

**STREAM AND WETLAND
DELINEATION REPORT**

JAMES CITY SWD WELL #38268

**HIGHLAND TOWNSHIP, ELK COUNTY,
PENNSYLVANIA**

APRIL 2014

Prepared for:

Seneca Resources Corporation
ATTN: Doug Kepler
5800 Corporate Drive, Suite 300
Pittsburgh, Pennsylvania 15237

Prepared by:



Kleinfelder, Inc.
230 Executive Drive, Suite 122
Cranberry Township, PA 16066
p | 724-772-7072 f | 724-772-7079

Seneca Resources Corporation
James City SWD Well #38268
Highland Township
Elk County, Pennsylvania



REPORT CERTIFICATION

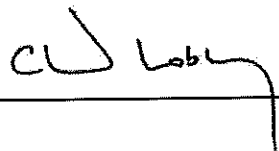
This report, including delineation details and conclusions, has been prepared under the supervision and reviewed by the persons named below. This report shall not be reproduced in full or in part without the written consent of Kleinfelder.

Date 4/2/14

Signature 

Name: Mallory Lee
Title: Senior Environmental Scientist
Kleinfelder, Inc.

Date 4/2/14

Signature 

Name: Chad Loble
Title: Senior Biologist
Kleinfelder, Inc.

STREAM AND WETLAND DELINEATION REPORT

INTRODUCTION

On behalf of Seneca Resources Corporation (Seneca), Kleinfelder conducted a wetland investigation of the proposed James City Salt Water Disposal (SWD) Well #38268 (Project) area on March 17, 2014. The area of investigation (AOI) is located to the south of Lamont Road (T319) in Highland Township, Elk County, Pennsylvania and appears on the James City 7.5-minute United States Geological Survey (USGS) quadrangle as provided on the Topographic Basemap (**Figure 1**). The AOI is provided on the Aerial Basemap, (**Figure 2**).

METHODS

Kleinfelder conducted a wetland investigation of the proposed Project AOI using the wetland delineation methodology outlined in the 1987 *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (United States Army Corps of Engineers, 2012). This approach recognizes the three parameters of vegetation, soils, and hydrology to identify and delineate wetlands. The purpose of this investigation was to identify wetland and stream boundaries within the AOI and avoid and/or minimize impacts to these natural resources. Nomenclature and indicator status of vegetative species was identified using the United States Army Corps of Engineers (USACE) 2013 National Wetland Plant List (NWPL). Wetland, stream, and pond features were classified according to Cowardin et al. (1979) guidelines.

Prior to fieldwork, field biologists reviewed available mapping (topographic and aerial imagery) to identify areas containing wet signatures or which may be problematic to understand the nature of wetlands and/or streams which may be encountered. Additionally, a desktop evaluation of soils, National Wetland Inventory (NWI) wetlands and Federal Emergency Management Area (FEMA) floodplains which may be located on-site was conducted (**Figure 2**).

During the field work, the boundaries of streams, wetlands and ponds were identified and flagged using a site-specific identification system. Following the establishment of the feature boundary in the field, the flagged locations were recorded using a Trimble GeoXH (GeoExplorer 2008 and GeoXH 6000 models) with attached Tornado or Zephyr external antennas. At

representative points along the stream and wetland boundaries, data was collected to document the existing vegetation, soils and hydrology characteristics of the features.

Stream flow regime, bank height, width and depth were measured in the field. Geomorphic traits such as stream bed substrate, entrenchment, degree of channelization, relative erosion, dominant riparian vegetation and percent riparian canopy cover were recorded. Features were determined to be streams if they met the following three parameters: presence of defined bed and bank, ordinary high water mark, and connectivity to other aquatic features. Features that did not exhibit all three parameters were classified as erosional/drainage features. The USACE defines perennial, intermittent, and ephemeral streams as follows:

- Perennial streams having running water throughout the majority of the year with groundwater contributing to stream flow,
- Intermittent streams are defined as having running water during certain times of the year when groundwater contributes to stream flow, and;
- Ephemeral streams are defined as having running water primarily after storm events and are dry the majority of the year because the water table is generally well below the stream bed (Environmental Laboratory, 1987).

Forested streams were identified as streams with at least 30% canopy cover, out 150 feet from each bank.

RESULTS

Kleinfelder identified a total of two wetlands within the AOI. The land cover and aquatic resource types found within the project area consist of hardwood forest, emergent wetlands. Land use in the project area is dominated by forested tracts. Please refer to the Wetland Location Map in **Appendix A** to view locations of the mapped wetlands. A table summarizing wetland data is provided in **Appendix B**, and photographs of each feature within the AOI are presented in **Appendix C**. Field datasheets are included in **Appendix D** to provide information specific to each wetland and upland sample point location. Qualifications of the individuals who assisted in the development of this report are provided in **Appendix E**.

Wetlands

Wetlands within the project area are classified as emergent. Spice bush (*Lindera benzoin*, FAC) was observed as the dominant species within the shrub stratum, however was not present at

30% or more aerial coverage to be considered a Palustrine Scrub-Shrub (PSS) wetland. The herbaceous stratum was dominated by fowl blue grass (*Poa palustris*, FACW), dark-green bulrush (*Scirpus atrovirens*, OBL), lamp rush (*Juncus effusus*, FACW), and sensitive fern (*Onoclea sensibilis*, FACW). The combination of these species resulted in a dominance test of greater than 50 percent and indicates that hydrophytic vegetation were dominant. Hydric soils were present and all wetlands met the hydric soil indicator for depleted matrix. Primary indicators of wetland hydrology included saturation, surface water, oxidized rhizospheres on living roots and high water table. Geomorphic position provided secondary indicators of wetland hydrology. Based on the combination of dominant hydrophytic vegetation, hydric soils, and the presence of primary and/or secondary wetland hydrology indicators, these features were determined to be wetlands.

Uplands

Sample Points that did not exhibit all three parameters to be considered wetlands were determined to be located in upland areas. Please refer to the field data sheets provided in **Appendix C** for additional information specific to the upland conditions near each wetland. Dominant vegetation within the uplands consisted of sweet birch (*Betula lenta*, FACU) and sugar maple (*Acer saccharum*, FACU) in the tree stratum. The shrub stratum was dominated by American Beech (*Fagus grandifolia*, FACU) and striped maple (*Acer pensylvanicum*, FACU). No herbs were identified in the herbaceous stratum. The composition of the species present resulted in a dominance test of less than 50 percent, and no hydric soil or wetland hydrology indicators were present. Based on the absence of dominant hydrophytic vegetation, hydric soils, and wetland hydrology, these sample points are located in upland areas.

Streams

The project area is located within the Wolf Run drainage basin. According to Chapter 93, streams within this watershed would be considered High Quality-Cold Water Fishes (HQ-CWF). During the wetland delineation fieldwork, Kleinfelder did not identify any streams within the Project AOI.

DISCUSSION

This document describes the aquatic resources found within the AOI and was performed based on information provided by Seneca. This document is intended to provide stream locations and wetland boundaries within the AOI. Any encroachments, fills, or crossings of these areas will require the appropriate State and Federal permits. Data on which this report is based are on file at Kleinfelder's Cranberry, PA office.

REFERENCES

- Cowardin, L.M., V. Carter V., F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service Report No. FWS/OBS-79/31. Washington, D.C.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS., NTIS No. AD A176 912.
- Lichvar, R.W. 2013. The National Wetland Plant List: 2013 wetland ratings. *Phytoneuron* 2013-49: 1-241.
- U.S. Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region Version 2.0*, ed. J.F. Berkowitz, J.S. Wakely, R.W. Lichvar, C.V. Noble. ERDC/EL TR-12-9. Vicksburgh, MS: U.S. Army Engineer Research and Development Center.

APPENDIX A

WETLAND LOCATION MAP

APPENDIX B

WETLAND DATA TABLE

TABLE 1. SUMMARY OF WETLANDS

FIELD DESIGNATION	RESOURCE DESCRIPTION	COWARDIN CODE	PA CODE CH.105.17 WETLAND STATUS	GPS LOCATION COORDINATES	
				LATITUDE	LONGITUDE
WETLAND A	EMERGENT WETLAND	PEM	N/A	41.619205	-78.820868
WETLAND B	EMERGENT WETLAND	PEM	N/A	41.619072	-78.820752

APPENDIX C
SITE PHOTOGRAPHS



Photograph 1 – Wetland A, View South



Photograph 2 – Wetland A, View North



Photograph 3 – Wetland B, View North



Photograph 4 – Wetland B, View Northeast



**SITE PHOTOGRAPHS
JAMES CITY SWD Well #38268**

APPENDIX D
FIELD DATASHEETS

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: <u>James City SWD Well #38268</u>		City/County: <u>Elk Co., PA</u>	Date: <u>3/17/2014</u>
Applicant/Owner: <u>Seneca Resources Corporation</u>		State: <u>PA</u>	Sampling Point: <u>Wetland A</u>
Investigator(s): <u>Holmes, Josh & Lee, Mallory</u>		Section, Township, Range: <u>Highland</u>	
Landform (hillslope, terrace, etc.): <u>Depression</u>		Local relief (concave, convex, none): <u>Concave</u>	
Slope (%): <u>1</u>	Lat: <u>41.619205</u>	Long: <u>-78.820868</u>	Subregion (LRR or MLRA): <u>LRR - N</u> Datum: <u>NAD 83</u>
Soil Map Unit Name: <u>CpB</u>		NW1 classification: <u>PEM</u>	
Are climatic/hydrologic conditions on the site typical <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (if no, explain in Remarks) for this time of year?			
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed?		Are "Normal Circumstances" present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic?		(If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.			
Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Is the Sampled Area Within a Wetland? <u>Yes</u>	
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Remarks: (Explain alternative procedures here or in a separate report.)			
Depression formed from logging activity. Wetland A			
HYDROLOGY			
Wetland Hydrology Indicators:			
<u>Primary Indicators (minimum of one is required: check all that apply)</u>		<u>OR Secondary Indicators (minimum of two required)</u>	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
		<input type="checkbox"/> Shallow Aquitard (D3)	
		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:		Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (inches): <u>1</u>		
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (inches): <u>6</u>		
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (inches): <u>20</u>		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A			
Remarks: Multiple primary and secondary hydrology indicators were met.			

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

VEGETATION - Use scientific names of plants				Sampling Point: Wetland A
Tree Stratum (Plot size: 30)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100</u> (A/B)
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
6	_____	_____	_____	
7	_____	_____	_____	
0 = Total Cover				
50% of Total Cover		<u>0</u>	20% of Total Cover	
		<u>0</u>	<u>0</u>	
Sapling Stratum (Plot size: 15)				
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
6	_____	_____	_____	
7	_____	_____	_____	
0 = Total Cover				
50% of Total Cover		<u>0</u>	20% of Total Cover	
		<u>0</u>	<u>0</u>	
Shrub Stratum (Plot size: 15)				
1	<u>Lindera benzoin</u>	<u>5</u>	<u>Yes</u> <u>FAC</u>	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
6	_____	_____	_____	
7	_____	_____	_____	
5 = Total Cover				
50% of Total Cover		<u>2.5</u>	20% of Total Cover	
		<u>1</u>	<u>1</u>	
Herb Stratum (Plot size: 5)				
1	<u>Thelypteris palustris</u>	<u>2</u>	<u>No</u> <u>FACW</u>	
2	<u>Juncus effusus</u>	<u>2</u>	<u>No</u> <u>FACW</u>	
3	<u>Scirpus atrovirens</u>	<u>1</u>	<u>No</u> <u>OBL</u>	
4	<u>Poa palustris</u>	<u>45</u>	<u>Yes</u> <u>FACW</u>	
5	_____	_____	_____	
6	_____	_____	_____	
7	_____	_____	_____	
8	_____	_____	_____	
9	_____	_____	_____	
10	_____	_____	_____	
11	_____	_____	_____	
12	_____	_____	_____	
50 = Total Cover				
50% of Total Cover		<u>25</u>	20% of Total Cover	
		<u>10</u>	<u>10</u>	
Woody Vine Stratum (Plot size: 30)				
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
0 = Total Cover				
50% of Total Cover		<u>0</u>	20% of Total Cover	
		<u>0</u>	<u>0</u>	
Remarks: (include photo numbers here or on separate sheet.) Recently timbered area.				Hydrophytic Vegetation Indicators: No Rapid Test for Hydrophytic Vegetation Yes Dominance Test is >50% Prevalence Index is < 3.0* Morphological Adaptations* (Provide supporting data in Remarks or on separate sheet) Problematic Hydrophytic Vegetation* (Explain) * Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Definitions of Vegetation Strata: Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH) Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine - All woody vines, regardless of height.				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x1= _____ FACW species _____ x2= _____ FAC species _____ x3= _____ FACU species _____ x4= _____ UPL species _____ x5= _____ Column Totals _____ PI: _____
Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

SOILS								Sampling Point: Wetland A	
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth (inches)	Matrix		Redox Features			Loc *2	Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type *1				
0-3	10YR 3/2	100			C	M	Silt Loam		
3-8	10YR 4/1	72	7.5YR 4/6	28	C	M	Clay Loam		
8-20	2.5Y 5/1	80	7.5YR 5/8	20	C	M	Clay		
*1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *2 Location: PL=Pore Lining, M=Matrix									
Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Stratified Layers (A5) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> 2 cm Muck (A10) (LRR N) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)								Indicators for Problematic Hydric Soils *3 <input type="checkbox"/> 2 cm Muck (A10)(MLRA 147) <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148) <input type="checkbox"/> Piedmont Floodplain Soils (F19)(MLRA 136,147) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
*3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.									
Restrictive Layer (if observed): Type: _____ Depth (inches): _____							Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Remarks: Soil profile meets Hydric Soil Indicator for Depleted Matrix: F3.									
Datasheet entered by: Lee, Mallory								Last revised: 11/14/13	

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: <u>James City SWD Well #38268</u>		City/County: <u>Elk</u>	Date: <u>3/17/2014</u>
Applicant/Owner: <u>Seneca Resources Corporation</u>		State: <u>PA</u>	Sampling Point: <u>Wetland B</u>
Investigator(s): <u>Holmes, Josh & Lee, Mallory</u>		Section, Township, Range: <u>Highland</u>	
Landform (hillslope, terrace, etc.): <u>Depression</u>		Local relief (concave, convex, none): <u>concave</u>	
Slope (%): <u>1</u>	Lat: <u>41.619072</u>	Long: <u>-78.820752</u>	Subregion (LRR or MLRA): <u>LRR - N</u> Datum: <u>NAD-83</u>
Soil Map Unit Name: <u>CpB</u>		NWI classification: <u>PEM</u>	
Are climatic/hydrologic conditions on the site typical <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (if no, explain in Remarks) for this time of year?			
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed?		Are "Normal Circumstances" present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic? (If needed, explain any answers in Remarks.)			
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.			
Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Is this Sampled Area Within a Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Remarks: (Explain alternative procedures here or in a separate report.)			
Reference Point for Wetland B.			
HYDROLOGY			
Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		OR Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)	
		<input type="checkbox"/> Shallow Aquitard (D3)	
		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:		Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____			
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): <u>6</u>			
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): <u>5</u> (includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A			
Remarks:			
Depression formed from logging activity.			

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

VEGETATION - Use scientific names of plants				Sampling Point: Wetland B
Tree Stratum (Plot size:)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)
1 _____	Absolute % Cover _____	Dom. spp? _____	Indicator Status _____	
2 _____				
3 _____				
4 _____				
5 _____				
6 _____				
7 _____				
0 = Total Cover				
50% of Total Cover 0		20% of Total Cover 0		
Sapling Stratum (Plot size:)				
1 _____	Absolute % Cover _____	Dom. spp? _____	Indicator Status _____	
2 _____				
3 _____				
4 _____				
5 _____				
6 _____				
7 _____				
0 = Total Cover				
50% of Total Cover 0		20% of Total Cover 0		
Shrub Stratum (Plot size:)				
1 _____	Absolute % Cover _____	Dom. spp? _____	Indicator Status _____	
2 _____				
3 _____				
4 _____				
5 _____				
6 _____				
7 _____				
0 = Total Cover				
50% of Total Cover 0		20% of Total Cover 0		
Herb Stratum (Plot size:)				
1 <i>Poa palustris</i>	12	Yes	FACW	
2 <i>Thelypteris palustris</i>	5	No	FACW	
3 <i>Onoclea sensibilis</i>	40	Yes	FACW	
4 _____				
5 _____				
6 _____				
7 _____				
8 _____				
9 _____				
10 _____				
11 _____				
12 _____				
57 = Total Cover				
50% of Total Cover 28.5		20% of Total Cover 11.4		
Woody Vine Stratum (Plot size:)				
1 _____	Absolute % Cover _____	Dom. spp? _____	Indicator Status _____	
2 _____				
3 _____				
4 _____				
0 = Total Cover				
50% of Total Cover 0		20% of Total Cover 0		
Remarks: (include photo numbers here or on separate sheet.) This area was recently timbered.				Hydrophytic Vegetation Indicators: Yes Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is < 3.0* <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) * Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Definitions of Vegetation Strata: Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH) Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine - All woody vines, regardless of height.				Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

SOILS							Sampling Point: Wetland B	
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features			Loc *2	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type *1			
0-6	10YR 4/1	82	7.5YR 4/6	18	C	M	Silt Loam	
6-10	10YR 6/1	70	7.5YR 5/6	30	C	M	Sandy Clay	
*1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *2 Location: PL=Pore Lining, M=Matrix								
Hydric Soil Indicators:				Indicators for Problematic Hydric Soils *3				
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)			<input type="checkbox"/> 2 cm Muck (A10)(MLRA 147)				
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)			<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)				
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)			<input type="checkbox"/> Piedmont Floodplain Soils (F19)(MLRA 136,147)				
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)			<input type="checkbox"/> Very Shallow Dark Surface (TF12)				
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)			<input type="checkbox"/> Other (Explain in Remarks)				
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)							
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)							
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)							
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)							
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)							
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)							
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)							
*3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer (if observed):						Hydric Soil Present?		
Type: _____						x Yes ___ No		
Depth (Inches): _____								
Remarks:								
<p>Soil profile meets Hydric Soil Indicator for Depleted Matrix: F3. Soils are compacted due to logging activity.</p>								
Datasheet entered by: Lee, Mallory							Last revised: 11/14/13	

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: <u>James City SWD Well #38268</u>		City/County: <u>Elk</u>	Date: <u>3/17/2014</u>
Applicant/Owner: <u>Seneca Resources Corporation</u>		State: <u>PA</u>	Sampling Point: <u>Upland A & B</u>
Investigator(s): <u>Holmes, Josh & Lee, Mallory</u>		Section, Township, Range: <u>Highland</u>	
Landform (hillslope, terrace, etc.): <u>Depression</u>		Local relief (concave, convex, none): <u>concave</u>	
Slope (%): <u>1</u>	Lat: <u>41.619168</u>	Long: <u>-78.820796</u>	Subregion (LRR or MLRA): <u>LRR - N</u> Datum: <u>NAD-83</u>
Soil Map Unit Name: <u>CpB</u>		NW1 classification: <u>PEM</u>	
Are climatic/hydrologic conditions on the site typical <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (if no, explain in Remarks)			
for this time of year?			
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed?		Are "Normal Circumstances" present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic?		(If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.			
Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is the Sampled Area Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Remarks: (Explain alternative procedures here or in a separate report.)			
Upland Reference point for Wetland A and Wetland B. Upland point located in a selectively timbered upland forest.			
HYDROLOGY			
Wetland Hydrology Indicators:			
<u>Primary Indicators (minimum of one is required: check all that apply)</u>		<u>OR Secondary Indicators (minimum of two required)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)	
		<input type="checkbox"/> Shallow Aquitard (D3)	
		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:		Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____			
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____			
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): _____ (includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A			
Remarks:			
No Primary or Secondary wetland Hydrology Indicators were present.			

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

VEGETATION - Use scientific names of plants				Sampling Point: Upland	A & B			
Tree Stratum (Plot size:)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A/B)				
1 <i>Betula lenta</i>	Absolute % Cover	17	Dom. spp?			Yes	Indicator Status	FACU
2 <i>Acer saccharum</i>		23				Yes		FACU
3								
4								
5								
6								
7								
		40 =Total Cover						
		50% of Total Cover <u>20</u>	20% of Total Cover <u>8</u>					
Sapling Stratum (Plot size:)				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u> </u> x1= <u> </u> FACW species <u> </u> x2= <u> </u> FAC species <u> </u> x3= <u> </u> FACU species <u> </u> x4= <u> </u> UPL species <u> </u> x5= <u> </u> Column Totals <u> </u> Pt: <u> </u>				
1 <i>Fagus grandifolia</i>	Absolute % Cover	32	Dom. spp?			Yes	Indicator Status	FACU
2 <i>Acer pensylvanicum</i>		8				Yes		FACU
3								
4								
5								
6								
7								
		40 =Total Cover						
		50% of Total Cover <u>20</u>	20% of Total Cover <u>8</u>					
Shrub Stratum (Plot size:)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> No Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> No Dominance Test Is >50% <input type="checkbox"/> Prevalence Index is < 3.0* <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) * Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
1	Absolute % Cover		Dom. spp?				Indicator Status	
2								
3								
4								
5								
6								
7								
		0 =Total Cover						
		50% of Total Cover <u>0</u>	20% of Total Cover <u>0</u>					
Herb Stratum (Plot size:)				Definitions of Vegetation Strata: Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH) Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine - All woody vines, regardless of height.				
1	Absolute % Cover		Dom. spp?				Indicator Status	
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
		0 =Total Cover						
		50% of Total Cover <u>0</u>	20% of Total Cover <u>0</u>					
Woody Vine Stratum (Plot size:)				Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
1	Absolute % Cover		Dom. spp?				Indicator Status	
2								
3								
4								
		0 =Total Cover						
		50% of Total Cover <u>0</u>	20% of Total Cover <u>0</u>					
Remarks: (include photo numbers here or on separate sheet.) This area was recently timbered.								

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

SOILS							Sampling Point: Upland	A & B
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type *1	Loc *2		
0-3	10YR 2/1	100					Silt Loam	
3-6	10YR 5/3	100					Sandy Clay	
6-20	7.5YR 5/6	100					Sandy Clay	
*1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *2 Location: PL=Pore Lining, M=Matrix								
Hydric Soil Indicators:			<input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)			Indicators for Problematic Hydric Soils *3 <input type="checkbox"/> 2 cm Muck (A10)(MLRA 147) <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148) <input type="checkbox"/> Piedmont Floodplain Soils (F19)(MLRA 136,147) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)		
*3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.								
Restrictive Layer (if observed):						Hydric Soil Present?		
Type: _____						<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Depth (inches): _____								
Remarks: No Hydric Soil Indicators were observed.								
Datasheet entered by: Lee, Mallory							Last revised: 11/14/13	

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: <u>James City SWD Well #38268</u>		City/County: <u>Elk Co., PA</u>	Date: <u>3/18/2014</u>
Applicant/Owner: <u>Seneca Resources Corporation</u>		State: <u>PA</u>	Sampling Point: <u>SP-4</u>
Investigator(s): <u>Holmes, Josh & Lee, Mallory</u>		Section, Township, Range: <u>Highland Township</u>	
Landform (hillslope, terrace, etc.): <u>Hillslope</u>		Local relief (concave, convex, none): <u>none</u>	
Slope (%): <u>4-6%</u>	Lat: <u>41.618467</u>	Long: <u>-78.821633</u>	Subregion (LRR or MLRA): <u>LRR - N</u> Datum: <u>NAD83</u>
Soil Map Unit Name: <u>CpB - Cookport channery loam B to 5 percent slopes, very stony</u>		NWI classification: <u>NA</u>	
Are climatic/hydrologic conditions on the site typical <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (if no, explain in Remarks) for this time of year?			
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed?		Are "Normal Circumstances" present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic? (if needed, explain any answers in Remarks.)			
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.			
Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is the Sampled Area Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Remarks: (Explain alternative procedures here or in a separate report.)			
Sample point is located on a slight hillslope that is located within a recently timbered area. Atypical hydrology conditions were present due to approximately 12 inches of snow melt within the last week. Excessive water was present within the project location.			
HYDROLOGY			
Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required: check all that apply)		OR Secondary Indicators (minimum of two required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)	
		<input type="checkbox"/> Shallow Aquitard (D3)	
		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (inches): <u>2</u>	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (inches): <u> </u>		
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (inches): <u>12</u>		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Multiple wetland hydrology indicators present at the time of sampling. Excessive water was present due to snow melt.			

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

VEGETATION - Use scientific names of plants				Sampling Point: SP-4
Tree Stratum (Plot size: 30'r)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>33%</u> (A/B)
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
6	_____	_____	_____	
7	_____	_____	_____	
0 = Total Cover				
50% of Total Cover <u>0</u>		20% of Total Cover <u>0</u>		
Sapling Stratum (Plot size: 15'r)				
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
6	_____	_____	_____	
7	_____	_____	_____	
0 = Total Cover				
50% of Total Cover <u>0</u>		20% of Total Cover <u>0</u>		
Shrub Stratum (Plot size: 15'r)				
1	<i>Rubus allegheniensis</i>	12	Yes	FACU
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
12 = Total Cover				
50% of Total Cover <u>6</u>		20% of Total Cover <u>2.4</u>		
Herb Stratum (Plot size: 5'r)				
1	<i>Juncus effusus</i>	35	Yes	FACW
2	<i>Scirpus atrovirens</i>	12	No	OBL
3	<i>Dennstaedtia punctilobula</i>	36	Yes	FACU
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
9	_____	_____	_____	_____
10	_____	_____	_____	_____
11	_____	_____	_____	_____
12	_____	_____	_____	_____
83 = Total Cover				
50% of Total Cover <u>41.5</u>		20% of Total Cover <u>16.6</u>		
Woody Vine Stratum (Plot size: 30'r)				
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
0 = Total Cover				
50% of Total Cover <u>0</u>		20% of Total Cover <u>0</u>		
Remarks: (include photo numbers here or on separate sheet.) Sample Point does not meet hydrophytic vegetation tests.				Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: <u>James City SWD Well #38268</u>		City/County: <u>Elk Co., PA</u>	Date: <u>3/18/2014</u>
Applicant/Owner: <u>Seneca Resources Corporation</u>		State: <u>PA</u>	Sampling Point: <u>SP-5</u>
Investigator(s): <u>Holmes, Josh & Lee, Mallory</u>		Section, Township, Range: <u>Highland township</u>	
Landform (hillslope, terrace, etc.): <u>summit</u>		Local relief (concave, convex, none): <u>none</u>	
Slope (%): <u>0-2</u>	Lat: <u>41.619343</u>	Long: <u>-78.821114</u>	Subregion (LRR or MLRA): <u>LRR - N</u> Datum: <u>NAD83</u>
Soil Map Unit Name: <u>WaB - Wharton silt loam, 0 to 8 percent slopes</u>		NW1 classification: <u>na</u>	
Are climatic/hydrologic conditions on the site typical <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (if no, explain in Remarks)			
for this time of year?			
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed?		Are "Normal Circumstances" present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic?		(If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.			
Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is the Sampled Area Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Remarks: (Explain alternative procedures here or in a separate report.)			
Sample point located within a recently timbered area. Atypical hydrology present due to excessive snow melt. Approximately 12 inches of snow melt within the past week.			
HYDROLOGY			
Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required: check all that apply)		OR Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)	
		<input type="checkbox"/> Shallow Aquitard (D3)	
		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (inches): _____	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (inches): _____		
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (inches): _____		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			
No primary and/or secondary wetland hydrology indicators present at the time of sampling.			

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

VEGETATION - Use scientific names of plants				Sampling Point: <u>SP-5</u>
<u>Tree Stratum (Plot size: 30'r)</u>				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A/B)
1 <u><i>Acer saccharum</i></u>	Absolute % Cover	Dom. spp?	Indicator Status	
2 _____	8	Yes	FACU	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 =Total Cover				
50% of Total Cover <u>4</u>		20% of Total Cover <u>1.6</u>		
<u>Sapling Stratum (Plot size: 15'r)</u>				
1 <u><i>Sassafras albidum</i></u>	Absolute % Cover	Dom. spp?	Indicator Status	
2 <u><i>Betula lenta</i></u>	10	Yes	FACU	
3 <u><i>Fagus grandifolia</i></u>	15	Yes	FACU	
4 <u><i>Prunus serotina</i></u>	12	Yes	FACU	
5 _____	4	No	FACU	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
41 =Total Cover				
50% of Total Cover <u>20.5</u>		20% of Total Cover <u>8.2</u>		
<u>Shrub Stratum (Plot size: 15'r)</u>				
1 _____	Absolute % Cover	Dom. spp?	Indicator Status	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
_____ =Total Cover				
50% of Total Cover _____		20% of Total Cover _____		
<u>Herb Stratum (Plot size: 5'r)</u>				
1 _____	Absolute % Cover	Dom. spp?	Indicator Status	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
11 _____	_____	_____	_____	
12 _____	_____	_____	_____	
0 =Total Cover				
50% of Total Cover <u>0</u>		20% of Total Cover <u>0</u>		
<u>Woody Vine Stratum (Plot size: 30'r)</u>				
1 _____	Absolute % Cover	Dom. spp?	Indicator Status	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
0 =Total Cover				
50% of Total Cover <u>0</u>		20% of Total Cover <u>0</u>		

Remarks: (include photo numbers here or on separate sheet.)

Sample Point does not meet hydrophytic vegetation tests.

Hydrophytic Vegetation Present?

Yes No

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by:

OBL species _____ x1= _____

FACW species _____ x2= _____

FAC species _____ x3= _____

FACU species _____ x4= _____

UPL species _____ x5= _____

Column Totals _____ PI: _____

Hydrophytic Vegetation Indicators:

no Rapid Test for Hydrophytic Vegetation

no Dominance Test is >50%

Prevalence Index is < 3.0*

Morphological Adaptations* (Provide supporting data in Remarks or on separate sheet)

Problematic Hydrophytic Vegetation* (Explain)

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH)

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

SOILS								Sampling Point:	SP-5					
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)														
Depth (inches)	Matrix			Redox Features			Texture	Remarks						
	Color (moist)		%	Color (moist)	%	Type *1	Loc *2							
0-2	10YR 2/1		100					Silt Loam						
2-6	10YR 4/2		100					Silt Loam						
6-20	10YR 4/4		100					Silt Loam						
*1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *2 Location: PL=Pore Lining, M=Matrix														
Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) (LRR N) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6)					<input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)					Indicators for Problematic Hydric Soils *3 <input type="checkbox"/> 2 cm Muck (A10)(MLRA 147) <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148) <input type="checkbox"/> Piedmont Floodplain Soils (F19)(MLRA 136,147) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)				
*3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.														
Restrictive Layer (if observed): Type: _____ Depth (inches): _____							Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No							
Remarks: Soil profile does not meet the requirements for any hydric soil indicators.														
Datasheet entered by: Holmes, Josh								Last revised: 11/14/13						

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: <u>James City SWD Well #38268</u>		City/County: <u>Elk Co., PA</u>	Date: <u>3/17/2014</u>
Applicant/Owner: <u>Seneca Resources Corporation</u>		State: <u>PA</u>	Sampling Point: <u>Wetland A</u>
Investigator(s): <u>Holmes, Josh & Lee, Mallory</u>		Section, Township, Range: <u>Highland</u>	
Landform (hillslope, terrace, etc.): <u>Depression</u>		Local relief (concave, convex, none): <u>Concave</u>	
Slope (%): <u>1</u>	Lat: <u>41.619205</u>	Long: <u>-78.820868</u>	Subregion (LRR or MLRA): <u>LRR - N</u> Datum: <u>NAD 83</u>
Soil Map Unit Name: _____		CpB	NWI classification: <u>PEM</u>
Are climatic/hydrologic conditions on the site typical <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (if no, explain in Remarks)			
for this time of year?			
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed?		Are "Normal Circumstances" present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic?		(If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.			
Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Is the Sampled Area Within a Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Remarks: (Explain alternative procedures here or in a separate report.)			
Depression formed from logging activity. Wetland A			
HYDROLOGY			
Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		OR Secondary Indicators (minimum of two required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
		<input type="checkbox"/> Shallow Aquitard (D3)	
		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:		Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (inches): <u>1</u>		
Water Table Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (inches): <u>6</u>		
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (inches): <u>20</u>		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
N/A			
Remarks:			
Multiple primary and secondary hydrology indicators were met.			

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

VEGETATION - Use scientific names of plants				Sampling Point: Wetland A	
Tree Stratum (Plot size: 30)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100</u> (A/B)	
1	_____	_____	_____		
2	_____	_____	_____		
3	_____	_____	_____		
4	_____	_____	_____		
5	_____	_____	_____		
6	_____	_____	_____		
7	_____	_____	_____		
0 = Total Cover					
50% of Total Cover		<u>0</u>	20% of Total Cover <u>0</u>		
Sapling Stratum (Plot size: 15)					
1	_____	_____	_____		
2	_____	_____	_____		
3	_____	_____	_____		
4	_____	_____	_____		
5	_____	_____	_____		
6	_____	_____	_____		
7	_____	_____	_____		
0 = Total Cover					
50% of Total Cover		<u>0</u>	20% of Total Cover <u>0</u>		
Shrub Stratum (Plot size: 15)					
1	<u>Lindera benzoin</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>	
2	_____	_____	_____	_____	
3	_____	_____	_____	_____	
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
6	_____	_____	_____	_____	
7	_____	_____	_____	_____	
5 = Total Cover					
50% of Total Cover		<u>2.5</u>	20% of Total Cover <u>1</u>		
Herb Stratum (Plot size: 5)					
1	<u>Thelypteris palustris</u>	<u>2</u>	<u>No</u>	<u>FACW</u>	
2	<u>Juncus effusus</u>	<u>2</u>	<u>No</u>	<u>FACW</u>	
3	<u>Scirpus atrovirens</u>	<u>1</u>	<u>No</u>	<u>OBL</u>	
4	<u>Poa palustris</u>	<u>45</u>	<u>Yes</u>	<u>FACW</u>	
5	_____	_____	_____	_____	
6	_____	_____	_____	_____	
7	_____	_____	_____	_____	
8	_____	_____	_____	_____	
9	_____	_____	_____	_____	
10	_____	_____	_____	_____	
11	_____	_____	_____	_____	
12	_____	_____	_____	_____	
50 = Total Cover					
50% of Total Cover		<u>25</u>	20% of Total Cover <u>10</u>		
Woody Vine Stratum (Plot size: 30)					
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
3	_____	_____	_____	_____	
4	_____	_____	_____	_____	
0 = Total Cover					
50% of Total Cover		<u>0</u>	20% of Total Cover <u>0</u>		
Remarks: (include photo numbers here or on separate sheet.) Recently timbered area.				Hydrophytic Vegetation Indicators: No Rapid Test for Hydrophytic Vegetation Yes Dominance Test is >50% Prevalence Index is < 3.0* Morphological Adaptations* (Provide supporting data in Remarks or on separate sheet) Problematic Hydrophytic Vegetation* (Explain) * Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
				Definitions of Vegetation Strata: Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH) Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine - All woody vines, regardless of height.	
				Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Sampling Point: Wetland A									
SOILS									
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth (inches)	Matrix			Redox Features			Loc *2	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type *1				
0-3	10YR 3/2	100			C	M	Silt Loam		
3-8	10YR 4/1	72	7.5YR 4/6	28	C	M	Clay Loam		
8-20	2.5Y 5/1	80	7.5YR 5/8	20	C	M	Clay		

*1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils *3
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Polyvalue Below Surface (S8)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> <input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> (LRR N, MLRA 136)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)
	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)
	<input type="checkbox"/> 2 cm Muck (A10)(MLRA 147)
	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)
	<input type="checkbox"/> Piedmont Floodplain Soils (F19)(MLRA 136,147)
	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
	<input type="checkbox"/> Other (Explain in Remarks)

*3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Remarks: Soil profile meets Hydric Soil Indicator for Depleted Matrix: F3.	

Datasheet entered by: Lee, Mallory Last revised: 11/14/13

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: <u>James City SWD Well #38268</u>		City/County: <u>Elk</u>	Date: <u>3/17/2014</u>
Applicant/Owner: <u>Seneca Resources Corporation</u>		State: <u>PA</u>	Sampling Point: <u>Wetland B</u>
Investigator(s): <u>Holmes, Josh & Lee, Mallory</u>		Section, Township, Range: <u>Highland</u>	
Landform (hillslope, terrace, etc.): <u>Depression</u>		Local relief (concave, convex, none): <u>concave</u>	
Slope (%): <u>1</u>	Lat: <u>41.619072</u>	Long: <u>-78.820752</u>	Subregion (LRR or MLRA): <u>LRR - N Datum: NAD-83</u>
Soil Map Unit Name: <u>CpB</u>		NW1 classification: <u>PEM</u>	
Are climatic/hydrologic conditions on the site typical <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (if no, explain in Remarks) for this time of year?			
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed?		Are "Normal Circumstances" present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic? (If needed, explain any answers in Remarks.)			
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.			
Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampled Area Within a Wetland?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Remarks: (Explain alternative procedures here or in a separate report.)			
Reference Point for Wetland B.			
HYDROLOGY			
Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required: check all that apply)		OR Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)	
		<input type="checkbox"/> Shallow Aquitard (D3)	
		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:		Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Surface Water Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Depth (inches): <u> </u>		
Water Table Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): <u>6</u>		
Saturation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth (inches): <u>5</u> (includes capillary fringe)		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: N/A			
Remarks:			
Depression formed from logging activity.			

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

VEGETATION - Use scientific names of plants				Sampling Point: Wetland B
Tree Stratum (Plot size:)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That are OBL, FACW, or FAC: _____ (A/B)
1 _____	Absolute % Cover _____	Dom. spp? _____	Indicator Status _____	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
0 = Total Cover				
50% of Total Cover <u>0</u>		20% of Total Cover <u>0</u>		
Sapling Stratum (Plot size:)				
1 _____	Absolute % Cover _____	Dom. spp? _____	Indicator Status _____	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
0 = Total Cover				
50% of Total Cover <u>0</u>		20% of Total Cover <u>0</u>		
Shrub Stratum (Plot size:)				
1 _____	Absolute % Cover _____	Dom. spp? _____	Indicator Status _____	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
0 = Total Cover				
50% of Total Cover <u>0</u>		20% of Total Cover <u>0</u>		
Herb Stratum (Plot size:)				
1 <i>Poa palustris</i>	Absolute % Cover <u>12</u>	Dom. spp? <u>Yes</u>	Indicator Status <u>FACW</u>	
2 <i>Thelypteris palustris</i>	<u>5</u>	<u>No</u>	<u>FACW</u>	
3 <i>Onoclea sensibilis</i>	<u>40</u>	<u>Yes</u>	<u>FACW</u>	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
11 _____	_____	_____	_____	
12 _____	_____	_____	_____	
57 = Total Cover				
50% of Total Cover <u>28.5</u>		20% of Total Cover <u>11.4</u>		
Woody Vine Stratum (Plot size:)				
1 _____	Absolute % Cover _____	Dom. spp? _____	Indicator Status _____	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
0 = Total Cover				
50% of Total Cover <u>0</u>		20% of Total Cover <u>0</u>		
Remarks: (include photo numbers here or on separate sheet.) This area was recently timbered.				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1= _____ FACW species _____ x2= _____ FAC species _____ x3= _____ FACU species _____ x4= _____ UPL species _____ x5= _____ Column Totals _____ PI: _____
				Hydrophytic Vegetation Indicators: Yes Rapid Test for Hydrophytic Vegetation _____ Dominance Test is >50% _____ Prevalence Index is < 3.0* _____ Morphological Adaptations* (Provide supporting data in Remarks or on separate sheet) _____ Problematic Hydrophytic Vegetation* (Explain)
				* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				Definitions of Vegetation Strata: Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH) Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine - All woody vines, regardless of height.
				Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: <u>James City SWD Well #38268</u>		City/County: <u>Elk</u>	Date: <u>3/17/2014</u>
Applicant/Owner: <u>Seneca Resources Corporation</u>		State: <u>PA</u>	Sampling Point: <u>Upland A & B</u>
Investigator(s): <u>Holmes, Josh & Lee, Mallory</u>		Section, Township, Range: <u>Highland</u>	
Landform (hillslope, terrace, etc.): <u>Depression</u>		Local relief (concave, convex, none): <u>concave</u>	
Slope (%): <u>1</u>	Lat: <u>41.619168</u>	Long: <u>-78.820796</u>	Subregion (LRR or MLRA): <u>LRR - N</u> Datum: <u>NAD-83</u>
Soil Map Unit Name: <u>CpB</u>		NWI classification: <u>PEM</u>	
Are climatic/hydrologic conditions on the site typical <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (if no, explain in Remarks)			
for this time of year?			
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed?		Are "Normal Circumstances" present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic?		(If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.			
Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is the Sampled Area Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Remarks: (Explain alternative procedures here or in a separate report.)			
Upland Reference point for Wetland A and Wetland B. Upland point located in a selectively timbered upland forest.			
HYDROLOGY			
Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		OR Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)	
		<input type="checkbox"/> Shallow Aquitard (D3)	
		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (inches): <u> </u>	Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (inches): <u> </u>		
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (inches): <u> </u>		
(Includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
N/A			
Remarks:			
No Primary or Secondary wetland Hydrology Indicators were present.			

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

VEGETATION - Use scientific names of plants				Sampling Point: Upland	A & B		
Tree Stratum (Plot size:)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A/B)			
1 <i>Betula lenta</i>	Absolute % Cover	Dom. spp?	Indicator Status				
2 <i>Acer saccharum</i>	17	Yes	FACU				
3	23	Yes	FACU				
4							
5							
6							
7							
40 =Total Cover							
50% of Total Cover <u>20</u>		20% of Total Cover <u>8</u>					
Sapling Stratum (Plot size:)				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u> </u> x1= <u> </u> FACW species <u> </u> x2= <u> </u> FAC species <u> </u> x3= <u> </u> FACU species <u> </u> x4= <u> </u> UPL species <u> </u> x5= <u> </u> Column Totals <u> </u> PI: <u> </u>			
1 <i>Fagus grandifolia</i>	Absolute % Cover	Dom. spp?	Indicator Status				
2 <i>Acer pensylvanicum</i>	32	Yes	FACU				
3	8	Yes	FACU				
4							
5							
6							
7							
40 =Total Cover							
50% of Total Cover <u>20</u>		20% of Total Cover <u>8</u>					
Shrub Stratum (Plot size:)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> No Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> No Dominance Test is >50% <input type="checkbox"/> Prevalence Index is < 3.0* <input type="checkbox"/> Morphological Adaptations* (Provide supporting data in Remarks or on separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation* (Explain) * Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
1	Absolute % Cover	Dom. spp?	Indicator Status				
2							
3							
4							
5							
6							
7							
0 =Total Cover							
50% of Total Cover <u>0</u>		20% of Total Cover <u>0</u>					
Herb Stratum (Plot size:)				Definitions of Vegetation Strata: Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH) Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine - All woody vines, regardless of height.			
1	Absolute % Cover	Dom. spp?	Indicator Status				
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
0 =Total Cover							
50% of Total Cover <u>0</u>		20% of Total Cover <u>0</u>					
Woody Vine Stratum (Plot size:)				Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
1	Absolute % Cover	Dom. spp?	Indicator Status				
2							
3							
4							
0 =Total Cover							
50% of Total Cover <u>0</u>		20% of Total Cover <u>0</u>					
Remarks: (Include photo numbers here or on separate sheet.) This area was recently timbered.							

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: <u>James City SWD Well #38268</u>		City/County: <u>Elk Co., PA</u>	Date: <u>3/18/2014</u>
Applicant/Owner: <u>Seneca Resources Corporation</u>		State: <u>PA</u>	Sampling Point: <u>SP-4</u>
Investigator(s): <u>Holmes, Josh & Lee, Mallory</u>		Section, Township, Range: <u>Highland Township</u>	
Landform (hillslope, terrace, etc.): <u>Hillslope</u>		Local relief (concave, convex, none): <u>none</u>	
Slope (%): <u>4-6%</u>	Lat: <u>41.618467</u>	Long: <u>-78.821633</u>	Subregion (LRR or MLRA): <u>LRR - N</u> Datum: <u>NAD83</u>
Soil Map Unit Name: <u>CpB - Cookport channery loam 8 to 5 percent slopes, very stony</u>		NWI classification: <u>NA</u>	
Are climatic/hydrologic conditions on the site typical <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (if no, explain in Remarks) for this time of year?			
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed?		Are "Normal Circumstances" present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic? (if needed, explain any answers in Remarks.)			
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.			
Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is the Sampled Area Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Remarks: (Explain alternative procedures here or in a separate report.)			
Sample point is located on a slight hillslope that is located within a recently timbered area. Atypical hydrology conditions were present due to approximately 12 inches of snow melt within the last week. Excessive water was present within the project location.			
HYDROLOGY			
Wetland Hydrology Indicators:			
<u>Primary Indicators (minimum of one is required: check all that apply)</u>		<u>OR Secondary Indicators (minimum of two required)</u>	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)	
		<input type="checkbox"/> Shallow Aquitard (D3)	
		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (inches): <u>2</u>	Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (inches): <u> </u>		
Saturation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth (inches): <u>12</u>		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Multiple wetland hydrology indicators present at the time of sampling. Excessive water was present due to snow melt.			

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

VEGETATION - Use scientific names of plants				Sampling Point: SP-4
Tree Stratum (Plot size: 30'r)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW or FAC: <u> 1 </u> (A) Total Number of Dominant Species Across All Strata: <u> 3 </u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u> 33% </u> (A/B)
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
6	_____	_____	_____	
7	_____	_____	_____	
0 = Total Cover				
50% of Total Cover <u> 0 </u>		20% of Total Cover <u> 0 </u>		
Sapling Stratum (Plot size: 15'r)				
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
6	_____	_____	_____	
7	_____	_____	_____	
0 = Total Cover				
50% of Total Cover <u> 0 </u>		20% of Total Cover <u> 0 </u>		
Shrub Stratum (Plot size: 15'r)				
1	<i>Rubus allegheniensis</i>	12	Yes	FACU
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
12 = Total Cover				
50% of Total Cover <u> 6 </u>		20% of Total Cover <u> 2.4 </u>		
Herb Stratum (Plot size: 5'r)				
1	<i>Juncus effusus</i>	35	Yes	FACW
2	<i>Scirpus atrovirens</i>	12	No	OBL
3	<i>Dennislaedtia punctilobula</i>	36	Yes	FACU
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
9	_____	_____	_____	_____
10	_____	_____	_____	_____
11	_____	_____	_____	_____
12	_____	_____	_____	_____
83 = Total Cover				
50% of Total Cover <u> 41.5 </u>		20% of Total Cover <u> 16.6 </u>		
Woody Vine Stratum (Plot size: 30'r)				
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
0 = Total Cover				
50% of Total Cover <u> 0 </u>		20% of Total Cover <u> 0 </u>		
Remarks: (include photo numbers here or on separate sheet.) Sample Point does not meet hydrophytic vegetation tests.				Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

SOILS						Sampling Point:		SP-4		
Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)										
Depth	Matrix			Redox Features						
(inches)	Color (moist)	%	Color (moist)	%	Type *1	Loc *2	Texture	Remarks		
0-2	10YR 4/2	100					Silt Loam			
2-10	10YR 5/3	88	7.5YR 5/6	12	C	M	Silt Loam			
10-20	10YR 5/6	100					Silty Clay			
*1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *2 Location: PL=Pore Lining, M=Matrix										
Hydric Soil Indicators:			<input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)			Indicators for Problematic Hydric Soils *3			<input type="checkbox"/> 2 cm Muck (A10)(MLRA 147) <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148) <input type="checkbox"/> Piedmont Floodplain Soils (F19)(MLRA 136,147) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) (LRR N) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6)			*3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.							
Restrictive Layer (if observed):						Hydric Soil Present?				
Type: _____						___ Yes <input checked="" type="checkbox"/> No				
Depth (inches): _____										
Remarks:										
Soil profile does not meet the criteria for any hydric soil indicators										
Datasheet entered by: Holmes, Josh						Last revised: 11/14/13				

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: <u>James City SWD Well #38268</u>		City/County: <u>Elk Co., PA</u>	Date: <u>3/18/2014</u>
Applicant/Owner: <u>Seneca Resources Corporation</u>		State: <u>PA</u>	Sampling Point: <u>SP-5</u>
Investigator(s): <u>Holmes, Josh & Lee, Mallory</u>		Section, Township, Range: <u>Highland township</u>	
Landform (hillslope, terrace, etc.): <u>summit</u>		Local relief (concave, convex, none): <u>none</u>	
Slope (%): <u>0-2</u>	Lat: <u>41.619343</u>	Long: <u>-78.821114</u>	Subregion (LRR or MLRA): <u>LRR - N</u> Datum: <u>NAD83</u>
Soil Map Unit Name: <u>WaB - Wharton silt loam, 0 to 8 percent slopes</u>		NWI classification: <u>na</u>	
Are climatic/hydrologic conditions on the site typical <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (if no, explain in Remarks)			
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed?		Are "Normal Circumstances" present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic?		(If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.			
Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Is the Sampled Area Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
Remarks: (Explain alternative procedures here or in a separate report.)			
Sample point located within a recently timbered area. Atypical hydrology present due to excessive snow melt. Approximately 12 inches of snow melt within the past week.			
HYDROLOGY			
Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required: check all that apply)		OR Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)	
		<input type="checkbox"/> Shallow Aquitard (D3)	
		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:		Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Surface Water Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (inches): _____		
Water Table Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (inches): _____		
Saturation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (inches): _____		
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			
No primary and/or secondary wetland hydrology indicators present at the time of sampling.			

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

VEGETATION - Use scientific names of plants				Sampling Point: <u>SP-5</u>
<u>Tree Stratum (Plot size: 30'r)</u>				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A/B)
1 <u>Acer saccharum</u>	Absolute % Cover	Dom. spp?	Indicator Status	
2 _____				
3 _____				
4 _____				
5 _____				
6 _____				
7 _____				
8 = Total Cover				
50% of Total Cover <u>4</u>		20% of Total Cover <u>1.6</u>		
<u>Sapling Stratum (Plot size: 15'r)</u>				
1 <u>Sassafras albidum</u>	Absolute % Cover	Dom. spp?	Indicator Status	
2 <u>Betula lenta</u>	10	Yes	FACU	
3 <u>Fagus grandifolia</u>	15	Yes	FACU	
4 <u>Prunus serotina</u>	12	Yes	FACU	
5 _____	4	No	FACU	
6 _____				
7 _____				
41 = Total Cover				
50% of Total Cover <u>20.5</u>		20% of Total Cover <u>8.2</u>		
<u>Shrub Stratum (Plot size: 15'r)</u>				
1 _____	Absolute % Cover	Dom. spp?	Indicator Status	
2 _____				
3 _____				
4 _____				
5 _____				
6 _____				
7 _____				
_____ = Total Cover				
50% of Total Cover _____		20% of Total Cover _____		
<u>Herb Stratum (Plot size: 5'r)</u>				
1 _____	Absolute % Cover	Dom. spp?	Indicator Status	
2 _____				
3 _____				
4 _____				
5 _____				
6 _____				
7 _____				
8 _____				
9 _____				
10 _____				
11 _____				
12 _____				
0 = Total Cover				
50% of Total Cover <u>0</u>		20% of Total Cover <u>0</u>		
<u>Woody Vine Stratum (Plot size: 30'r)</u>				
1 _____	Absolute % Cover	Dom. spp?	Indicator Status	
2 _____				
3 _____				
4 _____				
0 = Total Cover				
50% of Total Cover <u>0</u>		20% of Total Cover <u>0</u>		

Remarks: (include photo numbers here or on separate sheet.)

Sample Point does not meet hydrophytic vegetation tests.

Hydrophytic Vegetation Present?

Yes No

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH)

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

SOILS

Sampling Point: **SP-5**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type *1	Loc *2		
0-2	10YR 2/1	100					Silt Loam	
2-6	10YR 4/2	100					Silt Loam	
6-20	10YR 4/4	100					Silt Loam	

*1 Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. *2 Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils *3
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Polyvalue Below Surface (S8)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> (LRR N, MLRA 136)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)
	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)

*3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
---	--

Remarks:
Soil profile does not meet the requirements for any hydric soil indicators.

Datasheet entered by: **Holmes, Josh** Last revised: 11/14/13

APPENDIX E

STAFF QUALIFICATIONS



Staff Qualifications

Chad Lobley has over ten years of experience as a Biologist working with field ecology, wetlands, fisheries, aquatics and wildlife. Mr. Lobley has an MA in Environmental Geography and Planning. He has prepared and submitted PADEP permitting documents for several confidential clients which entailed surface water withdrawal, utility line crossings, and any other features involved to assure compliance with state and federal regulations. These projects involved activities such as wetland delineation, stream and aquatic life assessment, threatened and endangered species surveys, and other various siting and habitat assessments.

Joshua Holmes is a Biologist with over six years of wetland delineation experience. He has been trained in the utilization of the 1987 Corps Wetland Delineation Manual and its regional supplements. Mr. Holmes has successfully completed numerous wetland delineations in Kentucky, New York, Ohio, Pennsylvania and West Virginia.

Mallory Lee has five years of experience as an Environmental Scientist. Ms. Lee has a BS in Environmental Sciences and specializes in preparing letters, reports and applications for capital projects in the energy industry. She can conduct wetland and stream delineations, rapid bio assessments, and perform GPS operation/data collection. She has attended the Wetland Institute's 40 hour wetland delineation course.