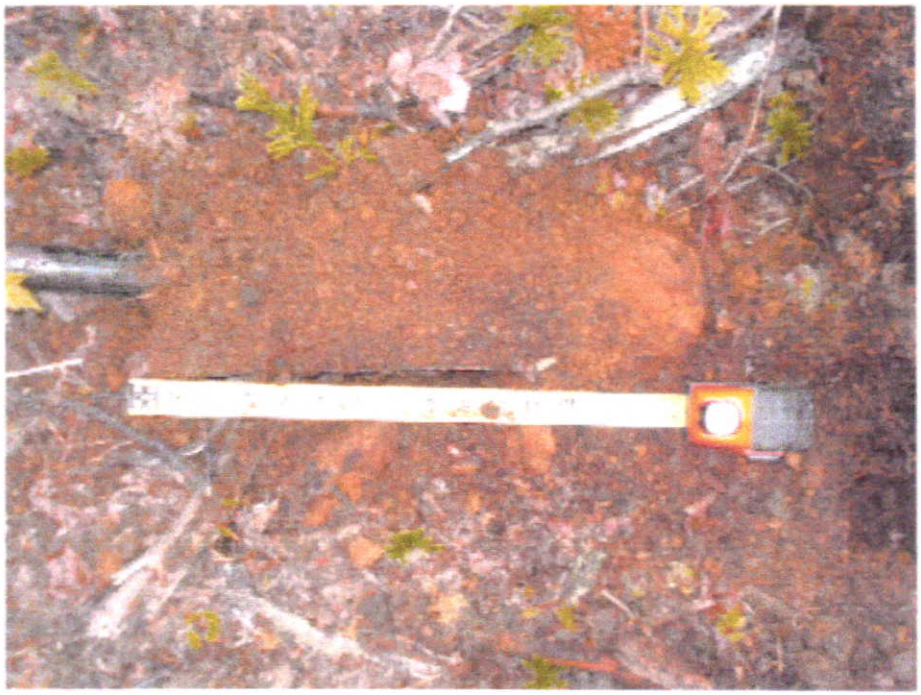
Sample Site 13 – Red Maple Shrub and Flat Branched Tree Clubmoss (9-11-09)



Sample Site 13 – Soil Sample (9-11-09)

Sample Site 15 –Flat Branched Tree Clubmoss (9-11-09)

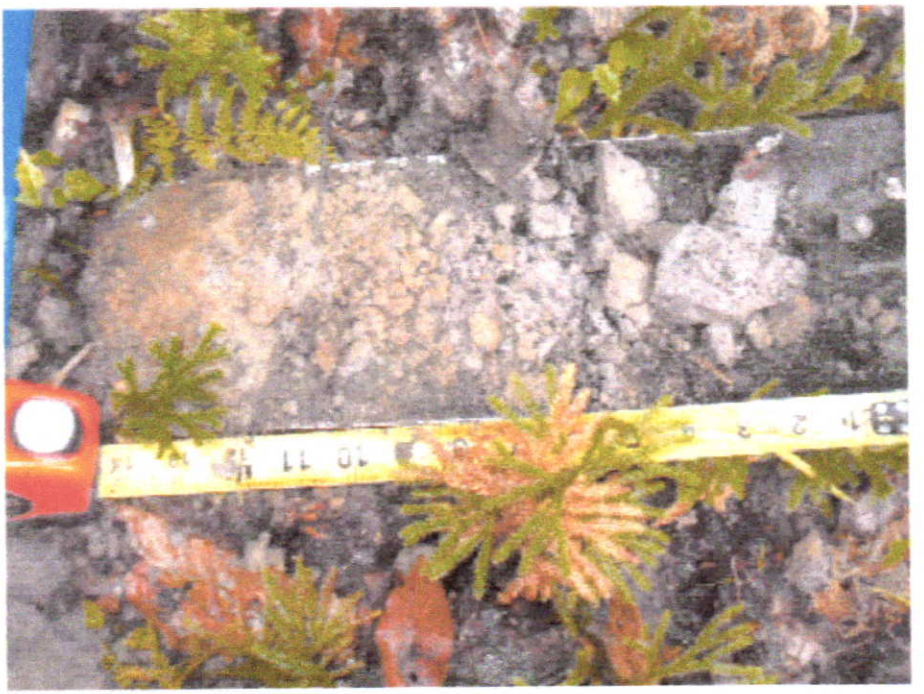
Sample Site 15 –Red Maple (9-11-09)



Sample Site 15 –Soil Sample (9-11-09)

Sample Site 16 –Am. Beech. Red Maple and Hemlock (9-11-09)

Sample Site 16 –Am. Beech. Striped Maple and New York Fern (9-11-09)



Sample Site 16 –Soil Sample (9-11-09)

Sample Site 17 –Sensitive Fern (9-14-09)

Sample Site 17 Ground Cover (9-14-09)

Sample Site 17 Soil Sample (9-14-09)

ATTACHMENT E

Certifications of Delineator

INTERAGENCY WETLAND DELINEATION TRAINING

1995 Locally-Organized Course

This is to verify that

Neal Parker

has completed the Interagency Wetland Delineation Training Course held at

Crooked Creek Lake Environmental Learning Center.

Lead Instuctor: _____
U.S. Army Corps of Engineers

Date: September 18-22, 1995

Support Instructors: _____
U.S. Environmental Protection Agency

_____
U.S. Fish and Wildlife Service

_____
U.S.D.A. Natural Resources Conservation Services

_____
PA Dept. of Environmental Resources

Certificate of Training

Natural Resources Conservation Service

This is to certify that

Neal A. Parker

has satisfactorily completed

ECS - Hydric Soils For Wetland Delineation

April 29 - May 3, 1996

Director, National Employee Development Center

Wetland Restoration Plan

Pennsylvania General Energy Company, LLC
Hemlock Site on Card Creek Road
Keating Township
Potter County, Pennsylvania

September 17, 2009

Pennsylvania General Energy Company, LLC
120 Market Street
Warren, PA 16365

Wetland Restoration Plan

Pennsylvania General Energy Company, LLC
Hemlock Site on Card Creek Road
Keating Township
Potter County, Pennsylvania

Resource Inventory

The Hemlock Site is located in Keating Township, Potter County, Pennsylvania at coordinates 41°43'12.8"N, -78°09'30.4'W (NAD 83) along the southwest side of Card Creek Road. A wetland determination was conducted on September 14, 2009. Portions of the Hemlock Site were identified as a wetland. Rock fill was observed along the southwest side of Card Creek Road. The rock material encroached into the wetland from 4 to 9 feet from the normal edge of the road for a distance of approximately 45 feet.

Restoration Procedure

The recommended restoration procedure will follow the **USDA Natural Resource Conservation Service (NRCS) Practice Standard 657 Wetland Restoration (attached).** The following sections of the standard shall be used:

- Conditions Where Practice Applies - should be reviewed prior to the start of the project.
- Consideration Section - should be reviewed prior to the start of the project.
- Criteria – use only the section for Removal of Fill
- The Plans and Specifications – were prepared and listed below.
- The Operation and Maintenance Section is not applicable.

Plans and Specifications:

1. An Original Edge of Road Line shall be established by visual sight along the southwest side of Card Creek Road from at least 100 feet on each side of the project area.

2. All Fill Material: rock and fines shall be removed from the southwest side of the sight established edge of road line to the depth that the organic material is found or to a depth of

one foot below the average ground elevation of the adjacent existing wetland if the original organic layer is not found. The removed material shall be placed off site in a stabilized area.

3. The excavated fill area shall have organic compost placed in it to a depth that will bring the grade of material up to within 0 to 3 inches of the average ground elevation of the adjacent existing wetland. Organic material may consist of bulk peat moss or similar organic material except wood chips or manure.

4. Based on the existing vegetative transition after the trees were removed and the NRCS Wetland Restoration Practice Standard Criteria for Natural Re-vegetation, natural colonization of pre-indentified selected species will dominate within five years. As such, the Hemlock Site may be left to regenerate naturally. Therefore, it is determined that no planting of replacement vegetation will be required.

5. No lime or fertilizer is to be applied.

6. The final edge of the road shall be mulched at a rate of 3 tons per acre.

Attachments

Photo 1

Site Map

USDA NRCS Practice 657 Wetland Restoration Practice Standard.

Wetland Restoration Plan

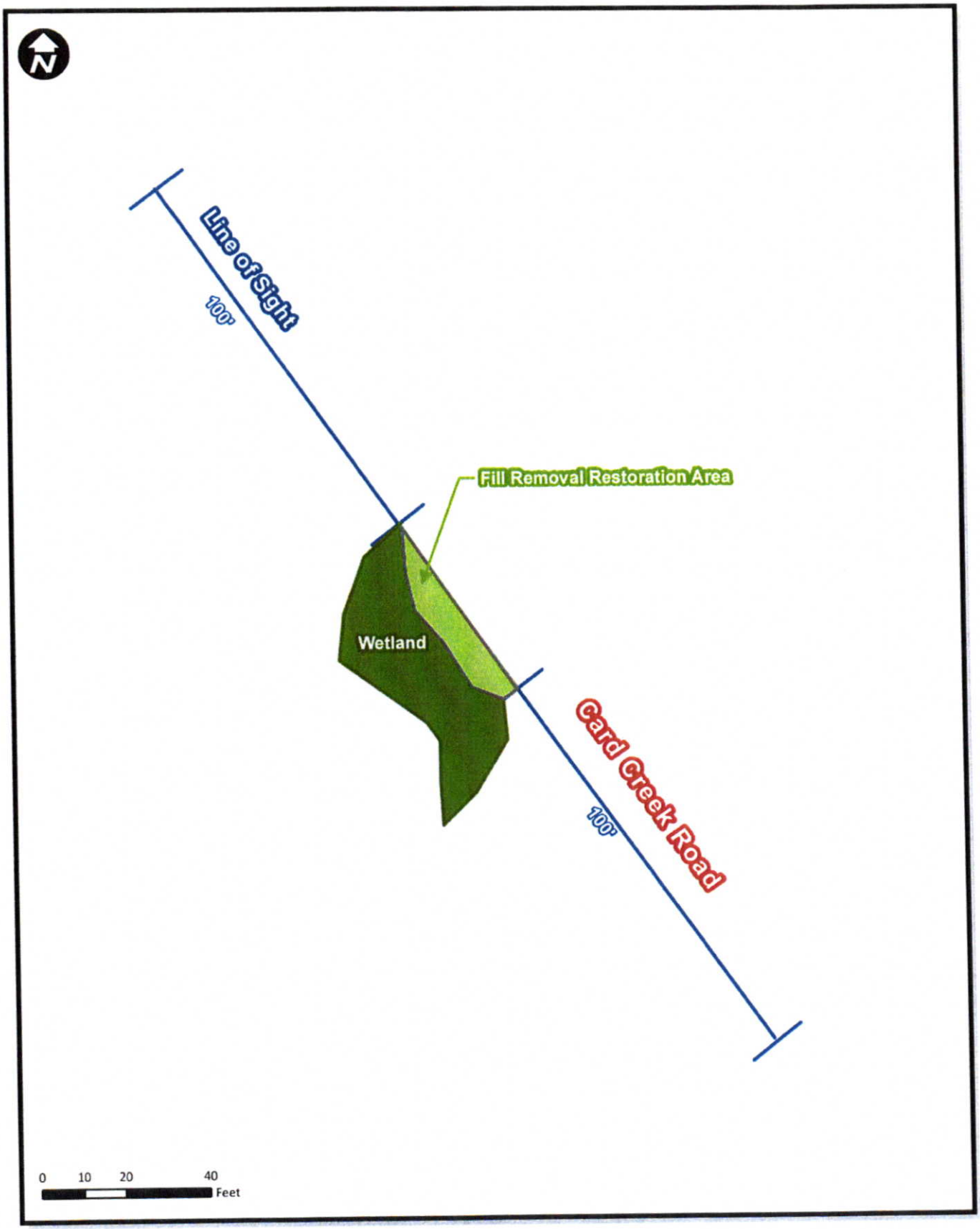
Pennsylvania General Energy Company, LLC

Hemlock Site on Card Creek Road

Keating Township

Potter County, Pennsylvania

Photo 1 – View looking southwest at rock encroachment of wetland.



1 inch = 30 feet

Hemlock Wetland Restoration Plan Map

PGE Wetland
Keating Township, Potter County, PA

Drawn by: CJD
Date: 15 SEP 09
Project No.: 09-264 LN

Prepared by: Moody and Associates, Inc.

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

WETLAND RESTORATION

(Ac.)

CODE 657

DEFINITION

The rehabilitation of a degraded wetland or the reestablishment of a wetland so that soils, hydrology, vegetative community, and habitat are a close approximation of the original natural condition that existed prior to modification to the extent practicable.

PURPOSE

To restore wetland function, value, habitat, diversity, and capacity to a close approximation of the pre-disturbance by:

- Restoring hydric soil
- Restoring hydrology (depth duration and season of inundation, and/or duration and season of soil saturation).
- Restoring native vegetation (including the removal of undesired species, and/or seeding or planting of desired species).

CONDITIONS WHERE PRACTICE APPLIES

This practice applies only to natural wetland sites with hydric soils, or problem soils that are hydric, which have been subject to hydrologic or vegetative degradation, or to sites where hydric soils are covered by fill, sediment, or other deposits.

This practice is applicable only where the natural hydrologic conditions, including the hydroperiods, can be approximated by modifying drainage and/or by artificial flooding of a duration and frequency similar to the original, natural conditions.

For embankment projects, this practice applies only to areas where the predominant slope is <u>two</u> <u>percent</u> or less.

This practice does not apply:

- to treat point and non-point sources of water pollution (Constructed Wetland - 656);
- to modify an existing wetland where specific attributes are heightened by management objectives, and/or returning a degraded wetland back to a wetland but to a different type than previously existed on the site (Wetland Enhancement - 659);
- to creating a wetland on a site location which historically was not a wetland (Wetland Creation - 658).

CRITERIA

<u>General Criteria Applicable to All Purposes</u>

The purpose, goals and objectives of the restoration shall be clearly outlined, including soils, hydrology and vegetation criteria that are to be met and are appropriate for the site and the project purposes.

The impact of this practice on existing wetland functions and/or values will be evaluated. All federal, State and local requirements shall be addressed.

The soil, hydrology and vegetative characteristics existing on the site and the contributing watershed shall be documented before restoration of the site begins.

The nutrient and pesticide tolerance of the species planned shall be considered where known nutrient and pesticide contamination exists.

Upon completion of the restoration, the site shall meet soil, hydrology, vegetation and habitat conditions of the wetland that previously existed on the site to the extent practicable.

Sites suspected of containing hazardous waste shall be tested to identify appropriate remedial measures. Sites containing

hazardous material shall be cleaned prior to the installation of this practice.

Where offsite drainage or the presence of noxious or invasive plant species impact the site, the design shall compensate for these landscape changes (e.g., increased water depth, berms or microtopography).

Invasive species, federal/state listed noxious plant species, and nuisance species (e.g., those whose presence or overpopulation jeopardize the practice) shall be controlled on the site. This includes the manipulation of water levels to control unwanted vegetation. The establishment and/or use of non-native plant species shall be discouraged where possible.

Criteria for Hydric Soil Restoration

Restoration sites will be located on hydric soils, or on problem soils that are hydric.

If the hydric soil is covered by fill, sediment, spoil, or other depositional material, the material covering the hydric soil shall, to the extent technically feasible, be removed.

Criteria for Hydrology Restoration

General Requirements - The hydrology (including the timing of inflow and outflow, duration, and frequency) and hydroperiod of the restored site shall approximate the conditions that existed before alteration. This includes affects to hydrology restoration caused by roads, ditches, drains, terraces, etc. within the watershed.

The work associated with the wetland shall not adversely affect adjacent properties or other water users unless agreed to by signed written letter, easement or permit.

A natural water supply should be used to reestablish the site's hydrology that approximates the needs of the wetland type. If this is not possible, an artificial water supply can be used; however, these sources shall not be diverted from other wetland resources (e.g. springs).

Wetland hydrology may be restored by using a variety of measures, including but not limited to embankments, surface drain plugs, subsurface drain plugs, and removal of fill material. These measures may not be needed on sites with degraded wetlands, where the natural hydrology has not been significantly modified.

On sites that have been in long-term agricultural use, grading and shaping can be used as needed to restore the diverse micro topography that occurs naturally in wetlands. To the extent technically feasible reestablish topographic relief and/or microtopography. Use reference sites within the area to determine desired topographic relief.

Water depths for at least ninety percent of the total area below designed normal water elevation will be three feet or less.

Embankments – Embankments may be used to impound water and provide wetland hydrology. Refer to the criteria for embankments in the Pennsylvania Conservation Practice Standard for Pond, Code 378. For embankment projects, water depths for at least sixty percent of the total area below the designed normal water elevation will be eighteen inches or less. The overall bottom slope from the three foot water depth to zero will be convex or flat, but not concave.

Timing and level setting of any water control structures installed will only be used to re-establish the original hydrologic conditions for management of vegetation and for optimum wildlife and fish use.

Existing drainage systems will be utilized, removed or modified as needed to achieve the intended purpose.

Surface Drain Plugs - In areas where open ditches were constructed to provide drainage, wetland hydrology may be restored by constructing surface drain plugs, using a pipe riser or other structures within the ditch to control the water level, or by filling a surface drain to the original ground line. Refer to the criteria for embankments when fill will be placed on the ditch banks.

All fill shall be similar to adjacent soil materials and be compacted to achieve the density of the adjacent materials. Crown the fill a minimum of one foot above the top of the lower existing channel bank to account for settling.

The minimum length of surface drain plugs shall be (6H + 4) feet. "Minimum length" refers to the length as measured along the top of the plug. "H" is measured from the settled top of the embankment to the low point along the centerline of the embankment (fill).

Subsurface Drain Plugs - In areas where subsurface drains were used to lower the water table, wetland hydrology may be restored by removing or plugging the drain or replacing the perforated drain with a non-perforated drain.

The minimum length of drain to be removed or plugged shall be as follows:

Length of Drain	Average Hydraulic Conductivity of Soil
50 feet	<0.6 inches/hour
100 feet	0.6 to 2.0 inches/hour
150 feet	>2.0 inches/hour

All envelope filter material or other flow enhancing material shall also be removed for this length. The trench used to alter the drain shall be filled and compacted to achieve a density equal to adjacent natural soil material.

When subsurface drains also function as outlets for other drained areas where drainage is still desired, appropriate measures must be incorporated to keep the upstream drainage systems functional. A non-perforated pipe shall replace the perforated pipe through the wetland area to be restored, and shall extend beyond the wetland in all directions at least the minimum length previously specified for length of drain to be removed or plugged. Drains may also be re-routed around the wetland at the same minimum distances from the wetland, or where topography permits, setting a water control structure at a level that does not affect upstream drainage.

A water control structure may be placed on the inlet of an existing drain. The water control structure shall be attached to a non-perforated conduit that extends at least the minimum length previously specified for length of drain to be removed. The connections of the water control structure and the non-perforated pipe shall be watertight.

Removal of Fill Material – On sites where a wetland has been filled by sediment, land shaping, or other activities, the hydrology may be restored by removing the fill material from the site. Fill material shall be removed only to the top of the buried hydric soil, placed on an upland site, and stabilized so that no erosion of the material occurs.

Criteria for Vegetative Restoration

Hydrophytic vegetation restoration shall be of species typical for the wetland type(s) being established. Preference shall be given to native wetland plants with localized genetic material.

Where natural colonization of pre-identified, selected species will realistically dominate within 5 years, sites may be left to revegetate naturally. If a site has not become dominated by the targeted species within 5 years, active forms of revegetation may be required.

Adequate substrate material and site preparation necessary for proper establishment of the selected plant species shall be included in the design.

Where planting and/or seeding is necessary, the minimum number of native species to be established shall be based upon the type of vegetative communities present and the vegetation type planned:

- Where the dominant vegetation will be herbaceous community types, a subset of the original vegetative community shall be established within 5 years; or, a suitable precursor to the original community will be established within 5 years that creates conditions suitable for the establishment of the native community. Species richness shall be addressed in the planning of herbaceous communities.

Where the dominant vegetation will be forest or woodland community types, vegetation establishment will include a minimum of six species. Seeding rates shall be based upon percentage of pure live seed that shall be tested within 6 months of planting.

CONSIDERATIONS

It is expected that for wildlife purposes, planting density and stocking rates will generally be lower than for production purposes, and that the selection of species will generally be different than those used for production purposes.

On sites where woody vegetation will dominate, consider adding 1 to 2 dead snags, tree stumps or logs per acre to provide structure and cover for wildlife and a carbon source for food chain support.

Consider existing wetland functions and/or values that may be adversely impacted.

Consider the effect restoration will have on disease vectors such as mosquitoes.

Consider effect of volumes and rates of runoff, infiltration, evaporation and transpiration on the water budget.

Consider effects on downstream flows or aquifers that would affect other water uses or users.

Consider the effect of water control structures on the ability of fish or other aquatic species to move in and out of the wetland.

Consider the impact that water surface drawdown will have by concentrating aquatic species such as turtles into diminished pool areas, resulting in potential mortality. The timing and duration of draw-downs are also important to protect amphibians and reptiles from being exposed during extreme cold temperatures.

NOTE: State permits must be obtained to lower pools of impoundments for activities regulated by *other* state permits, or for any impoundment larger than one surface acre. Activities requiring draw down may include construction maintenance or biological manipulation.

Consider establishing herbaceous vegetation by a variety of methods over the entire site, or a portion of the site, and at densities and depths appropriate.

Consider effects on wetlands and water-related resources, including fish and wildlife habitats, which would be associated with the practice.

Consider linking wetlands by corridors wherever appropriate to enhance the wetland's use and colonization by the native flora and fauna.

Consider establishing vegetative buffers on surrounding uplands to reduce sediment and soluble and sediment-attached substance carried by runoff and/or wind.

Consider effects on temperature of water resources to prevent undesired effects on aquatic and wildlife communities.

Consider the effects of soil disturbance and probability of invasion by unwanted species.

For discharge wetlands, consider underground upslope water and/or groundwater source availability.

Consider microtopography and hydroperiod when determining which species to plant.

Consider controlling water levels to prevent oxidation of organic soils and inundated organic matter and materials.

PLANS AND SPECIFICATIONS

Specifications for this practice shall be prepared for each site. Specifications shall be recorded using approved specifications sheets, job sheets, narrative statements in the conservation plan, or other documentation. Requirements for the operation and maintenance of the practice shall be incorporated into site specifications. Plans and specifications should be reviewed by staff with appropriate training in design and implementation of wetland restoration.

OPERATION AND MAINTENANCE

The following actions shall be carried out to insure that this practice functions as intended throughout its expected life. These actions include normal repetitive activities in the application and use of the practice (operation), and repair and upkeep of the practice (maintenance):

Any use of fertilizers, mechanical treatments, prescribed burning, pesticides and other chemicals shall assure that the intended purpose of the wetland restoration shall not be compromised;

Biological control of undesirable plant species and pests (e.g., using predator or parasitic species) shall be implemented where available and feasible;

Establish an inspection schedule for embankments and structures for damage assessment;

The depth of accumulated sediment should be measured and the accumulations removed when the planned project objectives are jeopardized.

Management actions shall maintain vegetation, and control undesirable vegetation, including noxious and invasive species.

For wildlife habitat purposes, haying and grazing, if justified as a necessary wildlife/wetland management tool, can be used for management of vegetation. Disturbance to ground nesting species shall be minimized.

The control of water depth and duration may be utilized to control unwanted vegetation.

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