APPENDIX A
WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 03/02/2016

Applicant/Owner: Sunoco State: PA Sampling Point: W-SZ8

Investigator(s): JM, SZ Section, Township, Range: Rostraver

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave Slope (%): 5-10

Subregion (LRR or MLRA): LRRN Lat: 40.217126 Long: -79.795471 Datum: NAD83

Soil Map Unit Name: Guernsey silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔ No _____	
Wetland Hydrology Present?	Yes ✔ No _____	

Remarks:

Cowardin Code: PEM

HGM: Slope

WT: NRPWW

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✔	No _____	Depth (inches): 8
Water Table Present?	Yes ✔	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-SZ8

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	50	✔	FACW
2. Typha latifolia	30	✔	OBL
3. Valerianella sp.	10		ND
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

10% open water

ND - Not determined

SOIL Sampling Point: W-SZ8

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/2	100					Muck	
2-6	10YR 4/2	90	7.5YR 4/6	10	C	M	SSIL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 6

Hydric Soil Present? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 03/02/2016

Applicant/Owner: Sunoco State: PA Sampling Point: W-SZ8-UPL

Investigator(s): JM, SZ Section, Township, Range: Rostraver

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 5-10

Subregion (LRR or MLRA): LRRN Lat: 40.217081 Long: -79.795533 Datum: NAD 83

Soil Map Unit Name: Guernsey silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-SZ8-UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dactylis glomerata	40	✔	FACU
2. Reynoutria japonica	20	✔	FACU
3. Oenothera biennis	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

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

20% open water

SOIL

Sampling Point: W-SZ8-UPL

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100					SIL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Gravel

Depth (inches): 8

Hydric Soil Present? Yes _____ No ✔

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 03/10/2016

Applicant/Owner: Sunoco Logistics L.P. State: Pa Sampling Point: W-CS1

Investigator(s): C.Vileno, C. Stoliker Section, Township, Range: Rostraver

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 3-5

Subregion (LRR or MLRA): LRRN Lat: 40.223714 Long: -79.776109 Datum: NAD 83

Soil Map Unit Name: Monongahela silt loam, 8 to 15 percent slopes (MoC) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Cowardin Code: PEM
HGM: Slope
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✔	No _____	Depth (inches): 1
Water Table Present?	Yes ✔	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-CS1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	80	✔	FACW
2. Poa trivialis	15		FACW
3. Impatiens capensis	5		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-CS1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	60	7.5YR 5/8	20	C	M/PL	CL	
	10YR 5/3	20						

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 03/10/2016

Applicant/Owner: Sunoco Logistics L.P. State: PA Sampling Point: W-CS1 UP

Investigator(s): C.Vileno, C. Stoliker Section, Township, Range: Rostraver

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Planar Slope (%): 5-8

Subregion (LRR or MLRA): LRRN Lat: 40.223840° Long: -79.776332° Datum: NAD 83

Soil Map Unit Name: Monongahela silt loam, 8 to 15 percent slopes (MoC) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-CS1 UP

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	40	✓	FACW
2. Trifolium repens	30	✓	FACU
3. Chenopodium album	20		FACU
4. Plantago lanceolata	10		UPL
5. Cyperus esculentus	5		FACW
6. Daucus carota	5		UPL
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
50% of total cover: 55	20% of total cover: 22		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✓

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

SOIL Sampling Point: W-CS1 UP

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/4	60					CL	
	10YR 5/6	10						
	7.5YR 5/4	30						

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Course Fragments

Depth (inches): 10

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 03/02/2016

Applicant/Owner: Sunoco State: PA Sampling Point: W-SZ7

Investigator(s): JM, SZ Section, Township, Range: South Huntingdon

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave Slope (%): 0-5

Subregion (LRR or MLRA): LRRN Lat: 40.239430 Long: -79.772221 Datum: NAD83

Soil Map Unit Name: Fairpoint very channery silt loam, 15 to 25 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔ No _____	
Wetland Hydrology Present?	Yes ✔ No _____	

Remarks:

Cowardin Code: PEM

HGM: Depressional

WT: Isolate

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✔ No _____ Depth (inches): 2

Water Table Present? Yes ✔ No _____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✔ No _____ Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

6in water in some areas

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-SZ7

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	60	✔	FACW
2. Typha latifolia	20	✔	OBL
3. Euthamia graminifolia	10		FAC
4. Juncus effusus	5		FACW
5. Scirpus atrovirens	5		OBL
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-SZ7

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/2	80	7.5YR 4/6	20	C	M/PL	SIL	
10-16	5Y 5/2	80	7.5YR 4/6	20	C	M/PL	CL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 03/02/2016

Applicant/Owner: Sunoco State: PA Sampling Point: W-65 PSS

Investigator(s): JM, SZ Section, Township, Range: South Huntingdon

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave Slope (%): 0-5

Subregion (LRR or MLRA): LRRN Lat: 40.237322 Long: -79.770432 Datum: NAD83

Soil Map Unit Name: Fairpoint very channery silt loam, 15 to 25 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ✔ No ____
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:

Cowardin Code: PSS

HGM: Depressional

WT: Isolate

PSS/PEM extension and merge of W-65, W-66, and W-67

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✔	Depth (inches): ____
Water Table Present?	Yes ____	No ✔	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✔	Depth (inches): ____

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-65 PSS

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	15	✔	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Sapling/Shrub Stratum (Plot size: 15')			
1. Crataegus sp	30	✔	ND
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot size: 5')			
1. Solidago gigantea	30	✔	FACW
2. Microstegium vimineum	30	✔	FAC
3. Epilobium coloratum	10		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

ND - Not determined

*Not identified to species, not included in dominance test

SOIL Sampling Point: W-65 PSS

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100					SIL	
4-14	10YR 4/2	80	7.5YR 5/8	20	C	M/PL	SIL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 06/12/2013

Applicant/Owner: Sunoco State: PA Sampling Point: W-65, SZ7 UPL

Investigator(s): Pat Green Section, Township, Range: South Huntingdon

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 8-10

Subregion (LRR or MLRA): LRRN Lat: 40.237581 Long: -79.770538 Datum: NAD 83

Soil Map Unit Name: Fairpoint very channery silt loam, 15 to 25 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-65, SZ7 UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phleum pratense	30	✔	FACU
2. Solidago candense	25	✔	FACU
3. Brassica rapa	20	✔	UPL
4. Cirsium vulgare	5		FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

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

SOIL

Sampling Point: W-65, SZ7 UPL

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100					SIL	
4-14	10YR 5/4	90	10YR 5/8	10	C	M	SIL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes _____ No ✔

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 03/02/2016

Applicant/Owner: Sunoco State: PA Sampling Point: W-SZ6

Investigator(s): JM, SZ Section, Township, Range: South Huntingdon

Landform (hillslope, terrace, etc.): valley bottom Local relief (concave, convex, none): Concave Slope (%): 0-5

Subregion (LRR or MLRA): LRRN Lat: 40.237254 Long: -79.752561 Datum: NAD83

Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔ No _____	
Wetland Hydrology Present?	Yes ✔ No _____	

Remarks:

Cowardin Code: PEM

HGM: Depressional

WT: Isolate

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✔	No _____	Depth (inches): 2
Water Table Present?	Yes ✔	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-SZ6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	40	✔	FACW
2. Typha angustifolia	30	✔	OBL
3. Poa trivialis	20		FACW
4. Dactylis glomerata	10		FACU
5. Apocynum cannabinum	5		FACU
6.			
7.			
8.			
9.			
10.			
11.			
	105 = Total Cover		
50% of total cover: 52.5	20% of total cover: 21		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-SZ6

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	100					Muck	
2-12	10YR 4/1	100					SIC	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 03/02/2016

Applicant/Owner: Sunoco State: PA Sampling Point: W-SZ6-UPL

Investigator(s): JM, SZ Section, Township, Range: South Huntingdon

Landform (hillslope, terrace, etc.): valley bottom Local relief (concave, convex, none): Convex Slope (%): 0-5

Subregion (LRR or MLRA): LRRN Lat: 40.237447 Long: -79.752452 Datum: NAD83

Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-SZ6-UPL

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dactylis glomerata	60	✔	FACU
2. Phleum pratense	20	✔	FACU
3. Geum canadense	10		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

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

SOIL

Sampling Point: W-SZ6-UPL

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5Y 4/2	95	7.5YR 4/6	5	C	M	SIL	
6-12	2.5Y 3/2	100					SIL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ **No** ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 03/10/2016

Applicant/Owner: Sunoco Logistics L.P. State: PA Sampling Point: W-CS3

Investigator(s): C.Vileno, C. Stoliker Section, Township, Range: Hempfield

Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): Planar Slope (%): 1-3

Subregion (LRR or MLRA): LRRN Lat: 40.263762 Long: -79.688745 Datum: NAD 83

Soil Map Unit Name: Lindside silt loam, 0 to 3 percent slopes, occasionally flooded (Ln) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Cowardin Code: PEM
HGM: Depressional
WT: RPWWN

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✔	No _____	Depth (inches): 1
Water Table Present?	Yes ✔	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-CS3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	35	✔	FACW
2. Poa trivialis	30	✔	FACW
3. Epilobium coloratum	25	✔	FACW
4. Typha latifolia	15		OBL
5. Rumex crispus	15		FAC
6. Lemna minor	10		OBL
7. Acorus calamus	5		OBL
8. Boehmeria cylindrica	5		FACW
9.			
10.			
11.			
	140 = Total Cover		
50% of total cover: 70	20% of total cover: 28		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-CS3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/1	95	10YR 5/6	5	C	M/PL	SCL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 03/10/2016

Applicant/Owner: Sunoco Logistics L.P. State: Pa Sampling Point: W-CS3 UP

Investigator(s): C.Vileno, C. Stoliker Section, Township, Range: Hempfield

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5-8

Subregion (LRR or MLRA): LRRN Lat: 40.264142° Long: -79.688815° Datum: NAD 83

Soil Map Unit Name: Chavies fine sandy loam, 0 to 2 percent slopes (ChA) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-CS3 UP

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	35	✔	FACW
2. Poa pratensis	30	✔	FACU
3. Trifolium dubium	30	✔	UPL
4. Plantago lanceolata	15		UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110 = Total Cover		
50% of total cover: 55	20% of total cover: 22		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

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

SOIL Sampling Point: W-CS3 UP

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/3	100					SL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes _____ No ✔

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 03/10/2016

Applicant/Owner: Sunoco Logistics L.P. State: PA Sampling Point: W-CS2

Investigator(s): C.Vileno, C. Stoliker Section, Township, Range: Hempfield

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 3-5

Subregion (LRR or MLRA): LRRN Lat: 40.268992 Long: -79.680227 Datum: NAD 83

Soil Map Unit Name: Clarksburg silt loam, 3 to 8 percent slopes (ClB) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ✔ No ____
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:

Cowardin Code: PEM
HGM: Riverine
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✔	No ____	Depth (inches): 0
Water Table Present?	Yes ✔	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

exhibiting sheet flow of water.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-CS2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Leersia oryzoides	45	✔	OBL
2. Rumex crispus	25	✔	FAC
3. Poa trivialis	15		FACW
4. Lysimachia nummularia	10		FACW
5. Epilobium coloratum	10		FACW
6. Boehmeria cylindrica	5		FACW
7. Polygonum ramosissimum	5		FAC
8.			
9.			
10.			
11.			
	115 = Total Cover		
50% of total cover: 57.5	20% of total cover: 23		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-CS2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	90	7.5YR 5/8	10	C	M/PL	GSCL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Course Fragments

Depth (inches): 8

Hydric Soil Present? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 03/10/2016

Applicant/Owner: Sunoco Logistics L.P. State: Pa Sampling Point: W-CS2 UP

Investigator(s): C.Vileno, C. Stoliker Section, Township, Range: Hempfield

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Planar Slope (%): 1-3

Subregion (LRR or MLRA): LRRN Lat: 40.269151° Long: -79.680493° Datum: NAD 83

Soil Map Unit Name: Dormont silt loam, 15 to 25 percent slopes (DoD) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-CS2 UP

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dactylis glomerata	40	✔	FACU
2. Poa pratensis	30	✔	FACU
3. Trifolium dubium	30	✔	UPL
4. Plantago lanceolata	15		UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	115 = Total Cover		
50% of total cover: 57.5	20% of total cover: 23		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

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

SOIL Sampling Point: W-CS2 UP

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/3	100					SL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes _____ No ✔

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 12/09/2014

Applicant/Owner: Sunoco State: PA Sampling Point: W-CC26 PEM

Investigator(s): D. Bonomo, K. Keat Section, Township, Range: Salem

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 1-2

Subregion (LRR or MLRA): LRRS Lat: 40.429788 Long: -79.573597 Datum: NAD 83

Soil Map Unit Name: FaC - Fairpoint very channery silt loam, 8-15% slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Cowardin Code: PEM
HGM: Slope
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✔ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-CC26 PEM

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	80	✔	FACW
2. Epilobium coloratum	20		FACW
3. Cornus amonum	10		FACW
4. Cornus racemosa	10		FAC
5. Symphyotrichum puniceum	10		FACW
6.			
7.			
8.			
9.			
10.			
11.			
	130 = Total Cover		
50% of total cover: 65	20% of total cover: 26		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-CC26 PEM

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/1	70	10YR 5/8	30	C	M	SICL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 08/07/2014

Applicant/Owner: Sunoco State: PA Sampling Point: W-CC26 UPL

Investigator(s): J. McGuirk, D. Quinn Section, Township, Range: Salem

Landform (hillslope, terrace, etc.): valley bottom Local relief (concave, convex, none): convex Slope (%): 2-4%

Subregion (LRR or MLRA): LRRN Lat: 40.428647 Long: -79.572199 Datum: NAD 83

Soil Map Unit Name: Ernest silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-CC26 UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Prunus serotina	30	✔	FACU
2. Liriodendron tulipifera	20	✔	FACU
3. Sassafras albidum	15	✔	FACU
4.			
5.			
6.			
7.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		
Sapling/Shrub Stratum (Plot size: 15')			
1. Prunus serotina	15	✔	FACU
2. Sassafras albidum	10	✔	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Herb Stratum (Plot size: 5')			
1. Solidago altissima	20	✔	FACU
2. Dryopteris sp.	15	✔	ND
3. Microstegium vimineum	15	✔	FAC
4. Rubus allegheniensis	10		FACU
5. Dichanthelium clandestinum	5		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 7* (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 14% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

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

ND - Not determined

* Vegetation not ID'd down to species level is not included in dominance test.

SOIL

Sampling Point: W-CC26 UPL

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3"	10YR 4/2	100%					SIL	
3-10"	10YR 4/4	100%					SIL	
10+"								Refusal - Coarse Fragments

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: coarse fragments

Depth (inches): 10"

Hydric Soil Present? Yes ____ No ✔

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 08/05/2014

Applicant/Owner: Sunoco State: PA Sampling Point: W-M68

Investigator(s): A. Grech, A. Stott Section, Township, Range: Loyalhanna

Landform (hillslope, terrace, etc.): Side slope Local relief (concave, convex, none): Concave Slope (%): 1-3%

Subregion (LRR or MLRA): LRRN Lat: 40.435083 Long: -79.470652 Datum: NAD 83

Soil Map Unit Name: Ernest silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Cowardin Code: PFO
HGM: Slope
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes ✔	No _____	Depth (inches): 0"
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0"

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Connects to pond outside of L.O.D.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-M68

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	40	✔	FAC
2. Fraxinus pennsylvanica	10	✔	FACW
3.			
4.			
5.			
6.			
7.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Sapling/Shrub Stratum (Plot size: 15')			
1. Acer rubrum	10	✔	FAC
2. Ulmus americana	10	✔	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 5')			
1. Microstegium vimineum	40	✔	FAC
2. Persicaria sagittata	30	✔	OBL
3. Onoclea sensibilis	20	✔	FACW
4. Scirpus atrovirens	10		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-M68

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3"	10YR 4/2	90	10YR 4/6	10	C	M	SIL	
3-12"	2.5YR 6/2	90	10YR 5/6	10	C	M	SICL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 08/05/2014

Applicant/Owner: Sunoco State: PA Sampling Point: W-M68 UPL

Investigator(s): A. Grech, A. Stott Section, Township, Range: Loyalhanna

Landform (hillslope, terrace, etc.): Side slope Local relief (concave, convex, none): Convex Slope (%): 0-2%

Subregion (LRR or MLRA): LRRN Lat: 40.435425 Long: -79.471484 Datum: NAD 83

Soil Map Unit Name: Ernest silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-M68 UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Liriodendron tulipifera	10	✔	FACU
2. Acer rubrum	10	✔	FAC
3. Quercus rubra	10	✔	FACU
4.			
5.			
6.			
7.			
8.			
9.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot size: 5')			
1. Microstegium vimineum	30	✔	FAC
2. Trifolium pratense	30	✔	FACU
3. Rumex obtusifolius	30	✔	FACU
4. Cyperus esculentus	10		FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

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

SOIL

Sampling Point: W-M68 UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12"	2.5Y 5/4	90	10YR 5/8	10	C	M	SIL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes _____ No ✔

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 09/02/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-R43

Investigator(s): J.McGuirk, C. Vileno Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 5-8%

Subregion (LRR or MLRA): LRRN Lat: 40.442495 Long: -79.321975 Datum: NAD 83

Soil Map Unit Name: Wharton silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Cowardin Code: PEM
HGM: Slope
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✔	No _____	Depth (inches): 1
Water Table Present?	Yes ✔	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-R43

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 10')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	60	✔	FACW
2. Euthamia graminifolia	10		FAC
3. Agrimonia parviflora	10		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		
50% of total cover: 40	20% of total cover: 16		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-R43

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	92	7.5YR 5/4	8	C	M	SIL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 08/25/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-R43 UP

Investigator(s): J. McGuirk, C. Vileno Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): Roadside cut slope Local relief (concave, convex, none): Linear Slope (%): 5-8%

Subregion (LRR or MLRA): LRRN Lat: 40.442545 Long: -79.322059 Datum: NAD83

Soil Map Unit Name: Wharton silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✔, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-R43 UP

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Dichanthelium clandestinum	20	✔	FAC
2. Rosa multiflora	10	✔	FACU
3. Daucus carota	5		UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

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

SOIL Sampling Point: W-R43 UP

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/4	100					SIL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes _____ No ✔

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 06/29/2016

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q69 PSS

Investigator(s): J.McGuirk, C. Vileno Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): valley bottom Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): LRRN Lat: 40.443106 Long: -79.321711 Datum: NAD 83

Soil Map Unit Name: Wharton silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Cowardin Code: PSS

HGM: Riverine

WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes ✔	No _____	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 3

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q69 PSS

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Viburnum dentatum	40	✔	FAC
2. Cornus amomum	30	✔	FACW
3. Prunus serotina	20	✔	FACU
4.			
5.			
6.			
7.			
8.			
9.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Herb Stratum (Plot size: 5')			
1. Onoclea sensibilis	20	✔	FACW
2. Impatiens sp.	10	✔	FACW
3. Verbesina alternifolia	5		FAC
4. Microstegium vimineum	5		FAC
5. Rubus sp.	3		ND
6. Carex sp.	3		ND
7.			
8.			
9.			
10.			
11.			
	46 = Total Cover		
50% of total cover: 23	20% of total cover: 9.2		
Woody Vine Stratum (Plot size: 15')			
1. Vitis labrusca	30	✔	FACU
2.			
3.			
4.			
5.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

ND - Not determined

SOIL

Sampling Point: W-Q69 PSS

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/2	95	7.5YR 5/6	5	C	M	SIL	
4-12	10YR 5/1	85	7.5YR 5/6	15	C	M	CL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 06/25/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q69 PEM

Investigator(s): J.McGuirk, C. Vileno Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): valley bottom Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): LRRN Lat: 40.443146 Long: -79.319946 Datum: NAD 83

Soil Map Unit Name: Weinbach silt loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ✔ No ____
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:
Cowardin Code: PEM
HGM: Riverine
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✔	No ____	Depth (inches): 3
Water Table Present?	Yes ✔	No ____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No ____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Heavy rains prior

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q69 PEM

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	30	✔	FACW
2. Juncus effusus	10	✔	FACW
3. Carex vulpinoidea	10	✔	OBL
4. Carex lurida	10	✔	OBL
5. Carex scoparia	10	✔	FACW
6. Leersia oryzoides	10	✔	OBL
7. Juncus tenuis	7		FAC
8. Dichanthelium clandestinum	5		FAC
9. Scirpus atrovirens	5		OBL
10. Asclepias incarnata	5		OBL
11.			
	102 = Total Cover		
50% of total cover: 51	20% of total cover: 20.4		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-Q69 PEM

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 5/2	85	7.5YR 4/6	15	C	M	CL	
10-12	10YR 5/1	95	7.5YR 4/6	5	C	M	CL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 06/29/2016

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q69/Q70/Q71 UPL

Investigator(s): J.McGuirk, C. Vileno Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): valley bottom Local relief (concave, convex, none): Linear Slope (%): 0-2

Subregion (LRR or MLRA): LRRN Lat: 40.442894 Long: -79.314028 Datum: NAD 83

Soil Map Unit Name: Ginat silt loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q69/Q70/Q71 UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Solidago hispida	30	✔	UPL
2. Microstegium vimineum	25	✔	FAC
3. Abutilon theophrasti	20	✔	UPL
4. Potentilla pensylvanica	10		FACU
5. Fragaria vesca	10		FACU
6. Carex vulpinoidea	5		OBL
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

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

SOIL

Sampling Point: W-Q69/Q70/Q71 UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y 5/3	95	7.5YR 5/4	5	C	M	SIL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes _____ No ✔

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 06/29/2016

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q70 PFO

Investigator(s): J.McGuirk, C. Vileno Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): valley bottom Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): LRRN Lat: 40.442877 Long: -79.318647 Datum: NAD 83

Soil Map Unit Name: Weinbach silt loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ✔ No ____
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:
Cowardin Code: PFO
HGM: Depressional
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ✔ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ____	Depth (inches): ____
Water Table Present?	Yes ____	No ____	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ____	Depth (inches): ____

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Standing dead vegetation

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q70 PFO

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	50	✔	FAC
2. Prunus serotina	25	✔	FACU
3.			
4.			
5.			
6.			
7.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		
Sapling/Shrub Stratum (Plot size: 15')			
1. Acer negundo	20	✔	FAC
2. Rosa multiflora	15	✔	FACU
3. Lindera benzoin	15	✔	FAC
4. Nyssa sylvatica	10		FAC
5. Cornus sp.	10		ND
6.			
7.			
8.			
9.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Herb Stratum (Plot size: 5')			
1. Impatiens sp.	30	✔	FACW
2. Microstegium vimineum	30	✔	FAC
3. Parathelypteris noveboracensis	20	✔	FAC
4. Persicaria virginiana	10		FAC
5. Rubus sp.	5		ND
6.			
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		
Woody Vine Stratum (Plot size: 15')			
1. Vitis labrusca	20	✔	FACU
2. Toxicodendron radicans	20	✔	FAC
3.			
4.			
5.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 70% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

ND - Not determined

SOIL

Sampling Point: W-Q70 PFO

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 5/2	90	10YR 5/6	5	C	M	CL	
			10YR 6/1	5	D	M	CL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 06/29/2016

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q70 PEM (2)

Investigator(s): J.McGuirk, C. Vileno Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): valley bottom Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): LRRN Lat: 40.442935 Long: -79.315141 Datum: NAD 83

Soil Map Unit Name: Ginat silt loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Cowardin Code: PEM
HGM: Depressional
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✔	No _____	Depth (inches): 10
Water Table Present?	Yes ✔	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q70 PEM (2)

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Carex lurida	20	✔	OBL
2. Viburnum dentatum	20	✔	FAC
3. Juncus effusus	15	✔	FACW
4. Phalaris arundinacea	15	✔	FACW
5. Scirpus atrovirens	10		OBL
6. Leersia oryzoides	10		OBL
7. Persicaria sagittata	10		OBL
8. Carex vulpinoidea	5		OBL
9. Vernonia noveboracensis	3		FACW
10. Onoclea sensibilis	3		FACW
11. Solidago sp.	3		ND
	114 = Total Cover		
50% of total cover: 57	20% of total cover: 22.8		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

ND - Not determined

SOIL

Sampling Point: W-Q70 PEM (2)

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	Gley 1 (5/10Y)	85	7.5YR 5/6	15	C	M/PL	CL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 09/04/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q90

Investigator(s): J McGuirk, C. Vileno Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): Roadside cut slope Local relief (concave, convex, none): Linear Slope (%): 2-4

Subregion (LRR or MLRA): LRRN Lat: 40.440377 Long: -79.311309 Datum: NAD 83

Soil Map Unit Name: Philo-Monongahela-Atkins (s6589) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Cowardin Code: PSS
HGM: Riverine
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ✔ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✔ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes ✔	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q90

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	10	✔	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Sapling/Shrub Stratum (Plot size: 15')			
1. Cornus amumum	30	✔	FACW
2. Viburnum dentatum	25	✔	FAC
3. Cornus alba	15		FACW
4. Crataegus sp.	10		ND
5. Malus sp.	5		ND
6.			
7.			
8.			
9.			
	85 = Total Cover		
50% of total cover: 42.5	20% of total cover: 17		
Herb Stratum (Plot size: 5')			
1. Persicaria sagittata	30	✔	OBL
2. Solidago canadenis	15	✔	FACU
3. Pilea pumila	15	✔	FACW
4. Persicaria pennysylvanica	10		FACW
5. Persicaria hydropiperoides	7		OBL
6. Boehmeria cylindrica	7		FACW
7. Onoclea sensibilis	7		FACW
8. Carex lurida	5		OBL
9. Scirpus atrovirens	5		OBL
10.			
11.			
	101 = Total Cover		
50% of total cover: 50.5	20% of total cover: 20.2		
Woody Vine Stratum (Plot size: 15')			
1. Vitus species	10	✔	ND
2.			
3.			
4.			
5.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6* (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

ND - Not determined

* Vegetation not ID'd down to species level is not included in dominance test.

SOIL Sampling Point: W-Q90

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/1	93	7.5YR 4/6	7	C	PL	SICL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 09/04/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q90 upl

Investigator(s): J. McGuirk Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): Roadside cut slope Local relief (concave, convex, none): Linear Slope (%): 5-8%

Subregion (LRR or MLRA): LRRN Lat: 40.440476 Long: -79.311472 Datum: NAD83

Soil Map Unit Name: Wharton silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✔, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q90 upl

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Prunus serotina	30	✔	FACU
2. Acer rubrum	30	✔	FAC
3. Crataegus sp.	15		ND
4.			
5.			
6.			
7.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		
Sapling/Shrub Stratum (Plot size: 15')			
1. Crataegus sp.*	10	✔	ND
2. Prunus serotina	10	✔	FACU
3. Rosa multiflora	5	✔	FACU
4.			
5.			
6.			
7.			
8.			
9.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Herb Stratum (Plot size: 5')			
1. Persicaria virginiana	15	✔	FAC
2. Rubus hispidus	15	✔	FACW
3. Toxicodendron radicans	15	✔	FACU
4. Carex pensylvanica	10	✔	UPL
5. Polygonum pensylvanicum	5		UPL
6. Microstegium vimineum	5		FAC
7.			
8.			
9.			
10.			
11.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		
Woody Vine Stratum (Plot size: 15')			
1. Smilax sp.	5	✔	ND
2.			
3.			
4.			
5.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 8* (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 38% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

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

ND - Not determined

* Vegetation not ID'd down to species level is not included in dominance test.

SOIL

Sampling Point: W-Q90 upl

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5Y 5/4	100					SIL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Tree roots

Depth (inches): 10"

Hydric Soil Present? Yes ____ No ✔

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 06/30/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q72

Investigator(s): J.McGuirk, C. Vileno Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): valley bottom Local relief (concave, convex, none): Concave Slope (%): 1-3%

Subregion (LRR or MLRA): LRRN Lat: 40.44242 Long: -79.31117 Datum: NAD 83

Soil Map Unit Name: Ginat silt loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Cowardin Code: PEM

HGM: Depressional

WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✔	No _____	Depth (inches): 1
Water Table Present?	Yes ✔	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Heavy rains prior 4 days

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q72

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Juncus effusus	25	✔	FACW
2. Scirpus atrovirens	20	✔	OBL
3. Onoclea sensibilis	15	✔	FACW
4. Solidago sp.*	15	✔	ND
5. Agrimonia parviflora	10		FACW
6. Carex lurida	10		OBL
7. Juncus tenuis	10		FAC
8. Dichanthelium clandestinum	7		FAC
9. Carex vulpinoidea	7		OBL
10. Asclepias incarnata	5		OBL
11.			
	124 = Total Cover		
50% of total cover: 62	20% of total cover: 24.8		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3* (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

ND - Not determined

*Not identified to species, not included in dominance test

SOIL Sampling Point: W-Q72

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	Gley 1 (5/10Y)	80%	7.5YR 5/6	20	C	M	CL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 06/30/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q73

Investigator(s): J. McGuirk & C. Stoliker Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): valley bottom Local relief (concave, convex, none): concave Slope (%): 2-4%

Subregion (LRR or MLRA): LRRN Lat: 40.442219 Long: -79.308325 Datum: NAD 83

Soil Map Unit Name: Gilpin channery silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Cowardin Code: PFO
HGM: Slope
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes ✔	No _____	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 6

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
heavy rain last 4 days

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q73

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	70	✔	FAC
2. Quercus bicolor	20	✔	FACW
3.			
4.			
5.			
6.			
7.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Sapling/Shrub Stratum (Plot size: 15')			
1. Quercus bicolor	20	✔	FACW
2. Acer rubrum	10	✔	FAC
3. Lindera benzoin	10	✔	FAC
4.			
5.			
6.			
7.			
8.			
9.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Herb Stratum (Plot size: 5')			
1. Microstegium vimineum	40	✔	FAC
2. Parathelypteris noveboracensis	15	✔	FAC
3. Poa trivialis	10		FACW
4. Rosa multiflora	10		FACU
5. Toxicodendron pubescens	10		FACU
6. Persicaria virginiana	10		FAC
7.			
8.			
9.			
10.			
11.			
	95 = Total Cover		
50% of total cover: 47.5	20% of total cover: 19		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-Q73

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	95	7.5YR 4/4	5	C	M	CL	
6-12	10YR 5/2	95	7.5YR 4/4	5	C	M	CL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 06/30/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q72, Q73 UPL

Investigator(s): JMM, CS Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): Valley Bottom Local relief (concave, convex, none): Linear Slope (%): 3-5

Subregion (LRR or MLRA): LRRN Lat: 40°26'32.89" Long: 79°18'31.77" Datum: NAD 83

Soil Map Unit Name: Gilpin channery silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q72, Q73 UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	70	✔	FAC
2. Nyssa sylvatica	20	✔	FAC
3.			
4.			
5.			
6.			
7.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Sapling/Shrub Stratum (Plot size: 15')			
1. Liriodendron tulipifera	10	✔	FACU
2. Nyssa sylvatica	10	✔	FAC
3. Quercus rubra	10	✔	FACU
4.			
5.			
6.			
7.			
8.			
9.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot size: 5')			
1. Podophyllum peltatum	25	✔	FACU
2. Microstegium vimineum	20	✔	FAC
3. Rubus occidentalis	20	✔	UPL
4. Rosa multiflora	10		FACU
5. Parathelypteris noveboracensis	10		FAC
6. Urtica dioica	10		FACU
7. Impatiens sp.	10		FACW
8.			
9.			
10.			
11.			
	105 = Total Cover		
50% of total cover: 52.5	20% of total cover: 21		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✔

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

SOIL

Sampling Point: W-Q72, Q73 UPL

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100					SL	
3-12	10YR 5/3	100					GRCL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? **Yes** _____ **No** ✔

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 08/25/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q93 PFO

Investigator(s): C. Vileno, K. McCluskey Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): Riverine Local relief (concave, convex, none): Concave Slope (%): 0-3

Subregion (LRR or MLRA): LRRN Lat: 40.443706 Long: -79.306646 Datum: NAD 83

Soil Map Unit Name: Weinbach silt loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Cowardin Code: PFO
HGM: RIVERINE
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✔	No _____	Depth (inches): 1
Water Table Present?	Yes ✔	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q93 PFO

Tree Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus bicolor	20	✔	FACW
2. Salix nigra	10	✔	OBL
3. Carya ovata	5		FACU
4.			
5.			
6.			
7.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		
Sapling/Shrub Stratum (Plot size: 15')			
1. Cornus amomum	10	✔	FACW
2. Lonicera morrowii	5	✔	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Herb Stratum (Plot size: 5')			
1. Microstegium vimineum	10	✔	FAC
2. Carex lurida	5	✔	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15 = Total Cover		
50% of total cover: 7.5	20% of total cover: 3		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-Q93 PFO

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Muck	
3-10	10YR 3/2	98	2.5Y 4/4	2	C	M	SICL	
10+								Cobble refusal

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 08/25/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q93 PEM

Investigator(s): C. Vileno, K. McCluskey Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): Riverine Local relief (concave, convex, none): Concave Slope (%): 0-3

Subregion (LRR or MLRA): LRRN Lat: 40.443840 Long: -79.306520 Datum: NAD 83

Soil Map Unit Name: Weinbach silt loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Cowardin Code: PEM
HGM: RIVERINE
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes ✔	No _____	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q93 PEM

Tree Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Microstegium vimineum	50	✔	FAC
2. Carex lurida	10		OBL
3. Dichanthelium clandestinum	5		FAC
4. Salix nigra	5		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-Q93 PEM

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/2	80	10YR 5/6	5	C	M	CL	Disturbed
	10YR 5/4	15					CL	Disturbed

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 08/25/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q93 PEM

Investigator(s): C. Vileno, K. McCluskey Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): Riverine Local relief (concave, convex, none): Concave Slope (%): 0-3

Subregion (LRR or MLRA): LRRN Lat: 40.443840 Long: -79.306520 Datum: NAD 83

Soil Map Unit Name: Weinbach silt loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Cowardin Code: PEM
HGM: RIVERINE
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes ✔	No _____	Depth (inches): 3
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q93 PEM

Tree Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Microstegium vimineum	50	✔	FAC
2. Carex lurida	10		OBL
3. Dichanthelium clandestinum	5		FAC
4. Salix nigra	5		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70 = Total Cover		
50% of total cover: 35	20% of total cover: 14		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL

Sampling Point: W-Q93 PEM

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/2	80	10YR 5/6	5	C	M	CL	Disturbed
	10YR 5/4	15					CL	Disturbed

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No _____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 08/25/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q92, Q93 UP

Investigator(s): C. Vileno, K. McCluskey Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Linear Slope (%): 5-8

Subregion (LRR or MLRA): LRRN Lat: 40.443574 Long: -79.306172 Datum: NAD 83

Soil Map Unit Name: Weinbach silt loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✔, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q92, Q93 UP

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Carya ovata	20	✔	FACU
2. Acer rubrum	15	✔	FAC
3. Robinia pseudoacacia	5		FACU
4.			
5.			
6.			
7.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera morrowii	5	✔	FACU
2. Cornus amomum	5	✔	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 5')			
1. Rosa multiflora	15	✔	FACU
2. Alliaria petiolata	10	✔	FACU
3. Geum canadense	10	✔	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35 = Total Cover		
50% of total cover: 17.5	20% of total cover: 7		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 28 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

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

SOIL

Sampling Point: W-Q92, Q93 UP

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/4	100					SCL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes _____ No ✔

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 06/30/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q74

Investigator(s): J. McGuirk & C. Stoliker Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): valley bottom Local relief (concave, convex, none): concave Slope (%): 0-3%

Subregion (LRR or MLRA): LRRN Lat: 40.442348 Long: -79.306586 Datum: NAD 83

Soil Map Unit Name: Gilpin channery silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Cowardin Code: PFO
HGM: Riverine
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✔	No _____	Depth (inches): 1
Water Table Present?	Yes ✔	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
heavy rain last 4 days

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q74

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	15	✔	FAC
2. Juglans nigra	15	✔	FACU
3. Nyssa sylvatica	10	✔	FAC
4. Salix nigra	10	✔	OBL
5. Quercus bicolor	10	✔	FACW
6.			
7.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera tatarica	20	✔	FACU
2. Viburnum dentatum	20	✔	FAC
3. Cornus racemosa	15	✔	FAC
4. Lindera benzoin	10		FAC
5.			
6.			
7.			
8.			
9.			
	65 = Total Cover		
50% of total cover: 32.5	20% of total cover: 13		
Herb Stratum (Plot size: 5')			
1. Symplocarpus foetidus	60	✔	OBL
2. Poa trivialis	15		FACW
3. Impatiens sp.	10		FACW
4. Carex lurida	5		OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90 = Total Cover		
50% of total cover: 45	20% of total cover: 18		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 78 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-Q74

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/1	100					SL	
3-10	10YR 4/2	93	7.5YR 4/4	7	C	M	CL	
10+								refusal

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: refusal course fragments

Depth (inches): 10

Hydric Soil Present? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 06/30/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q74 UPL

Investigator(s): J. McGuirk & C. Stoliker Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): valley bottom Local relief (concave, convex, none): concave Slope (%): 1-3%

Subregion (LRR or MLRA): LRRN Lat: 40°26'32.63" Long: 79°18'24.56" Datum: NAD 83

Soil Map Unit Name: Gilpin channery silt loam, 3 to 8 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
heavy rain last 4 days

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q74 UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1. Lonicera tatarica	20	✔	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Herb Stratum (Plot size: 5')			
1. Trifolium repens	15	✔	FACU
2. Achillea millefolium	15	✔	FACU
3. Plantago lanceolata	15	✔	UPL
4. Potentilla indica	15	✔	FACU
5. Poa sp.	15	✔	ND
6. Trifolium pratense	10		FACU
7. Leucanthemum vulgare	5		UPL
8. Galium sp.	5		ND
9. Rubus sp.	5		ND
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5* (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

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

ND- not determined

*Vegetation not ID'd down to species level not included in dominance test.

SOIL Sampling Point: W-Q74 UPL

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100					SL	
3-12	10YR 5/4	100					CL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes _____ No ✔

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 08/25/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q92 PEM

Investigator(s): C. Vileno, K. McCluskey Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-3

Subregion (LRR or MLRA): LRRN Lat: 40.443327 Long: -79.306110 Datum: NAD 83

Soil Map Unit Name: Weinbach silt loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Cowardin Code: PEM
HGM: DEPRESSION
WT: ISOLATE

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q92 PEM

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Phalaris arundinacea	50	✔	FACW
2. Microstegium vimineum	30	✔	FAC
3. Vernonia noveboracensis	10		FACW
4. Epilobium coloratum	10		FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL

Sampling Point: W-Q92 PEM

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/2	95	10YR 5/4	5	C	M	SC	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 08/25/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q92 PSS

Investigator(s): C. Vileno, K. McCluskey Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): Roadside Ditch/Depression Local relief (concave, convex, none): Linear Slope (%): 0-3

Subregion (LRR or MLRA): LRRN Lat: 40.443465 Long: -79.306062 Datum: NAD 83

Soil Map Unit Name: Weinbach silt loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✔, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Cowardin Code: PSS
HGM: DEPRESSION
WT: ISOLATE

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q92 PSS

Tree Stratum (Plot size: 10')	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix nigra	10	✔	OBL
2.			
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		
50% of total cover: 5	20% of total cover: 2		
Sapling/Shrub Stratum (Plot size: 10')			
1. Cornus amomum	30	✔	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot size: 5')			
1. Toxicodendron radicans	10	✔	FAC
2. Agrimonia parviflora	10	✔	FACW
3. Salix nigra	5	✔	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-Q92 PSS

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	98	2.5Y 4/4	2	C	M	SC	
10-16	10YR 4/2	98	2.5Y 4/4	2	C	M	SC	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ____

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 07/20/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q84

Investigator(s): J. McGuirk & C. Stoliker Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 1-3

Subregion (LRR or MLRA): LRRN Lat: 40.442856 Long: -79.306023 Datum: NAD 83

Soil Map Unit Name: Weinbach silt loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Cowardin Code: PEM
HGM: Slope
WT: Isolated

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✔	No _____	Depth (inches): 0.5
Water Table Present?	Yes ✔	No _____	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q84

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Carex lurida	50	✔	OBL
2. Phalaris arundinacea	15	✔	FACW
3. Scirpus atrovirens	15	✔	OBL
4. Rumex crispus	10		FAC
5. Agrostis gigantea	10		FACW
6. Carex vulpinoidea	5		OBL
7.			
8.			
9.			
10.			
11.			
	105 = Total Cover		
50% of total cover: 52.5	20% of total cover: 21		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-Q84

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/1	100					SIL	
2-12	10YR 5/1	95	7.5YR 5/6	5	C	M/PL	SICL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 07/20/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q85

Investigator(s): J. McGuirk & C. Stoliker Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 1-3

Subregion (LRR or MLRA): LRRN Lat: 40.443534 Long: -79.305804 Datum: NAD 83

Soil Map Unit Name: Weinbach silt loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Cowardin Code: PEM
HGM: Riverine
WT: RPWWD

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✔ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes ✔	No _____	Depth (inches): 2
Saturation Present? (includes capillary fringe)	Yes ✔	No _____	Depth (inches): 2

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q85

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		
Herb Stratum (Plot size: 5')			
1. Carex lurida	35	✔	OBL
2. Phalaris arundinacea	25	✔	FACW
3. Scirpus atrovirens	20		OBL
4. Onoclea sensibilis	15		FACW
5. Rumex crispus	15		FAC
6. Typha latifolia	5		OBL
7.			
8.			
9.			
10.			
11.			
	115 = Total Cover		
50% of total cover: 57.5	20% of total cover: 23		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✔ No ___

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

SOIL Sampling Point: W-Q85

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	95	7.5YR 4/6	5	C	M/PL	SICL	
4-12	10YR 4/2	85	7.5YR 4/6	15	C	M/PL	SICL	

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ 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? Yes ✔ No ___

Remarks:

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: PPP City/County: Westmoreland Sampling Date: 07/20/2015

Applicant/Owner: Sunoco State: PA Sampling Point: W-Q84 & Q85 UPL

Investigator(s): J. McGuirk & C. Stoliker Section, Township, Range: Derry

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 1-3

Subregion (LRR or MLRA): LRRN Lat: 40.443076 Long: -79.305925 Datum: NAD 83

Soil Map Unit Name: Weinbach silt loam, 0 to 2 percent slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
Upland

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✔	Depth (inches): _____
Water Table Present?	Yes _____	No ✔	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✔	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: W-Q84 & Q85 UPL

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	30	✔	FAC
2. Prunus serotina	20	✔	FACU
3.			
4.			
5.			
6.			
7.			
	50 = Total Cover		
50% of total cover: 25	20% of total cover: 10		
Sapling/Shrub Stratum (Plot size: 15')			
1. Mallus sp.	20	✔	ND
2. Viburnum dentatum	15	✔	FAC
3. Quercus alba	10	✔	FACU
4.			
5.			
6.			
7.			
8.			
9.			
	45 = Total Cover		
50% of total cover: 22.5	20% of total cover: 9		
Herb Stratum (Plot size: 5')			
1. Dactylis glomerata	50	✔	FACU
2. Potentilla indica	30	✔	FACU
3. Plantago lanceolata	20	✔	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
50% of total cover: 50	20% of total cover: 20		
Woody Vine Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
50% of total cover: 0	20% of total cover: 0		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 7* (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 28.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

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

ND - Not determined

*Vegetation not identified to species is not included in dominance test

SOIL Sampling Point: W-Q84 & Q85 UI

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 4/3	90	7.5YR 4/6	10			SICL	
2-10	7.5YR 5/4	85	7.5YR 4/6	10	C	M	SICL	Disturbed
			10YR 5/1	5	C	M		Refusal

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Coarse Fragments

Depth (inches): 10

Hydric Soil Present? Yes ____ No ✔

Remarks:

APPENDIX B
WETLAND PHOTOGRAPHS

Photograph Number:	1	**Feature Name:**	W-SZ8	**Date:**	03/02/2016
Direction:	N	**Plant Community:**	PEM	**Remarks:**	N/A

Photograph Number:	2	**Feature Name:**	W-SZ7	**Date:**	03/02/2016
Direction:	NW	**Plant Community:**	PEM	**Remarks:**	N/A

Photograph Number:	3	**Feature Name:**	W-SZ6	**Date:**	03/02/2016
Direction:	SW	**Plant Community:**	PEM	**Remarks:**	N/A

Photograph Number:	4	**Feature Name:**	W-CC26	**Date:**	12/09/2014
Direction:	N	**Plant Community:**	PEM	**Remarks:**	N/A

Photograph Number:	5	**Feature Name:**	W-M68	**Date:**	08/05/2014
Direction:	N	**Plant Community:**	PFO	**Remarks:**	N/A

Photograph Number:	6	**Feature Name:**	W-R43	**Date:**	09/02/2015
Direction:	NW	**Plant Community:**	PEM	**Remarks:**	N/A

Photograph Number:	7	**Feature Name:**	W-Q69	**Date:**	06/29/2015
Direction:	S	**Plant Community:**	PSS	**Remarks:**	N/A

Photograph Number:	8	**Feature Name:**	W-Q69	**Date:**	06/29/2015
Direction:	NW	**Plant Community:**	PEM	**Remarks:**	N/A

Photograph Number:	9	**Feature Name:**	W-Q70	**Date:**	06/29/2015
Direction:	N	**Plant Community:**	PFO	**Remarks:**	N/A

Photograph Number:	10	**Feature Name:**	W-Q90	**Date:**	09/04/2015
Direction:	SW	**Plant Community:**	PSS	**Remarks:**	N/A

Photograph Number:	11	**Feature Name:**	W-Q72	**Date:**	06/30/2015
Direction:	NW	**Plant Community:**	PEM	**Remarks:**	N/A

Photograph Number:	12	**Feature Name:**	W-Q73	**Date:**	06/30/2015
Direction:	N	**Plant Community:**	PFO	**Remarks:**	N/A

Photograph Number:	13	**Feature Name:**	W-Q93	**Date:**	10/23/2015
Direction:	W	**Plant Community:**	PFO	**Remarks:**	N/A

Photograph Number:	14	**Feature Name:**	W-Q93	**Date:**	10/23/2015
Direction:	N	**Plant Community:**	PEM	**Remarks:**	N/A

Photograph Number:	15	**Feature Name:**	W-Q74	**Date:**	06/30/2015
Direction:	E	**Plant Community:**	PFO	**Remarks:**	N/A

Photograph Number:	16	**Feature Name:**	W-Q92	**Date:**	10/23/2015
Direction:	E	**Plant Community:**	PEM	**Remarks:**	N/A

Photograph Number:	17	**Feature Name:**	W-Q92	**Date:**	10/23/2015
Direction:	N	**Plant Community:**	PSS	**Remarks:**	N/A

Photograph Number:	18	**Feature Name:**	W-Q84	**Date:**	07/20/2015
Direction:	N	**Plant Community:**	PEM	**Remarks:**	N/A

Photograph Number:	19	**Feature Name:**	W-Q85	**Date:**	07/20/2015
Direction:	S	**Plant Community:**	PEM	**Remarks:**	N/A

Photograph Number:	29	**Feature Name:**	W-65 PSS	**Date:**	3/2/2016
Direction:	W	**Plant Community:**	PSS	**Remarks:**	N/A

Photograph Number:	30	**Feature Name:**	W-CS1	**Date:**	3/10/2016
Direction:	NE	**Plant Community:**	PEM	**Remarks:**	N/A

Photograph Number:	31	**Feature Name:**	W-CS3	**Date:**	3/10/2016
Direction:	N	**Plant Community:**	PEM	**Remarks:**	N/A

Photograph Number:	32	**Feature Name:**	W-CS2	**Date:**	3/10/2016
Direction:	W	**Plant Community:**	PEM	**Remarks:**	N/A

APPENDIX C
STREAM DATA SHEETS

STREAM ID S-CS1 Upstream	**STREAM NAME** UNT to Youghiogheny River
LAT 40.224188° **LONG** -79.775759°	**DATE** 03/10/2016
CLIENT Sunoco Logistics, L.P.	**PROJECT NAME** PPP
INVESTIGATORS C.Vileno, C.Stoliker	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☐ Intermittent ☑ Ephemeral ☐

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 3.0 ft
Top of Bank Height:
LB 6.0 in RB 6.0 in
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 2.0 in
Ordinary High Water Mark (Height): 6.0 in
Flow Direction: Northeast

Stream Erosion
✔ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
✔ Yes ___ No

Dam Present ___ Yes ✔ No

Sinuosity ___ Low ✔ Medium ___ High

Gradient
___ Flat (0.5/100 ft) ✔ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
✔ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Opaque ___ Stained
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	15
Gravel	2-64 mm (0.1"-2.5")	25
Sand	0.06-2mm (gritty)	20
Silt	0.004-0.06 mm	20
Clay	< 0.004 mm (slick)	20

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	80
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
✔ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ Other:

Canopy Cover
✔ Open ___ Partly shaded
___ Shaded

Indicate the dominant type
___ Trees ___ Shrubs
✔ Grasses ✔ Herbaceous

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✔ Narrow <16ft

Wetland Present ✔ Yes ___ No
Wetland ID W-CS1

AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
___ Rooted emergent ___ Rooted submergent ___ Rooted floating ___ Free floating
___ Floating algae ___ Attached algae

MACROINVERTEBRATES OR OTHER WILDLIFE OBSERVED/OTHER OBSERVATIONS AND NOTES

STREAM ID S-CS1 Downstream	**STREAM NAME** UNT to Youghiogheny River
LAT 40.224448° **LONG** -79.775534°	**DATE** 03/10/2016
CLIENT Sunoco Logistics, L.P.	**PROJECT NAME** PPP
INVESTIGATORS C. Vileno, C. Stoliker	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☐ Intermittent ☑ Ephemeral ☐

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 5.0 ft
Top of Bank Height:
LB 3.0 ft RB 4.0 ft
Water Depth: 0.00 in
Water Width: 0.0 ft
Ordinary High Water Mark (Width): 3.0 ft
Ordinary High Water Mark (Height): 2.0 ft
Flow Direction: Northeast

Stream Erosion
___ None ___ Moderate ✔ Heavy

Artificial, Modified or Channelized
___ Yes ✔ No

Dam Present ___ Yes ✔ No

Sinuosity ___ Low ✔ Medium ___ High

Gradient
___ Flat (0.5/100 ft) ✔ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

FLOW CHARACTERISTICS

Water Present
✔ No water, stream bed dry
___ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Opaque ___ Stained
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	5
Cobble	64-256 mm (2.5"-10")	35
Gravel	2-64 mm (0.1"-2.5")	25
Sand	0.06-2mm (gritty)	20
Silt	0.004-0.06 mm	15
Clay	< 0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	15
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✔ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ Other:

Canopy Cover
___ Open ✔ Partly shaded
___ Shaded

Indicate the dominant type
___ Trees ✔ Shrubs
___ Grasses ✔ Herbaceous

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✔ Narrow <16ft

Wetland Present ___ Yes ✔ No
Wetland ID

AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
___ Rooted emergent ___ Rooted submergent ___ Rooted floating ___ Free floating
___ Floating algae ___ Attached algae

MACROINVERTEBRATES OR OTHER WILDLIFE OBSERVED/OTHER OBSERVATIONS AND NOTES

STREAM ID S-CS2	**STREAM NAME** UNT to Youghiogheny River
LAT 40.223300° **LONG** -79.776755°	**DATE** 03/10/2016
CLIENT Sunoco Logistics, L.P.	**PROJECT NAME** PPP
INVESTIGATORS C.Vileno, C.Stoliker	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☐ Intermittent ☑ Ephemeral ☐

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 3.0 ft
Top of Bank Height:
LB 18.0 in RB 1.0 ft
Water Depth: 1.00 in
Water Width: 6.0 in
Ordinary High Water Mark (Width): 2.0 ft
Ordinary High Water Mark (Height): 1.0 ft
Flow Direction: Northeast

Stream Erosion
__ None ✔ Moderate __ Heavy

Artificial, Modified or Channelized
✔ Yes __ No

Dam Present __ Yes ✔ No

Sinuosity ✔ Low __ Medium __ High

Gradient
__ Flat (0.5/100 ft) ✔ Moderate (2 ft/100 ft) __ Severe (10 ft/100 ft)

FLOW CHARACTERISTICS

Water Present
__ No water, stream bed dry
__ Stream bed moist
__ Standing water
✔ Flowing water

Velocity
__ Fast __ Moderate
✔ Slow

Proportion of Reach Represented by Stream Morphology Types
Riffle 50 % Run 20 %
Pool 30 %

Turbidity
✔ Clear __ Slightly turbid __ Turbid
__ Opaque __ Stained
__ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 110

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	15
Cobble	64-256 mm (2.5"-10")	35
Gravel	2-64 mm (0.1"-2.5")	20
Sand	0.06-2mm (gritty)	25
Silt	0.004-0.06 mm	15
Clay	< 0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	20
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
__ Forest __ Commercial
✔ Field/Pasture __ Industrial
__ Agricultural __ Residential
__ Other:

Canopy Cover
✔ Open __ Partly shaded
__ Shaded

Indicate the dominant type
__ Trees __ Shrubs
✔ Grasses ✔ Herbaceous

Floodplain Width
__ Wide > 30ft __ Moderate 15-30ft
✔ Narrow <16ft

Wetland Present __ Yes ✔ No
Wetland ID

AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
__ Rooted emergent __ Rooted submergent __ Rooted floating __ Free floating
__ Floating algae __ Attached algae

MACROINVERTEBRATES OR OTHER WILDLIFE OBSERVED/OTHER OBSERVATIONS AND NOTES

STREAM ID S-Z2	**STREAM NAME** UNT to Little Sewickley Creek
LAT 40.263233 **LONG** -79.687736	**DATE** 03/10/2016
CLIENT Sunoco Logistics, L.P.	**PROJECT NAME** PPP
INVESTIGATORS C.Vileno, C.Stoliker	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☑ Intermittent ☐ Ephemeral ☐

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 5.0 ft
Top of Bank Height:
LB 4.0 ft RB 5.0 ft
Water Depth: 4.00 in
Water Width: 3.0 ft
Ordinary High Water Mark (Width): 5.0 ft
Ordinary High Water Mark (Height): 3.0 ft
Flow Direction: North

Stream Erosion
___ None ___ Moderate ✔ Heavy

Artificial, Modified or Channelized
___ Yes ✔ No

Dam Present ___ Yes ✔ No

Sinuosity ___ Low ___ Medium ✔ High

Gradient
___ Flat (0.5/100 ft) ✔ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
___ Standing water
✔ Flowing water

Velocity
✔ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types
Riffle 30 % Run 50 %
Pool 20 %

Turbidity
✔ Clear ___ Slightly turbid ___ Turbid
___ Opaque ___ Stained
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	5
Cobble	64-256 mm (2.5"-10")	40
Gravel	2-64 mm (0.1"-2.5")	45
Sand	0.06-2mm (gritty)	5
Silt	0.004-0.06 mm	5
Clay	< 0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	20
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
___ Field/Pasture ___ Industrial
✔ Agricultural ___ Residential
___ Other:

Canopy Cover
___ Open ✔ Partly shaded
___ Shaded

Indicate the dominant type
___ Trees ___ Shrubs
___ Grasses ✔ Herbaceous

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✔ Narrow <16ft

Wetland Present ___ Yes ✔ No
Wetland ID

AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
___ Rooted emergent ___ Rooted submergent ___ Rooted floating ___ Free floating
___ Floating algae ___ Attached algae

MACROINVERTEBRATES OR OTHER WILDLIFE OBSERVED/OTHER OBSERVATIONS AND NOTES

STREAM ID S-CS3	**STREAM NAME** UNT to Little Sewickley Creek
LAT 40.269001° **LONG** -79.680238°	**DATE** 03/10/2016
CLIENT Sunoco Logistics, L.P.	**PROJECT NAME** PPP
INVESTIGATORS C.Vileno, C.Stoliker	
WATER TYPE TNW ☐ RPW ☑ NRPW ☐	**FLOW REGIME** Perennial ☐ Intermittent ☑ Ephemeral ☐

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 2.0 ft
Top of Bank Height:
LB 6.0 in RB 6.0 in
Water Depth: 1.00 in
Water Width: 4.0 in
Ordinary High Water Mark (Width): 1.0 in
Ordinary High Water Mark (Height): 6.0 in
Flow Direction: Southeast

Stream Erosion
___ None ✔ Moderate ___ Heavy

Artificial, Modified or Channelized
✔ Yes ___ No

Dam Present ___ Yes ✔ No

Sinuosity ✔ Low ___ Medium ___ High

Gradient
___ Flat (0.5/100 ft) ✔ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
___ Standing water
✔ Flowing water

Velocity
___ Fast ___ Moderate
✔ Slow

Proportion of Reach Represented by Stream Morphology Types
Riffle 30 % Run 25 %
Pool 45 %

Turbidity
___ Clear ✔ Slightly turbid ___ Turbid
___ Opaque ___ Stained
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%) 100

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	20
Cobble	64-256 mm (2.5"-10")	15
Gravel	2-64 mm (0.1"-2.5")	50
Sand	0.06-2mm (gritty)	15
Silt	0.004-0.06 mm	
Clay	< 0.004 mm (slick)	

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	10
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
___ Forest ___ Commercial
✔ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ Other:

Canopy Cover
✔ Open ___ Partly shaded
___ Shaded

Indicate the dominant type
___ Trees ___ Shrubs
✔ Grasses ✔ Herbaceous

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✔ Narrow <16ft

Wetland Present ✔ Yes ___ No
Wetland ID W-CS2

AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
___ Rooted emergent ___ Rooted submergent ___ Rooted floating ___ Free floating
___ Floating algae ___ Attached algae

MACROINVERTEBRATES OR OTHER WILDLIFE OBSERVED/OTHER OBSERVATIONS AND NOTES

Tetra Tech Stream Data Sheet

Surveyors: D. Bonomo, K.Keat Date: 12/09/2014 Resource ID Number: S-CC21
Project: PPP State: PA County: Westmoreland
Photo Number (s): _____ Canopy Cover: 70 % Location: 40.429398,-79.573235

Flow Direction: E **Bank Width:** 3 Feet **Water Width:** 1 Feet
High Water Depth: 1 Feet **Water Depth:** 2.00 Inches **Turbidity:** Low
Flow Stage: Low

Flow Regime: [ ] Perennial [✔] Intermittent [ ] Ephemeral [ ] Flowing Ditch [ ] Dry/Stagnant Ditch

Sinuosity:
[✔] Low
[ ] Medium
[ ] High

Features:
[✔] Riffles [ ] Sand/Mud Bar [✔] Run/Glide
[✔] Pools [ ] Gravel Bar [ ] Braided
[ ] Rapids [ ] Aquatic Vegetation [ ] Other _____

Substrate:
[ ] Bedrock ___%
[ ] Boulder ___%
[✔] Cobble/Gravel 50 %
[ ] Sand ___%
[✔] Silt/Clay 50 %
[ ] Organic ___%

Bank Substrate:
Height: Left 1' Right 1'

	Left	Right
[ ]	Bedrock	[ ]
[ ]	Boulder	[ ]
[ ]	Gravel	[ ]
[ ]	Sand	[ ]
[✔]	Silt/Clay	[✔]
[ ]	Organic	[ ]

Floodplain Width:

Left		Right
[ ]	<10 feet	[ ]
[✔]	<25 feet	[✔]
[ ]	<50 feet	[ ]
[ ]	<100 feet	[ ]
[ ]	>100 feet	[ ]

Dominant Vegetation:
[✔] Forested
Species: Acer negundo, Juglans nigra
[ ] Shrub
Species: _____
[ ] Herbaceous
Species: _____

Wildlife Observed/Notes:

Sketch:
See Attached Figure.

Tetra Tech Stream Data Sheet

Surveyors: J.McGuirk, C. Vileno Date: 09/02/2015 Resource ID Number: S-R90
Project: PPP State: PA County: Westmoreland
Photo Number (s): _____ Canopy Cover: 75 % Location: 40.442487, -79.321885

Flow Direction: N **Bank Width:** 1 Feet **Water Width:** 0 Feet
High Water Depth: 6 Inches **Water Depth:** 0.00 Inches **Turbidity:** N/A
Flow Stage: N/A

Flow Regime: [ ] Perennial [✔] Intermittent [ ] Ephemeral [ ] Flowing Ditch [ ] Dry/Stagnant Ditch

Sinuosity:
[✔] Low
[ ] Medium
[ ] High

Features:
[ ] Riffles [ ] Sand/Mud Bar [ ] Run/Glide
[ ] Pools [ ] Gravel Bar [ ] Braided
[ ] Rapids [ ] Aquatic Vegetation [✔] Other Stream bed dry

Substrate:
[ ] Bedrock ___%
[ ] Boulder ___%
[ ] Cobble/Gravel ___%
[✔] Sand 30 %
[✔] Silt/Clay 70 %
[ ] Organic ___%

Bank Substrate:
Height: Left 1' Right 1'

	Left	Right
Bedrock	[ ]	[ ]
Boulder	[ ]	[ ]
Gravel	[ ]	[ ]
Sand	[✔]	[✔]
Silt/Clay	[✔]	[✔]
Organic	[ ]	[ ]

Floodplain Width:

	Left	Right
<10 feet	[ ]	[ ]
<25 feet	[✔]	[✔]
<50 feet	[ ]	[ ]
<100 feet	[ ]	[ ]
>100 feet	[ ]	[ ]

Dominant Vegetation:
[ ] Forested
Species: _____
[ ] Shrub
Species: _____
[ ] Herbaceous
Species: _____

Wildlife Observed/Notes:

Sketch:
See Attached Figure.

Tetra Tech Stream Data Sheet

Surveyors: H. Schumacher S. ZabowskiLieb Date: 09/02/2015 Resource ID Number: S-R96
Project: PPP State: PA County: Westmoreland
Photo Number (s): _____ Canopy Cover: 70 % Location: 40.441888, -79.320395

Flow Direction: NE **Bank Width:** 4 Feet **Water Width:** 0 Feet
High Water Depth: 3 Feet **Water Depth:** 0.00 Inches **Turbidity:** N/A
Flow Stage: N/A
Flow Regime: [ ] Perennial [ ] Intermittent [✔] Ephemeral [ ] Flowing Ditch [ ] Dry/Stagnant Ditch

Sinuosity:
[✔] Low
[ ] Medium
[ ] High

Features:
[ ] Riffles [ ] Sand/Mud Bar [ ] Run/Glide
[ ] Pools [ ] Gravel Bar [ ] Braided
[ ] Rapids [ ] Aquatic Vegetation [ ] Other _____

Substrate:
[ ] Bedrock ___%
[ ] Boulder ___%
[✔] Cobble/Gravel 50 %
[✔] Sand 25 %
[✔] Silt/Clay 25 %
[ ] Organic ___%

Bank Substrate:
Height: Left 8" Right 8"

	Left	Right
[ ]	Bedrock	[ ]
[ ]	Boulder	[ ]
[ ]	Gravel	[ ]
[ ]	Sand	[ ]
[✔]	Silt/Clay	[✔]
[✔]	Organic	[✔]

Floodplain Width:

Left		Right
[ ]	<10 feet	[ ]
[ ]	<25 feet	[ ]
[✔]	<50 feet	[✔]
[ ]	<100 feet	[ ]
[ ]	>100 feet	[ ]

Dominant Vegetation:
[ ] Forested
Species: _____
[ ] Shrub
Species: _____
[ ] Herbaceous
Species: _____

Wildlife Observed/Notes:
No macros or other aquatic life observed. W-Q69 directly abuts this stream.

Sketch:
See Attached Figure.

STREAM ID S-R92	**STREAM NAME** UNT to Conemaugh River
LAT 40.440797 **LONG** -79.31857	**DATE** 09/02/2015
CLIENT Sunoco Logistics, L.P.	**PROJECT NAME** PPP
INVESTIGATORS C.Vileno	
FLOW REGIME Perennial ___ Intermittent ✔ Ephemeral ___	**WATER TYPE** TNW ___ RPW ✔ NRPW ___

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 5.0 ft
Top of Bank Height:
LB 3.0 ft RB 2.0 ft
Water Depth: 1.00 in
Water Width: 1.0 ft
High Water Mark: 6.0 in
Flow Direction: North

Stream Erosion
✔ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
___ Yes ✔ No

Dam Present ___ Yes ✔ No

Sinuosity ✔ Low ___ Medium ___ High

Gradient
___ Flat (0.5/100 ft) ✔ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

FLOW CHARACTERISTICS

Water Present
___ No water, stream bed dry
___ Stream bed moist
✔ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types
Riffle % Run %
Pool 50 %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
✔ Opaque ___ Stained
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	
Cobble	64-256 mm (2.5"-10")	
Gravel	2-64 mm (0.1"-2.5")	
Sand	0.06-2mm (gritty)	30
Silt	0.004-0.06 mm	40
Clay	< 0.004 mm (slick)	30

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	
Muck-Mud	black, very fine organic (FPOM)	10
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✔ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ Other:

Canopy Cover
___ Partly open ___ Partly shaded
✔ Shaded ___ Open

Indicate the dominant type (Check one)
✔ Trees ___ Shrubs
___ Grasses ___ Herbaceous

Floodplain Width
___ Wide > 30ft ___ Moderate 15-30ft
✔ Narrow <16ft

Wetland Present ✔ Yes ___ No
Wetland ID Q-69

AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
___ Rooted emergent ___ Rooted submergent ___ Rooted floating ___ Free floating
___ Floating algae ___ Attached algae

MACROINVERTEBRATES OR OTHER WILDLIFE OBSERVED/OTHER OBSERVATIONS AND NOTES

STREAM ID S-R95	**STREAM NAME** UNT to Conemaugh River
LAT 40.439724 **LONG** -79.317935	**DATE** 08/21/2015
CLIENT Sunoco Logistics, L.P.	**PROJECT NAME** PPP
INVESTIGATORS HS, CV	
FLOW REGIME Perennial ___ Intermittent ___ Ephemeral ✔	**WATER TYPE** TNW ___ RPW ___ NRPW ✔

CHANNEL FEATURES

Estimate Measurements
Top of Bank Width: 3.0 ft
Top of Bank Height:
LB 1.0 ft RB 1.0 ft
Water Depth: 0.00 ft
Water Width: 0.0 ft
High Water Mark: 1.5 ft
Flow Direction: North

Stream Erosion
✔ None ___ Moderate ___ Heavy

Artificial, Modified or Channelized
___ Yes ✔ No

Dam Present ___ Yes ✔ No

Sinuosity ✔ Low ___ Medium ___ High

Gradient
___ Flat (0.5/100 ft) ✔ Moderate (2 ft/100 ft) ___ Severe (10 ft/100 ft)

FLOW CHARACTERISTICS

Water Present
✔ No water, stream bed dry
___ Stream bed moist
___ Standing water
___ Flowing water

Velocity
___ Fast ___ Moderate
___ Slow

Proportion of Reach Represented by Stream Morphology Types
Riffle % Run %
Pool %

Turbidity
___ Clear ___ Slightly turbid ___ Turbid
___ Opaque ___ Stained
___ Other_____

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)

Substrate Type	Diameter	% Composition in Sampling Reach
Bedrock		
Boulder	> 256 mm (10")	0
Cobble	64-256 mm (2.5"-10")	20
Gravel	2-64 mm (0.1"-2.5")	0
Sand	0.06-2mm (gritty)	0
Silt	0.004-0.06 mm	30
Clay	< 0.004 mm (slick)	50

ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

Substrate Type	Characteristic	% Composition in Sampling Area
Detritus	sticks, wood, coarse plant materials (CPOM)	15
Muck-Mud	black, very fine organic (FPOM)	
Marl	grey, shell fragments	

WATERSHED FEATURES

Predominant Surrounding Landuse
✔ Forest ___ Commercial
___ Field/Pasture ___ Industrial
___ Agricultural ___ Residential
___ Other:

Canopy Cover
___ Partly open ___ Partly shaded
✔ Shaded ___ Open

Indicate the dominant type (Check one)
___ Trees ___ Shrubs
___ Grasses ✔ Herbaceous

Floodplain Width
___ Wide > 30ft ✔ Moderate 15-30ft
___ Narrow <16ft

Wetland Present ✔ Yes ___ No
Wetland ID W-Q69

AQUATIC VEGETATION

Indicate the dominant type and record the dominant species present
___ Rooted emergent ___ Rooted submergent ___ Rooted floating ___ Free floating
___ Floating algae ___ Attached algae

MACROINVERTEBRATES OR OTHER WILDLIFE OBSERVED/OTHER OBSERVATIONS AND NOTES	Flows east

Tetra Tech Stream Data Sheet

Surveyors: J.McGuirk, C. Vileno Date: 09/02/2015 Resource ID Number: S-R94
Project: PPP State: PA County: Westmoreland
Photo Number (s): _____ Canopy Cover: 60 % Location: 40.439894, -79.315927

Flow Direction: E **Bank Width:** 2 Feet **Water Width:** 1 Feet
High Water Depth: 6 Inches **Water Depth:** 0.00 Inches **Turbidity:** Clear
Flow Stage: N/A

Flow Regime: [ ] Perennial [ ] Intermittent [✔] Ephemeral [ ] Flowing Ditch [ ] Dry/Stagnant Ditch

Sinuosity:
[✔] Low
[ ] Medium
[ ] High

Features:
[ ] Riffles [ ] Sand/Mud Bar [ ] Run/Glide
[✔] Pools [ ] Gravel Bar [ ] Braided
[ ] Rapids [ ] Aquatic Vegetation [✔] Other Stream bed moist

Substrate:
[ ] Bedrock ___%
[ ] Boulder ___%
[✔] Cobble/Gravel 20 %
[✔] Sand 5 %
[✔] Silt/Clay 75 %
[ ] Organic ___%

Bank Substrate:
Height: Left 1' Right 1'

	Left	Right
[ ]	Bedrock	[ ]
[ ]	Boulder	[ ]
[ ]	Gravel	[ ]
[✔]	Sand	[✔]
[✔]	Silt/Clay	[✔]
[✔]	Organic	[✔]

Floodplain Width:

Left		Right
[ ]	<10 feet	[ ]
[✔]	<25 feet	[✔]
[ ]	<50 feet	[ ]
[ ]	<100 feet	[ ]
[ ]	>100 feet	[ ]

Dominant Vegetation:
[ ] Forested
Species: _____
[ ] Shrub
Species: _____
[ ] Herbaceous
Species: _____

Wildlife Observed/Notes:

Sketch:
See Attached Figure.

Tetra Tech Stream Data Sheet

Surveyors: J.McGuirk, C. Vileno Date: 09/03/2015 Resource ID Number: S-R104
Project: PPP State: PA County: Westmoreland
Photo Number (s): _____ Canopy Cover: 80 % Location: 40.439894, -79.311549

Flow Direction: N **Bank Width:** 4 Feet **Water Width:** 3 Feet
High Water Depth: 6 Inches **Water Depth:** 4.00 Inches **Turbidity:** Clear
Flow Stage: Moderate
Flow Regime: [✔] Perennial [ ] Intermittent [ ] Ephemeral [ ] Flowing Ditch [ ] Dry/Stagnant Ditch

Sinuosity:
[✔] Low
[ ] Medium
[ ] High

Features:
[✔] Riffles [ ] Sand/Mud Bar [✔] Run/Glide
[✔] Pools [ ] Gravel Bar [ ] Braided
[ ] Rapids [ ] Aquatic Vegetation [ ] Other _____

Substrate:
[ ] Bedrock ___%
[ ] Boulder ___%
[✔] Cobble/Gravel 40 %
[ ] Sand ___%
[✔] Silt/Clay 60 %
[ ] Organic ___%

Bank Substrate:
Height: Left 1 Right 1

	Left	Right
[ ]	Bedrock	[ ]
[ ]	Boulder	[ ]
[ ]	Gravel	[ ]
[ ]	Sand	[ ]
[✔]	Silt/Clay	[✔]
[✔]	Organic	[✔]

Floodplain Width:

Left		Right
[ ]	<10 feet	[ ]
[✔]	<25 feet	[✔]
[ ]	<50 feet	[ ]
[ ]	<100 feet	[ ]
[ ]	>100 feet	[ ]

Dominant Vegetation:
[ ] Forested
Species: _____
[ ] Shrub
Species: _____
[ ] Herbaceous
Species: _____

Wildlife Observed/Notes:

Sketch:
See Attached Figure.

Tetra Tech Stream Data Sheet

Surveyors: J. McGuirk & C.Stoliker Date: 06/30/2015 Resource ID Number: S-Q80
Project: PPP State: PA County: Westmoreland
Photo Number (s): _____ Canopy Cover: 90 % Location: 40.442451, -79.306638

Flow Direction: NE **Bank Width:** 5 Feet **Water Width:** 5 Feet
High Water Depth: 5 Inches **Water Depth:** 3.00 Inches **Turbidity:** low
Flow Stage: Low
Flow Regime: [✔] Perennial [ ] Intermittent [ ] Ephemeral [ ] Flowing Ditch [ ] Dry/Stagnant Ditch

Sinuosity:
[ ] Low
[✔] Medium
[ ] High

Features:
[✔] Riffles [ ] Sand/Mud Bar [✔] Run/Glide
[ ] Pools [ ] Gravel Bar [ ] Braided
[ ] Rapids [ ] Aquatic Vegetation [ ] Other _____

Substrate:
[ ] Bedrock ___%
[✔] Boulder 15 %
[✔] Cobble/Gravel 60 %
[✔] Sand 15 %
[ ] Silt/Clay ___%
[✔] Organic 10 %

Bank Substrate:
Height: Left 2' Right 6"

	Left	Right
[ ]	Bedrock	[ ]
[ ]	Boulder	[ ]
[✔]	Gravel	[✔]
[✔]	Sand	[✔]
[ ]	Silt/Clay	[ ]
[✔]	Organic	[✔]

Floodplain Width:

Left		Right
[ ]	<10 feet	[ ]
[✔]	<25 feet	[✔]
[ ]	<50 feet	[ ]
[ ]	<100 feet	[ ]
[ ]	>100 feet	[ ]

Dominant Vegetation:
[✔] Forested
Species: _____
[ ] Shrub
Species: _____
[ ] Herbaceous
Species: _____

Wildlife Observed/Notes:

Sketch:
See Attached Figure.

Tetra Tech Stream Data Sheet

Surveyors: J. McGuirk & C.Stoliker Date: 07/20/2015 Resource ID Number: S-Q100
Project: PPP State: PA County: Westmoreland
Photo Number (s): _____ Canopy Cover: 70 % Location: 40.442705, -79.304239

Flow Direction: E **Bank Width:** 10 Feet **Water Width:** 6 Feet
High Water Depth: 1 Feet **Water Depth:** 4.00 Inches **Turbidity:** Low
Flow Stage: Low

Flow Regime: [✔] Perennial [ ] Intermittent [ ] Ephemeral [ ] Flowing Ditch [ ] Dry/Stagnant Ditch

Sinuosity:
[ ] Low
[✔] Medium
[ ] High

Features:
[✔] Riffles [ ] Sand/Mud Bar [✔] Run/Glide
[✔] Pools [ ] Gravel Bar [ ] Braided
[ ] Rapids [ ] Aquatic Vegetation [ ] Other _____

Substrate:
[ ] Bedrock ___%
[✔] Boulder 30 %
[✔] Cobble/Gravel 35 %
[✔] Sand 15 %
[✔] Silt/Clay 10 %
[✔] Organic 10 %

Bank Substrate:
Height: Left 2' Right 3'

	Left	Right
[ ]	Bedrock	[ ]
[✔]	Boulder	[✔]
[✔]	Gravel	[✔]
[✔]	Sand	[✔]
[ ]	Silt/Clay	[ ]
[✔]	Organic	[✔]

Floodplain Width:

Left		Right
[ ]	<10 feet	[ ]
[ ]	<25 feet	[ ]
[✔]	<50 feet	[✔]
[ ]	<100 feet	[ ]
[ ]	>100 feet	[ ]

Dominant Vegetation:
[✔] Forested
Species: Black Walnut, Red Maple, Sycamore
[✔] Shrub
Species: Northern Spicebush, Arrowwood Viburnum
[ ] Herbaceous
Species: New York Fern, Jewelweed, Northern Spicebush, Unidentified Violet species

Wildlife Observed/Notes:

Sketch:
See Attached Figure.

APPENDIX D
STREAM PHOTOGRAPHS

Photograph Number:	20	**Feature Name:**	S-CC21	**Date:**	12/09/2014
Direction:	SE, Downstream	**Flow Regime:**	Intermittent	**Remarks:**	N/A

Photograph Number:	21	**Feature Name:**	S-R90	**Date:**	09/02/2015
Direction:	SW, Downstream	**Flow Regime:**	Intermittent	**Remarks:**	N/A

Photograph Number: 22 **Feature Name:** S-R96 **Date:** 09/02/2015
Direction: SW, Upstream **Flow Regime:** Ephemeral **Remarks:** N/A

Photograph Number: 23 **Feature Name:** S-R92 **Date:** 07/20/2015
Direction: E, Across **Flow Regime:** Intermittent **Remarks:** N/A

Photograph Number: 24 **Feature Name:** S-R95 **Date:** 09/02/2015
Direction: NE, Downstream **Flow Regime:** Ephemeral **Remarks:** N/A

Photograph Number: 25 **Feature Name:** S-R94 **Date:** 09/02/2015
Direction: NE, Downstream **Flow Regime:** Ephemeral **Remarks:** N/A

Photograph Number:	26	**Feature Name:**	S-R104	**Date:**	09/03/2015
Direction:	S, Downstream	**Flow Regime:**	Perennial	**Remarks:**	N/A

Photograph Number:	27	**Feature Name:**	S-Q80	**Date:**	06/30/2015
Direction:	SW, Upstream	**Flow Regime:**	Perennial	**Remarks:**	N/A

Photograph Number:	28	**Feature Name:**	S-Q100	**Date:**	07/20/2015
Direction:	E, Downstream	**Flow Regime:**	Perennial	**Remarks:**	N/A

Photograph Number:	33	**Feature Name:**	S-CS1 Upstream	**Date:**	03/10/2016
Direction:	NE Downstream	**Flow Regime:**	Intermittent	**Remarks:**	N/A

Photograph Number:	34	**Feature Name:**	S-CS1 Downstream	**Date:**	03/10/2016
Direction:	S, Across	**Flow Regime:**	Intermittent	**Remarks:**	N/A

Photograph Number:	35	**Feature Name:**	S-CS2	**Date:**	03/10/2016
Direction:	W, Upstream	**Flow Regime:**	Intermittent	**Remarks:**	N/A

Photograph Number:	36	**Feature Name:**	S-Z2	**Date:**	03/10/2016
Direction:	N, Downstream	**Flow Regime:**	Perennial	**Remarks:**	N/A

Photograph Number:	37	**Feature Name:**	S-CS3	**Date:**	03/10/2016
Direction:	S, Upstream	**Flow Regime:**	Intermittent	**Remarks:**	N/A

APPENDIX E
HYDRIC SOILS LIST

Hydric Soils List
Westmoreland County, Pennsylvania

Map Unit Symbol	Map Unit Name	Component Name and Phase	Component Percent	Landforms
AlB	Albrights silt loam, 0 to 8 percent slopes, very stony	Brinkerton	5	draws
AlD	Albrights silt loam, 8 to 25 percent slopes, very stony	Brinkerton	5	hills
At	Atkins silt loam, 0 to 3 percent slopes, frequently flooded	Atkins	85	flood plains
BeB	Bethesda very channery silt loam, 0 to 8 percent slopes	Wet spots	1	depressions
BeD	Bethesda very channery silt loam, 8 to 25 percent slopes	Wet spots	1	depressions
BkA	Brinkerton silt loam, 0 to 3 percent slopes	Brinkerton	85	draws
BkB	Brinkerton silt loam, 3 to 8 percent slopes	Brinkerton	80	hills
BuB	Buchanan loam, 0 to 8 percent slopes, extremely stony	Andover	5	mountain slopes
CaB	Cavode silt loam, 3 to 8 percent slopes	Brinkerton	5	hills
CaC	Cavode silt loam, 8 to 15 percent slopes	Brinkerton	5	hills
CeB	Cavode silt loam, 0 to 8 percent slopes, very stony	Brinkerton	5	draws
CeD	Cavode silt loam, 8 to 25 percent slopes, very stony	Brinkerton	5	draws

CoB	Cookport loam, 0 to 8 percent slopes, very stony	Nolo	5	depressions
CrB	Craigsville-Buchanan complex, 0 to 8 percent slopes, extremely stony	Andover	2	mountain slopes
ErB	Ernest silt loam, 3 to 8 percent slopes	Brinkerton	5	hills
ErC	Ernest silt loam, 8 to 15 percent slopes	Brinkerton	5	draws
FaB	Fairpoint very channery silt loam, 0 to 8 percent slopes	Wet spots	1	depressions
FaC	Fairpoint very channery silt loam, 8 to 15 percent slopes	Wet spots	1	depressions
FaD	Fairpoint very channery silt loam, 15 to 25 percent slopes	Wet spots	1	depressions
GxA	Ginat silt loam, 0 to 2 percent slopes	Ginat	70	terraces
Ho	Holly silt loam, 0 to 2 percent slopes	Holly	75	flood plains
Ln	Lindside silt loam, 0 to 2 percent slopes	Melvin	5	flood plains
Lo	Lobdell silt loam, 0 to 2 percent slopes	Holly	5	flood plains
Mn	Melvin and Newark silt loams, 0 to 2 percent slopes	Melvin	45	flood plains
MoA	Monongahela silt loam, 0 to 3 percent slopes	Purdy	5	terraces
MoB	Monongahela silt loam, 3 to 8 percent slopes	Purdy	5	terraces
MoC	Monongahela silt loam, 8 to 15 percent slopes	Purdy	5	terraces
NoB	Nolo loam, 0 to 8 percent slopes, very stony	Nolo	80	depressions
Pa	Palms muck, 0 to 3 percent slopes	Palms	90	depressions

Pa	Palms muck, 0 to 3 percent slopes	Nolo	5	depressions
Ph	Philo loam, 0 to 2 percent slopes	Atkins	5	flood plains
Pu	Purdy silt loam, 0 to 2 percent slopes	Purdy	75	terraces
ThA	Thorndale silt loam, 0 to 3 percent slopes	Thorndale	90	depressions
ThB	Thorndale silt loam, 3 to 8 percent slopes	Thorndale	90	drainageways
TyA	Tyler silt loam, 0 to 2 percent slopes	Purdy	5	terraces
WeA	Weinbach silt loam, 0 to 2 percent slopes	Ginat	5	terraces
WrB	Wharton silt loam, 3 to 8 percent slopes	Cavode	8	hills
WrB	Wharton silt loam, 3 to 8 percent slopes	Brinkerton	5	depressions
WsB	Wharton silt loam, 0 to 8 percent slopes, very stony	Brinkerton	5	draws
WsD	Wharton silt loam, 8 to 25 percent slopes, very stony	Brinkerton	5	draws
Modified from Hydric Soils of the United States (NRCS 2014)				

APPENDIX F
RESUMES

Preston R Smith
DEPARTMENT MANAGER/BIOLOGIST/ECOLOGIST
PITTSBURGH, PA

EDUCATION: B.S. Biology (Environmental Science); University of Pittsburgh; Dec. 2000
M.S. Biological Sciences; Wright State University; March 2010

EXPERIENCE SUMMARY:

Mr. Preston Smith is a Biologist with 13+ total years of professional experience. Mr. Smith currently manages the Wetlands and Ecological Services Department for the Appalachian Basin Oil and Gas Services Group. His current responsibilities include project management, staff management, workload delegation including scheduling personnel for field work and report writing, QA/QC of work products and deliverables, and proposal/budget preparation. Mr. Smith has been involved in wetland delineations, habitat studies, plant surveys, permitting, and related report generation for commercial Oil and Gas clients in Pennsylvania, Ohio, and West Virginia for natural gas pipelines, water lines, well pads, impoundments, and water withdrawal locations. Since starting at Tetra Tech, Mr. Smith has also been involved in NEPA Categorical Exclusion, Environmental Assessment, and Environmental Impact Statement projects in several capacities serving as Project Manager, Deputy Project Manager, Water Resources Specialist, and Ecologist for various clients including the US Coast Guard, Department of Energy, Federal Energy Regulatory Commission, Nuclear Regulatory Commission, and Tennessee Department of Transportation.

TRAINING: OSHA 1910.120 40-Hour HAZWOPER Training; June 22, 2007
OSHA 1910.120(e)(4) 8-Hour HAZWOPER Supervisory; October 17, 2008
OSHA 1910.120 8-Hour HAZWOPER Refresher; November 1, 2013
ACOE-based 40-hour Wetland Delineation Certification; June 26, 2009

RELEVANT PROJECT EXPERIENCE:

Manager, Wetlands and Ecological Services Department; Various Midstream and Exploration and Production Oil and Gas Clients, Ohio, Pennsylvania, and West Virginia, 2011-present. As the Wetlands and Ecological Services Department Manager, Mr. Smith has managed Wetland Delineation and Stream Identification field activities and report generation for 250+ miles of pipeline, 40+ well pads, 20+ water withdrawal locations**;**

Natural Resources Lead; Confidential Client; Ohio, West Virginia, and Pennsylvania, 2013-present. As the Natural Resources Lead, Mr. Smith is responsible for scheduling and managing Wetland and Stream surveys and Rare, Threatened, and Endangered Species Surveys for an approximately 350-mile Non-FERC, Natural Gas Liquid Pipeline. He is also responsible for Agency coordination.

Task Manager/Biologist; Confidential Client, Washington, Allegheny, and Westmoreland County, PA, 2013. As a Task Manager/Biologist, Mr. Smith scheduled field crews and participated in Rare, Threatened and Endangered Plant surveys for large natural gas pipeline project. A final report was also prepared under Mr. Smith's direction and approval was received form the PA DCNR.

Task Manager/Biologist; Confidential Client, Beaver and Butler County, PA, 2013-present. As a Task Manager/Biologist, Mr. Smith scheduled field crews and participated in Rare, Threatened and Endangered Plant surveys for a large natural gas pipeline project. A final report was also prepared under Mr. Smith's direction and approval was received form the PA DCNR.

Natural Resource Permit Manager; Confidential Client; West Virginia; 2013-present. As the Natural Resource Permitting Manager, Mr. Smith prepared Preconstruction Notifications for U.S. Army Corps of Engineers Nationwide Permit 12 for several natural gas and water pipeline projects. He also prepared a Stream Activity Application Reports for submittal to the WV Department of Natural Resources (WV DNR) Office of Lands and Streams as part of these projects. Mr. Smith coordinated with US Fish and Wildlife Service and WV DNR Natural Heritage Program to evaluate the potential for threatened and endangered species within the project areas.

Natural Resource Permit Manager; Multiple Clients; Ohio; 2012-present. As the Natural Resource Permitting Manager, Mr. Smith prepared Preconstruction Notifications for U.S. Army Corps of Engineers Nationwide Permit 12 for several natural gas pipeline projects. Mr. Smith coordinated with US Fish and Wildlife Service and the Ohio Department of Natural Resources Division of Wildlife to evaluate the potential for threatened and endangered species within the project areas.

Project Manager; Stream Restoration Plan; Confidential Client; Eastern Ohio; 2013. As a Project Manager, Mr. Smith managed and contributed to Stream Restoration and Mitigation Plan for an Ohio EPA Director's Authorization to open cut a Class III Cold-water habitat stream. The Stream Restoration and Mitigation Plan was approved by Ohio EPA and led to the successful approval of the Director's Authorization.

Task Manager; Confidential Client; Fayette County, PA, September 2012. As a Task Manager/Biologist, Mr. Smith scheduled field crews for a Rare, Threatened and Endangered Plant survey for a natural gas pipeline project. A final report was also prepared under Mr. Smith's direction and approval was received form the PA DCNR.

Task Manager; Confidential Client; Armstrong County, PA, July 2012. As a Task Manager/Biologist, Mr. Smith scheduled field crews for a Rare, Threatened and Endangered Plant survey for a natural gas pipeline project. A final report was also prepared under Mr. Smith's direction and approval was received form the PA DCNR.

Project Biologist; Confidential Client; Fayette County, PA; 2010. As a Project Biologist, Mr. Smith completed a field survey for presence/absence and potential habitat survey for the Allegheny woodrat, *Neotoma magister*, and submitted the report to the PA Game Commission for expedited review for Marcellus Shale-related activities. The survey was approved by the PA Game Commission.

Biologist/Wetland Delineator/; Confidential Clients; Western PA/Northern West Virginia/Eastern Ohio; 2009-present. As a Biologist/Wetland Delineator, Mr. Smith has conducted and assisted with wetland investigations based on the 1987 US Army Corps of Engineers Wetland Delineation Manual and Regional Supplements. The investigations involved

identifying wetland vegetation, soils, and hydrology along linear pipelines, water withdrawal sites, and well pad sites and preparing Wetland Reports for Marcellus/Utica Shale-related activities.

Biologist; Confidential Client; Eastern OH; 2012. As a Biologist, Mr. Smith assisted with a habitat survey for Indiana Bat roost tree suitability. The investigations involved identifying suitable habitat for the Indiana bat (*Myotis sodalis*) and preparing a report for submittal with a Nationwide Permit 12 to the Army Corps of Engineers.

Natural Resource Permit Manager; Confidential Client; West Virginia; 2011. As the Project Permitting Manager, Mr. Smith coordinated with USFWS and WV Department of Natural Resources (WV DNR) to secure the permitting for Nationwide Permit 12 for a natural gas pipeline project. Mr. Smith also prepared a Stream Activity Application Report for submittal to the WV DNR as part of this project.

Project Manager; Environmental Assessment for the New Station Lake Charles; U.S. Coast Guard; Lake Charles, LA. 2010-2011. As a project manager, Mr. Smith managed all aspects of the EA and Finding of No Significant Impact for construction and operation of a new USCG facility in Lake Charles, LA from kickoff to completion. His duties included client management, budget monitoring, workload delegation, agency coordination, contributing to various sections of the document, site visit to characterize habitat, and publishing and submittal of all documents.

Deputy Project Manager; Environmental Impact Statement for a Coal Gasification Plant; U.S. Department of Energy; Beaumont, TX. 2009-2010. As a Deputy Project Manager, Mr. Smith assisted the Project Manager with client relations, attended the Public Scoping Meeting, coordinated and attended meetings with federal and local agencies, drafted and attended project meetings, and authored several ecological sections of a pre-Draft Environmental Impact Statement for the DoE for the TX Energy Industrial Gasification Plant. Mr. Smith also coordinated and participated in Biological surveys including fish and benthic sampling on the Neches River and a site habitat characterization in for the project, which is currently on hold.

NEPA Project Manager; Categorical Exclusion for the Memphis Medical Center Streetscape; City of Memphis; Memphis, TN. 2011-present. As a NEPA project manager, Mr. Smith is managing all aspects of the CE for street improvements along a 2.81-mile segment of Elvis Presley Boulevard. His duties include client management, budget monitoring, workload delegation, agency coordination, contributing to the document, and publishing and submittal of all documents.

NEPA Analyst/Environmental Scientist; FERC-regulated Environmental Assessment for an Interstate Natural Gas Pipeline; West Virginia and Pennsylvania; 2010-present. As a NEPA analyst, Mr. Smith drafted the Aquatic Resource section of a FERC-regulated EA for a commercial Oil and Gas client for Marcellus Shale-related activities.

NEPA Analyst/Ecologist; NEPA Environmental Report in support of a DOE Federal Loan Guarantee Program for Clean Coal Technology for a Coal Gasification Plant; Beaumont, TX; Eastman Chemical; 2008-2009. As a NEPA Specialist, Mr. Smith authored several ecological sections of an Environmental Report in support of an Environmental Impact Statement for the DoE for the TX Energy Industrial Gasification Plant.

Biologist/Field Operations Leader; TX Energy Environmental Report; Eastman Chemical; Beaumont, TX; 2008. As the Field Operations Leader, Mr. Smith coordinated and participated in Biological surveys including fish and benthic sampling on the Neches River and a site habitat characterization in Beaumont, TX.

Deputy Project Manager/NEPA Analyst/Ecologist; Environmental Assessment for a Dredge Boat Basin at the U.S. Coast Guard Station, Marblehead, OH; 2007. As a Deputy Project Manager/NEPA Analyst/Ecologist, Mr. Smith contributed to the planning and development of an environmental assessment and Finding of No Significant Impact/Record of Decision for a proposed blasting/dredging operation for the U.S. Coast Guard. He authored the geology, topography, soils, seismic zone considerations and coastal zone considerations; water resources and drainage; hazardous materials and hazardous waste; aquatic environment; threatened and endangered species; and the wild and scenic rivers sections of the environmental assessment in addition to assisting with overall document research and development.

Aquatic Ecologist; South Texas Project Combined Construction and Operating License Application Environmental Report; Bechtel; Texas; 2007. As an Aquatic Ecologist, Mr. Smith prepared the aquatic ecology sections for site alternatives to building and operating two Advanced Boiling Water Reactors (ABWR) units on the South Texas Project (STP) site. He evaluated the aquatic environmental impacts associated with developing new nuclear capacity at each of three alternative sites. Part of the evaluation included the impacts of water usage and disposal for electricity generation. Additionally, the impacts to threatened and endangered species were considered.

Aquatic Ecologist; Beaver Valley Nuclear Power Station License Renewal Environmental Review Program; FirstEnergy Nuclear Operating Company; Pennsylvania; 2007. As an Aquatic Ecologist, Mr. Smith prepared part of the aquatic impacts section of an environmental report for the Davis-Besse Nuclear Power Station license renewal. The focus of the section was assessing the impacts of impingement/entrainment on fish species and comparing the data to permissible rates.

Benthic Ecologist; U.S. Navy, NSF Dahlgren, VA; 2008-present. As a benthic ecologist, Mr. Smith prepared response to comments, attended meetings, and prepared a work plan for field studies, and a benthic report in support of benthic monitoring program at NSF Dahlgren.

Ecologist; Endangered Species Review; Munitions Response Program; MCB Quantico; 2007-2008. As an Ecologist, Mr. Smith prepared the endangered species section of the Munitions Response Program at the Marine Corps Base Quantico. He gathered information on species occurring at the base and determined the Federal and State status of those species and identified locations where those species are likely to occur.

Project Manager; Wetland Delineation for the New Station Lake Charles; U.S. Coast Guard; Lake Charles, LA. 2011-2012. As a project manager, Mr. Smith is currently managing all aspects of the Wetland Delineation for a proposed site of a new USCG facility in Lake Charles, LA. His duties

included client management, budget monitoring, workload delegation, and review of the jurisdictional determination.

CHRONOLOGICAL WORK HISTORY:

Wetlands and Ecological Services Department Manager, Tetra Tech NUS, Inc.; Pittsburgh, PA; November 2011-present.

Biologist/Ecological Risk Assessor; Tetra Tech NUS, Inc.; Pittsburgh, PA; January 2007-November 2011.

Research Assistant/Lab Manager; Wright State University; Dayton, OH; September 2003-December 2006.
Managed an aquatic toxicology laboratory. Responsibilities included maintaining laboratory cultures and supplies, managing grant related research projects (see descriptions above), supervising undergraduate students, writing technical reports, conducting literature reviews, and maintaining laboratory and field equipment.

Research Assistant; Indiana University of Pennsylvania; Indiana, PA; September 2002-August 2003.
Provided support in maintaining laboratory insect cultures and supplies. Conducted small mammal surveys; endangered reptile surveys (Eastern Massasauga Rattlesnake); collected and identified amphibians and reptiles in Western Pennsylvania for the Pennsylvania Herpetological Atlas; identified benthic macroinvertebrates for Abandoned Mine Drainage projects.

TETRA TECH

Jason McGuirk
Wetland/Environmental Scientist IV

EXPERIENCE SUMMARY

Mr. Jason McGuirk has six years of professional experience in wetland delineation, permitting, fisheries and wildlife, and stream assessments and classification in Pennsylvania, New York, Ohio, and Alaska. Mr. McGuirk has conducted hundreds of wetland delineations, stream evaluations as well as conducted and produced habitat assessments, and post monitoring impact statements and assessments on over 800 miles of proposed natural gas pipeline, and fifty plus proposed well pad sites. He has extensive knowledge in watercourse classification and assessment including the Rosgen method. In particular attention of his has been focused on fisheries habitat and macro-invertebrate work, with over fifty miles of stream classifications in Alaska. Mr. McGuirk's educational background is in Fisheries and Aquaculture with a minor focus in Marine Biology and Wildlife management.

RELEVANT EXPERIENCE

Environmental Scientist III; Sunoco Logistics; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects, Engendered Species Surveys; Reptilia (*Glyptemys muhlenbergii*), Plantae (*Ellisia nyctelea*); Pennsylvania. Segments 1, 2, and 3 wetlands field lead, and crew leader. Responsibilities include organizing and conducting all field work operations for multiple wetlands crews, wetland delineations and stream assessments for the proposed 450 mile Pennsylvania Pipeline Project. Additional work included proposing potential re-route on an environmental basis.

Environmental Scientist III; MarkWest Liberty Midstream & Resources, LLC; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Pennsylvania. Responsible for performing and assisting with wetland delineations for various proposed natural gas pipeline projects in southwestern Pennsylvania. Specific tasks included field survey, report preparation, and wetland functional assessments.

Environmental Scientist III; MarkWest Ohio Gathering Company, LLC; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Ohio. Responsible for performing and assisting with wetland delineations for various proposed natural gas pipeline projects in eastern Ohio. Specific tasks included field survey, report preparation, and completion of Ohio EPA specific wetland and stream assessments.

EDUCATION

B.T. Fisheries and Aquaculture, SUNY Cobleskill, 2011T

REGISTRATIONS

Wild Plant Management Permit, PA, 2014, Permit # 14-651

AREA OF EXPERTISE

Wetland Delineation and Stream Identification, Fisheries, and Botanical Surveys

TRAINING/CERTIFICATIONS

Winter Vegetation ID, Rutgers University, 2012

Amtrak Contractor Certification, 2014

Certified Wetland Assessment Delineator, NY, 2009

OFFICE

Pittsburgh, PA

YEARS OF EXPERIENCE

6+

YEARS WITH TETRA TECH

2+

Environmental Scientist III; Gulfport Energy Corporation; Wetland Delineations for Miscellaneous Natural Gas Well Pad Projects; Ohio. Responsible for performing and assisting with wetland delineations for various proposed natural well pads southeastern Ohio. Specific tasks included field survey, report preparation, PCN preparation, and completion of Ohio EPA specific wetland and stream assessments.

Environmental Scientist III; MarkWest Liberty Midstream & Resources, LLC; Wetland Delineation and Engendered Species Survey (*Ranunculus flabellaris and Alopecurus aequalis*) for Vanport to Butler Gas Pipeline; Butler County, Pennsylvania. Responsible for performing and assisting with wetland delineation and endangered species survey along pipeline right-of-way. Specific tasks included field survey and report preparation.

Environmental Scientist III; Antero Resources Appalachian Corp.; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Ritchie and Doddridge Counties, West Virginia. Responsible for performing and assisting with wetland delineations for various proposed natural gas well pads and access roads in northern West Virginia. Specific tasks included field survey and report preparation.

Wetland & Watercourse Biologist; Chesapeake Energy; Schoharie County, PA; November 2011 to October 2012. Responsible for conducting wetland delineations for proposed pipe line routes and reroutes. Performed PA Rapid Assessments, stream evaluation, and preparation of wetland report for 30 miles of pipeline in Northeastern Pennsylvania.

Wetland & Watercourse Biologist; Southwest Energy L.P; Schoharie County, PA; November 2011 to October 2012. Responsible for conducting wetland delineations on proposed Well pad and compressor sites. Performed PA Rapid Assessments, stream evaluation, and preparation of wetland report for 15 proposed well pad locations in Northeastern Pennsylvania.

Wetland & Watercourse Biologist; Southwest Energy L.P; Susquehanna County, PA; November 2011 to October 2012. Responsible for conducting wetland delineations on proposed Well pad and compressor sites. Performed PA Rapid Assessments, stream evaluation, and preparation of wetland report for 20 proposed well pad locations in Northeastern Pennsylvania.

Wetland & Watercourse Biologist; Chesapeake Energy; Carroll, Jefferson County, OH; November 2011 to October 2012. Responsible for conducting wetland delineations for proposed pipe line routes and reroutes. Performed ORAM and QHEI Assessments, and preparation of wetland report for 30 miles of pipeline in Eastern Ohio.

Wetland & Watercourse Biologist; Shell Oil; Butler County, PA; November 2011 to October 2012. Responsible for conducting wetland delineations for proposed pipe line routes and reroutes. Performed PA Rapid Assessments, stream evaluation, and preparation of wetland report for 40 miles of pipeline in Western Pennsylvania.

Wetland & Watercourse Biologist; Chesapeake Energy; Schoharie County, PA; November 2011 to October 2012. Responsible for conducting Indiana Bat habitat surveys on multiple proposed natural gas pipelines in Northeastern Pennsylvania.

Wetland & Watercourse Biologist; Chesapeake Energy; Schoharie County, PA; November 2011 to October 2012. Responsible for conducting post construction habitat monitoring and assessment of constructed natural gas pipelines in Northeastern Pennsylvania.

CHRONOLOGICAL HISTORY

Wetland Environmental Scientist IV; Tetra Tech, Inc.; Pittsburgh, PA, June 2014 - Present

Wetland Environmental Scientist III; Tetra Tech, Inc.; Pittsburgh, PA, February 2013 - June 2014

Wetland & Watercourse Biologist; Hanover Engineering & Associates; Towanda, PA, November 2011 - October 2012

Assistant Hatchery Manager; SUNY Cobleskill; Cobleskill, NY, September – May of 2009- 2011

Biological Fisheries Technician, US Forest Service; Thorne Bay, AK, May 2010 - August 2010

Fisheries Technician, Cook Inlet Aquaculture Association, Kenai, AK, May 2009 – August 2009

SCIENTIFIC/TECHNICAL PUBLICATIONS

- McGuirk, J, M, "Walleye (*Sander vitreus)* spawning movements and habitat utilization in Otsego Lake, NY, 2011

MEMBERSHIPS

- N/A

AWARDS

- David E. Moorehouse Award for Outstanding Junior in Fisheries and Aquaculture B.T.

ANDREW J. GRECH
WETLAND ENVIRONMENTAL SCIENTIST III
PITTSBURGH, PA

EDUCATION: **B.T. Wildlife Management, SUNY Cobleskill, 2011**

CERTIFICATIONS/ REGISTRATIONS: **Certified Wetland Assessment Delineator, NY, 2009**

TRAINING: **Sedges, Grasses, and Rushes ID, Rutgers University, 2012**
Wetland Hydrology, Rutgers University, 2012

EXPERIENCE SUMMARY:

Mr. Andrew Grech has five years of professional experience in wetland delineation, permitting, fisheries and wildlife, and stream assessments and classification in Pennsylvania, New York, and Ohio. Mr. Grech has conducted hundreds of wetland delineations, stream evaluations as well as conducted and produced habitat assessments, and post monitoring impact statements and assessments on over one hundred and fifty miles of proposed natural gas pipeline, and twenty proposed well pad sites. He has extensive knowledge in watercourse classification and assessment including the Rosgen method. Mr. Grech's educational background is in Wildlife Management with a minor focus in Fisheries & Aquaculture.

PROJECT EXPERIENCE:

Wetland & Watercourse Biologist; Chesapeake Energy; Bradford, Wyoming, & Susquehanna Counties, PA; March 2012 to March 2013. Responsible for conducting wetland delineations for proposed pipe line routes and reroutes. Performed PA Rapid Assessments, stream evaluation, and preparation of wetland report for 40 miles of pipeline in Northeastern Pennsylvania.

Wetland & Watercourse Biologist; Chesapeake Energy; Carroll, Jefferson County, OH; June-November 2012. Responsible for conducting wetland delineations for proposed pipe line routes and reroutes. Performed ORAM and QHEI Assessments, and preparation of wetland report for 50 miles of pipeline in Eastern Ohio.

Wetland & Watercourse Biologist; Shell Oil; Mckean & Bradford Counties, PA; March 2012 to March 2013. Responsible for conducting wetland delineations for proposed pipe line routes and reroutes. Performed PA Rapid Assessments, stream evaluation, and preparation of wetland report for 40 miles of pipeline in Northeast/central Pennsylvania.

Wetland & Watercourse Biologist; Chesapeake Energy; Bradford, Wyoming, & Susquehanna Counties, PA; November 2012 to March 2013. Responsible for conducting post construction habitat monitoring and assessment of constructed natural gas pipelines in Northeastern Pennsylvania.

Wetland & Watercourse Biologist; Southwest Energy; Wayne, Monroe, & Pike Counties, PA; November 2012 to March 2013. Responsible for conducting wetland delineations for proposed well pads. Performed PA Rapid Assessments, stream evaluation, and preparation of wetland report for 15 proposed well pads in Northeastern Pennsylvania.

Wetland & Watercourse Biologist; Markwest Energy; Allegheny, Butler, & Washington Counties, PA; August 2013 to October 2013. Responsible for conducting wetland delineations for proposed pipe line routes and reroutes. Performed PA Rapid Assessments, stream evaluation, and preparation of wetland report for 20 miles of pipeline in Southwest Pennsylvania.

Wetland & Watercourse Biologist; REX Energy; Butler County, PA; September 2013. Responsible for conducting wetland delineations for proposed water withdrawal sites along Connoquenessing Creek and Glade Run. Performed PA Rapid Assessments, stream evaluation, and preparation of wetland reports for 2 water withdrawal sites in Southwest Pennsylvania.

Environmental Mgmt. Systems:

- Angler Surveys and Census for the Ice Fishery of Otsego Lake, NYDEC September - December 2007
- Pond surveys (water quality, fish identification, mapping) for Schoharie County residents January – May 2008
- Sonic and radio tracking, research crew member on 24 hour tracking samples. Otsego Lake N.Y. Through SUNY Cobleskill from September – December 2008
- Reptile and Amphibian trapping survey. SUNY Cobleskill from March – May 2009
- Wetland delineation, Field work in various wetlands thoughout the Cobleskill N.Y. area from September- December 2009
- Electrofishing Survey, Member of boat electro fishing crew; scapper, fish ID, Gill net retrieval, and fish measuring for night as well as day sampling of Otsego Lake N.Y. Through Biological Field Station from January – May 2010
- Waterfowl habitat survey, Activity budget survey, Nest Predation survey, various research projects around Cobleskill N.Y. September - December 2010.

Sampling:

Fisheries Technician; SUNY Cobleskill; Cobleskill, NY; September 2008. Responsible for preforming a fisheries survey and rescue for the N.Y. State power authority, on Gilboa reservoir. Sampled and collected fishes to be transported to mitigation location.

Fisheries Technician; SUNY Cobleskill; Cobleskill, NY; on and off from September 2007-December 2010. Responsible for collecting state fisheries data on several N.Y. state watersheds. Field sampling including haul seines, electro-shocking, gill nets, fyke nets, Responsible for the use of MS-222 for anesthetizing fishes during the study.

Wildlife Technician; SUNY Cobleskill; Cobleskill, NY; June 2010. Conducted local herpetology surveys on both salamander and frog habitats locally in and around Cobleskill area. Used amphibian traps to capture live specimens and recorded population densities and species diversity indexes for each location. Specifically focusing on human impacts, and habitat alterations and the population and diversity impacts associated with the disturbance.

Other:

New York State DEC; Trap-netted birds of prey, Richmondville, NY
SUNY Cobleskill; Electro-fishing/sonic tagging Walleye, Otsego Lake, NY
Otsego Lake Biological Field Station; Trap-netting/hydro-acoustic survey of Alewife, Otsego Lake, NY
SUNY Cobleskill; Electro-fished lake at night for a "mark and re-capture study," Otsego Lake, NY
New York State DEC; Bat count surveys, Howe Caverns, Cobleskill, NY
Peabody Wildlife Management Area; Trapping/radio-telemetry of Bob-white Quail, Drakesboro, KY
Colorado Parks and Wildlife Commission; Trapped and collared Columbian Sharp-tailed Grouse, W. CO
Colorado Parks and Wildlife Commission; Performed radio-telemetry and observation counts of Bighorn Sheep, W. CO

CHRONOLOGICAL WORK HISTORY:

Wetland Environmental Scientist III; Tetra Tech, Inc.; Pittsburgh, PA, August 2013- Present

Environmental technician/Range Manager, XH Angus Ranch; Saratoga, WY March 2013- August 2013

Wetland & Watercourse Biologist; Hanover Engineering & Associates; Towanda, PA, March 2012 - March 2013

Environmental Technician, Mount Agamenticus, York, ME, May 2011-March 2012

Seasonal Park Ranger, US Army Corps of Engineers, Thomaston, CT, May- September 2009 & 2010

PROFESSIONAL AFFILIATIONS:

American Wildlife Society

TETRA TECH

Korey M. McCluskey
Environmental Scientist IV – Technical Lead

EXPERIENCE SUMMARY

Mr. Korey McCluskey a wetland/environmental scientist - technical lead with 8+ years of experience in wetland delineation, stream evaluation, rare, threatened & endangered (SOSC) botanical surveying and assessment, and construction monitoring throughout Pennsylvania, Ohio, West Virginia, New Jersey and New York. Korey has performed hundreds of wetland delineations and stream evaluations as well as conducted numerous botanical surveys, habitat assessments, and related report generation. Korey is on the USFWS short list of qualified surveyors for the federally listed Running Buffalo Clover. He has provided environmental consultation to clients in the commercial Oil and Gas, residential development, and public utility sectors to ensure compliance with local, state, and federal environmental regulations and ordinances through the environmental permitting process, including minimization of impacts to aquatic and terrestrial resources. This permitting, documentation, and guidance includes the preparation of wetland delineation and stream evaluation reports, botanical reports, wetland creation, wetland monitoring, 404 and related state and local permits, assisting with environmental assessments, and preparation of other environmental reports. He also has experience performing bat hibernaculum and summer roost tree habitat surveys in Western Pennsylvania.

RELEVANT EXPERIENCE

FIELD (OIL/GAS)

Wetland/Environmental Scientist IV - Department Technical Lead; Sunoco Logistics; OPP and PPP Natural Gas Pipeline Projects, Multiple Counties across Ohio, West Virginia, and Pennsylvania; October 2013 to present. Responsibilities included aiding in wetland delineations and stream assessments for the proposed 450 miles of the Ohio Pipeline (OPP) and Pennsylvania Pipeline Projects (PPP).

Wetland/Environmental Scientist IV - Department Technical Lead; Sunoco Logistics; OPP and PPP Natural Gas Pipeline Projects, Rare, Threatened, and Engendered Species Surveys; 43 listed Species of Special Concern (SOSC); March 2014 to present. Pennsylvania. Segments 1, 2, and 3 Botanical Survey Lead, and crew leader. Responsibilities included organizing and conducting all field work operations for multiple botanical crews, conducted botanical surveys for the 350 miles of proposed pipeline installation for the Ohio Pipeline (OPP) and Pennsylvania Pipeline Projects (PPP). Additional work included proposing potential re-routes and avoidance recommendations on a potential environmental impact basis.

EDUCATION

B.A., Environmental Sciences, University of Pittsburgh, April. 2006

Geographical Information Systems (GIS) Certificate, University of Pittsburgh, April. 2006

REGISTRATIONS

Wild Plant Management Permit, PA, 2014, Permit # 15-624

USFWS Certified Qualified Surveyor for the Federally Listed Running Buffalo Clover

AREA OF EXPERTISE

Wetland Delineation and Stream Identification & RTE Botanical Surveys

TRAINING/CERTIFICATIONS

USFWS and WV DNR Sponsored Training for the Identification of the Federally Listed Running Buffalo Clover, Virginia Spirea, and Small Whorled Pogonia, May 2015.

2015 PA Plant Forum and Winter Woody ID workshop. Sponsored by the PA DCNR and Western Pennsylvania Conservancy, April 2015.

Creation and Restoration of Wetlands - The Olentangy River Wetland Research Park, The Ohio State University, July 2011.

Identification of Freshwater Wetland Sedges, Grasses, and Rushes - Pennsylvania Institute for Conservation Education, August 2010.

Ohio Rapid Assessment Method (ORAM) for Wetlands v. 5.0- Ohio Environmental Protection Agency, March. 2009.

ACOE-based 40-hour Wetland Delineation Certification - Richard Chinn Environmental Training, Inc., March. 2007.

OFFICE

Pittsburgh, PA

YEARS OF EXPERIENCE

8+

YEARS WITHIN FIRM

2+

CONTACT

Korey.McCluskey@TetraTech.com

Wetland/Environmental Scientist IV - Department Technical Lead; Dominion Transmission, Inc.; Lebanon West II - TL-400 FERC Pipeline Project; Tuscarawas, Licking, Muskingum, Harrison, Coshocton, Columbiana, and Carroll Counties, Ohio (OH) and in Beaver County, Pennsylvania (PA); June 2014 to present. Responsible for conducting wetland delineations and stream evaluations for the natural gas pipeline replacement segments of the TL-400 FERC Pipeline Project. Specific tasks included field surveys, report preparation, and completion of Ohio EPA specific wetland and stream assessments.

Wetland/Environmental Scientist IV - Department Technical Lead; Noble Energy, Inc.; Various Water Withdrawal Projects; Greene, Fayette, Washington Counties (PA), and Marshall County (WV); March 2014 to present. Responsible for conducting numerous wetland delineations and stream evaluations for proposed water withdrawal projects located in southwestern Pennsylvania and the panhandle of West Virginia. Also prepared wetland delineation and stream assessment reports for each project in support of permit submissions.

Wetland/Environmental Scientist IV - Department Technical Lead; Noble Energy, Inc.; Dunkard Fork Water Withdrawal Project; Greene County, PA; June 2014 to September 2014. Responsible for conducting botanical surveys and habitat assessments for 5 listed SOSC. Responsible for preparing a botanical survey and habitat assessment report in support of permit submissions.

Wetland/Environmental Scientist IV - Department Technical Lead; Noble Energy, Inc.; Wolfe Run Resevoir Water Withdrawal, Water Pipeline, and Access Road Project; Marshall County, WV; May 2014 to September 2014. Responsible for conducting a wetland delineation and stream evaluation for a proposed water withdrawal, water pipeline, and its associated access road. Also prepared a wetland delineation and stream assessment report in support of permit submissions.

Wetland/Environmental Scientist IV - Department Technical Lead; Rice Drilling D, LLC; Various Water Withdrawal Projects; Harrison and Belmont Counties (OH); March 2014 to present. Responsible for conducting numerous wetland delineations and stream evaluations for proposed water withdrawal projects located in eastern Ohio. Also prepared wetland delineation and stream assessment reports for each project in support of permit submissions.

Wetland/Environmental Scientist IV - Department Technical Lead; Rice Poseidon Midstream, LLC; North Fork Dunkard Fork Water Withdrawal Project; Greene County, PA; December 2014 to January 2015. Responsible for conducting a botanical habitat assessment for 2 listed SOSC. Responsible for preparing a botanical habitat assessment report in support of permit submissions.

Wetland/Environmental Scientist IV - Department Technical Lead; Rice Drilling B, LLC; Fink Pond Impoundment Project; Greene County, PA; October 2014. Responsible for conducting a wetland delineation and stream investigation, as well as a botanical survey for 2 listed SOSC. Responsible for preparing a wetland delineation and stream identification report and a botanical survey report in support of permit submissions.

Wetland/Environmental Scientist IV - Department Technical Lead; Rice Poseidon Midstream, LLC; Waterboy to Pollock Natural Gas Pipeline Project; Washington County, PA; July 2014 to January 2015. Responsible for conducting a wetland delineation and stream identification survey. Responsible for preparing a wetland delineation and stream identification report in support of permit submissions.

Wetland/Environmental Scientist IV; MarkWest Liberty Midstream and Resources, LLC; Boyscout Camp Wetland Restoration Project & Post-Restoration Monitoring; Harrison County, PA; November 2012 to present. Responsible for evaluating post-impact conditions at a recently disturbed wetland, assist in designing a

USACE approved wetland restoration plan. Plans included survey of current and proposed wetland habitats, elevations, and hydrologic inputs; planting/seeding plan and implementation instructions; and construction/earthwork calculations and implementation instructions. Also responsible for wetland restoration monitoring for the past two years.

Wetland/Environmental Scientist III; Sunoco Logistics; Mariner East [ME1] Pipeline Project Natural Gas Pipeline Projects, Rare, Threatened, and Engendered Species Surveys; 8 listed Species of Special Concern (SOSC); April 2013 to August 2013. Botanical Survey Lead, and crew leader. Responsibilities included organizing and conducting all field work operations for multiple botanical crews, conducted botanical surveys for the 20 miles of the 40 mile proposed pipeline installation Mariner East [ME1] Pipeline Project. Additional work included proposing potential avoidance recommendations based on a potential environmental impact basis.

Wetland/Environmental Scientist III; MarkWest Ohio Gathering Company, LLC; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Ohio. Responsible for performing and assisting with wetland delineations for various proposed natural gas pipeline projects in eastern Ohio. Specific tasks included field survey, report preparation, and completion of Ohio EPA specific wetland and stream assessments.

Wetland/Environmental Scientist III; Gulfport Energy Corporation; Wetland Delineations for Miscellaneous Natural Gas Well Pad Projects; Ohio. Responsible for performing and assisting with wetland delineations for various proposed natural well pads southeastern Ohio. Specific tasks included field survey, report preparation, and completion of Ohio EPA specific wetland and stream assessments.

Wetland/Environmental Scientist III; Williams/Laurel Mountain Midstream Operations, LLC; Brown to Davis Natural Gas Pipeline Project; Fayette County, PA; January 2013 to present. Conducted a wetland delineation and stream evaluation for the Brown to Davis natural gas pipeline project. Also prepared a wetland delineation and stream evaluation report in support of permit submissions.

Wetland Scientist; Joseph and Lori Baker; Baker Property Wetland Restoration Project; Derry Township, Westmoreland County, PA; March 2010 to June 2010. As onsite environmental consultant to Joseph and Lori Baker, responsible for wetland and stream encroachment survey and assessment and assisted with a wetland restoration design and planting/seeding design.

Wetland Scientist/Project Manager; Range Resources; Multiple Temporary and Permanent Water Pipelines; Washington County, Pennsylvania. 2010 to 2011. Mr. McCluskey was responsible for wetland delineations and stream evaluations on dozens of temporary and permanent water pipelines linking frac water impoundments in the Washington County area.

FIELD (ENERGY TRANSMISSION)

Wetland Scientist; Orange & Rockland Utilities, Inc., Counties of Bergen (NJ) and Rockland (NY); Transmission Line 702 – Proposed Shield Wire Replacement Project; November 2008 to February 2009. Responsible for wetland delineation and stream evaluation of a 500 foot wide, 10 mile long transmission line corridor.

FIELD (MINING)

Wetland Scientist; Rosebud Mining Company; Kiski Junction Railroad Allegheny River Spur Re-activation Project; Bethel and Gilpin Townships, Armstrong County, PA; 2007 to 2008. As onsite environmental consultant to Rosebud Mining Company, responsible for wetland delineation and assisted with the preparation of a

Joint Permit Application for USACE Individual Permit, as well as assisting with wetland mitigation site search and wetland mitigation design for railroad re-activation project.

Wetland Scientist; MEPCO, LLC.; Coresco Overland Coal Conveyor Project; Greene (PA) and Monogalia (WV) Counties. Responsible for wetland delineation and review and stream evaluation of a 10 mile overland coal conveyor. Rare, threatened, and endangered species (SOSC) survey and permitting services were provided.

CHRONOLOGICAL HISTORY

Wetland/Environmental Scientist IV - Department Technical Lead; Tetra Tech, Inc.; Pittsburgh, PA, June 2014 – Present.

Wetland/Environmental Scientist III; Tetra Tech, Inc.; Pittsburgh, PA, October 2012 – June 2014.

Wetland Specialist/Project Manager; Pennsylvania Soil & Rock, Inc.; Monroeville, PA, May 2010 – October 2012.

Wetland/Environmental Specialist; Pennsylvania Soil & Rock, Inc.; Monroeville, PA, March 2008 – May 2010.

Wetlands Technician/Field Technician; Pennsylvania Soil & Rock, Inc.; Monroeville, PA, November 2006 – March 2008.

Park Naturalist; Frick Environmental Center – City of Pittsburgh; Pittsburgh, PA, April 2006 – November 2006.

SCIENTIFIC/TECHNICAL PUBLICATIONS

- N/A

MEMBERSHIPS

- Society of Wetland Scientists (SWS)

AWARDS

- N/A

TETRA TECH

Codie Vileno
Environmental Scientist IV

EXPERIENCE SUMMARY

Mr. Vileno has worked in the environmental field for over seven years. His experience includes conducting wetland delineations, habitat assessments, and endangered species surveys. He has additional experience performing and supervising Phase 1 archaeological surveys. Mr. Vileno's educational background includes graduate level studies in wetland ecology, stream ecology, hydrology, wetland/stream restoration methods, geology, and environmental impact assessments.

RELEVANT EXPERIENCE

Environmental Scientist III; Environmental and Restoration Services Contract for Site 73, Site 178, and Site 20. Army Corps of Engineers Louisville District. Savanna, Illinois; November 2014. Conducted wetland delineation and threatened and endangered species review in support of remedial activities. Responsible for field effort and report deliverables.

Environmental Scientist III; Sunoco Logistics; Wetland Delineation and Engendered Species Survey for Pennsylvania Pipeline Project; Pennsylvania, January 2014 to December 2014. Conducted wetland delineations and endangered species survey along pipeline right-of-way. Specific tasks included field survey and report preparation.

Environmental Scientist III; Sunoco Logistics; Wetland Delineation and Engendered Species Survey for Ohio Pipeline Project; Ohio, West Virginia, Pennsylvania, January 2014 to December 2014. Conducted wetland delineations and endangered species survey along pipeline right-of-way. Specific tasks included field survey, report preparation, and permitting activities.

Environmental Scientist III; Rice Energy; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Pennsylvania and Ohio. Conducts wetland delineations and permitting activities for various proposed natural gas pipeline projects in eastern Ohio. Specific tasks include field survey, report preparation, completion of Ohio EPA specific wetland/stream assessments, agency consultation, and compiling of PCN.

Environmental Scientist III; MarkWest Liberty Midstream & Resources, LLC; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Pennsylvania. Conducts wetland delineations for various proposed natural gas pipeline projects in southwestern Pennsylvania. Specific tasks included field survey, report preparation, and wetland functional assessments.

Environmental Scientist III; MarkWest Ohio Gathering Company, LLC; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Ohio. Conducts wetland delineations for various proposed natural gas pipeline projects in eastern Ohio. Specific tasks included field survey, report preparation, and completion of Ohio EPA specific wetland and stream assessments.

Environmental Scientist III; Gulfport Energy Corporation; Wetland Delineations for Miscellaneous Natural Gas Well Pad Projects; Ohio. Responsible for performing and assisting with wetland delineations for various proposed natural well pads southeastern Ohio. Specific tasks included field survey, report preparation, PCN preparation, and completion of Ohio EPA specific wetland and stream assessments.

EDUCATION

B.A., Anthropology, 2007, State University College at Buffalo

AREA OF EXPERTISE

Wetland Science

TRAINING/CERTIFICATIONS

38 Hour ACOE Wetland Delineation Training Program, November 2009

Ohio Rapid Assessment Method for Wetlands Training Course, May 2013

Identifying Grasses, Sedges, and Rushes, June 2014

Winter Woody Plant Identification, April 2015

Running Buffalo Clover, Virginia Spirea, and Small Whorled Pogonia Federal RTE Identification Workshop, May 2015

Engineering for Ecosystem Restoration Workshop, June 2010

American Red Cross Adult First Aid/CPR/AED, March 2015

16 Hour Wilderness First Aid, November 2012

40 hours EPA 165.5 HAZWOPER Health and Safety Worker 2012

OFFICE

Pittsburgh, PA

YEARS OF EXPERIENCE

7+

YEARS WITHIN FIRM

7+

CONTACT

Codie.Vileno@TetraTech.com

Environmental Scientist III; MarkWest Liberty Midstream & Resources, LLC; Wetland Delineation and Engendered Species Survey (Ranunculus flabellaris and Alopecurus aequalis) for Vanport to Butler Gas Pipeline; Butler County, Pennsylvania. Responsible for performing and assisting with wetland delineation and endangered species survey along pipeline right-of-way. Specific tasks included field survey and report preparation.

Environmental Scientist III; Antero Resources Appalachian Corp.; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Ritchie and Doddridge Counties, West Virginia. Responsible for performing and assisting with wetland delineations for various proposed natural gas well pads and access roads in northern West Virginia. Specific tasks included field survey and report preparation.

Environmental Scientist III; Stone Energy; Wetland Delineation for Mercer 1 Well Pad; Sisterville, Tyler County, West Virginia; September 2012. Performed wetland delineation for proposed natural gas well pad and associated access road. Specific tasks included field survey and report preparation.

Environmental Scientist III; Laurel Mountain Midstream Operating, LLC; Endangered Species Survey (Yellow Passionflower) for Miller to Headlee Pipeline Project; Greene and Cumberland Townships, Greene County, Pennsylvania; September 2012. Assisted with botanical survey for yellow passionflower along the proposed Miller to Headlee natural gas pipeline right-of-way and access roads. Tasks included pre-survey research, field survey, and report preparation.

Environmental Scientist III; Laurel Mountain Midstream Operating, LLC; Endangered Species Survey (Drooping Bluegrass) for Nickelville Pipeline Project; Nickelville, Venango County, Pennsylvania; July 2012. Assisted with botanical survey for drooping bluegrass along the proposed Nickelville natural gas pipeline right-of-way. Specific tasks included field survey and report preparation.

Environmental Scientist III; Laurel Mountain Midstream Operating, LLC; Endangered Species Survey (Tall Larkspur) for Dunlap Creek Pipeline Project; Luzerne and Redstone Townships, Fayette County, Pennsylvania; June 2012. Assisted with botanical survey for tall larkspur along the proposed Dunlap Creek natural gas pipeline right-of-way and access roads. Specific tasks included field survey and report preparation.

Environmental Scientist III; Laurel Mountain Midstream Operating, LLC; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Pennsylvania. Responsible for performing and assisting with wetland delineations for various proposed natural gas pipeline projects in southwestern Pennsylvania. Specific tasks included field survey and report preparation.

Environmental Scientist III; Enervest Operating, LLC; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Ohio. Responsible for performing and assisting with wetland delineations for various proposed natural gas pipeline projects in southeastern Ohio. Specific tasks included field survey, report preparation, and completion of Ohio EPA specific wetland and stream assessments.

Environmental Scientist III; NAVFAC Washington; Marine Corps Base Quantico Wetland Functional Analysis; Quantico, Virginia; April 2012. Assisted with wetland functional assessments in support of remedial activities.

Environmental Scientist III; NASA; Wallops Flight Facility Remedial Action Contract; Wallops Island, Virginia; March 2012. Assisted with wetland delineation and wetland functional assessments in support of remedial activities.

Environmental Scientist III; Burnett Oil Company, Inc.; New Salem, Pennsylvania; December 2011 to February 2012. Responsible for performing and assisting with wetland delineations for various proposed natural gas pipeline projects in southwestern Pennsylvania. Specific tasks included field survey and report preparation.

Scientist I; Army Corps of Engineers; South Park Lake Dredge Project; Buffalo, New York; October 2011. Supervised Phase 1 archaeological survey in preparation of dredging activities.

Scientist I; Dominion East Ohio; Monroe County Gas Pipeline Project; Indiana Bat Habitat Assessment and Wetland Delineation; Woodsfield, Ohio; July 2011 to September 2011. Assisted with Indiana Bat habitat assessment and wetland delineation along a proposed natural gas pipeline right-of-way. Specific tasks included field survey and completion of Ohio EPA specific wetland and stream assessments. Other responsibilities included Phase 1A archaeological assessment

Archaeological Technician; National Grid; Lockport to Mortimer; Rochester, New York; May 2011 to October 2011. Performed Phase 1 archaeological survey in support of transmission line replacement. Assisted with report preparation.

Scientist I; National Fuel Gas Company; Tioga Pipeline Expansion; Tioga County, Pennsylvania; June 2011 to September 2011. Assisted with wetland delineation along proposed natural gas pipeline right-of-way. Other responsibilities included performing a Phase 1A archaeological assessment and supervising a Phase 1 archaeological survey.

Archaeological Technician; National Fuel Gas Company; Allegheny National Forest Pipeline Project; Warren, Pennsylvania; September 2009 to October 2009. Performed Phase 1 archaeological survey along proposed natural gas pipeline right-of-way.

Archaeological Technician; Dominion East Ohio; Pipeline Replacement; Wooster, Ohio; June 2008 to July 2009. Performed Phase 1 archaeological survey along proposed natural gas pipeline right-of-way.

Archaeological Technician; Haley & Aldrich, Inc.; AES Sparrows Point LNG; Cecil County, Maryland; June 2008 to July 2008. Performed Phase 1 archaeological survey along proposed natural gas pipeline right-of-way.

Archaeological Technician; Horizon Wind Energy, LLC; Arkwright Wind Farm; Arkwright, New York; September 2008 to March 2009. Performed Phase 1 archaeological survey on proposed turbine pads and transmission lines.

Archaeological Technician; National Fuel Gas Supply Company.; Galbraith Storage Field Expansion Project; Allegheny National Forest, Marienville, Pennsylvania; August 2008 to October 2008. Performed Phase 1 archaeological survey along proposed natural gas pipeline right-of-way.

CHRONOLOGICAL HISTORY

Environmental Scientist IV; Tetra Tech, Inc.; Pittsburgh, Pennsylvania; 2011 – Present

Scientist I; Tetra Tech, Inc.; Buffalo, New York; June 2008 – November 2011

Research Assistant; State University of New York Research Foundation; Buffalo, New York; October 2009 – January 2010

On-Call Research Assistant; State University of New York Research Foundation; Buffalo, New York; May 2009 – August 2009

Report Writer; Test America Laboratories; Amherst, New York; November 2007 – June 2008

SCIENTIFIC/TECHNICAL PUBLICATIONS

N/A

MEMBERSHIPS

- Society of Wetland Scientists

TETRA TECH

Henry B. Schumacher, M.Sc., PWS
Senior Ecologist IV

EXPERIENCE SUMMARY

Mr. Schumacher, M.Sc., specializes in ecology, with over 15 years of experience conducting environmental field studies and more than 7 years of experience preparing environmental permit applications for energy development projects (gas transmission, waterline, electric, wind) and environmental remediation projects throughout Pennsylvania, Ohio, West Virginia, and New York. He is experienced conducting fieldwork, preparing reports, preparing environmental permit applications, and coordinating with regulatory agencies for linear energy projects requiring line siting, wetland delineation, stream identification, post-construction environmental monitoring, invasive species monitoring, and rare species surveys.

Mr. Schumacher is accustomed to conducting fieldwork in remote locations in challenging conditions and has conducted field surveys for private clients in Pennsylvania, West Virginia, Ohio, New York, New Jersey, Maryland, Minnesota, Wisconsin, Missouri, and in the Oil Sands of Alberta, Canada. He has conducted habitat surveys for federal and state listed bats, snakes, mammals, and migratory bird nesting sites, and presence/absence surveys for non-native invasive species and over 30 state and federal listed plant species.

Mr. Schumacher is a Certified Ecologist with the Ecological Society of America, a Professional Wetland Scientist, has USACE 1987 Manual certification, Ohio EPA Wetland Biocriteria certification, and holds a PADCNR Plant Collection Permit for surveying rare, threatened, and endangered plant species. In addition to his environmental consulting experience, Mr. Schumacher has conducted experimental and observational scientific field studies in Pennsylvania, West Virginia, Louisiana, Massachusetts, Panama, England, and Zimbabwe.

RELEVANT EXPERIENCE

OIL/GAS

Mountain Valley Pipeline, LLC; Mountain Valley Pipeline Project

Prepared Nationwide Permit applications for USACE Pittsburgh District and USACE Huntington District and WV DEP Individual 401 Water Quality Certification application for a 301 mile natural gas pipeline project. Prepared wetland delineation/stream identification reports, project impact calculations, and compensatory mitigation plans. Participated in regulatory agency meetings.

Sunoco Logistics, L.P.; Pennsylvania Pipeline Project

Conducted a presence/absence survey in Perry Co., PA for Northeastern bulrush (*Scirpus ancistrochaetus*), a federal and state-listed species, as part of a 561 mile natural gas pipeline project. Prepared reports for USFWS. USFWS #2014-0200.

MarkWest Liberty Midstream and Resources, LLC; Fox to Midway-Candor Pipeline Project

Conducted a wetland delineation & stream survey along 14-mile proposed natural gas pipeline. USACE Eastern Mountains and Piedmont Region.

MarkWest Liberty Midstream and Resources, LLC; Hunter to Majorsville Pipeline Major Modification Project

Conducted a wetland delineation & stream survey in a 6-acre area for a proposed natural gas pipeline route modification project. USACE Eastern Mountains and Piedmont Region.

EDUCATION

M.Sc. Ecology, University of Pittsburgh, 2008

Bachelors of Science, Ecology, Tulane University, 2000

AREA OF EXPERTISE

Botanical Surveys & Wetlands

REGISTRATIONS/ AFFILIATIONS

USFWS Qualified Surveyor for Northeastern Bulrush, 2012

USFWS Qualified Surveyor for Eastern Prairie-Fringed Orchid, 2009

PADCNR Wild Plant Management Permit No. 15-066,

TRAINING/CERTIFICATIONS

Professional Wetland Scientist, 5/6/2014

Certified Ecologist (Ecological Society of America), 6/1/2014

Ohio Rapid Assessment Methods (ORAM) for Wetlands, 5/12/15.

USACE 1987 Manual Wetland Delineation, 7/17/08

Field ID of Grasses, Sedges, & Rushes, 8/10/13

OSHA HAZWOPER 40-Hr Training, 12/21/13. 8-Hr Refresher, 1/20/15

Wilderness First Aid, 4/12/15

First Aid/CPR/AED, 1/11/16

OFFICE

Pittsburgh, PA

YEARS OF EXPERIENCE

15

YEARS WITHIN FIRM

<1

CONTACT

Henry.Schumacher@tetratech.com

MarkWest Liberty Midstream and Resources, LLC; Lehman to Stewart Pipeline Major Modification Project

Conducted a wetland delineation & stream survey in a 20-acre area for a proposed natural gas pipeline route modification project. USACE Eastern Mountains and Piedmont Region.

MarkWest Liberty Midstream and Resources, LLC; 3 Brothers to Simmons Pipeline Major Modification Project

Conducted a wetland delineation & stream survey in a 25-acre area for a proposed natural gas pipeline route modification project. USACE Eastern Mountains and Piedmont Region.

Travis Peak Resources, LLC; Well Pads AH & Y Projects

Conducted a wetland delineation & stream survey in a 120-acre area for two proposed natural gas well pad projects. USACE Northcentral and Northeast Region.

Superior Appalachian Pipeline, LLC; Snow Shoe Pipeline Project

Conducted a wetland delineation/stream survey & a survey for Northeastern bulrush (*Scirpus ancistrochaetus*), a federal and state-listed species, for a 14 mile natural gas pipeline and compressor station project. Prepared reports for PA state regulatory agencies. PNDI #20267.

Columbia Gas; Line 1360

Conducted surveys for PA state-listed species including great Indian-plantain (*Cacalia muehlenbergii*) and leafcup (*Smallanthus uvedalius*) for a natural gas pipeline project. Prepared reports for PA state regulatory agencies. PNDI # 20043.

Chief Oil & Gas; Korban to Phelps Pipeline Project

Conducted a wetland delineation/stream survey and a survey for PA state-listed species including bog rosemary (*Andromeda polifolia*) and soft-leaved rush (*Carex disperma*) for a 7 mile natural gas pipeline project. Prepared reports for PA state regulatory agencies. PNDI #20558.

Laurel Mountain Midstream LLC; Shamrock Compressor Station and Dogleg Natural Gas Pipelines

Conducted a wetland delineation/stream survey and a survey for PA state-listed species including wild oat (*Chasmanthium latifolia*) and heart-leaved meehania (*Meehania cordata*) for a 10-acre compressor station and 10 mile natural gas pipeline project. Prepared reports for PA state regulatory agencies. PNDI # 20609.

Williams; Guardasoni Pipeline Project

Conducted surveys for PA state-listed species including snow trillium (*Trillium nivale*), harbinger-of-spring (*Erigenia bulbosa*), and white trout-lily (*Erythronium albidum*) for a 4 mile natural gas pipeline project. Prepared reports for PA state regulatory agencies. PNDI # 20110217283784.

Williams; Gamelands to Jordan Pipeline Project

Conducted surveys for PA state-listed species including shining ladies' tresses (*Spiranthes ovalis*), wild senna (*Senna marilandica*), leaf-cup (*Smallanthus uvedalius*), sourwood (*Oxydendron arboreum*), crested dwarf iris (*Iris cristata*), St. Andrew's cross (*Hypericum stragulum*), harbinger-of-spring (*Erigenia bulbosa*), lobed spleenwort (*Asplenium pinnatifidum*), puttyroot (*Aplectrum hyemale*), single-headed pussytoes (*Antennaria solitaria*), and blue monkshood (*Aconitum uncinatum*) for a 6 mile natural gas pipeline project. Prepared reports for PA state regulatory agencies. PNDI # 20556.

Confidential Client; Confidential Project

Conducted a habitat assessment survey for Kirtland's snake (*Clonophis kirtlandii*), a PA state-listed species for a commercial development project. Prepared reports for PA state regulatory agency review.

Williams; Jury to 6-inch Pipeline Project

Conducted surveys for PA state-listed species including purple rocket (*Iodanthus pinnatifidus*), scouring rush (*Equisetum x ferrissii*) and Torrey's sedge (*Juncus torreyi*) for a 4 mile natural gas pipeline project. Prepared reports for PA state regulatory agencies. PNDI # 20110202280993.

Williams; Hoehn to Crable Pipeline Project

Conducted a wetland delineation/stream survey and a survey for PA state-listed species including wild oat (*Chasmanthium latifolium*) and heartleaf meehania (*Meehania cordata*) for a 3 mile natural gas pipeline project. Prepared reports for PA state regulatory agencies. PNDI # 20110629304606.

XTO; North Discharge/Indiana Extension Pipeline Project

Conducted a wetland delineation/stream survey and a survey for PA state-listed species including purple fringeless orchid (*Platanthera peramoena*), bushy bluestem (*Andropogon glomeratus*), shining ladies' tresses (*Spiranthes lucida*), leafcup (*Smallanthus uvedalius*), and eastern coneflower (*Rudbeckia fulgida*) for a 12 mile natural gas pipeline project. Prepared reports for PA state regulatory agencies. PNDI # 21307.

Williams; Huczko to Clark Pipeline Project

Conducted surveys for PA state-listed species including purple fringeless orchid (*Platanthera peramoena*), bushy bluestem (*Andropogon glomeratus*), shining ladies' tresses (*Spiranthes lucida*), and mountain bugbane (*Actea podocarpa*). Prepared reports for PA state regulatory agencies. PNDI # 21603.

Dominion; Appalachian Gateway TL-492 Project

Conducted surveys for PA state-listed species including puttyroot (*Aplectrum hyemale*), harbinger-of-spring (*Erigenia bulbosa*), white trout-lily (*Erythronium albidum*), and cranefly orchid (*Tipularia discolor*) for a 40 mile natural gas pipeline project. Prepared reports for PA state regulatory agencies. PNDI # 19950.

Dominion East Ohio; Franklin 20" Storage Pipeline Project

Conducted surveys for federal-listed species including eastern prairie-fringed orchid (*Platanthera leucophaea*) and northern monkshood (*Aconitum noveboracensis*) for a natural gas pipeline storage project. Prepared reports for USFWS. USFWS 2008-TA-0548.

Columbia Gas; Line 1278/Line K Replacement

Conducted surveys for NY &PA state-listed species including checkered rattlesnake plantain (*Goodyera tessalata*), prickley pear cactus (*Opuntia humifusa*), and roseroot stonecrop (*Sedum rosea*) and four habitats of concern for a 12 mile natural gas pipeline replacement project. PNDI # 20474. Prepared reports for NY & PA state regulatory agencies.

Dominion; PL-1 Transmission Line Project

Conducted a survey for invasive plant species along 40 miles of gas pipeline ROW in PA State Forests. Assisted in preparation of the monitoring report and invasive species treatment recommendation report to meet regulatory requirements. Conducted post-construction wetland & stream monitoring along a 40-mile gas pipeline ROW in PA State Forests. Assisted in the evaluation of wetland & stream restoration success and in the preparation of the monitoring report to meet regulatory requirements.

Superior Appalachian Pipeline, LLC; Pittsburgh Mills Pipeline Project

Conducted a survey for federal-listed Indiana bat (*Myotis sodalis*) roost trees along a proposed 9-mile gas pipeline in Allegheny Co., PA for winter tree clearing. Coordinated with USFWS on results of the surveys.

Shell; Pierre River Mine Environmental Impact Assessment

Conducted an ecological field assessment for a proposed Canadian Oil Sands mine development project Environmental Impact Assessment (EIA), including vegetation reconnaissance, rare plant and rare plant community survey, invasive species survey, and traditional use species survey.

MEG Energy; Christina Lake Regional Project Pre-Disturbance Assessment

Conducted a pre-disturbance ecological field assessment for a proposed Steam Assisted Gravity Drainage oil recovery project in the Canadian Oil Sands, including vegetation reconnaissance, rare plant and rare plant community survey, invasive species survey, and merchantable timber assessment.

Suncor - Firebag Project Pre-Disturbance Assessment

Conducted a pre-disturbance ecological field assessment for a proposed Steam Assisted Gravity Drainage oil recovery project in the Canadian Oil Sands, including vegetation reconnaissance, rare plant and rare plant community survey, and invasive species survey.

Cenovus - Foster Creek Project Pre-Disturbance Assessment

Assisted in a geohazard assessment of 100+ miles of natural gas pipeline including: subsurface investigations (DCPTs - direct cone penetration tests); crack monitoring; and site characterization (delineation, headscarp monitoring stakes, alignment stakes, and geodetic monitoring stakes).

NiSource; Crawford Storage Field Expansion Project

Conducted a survey for potential migratory bird nest holes and crevices in trees along a potential natural gas pipeline ROW for winter clearing of potential nest trees. Assisted in the preparation of the survey report. USFWS Permit # MB213433-0.

Dominion; Ross Rd Forest Mitigation Project

Co-designed monitoring protocols, conducted monitoring, prepared report, and evaluated reforestation success to meet regulatory requirements of compensatory mitigation reforestation project.

Dominion; Swann Wetland Mitigation Project

Co-designed monitoring protocols, conducted monitoring, prepared report, and evaluated functional wetland status to meet regulatory requirements of a compensatory mitigation wetland project.

Confidential Client; Confidential Natural Gas Well Pad Project

Conducted a post-construction forensic review of a well pad site to determine the pre-construction location and extent of wetland & stream resources and the approximate environmental impacts of project construction. Prepared report for EPA review. USACE Eastern Mountains and Piedmont Region.

Keys Energy; Keys Pipeline Project

Conducted a wetland delineation & stream survey along 7-mile proposed ROW for a waterline and a 12-mile proposed ROW for a natural gas pipeline. USACE Atlantic and Gulf Coastal Plain Region.

TRANSPORTATION

PennDOT; Interstate I-99 Project

Assisted in the evaluation of impacts on natural wetlands by the construction of Interstate I-99 in central PA. Assisted in the monitoring and functional evaluation of compensatory mitigation wetlands.

Norfolk Southern Railroad; Midlands Project

Conducted a wetland delineation & stream survey along 2-miles of existing railroad for a railroad maintenance project. Prepared reports and permit application for USACE and PA state regulatory agency review. USACE Eastern Mountains and Piedmont Region.

Wisconsin Central, Ltd; - Deer Lane Realignment Project

Conducted a wetland delineation & stream survey within a 115-acre area for a proposed road realignment project. Prepared a report for USACE and WI state regulatory agency review. USACE Northcentral and Northeast Region.

ENVIRONMENTAL REMEDIATION

Pfizer; American Cyanamide Bound Brook Remediation Project

Conducted habitat assessments for the ecological risk assessment component of the pre-design investigations for the planned Remedial Action at a CERCLA facility.

Freeport-McMorhan; Satralloy Remedial Investigation Project

Conducted surface water quality sampling and assisted with geophysical survey for the remedial investigation of a former ferrochromium alloy facility.

PA Department of Environmental Protection; Vinton No. 6 to Wehrum Connect Project

Conducted a wetland delineation & stream survey along a 1-mile proposed water line and 5 acres of proposed work space for a proposed mine water treatment project. USACE Eastern Mountains and Piedmont Region.

EMPLOYMENT HISTORY

***Tetra Tech, Inc.* –** Senior Ecologist IV (2015 – present)

***Golder Associates, Inc.* –** Project Ecologist (2012 to 2015)

***Pennsylvania Soil & Rock, Inc.* –** Lead Environmental Specialist (2011 to 2012)

***GAI Consultants, Inc.* –** Lead Environmental Specialist (2008 to 2010)

SCIENTIFIC/TECHNICAL PUBLICATIONS

Gora, E, L Battaglia, H Schumacher and W Carson. Patterns of coarse woody debris volume among 18 late-successional and mature forest stands in Pennsylvania. Journal of the Torrey Botanical Society, 141 (2014), 151 – 160.

Schumacher, H and W Carson. Biotic homogenization of the sapling layer in 19 late-successional and old-growth stands in Pennsylvania. Journal of the Torrey Botanical Society, 140 (2013), 313 - 328.

Reese, GT; AJ Baumert; HB Schumacher. 2009. Natural Gas Pipelines: Impacts of Broken Canopies on Forest Habitat and Interior Species. Prepared for INGAA Foundation, Inc.

Bradford, MA, HB Schumacher, S Catovsky, T Eggers and GM Tordoff. Impacts of invasive plant species on riparian plant assemblages: interactions with elevated atmospheric carbon dioxide and nitrogen deposition. Oecologia, 152 (2007), 791 - 803.

MEMBERSHIPS

Society of Wetland Scientists

Botanical Society of Western Pennsylvania (Vice President 2016 – present)

Ecological Society of America

TETRA TECH

Stephanie A. Zabowski Lieb
Environmental Scientist III

EXPERIENCE SUMMARY

Ms. Stephanie Zabowski Lieb is a wetland/environmental scientist with 5+ years of experience in wetland delineation and stream evaluation, and rare, threatened & endangered botanical surveying and assessment, throughout Pennsylvania, Ohio, and West Virginia. This includes preparation of wetland delineation and stream evaluation reports, botanical reports, US Army Corps Joint and Nation Wide Permits, and PA Department of Environmental Protection General Permits. Stephanie has additional experience preforming geographic information systems (GIS) data processing and figure creation using ArcGIS10.1. She also has experience performing bat hibernaculum and summer roost tree habitat surveys in West Virginia.

RELEVANT EXPERIENCE

Wetland/Environmental Scientist III; Sunoco Logistics; OPP Natural Gas Pipeline Projects, Ohio and West Virginia; August 2015 to present. Responsibilities included aiding in wetland delineations and stream assessments for the proposed 70 miles of the Ohio Pipeline and West Virginia Pipeline Projects.

Wetland/Environmental Scientist III; MarkWest Liberty Midstream & Resources, LLC; Fox to Houston Natural Gas Pipeline Project, Washington County, PA; August 2015 to present. Responsible for conducting wetland delineations and stream assessments for the approximate 1 mile of proposed pipeline.

Environmental Scientist; Pittsburgh Botanic Garden; Kentucky Hollow Site, Allegheny County, PA; 2015. Responsible conducting wetland delineations and stream assessments for the approximate 40 acre area for proposed construction of trails and passive acid mine drainage treatment system. Prepared wetland delineation and stream assessment reports and associated GIS data processing and figure creation.

Environmental Scientist; EQT Gathering; NIMC S001 Pipeline Project, Allegheny & Washington Counties, PA; 2015. Responsible for conducting botanical survey for wild hyacinth (*Cammasia scilloides*) and snow trillium (*Trillium nivale*), PA state-listed species. Responsible for preparing a botanical survey report.

Environmental Scientist; Grace Baptist Church Additions; Grace Baptist Church, Allegheny County, PA; 2015. Responsible for compiling components of the NPDES permit package and GIS figure creation for church additions.

Environmental Scientist; NiSource Midstream Services, LLC; East Washington Gathering Pipeline Project, Washington County, PA; 2015. Assisted in the transplantation of Short's sedge

EDUCATION

B.S. Environmental Resource Management, The Pennsylvania State University, May 2009

Minors: Wildlife and Fisheries Science, May 2009; Watershed and Water Resources, May 2009

REGISTRATIONS

Wild Plant Management Permit, PA, 2015
Permit # 15-650

AREA OF EXPERTISE

Wetland Delineation and Stream Identification; RTE Botanical Surveys

TRAINING/CERTIFICATIONS

USFWS and WV DNR Sponsored Training for the Identification of the Federally Listed Running Buffalo Clover, Virginia Spirea, and Small Whorled Pogonia, May 2015.

2015 PA Plant Forum and Winter Woody ID workshop. Sponsored by the PA DCNR and Western Pennsylvania Conservancy, April 2015.

USACE 1987 Manual and Regional Supplement Wetland Delineation Training, Swamp School, 2013.

Ohio Rapid Assessment Method for Wetlands Training, Ohio EPA, 2013.

Grasses, Sedges and Rushes Identification Workshop. Taught by Sarah Chamberlain, 2013.

Sedge Identification Workshop. Taught by Dr. Timothy Block and Dr. Ann Rhoads, 2013.

OFFICE

Pittsburgh, PA

YEARS OF EXPERIENCE

5+

YEARS WITHIN FIRM

0

CONTACT

Stephanie.ZabowskiLieb@TetraTech.com

(*Carex shortiana*), a PA state-listed species, as part of mitigation request by PA DCNR. Responsible for associated GIS data processing and figure creation.

Environmental Scientist; West Newton Borough; 100 Pemberton Place Retaining Wall, Westmoreland County, PA; 2015. Responsible for compiling joint permit registration package and associated GIS figure creation for a 130 foot long retaining wall.

Environmental Scientist; Plum Borough School District; Regency Park Elementary School, Allegheny County, PA; 2015. Responsible for conducting wetland delineations and stream assessments for the approximate 5 acre school property. Prepared wetland delineation and stream assessment reports and associated GIS data processing and figure creation.

Environmental Scientist; Freeport Area School Athletic Field; Freeport Area School District, Butler County, PA; 2015. Responsibilities for compiling components of the NPDES permit package and associated GIS figure creation.

Environmental Scientist; EQT Corporation; Above Ground Storage Tank Inspection/Registration, various Counties, WV; 2014. Responsible for GIS data processing, shapefile creation, organization, progress tracking, and mapping of 1600+ above ground storage tanks.

Environmental Scientist; Sunoco Logistics; Pennsylvania Pipeline Project, Cambria County, PA; 2014. Responsible for conducting botanical survey for federally listed Northeastern Bulrush (*Scirpus ancistrochaetus*) along the 23 mile pipeline route in Cambria County, PA and associated data processing.

Environmental Scientist; Bethel Park Municipal Authority; Bethel Park Wastewater Treatment Plant Expansion, Allegheny County, PA; 2014. Responsible for compiling joint permit registration package and associated GIS figure creation for wastewater treatment plant expansion.

Environmental Scientist; EQT Gathering; Yablonski Well Line Project, Washington & Greene Counties, PA; 2014. Responsible for conducting botanical survey for fringed bluets (*Houstonia canadensis*) and tall larkspur (*Delphinium exaltatum*), PA state-listed species, and preparing associated botanical report for 3 mile pipeline project.

Environmental Scientist; Y-Grade Pipeline Project; Hilcorp Energy Company, Columbiana County, OH; 2014. Responsible for conducting wetland delineations and stream assessments of access roads for proposed pipeline project. Prepared wetland delineation and stream assessment report. Assisted in erosion and sediment control monitoring during pipeline construction.

Environmental Scientist; various projects; Antero Resources, various counties, WV; 2014. Responsible for conducting wetland delineations and stream assessments for various proposed pipeline projects. Prepared wetland delineation and stream assessment reports.

Biologist II; NRG Homer City Services, LLC; Homer City Ash Landfill Expansion, Indiana County, PA; 2013. Responsible for conducting wetland delineations and stream assessments for the approximate 130 acre proposed ash landfill expansion Prepared wetland delineation and stream assessment reports and associated GIS data processing and figure creation.

Biologist II; MarkWest Liberty Midstream & Resources, LLC; Burg to Wack Pipeline, Butler County, PA; 2013. Responsible for conducting wetland delineations and stream assessments for the approximate 2.5 mile proposed pipeline. Prepared wetland delineation and stream assessment reports, associated GIS data processing and figure creation, and PA DEP general permit package.

Biologist II; MarkWest Liberty Midstream & Resources, LLC; Bame to Bluestone Pipeline, Butler County, PA; 2013. Responsible for conducting wetland delineations and stream assessments for the approximate 3 mile proposed pipeline. Prepared wetland delineation and stream assessment reports, associated GIS data processing and figure creation, and PA DEP general permit package.

Biologist II; MarkWest Liberty Midstream & Resources, LLC; Stebbins to McElhinney Pipeline, Butler County, PA; 2013. Responsible for conducting wetland delineations and stream assessments for the approximate 3 mile proposed pipeline. Prepared wetland delineation and stream assessment reports, associated GIS data processing and figure creation, and PA DEP general permit package.

Biologist II; EQT Gathering, LLC; NIJU S026 Pipeline, Washington County, PA; 2013. Responsible for conducting wetland delineations and stream assessments for the approximate 2.5 mile proposed pipeline. Prepared wetland delineation and stream assessment reports, associated GIS data processing and figure creation, and PA DEP general permit package. Assisted with archeology field work and GIS figure creation.

Biologist II; MarkWest Liberty Midstream & Resources, LLC; Lynn to Stebbins Pipeline, Butler County, PA; 2013. Responsible for conducting a wetland delineation and stream investigation, as well as a botanical survey for a PA state-listed species. Prepared a wetland delineation and stream identification report, botanical survey report, associated GIS data processing and figure creation, and PA DEP general permit package.

Biologist II; EQT Gathering, LLC; MOME S007 Pipeline, Harrison County, WV; 2012. Responsible for preparing nationwide permit package. Also assisted in Indiana Bat habitat assessment and report preparation.

Environmental Scientist; Williams; Huczko to Clark Pipeline Project, Westmoreland County, PA; 2012. Assisted in surveys for PA state-listed species including purple fringeless orchid (*Platanthera peramoena*), bushy bluestem *(Andropogon glomeratus*), shining ladies' tresses (*Spiranthes lucida*), and mountain bugbane (*Actea podocarpa*). Prepared reports for PA state regulatory agencies and associated GIS figure creation.

Environmental Scientist; Williams; Jury to 6-inch Pipeline Project, Westmoreland County, PA; 2011. Assisted in botanical surveys for PA state-listed species including purple rocket (*Iodanthus pinnatifidus*), scouring rush (*Equisetum x ferrissii*), and Torrey's sedge (*Juncus torreyi*) for a 4 mile natural gas pipeline project. Prepared reports for PA state regulatory agencies and associated GIS figure creation.

Environmental Scientist; XTO; North Discharge/Indiana Extension Pipeline Project, Westmoreland & Indiana Counties, PA; 2011. Assisted in a wetland delineation/stream survey and a survey for PA state-listed species including purple fringeless orchid (Platanthera peramoena), bushy bluestem (Andropogon glomeratus), shining ladies' tresses (*Spiranthes lucida*), leafcup (*Smallanthus uvedalius*), and eastern coneflower (*Rudbeckia fulgida*) for a 12 mile natural gas pipeline project. Prepared reports for PA state regulatory agencies and associated GIS figure creation.

Environmental Scientist; Williams; Gamelands to Jordan Pipeline Project, Greene County, PA; 2011. Assisted in surveys for state-listed species including shining ladies' tresses (Spiranthes ovalis), wild senna (*Senna marilandica*), leaf-cup (*Smallanthus uvedalius*), sourwood (*Oxydendron arboreum*), crested dwarf iris *(Iris cristata*), St. Andrew's cross *(Hypericum stragulum*), harbinger-of-spring *(Erigenia bulbosa*), lobed spleenwort *(Asplenium pinnatifidum*), puttyroot (*Aplectrum hyemale*), single-headed pussytoes (*Antennaria solitaria*), and blue monkshood (*Aconitum uncinatum*). Prepared reports for PA state regulatory agencies.

Environmental Scientist; Range Resources; Multiple Temporary and Permanent Water Pipelines; Washington County, Pennsylvania. 2010 to 2011. Responsible for wetland delineations and stream evaluations on dozens of temporary and permanent water pipelines linking frac water impoundments in the Washington County area. Also prepared wetland delineation and stream assessment reports.

CHRONOLOGICAL HISTORY

Wetland/Environmental Scientist III; Tetra Tech, Inc.; Pittsburgh, PA, August 2015 – Present.

Environmental Scientist – Part-time; Pennsylvania Soil and Rock, Inc. Monroeville, PA, March 2015 – August 2015

Environmental Scientist; Dawood Engineering Inc., Canonsburg, PA, February 2014 – January 2015

Biologist II; AECOM Technical Services, Inc.; Pittsburgh, PA, August 2012 – February 2014

Environmental Scientist; Pennsylvania Soil and Rock, Inc.; Monroeville, PA, April 2010 – August 2012

Black Fly Suppression Program Intern; Pennsylvania Department of Environmental Protection; Pittsburgh, PA, May 2008 – August 2008

SCIENTIFIC/TECHNICAL PUBLICATIONS

- N/A

MEMBERSHIPS

- Botanical Society of Western Pennsylvania

AWARDS

- N/A

TETRA TECH

Deanna N.Quinn
Wetland/Environmental Scientist II

EXPERIENCE SUMMARY

Ms. Quinn has two years' experience as an environmental scientist/ wildlife biologist with a background in wildlife and fisheries resource management. Her education background includes studies in chemistry, biology, statistics, botany, terrestrial ecology, natural resource management, conservation ecology, environmental policy and regulatory compliance, wetland ecosystems, wetland assessment and delineation, geographic information systems and other environmental related fields. Deanna has performed numerous wildlife and vegetation surveys, stream assessments habitat assessments and related report generation. As an Environmental Scientist, Deanna has had the opportunity of working fulltime on wetland delineations under Environmental Wetland Specialists, primarily for Marcellus shale projects. She also has experience performing bat hibernaculum habitat surveys in Western Pennsylvania as well as Phase 1 Bog Turtle surveys in Pennsylvania.

RELEVANT EXPERIENCE

Environmental Scientist II, Sunoco Logistics, Ohio-Pennsylvania Pipeline Project, Spanning from Delaware County, PA through Harrison County, Ohio, November 2013 to present. Ms. Quinn conducted site investigations, wetland delineations, stream assessments, performed Ohio Rapid Assessment Method, PHWH HHEI & QHEI, Phase 1 Bog Turtle surveys, macroinvertebrate surveys, and wetland report preparation for proposed 300 mile natural gas pipeline reaching from the Delaware River in PA to Scio, OH.

Environmental Scientist I; Gulfport Energy; Various Natural Gas Well Pad Sites; Belmont County, Ohio; August 2013 to present. Ms. Quinn conducted site investigations, wetland delineations, stream assessments, performed Ohio Rapid Assessment Method, PHWH HHEI & QHEI, and wetland report preparation for proposed well pad locations in Belmont County, Ohio.

EDUCATION

BT Wildlife Management, 2011, SUNY Cobleskill

AAS Animal Sciences & Ecology, 2009, SUNY Delhi

REGISTRATIONS

NA

TRAINING/CERTIFICATIONS

Certified Wetland Assessment Delineator, 2010, NY

OFFICE

Pittsburgh, PA

YEARS OF EXPERIENCE

3

YEARS WITH TETRA TECH

1 year 10months

Environmental Scientist I; MarkWest Liberty Midstream & Resources, LLC; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Pennsylvania; May 2013 to present. Responsible for performing and assisting with wetland delineations for various proposed natural gas pipeline projects in southwestern Pennsylvania. Specific tasks included field survey, report preparation, and wetland functional assessments.

CHRONOLOGICAL HISTORY

Environmental Analysis/Management: Environmental Scientist I-II, 2013-present, Pittsburgh, PA
Research: Husbandry Services Technician I, 2013, Pittsburgh, PA
Research Wildlife Biologist, 2010-2012, Cobleskill, NY
Research Avian Research Technician, 2011, Abaco, Bahamas
Research Predator Research Technician, 2010, Batavia, NY

SCIENTIFIC/TECHNICAL PUBLICATIONS

- N/A

MEMBERSHIPS

- The Wildlife Society, N/A

AWARDS

- N/A

AMANDA M. STOTT
WILDLIFE AND WETLAND SCIENTIST/ENVIRONMENTAL SCIENTIST I
PITTSBURGH, PA

EDUCATION: B.T. Wildlife Management, SUNY Cobleskill, 2011
A.A.S General Studies, Liberal Arts and Sciences Herkimer C.C.C., 2009

CERTIFICATIONS/ REGISTRATIONS: Certified Wetland Assessment Delineator, NY, 2010

EXPERIENCE SUMMARY:

Ms. Amanda Stott has two years' experience as an environmental scientist/ wildlife biologist with a background in wildlife and fisheries resource management. Her education background includes studies in chemistry, biology, statistics, botany, terrestrial ecology, natural resource management, conservation ecology, environmental policy and regulatory compliance, wetland ecosystems, wetland assessment and delineation, geographic information systems and other environmental related fields. Amanda has performed numerous wildlife and vegetation surveys, stream assessments habitat assessments and related report generation. As an Environmental Scientist, Amanda has had the opportunity of working fulltime on wetland delineations under Environmental Wetland Specialists, primarily for Marcellus shale projects.

RELEVANT PROJECT EXPERIENCE:

Environmental Scientist I; MarkWest Liberty Midstream & Resources, LLC; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Pennsylvania; May 2013 to present. Responsible for performing and assisting with wetland delineations for various proposed natural gas pipeline projects in southwestern Pennsylvania. Specific tasks included field survey, report preparation, and wetland functional assessments.

Sampling:

Wildlife Technician; SUNY Cobleskill; Cobleskill, NY; June 2010. Conducted local herpetology surveys on both salamander and frog habitats locally in and around Cobleskill area. Used amphibian traps to capture live specimens and recorded population densities and species diversity indexes for each location. Specifically focusing on human impacts, and habitat alterations and the population and diversity impacts associated with the disturbance.

Wildlife Research Technician, University of Tennessee; Drakesboro, KY; August 2012. Conducted vegetation surveys to identify nesting habits of Northern Bob-White Quail. Using a plot-less sampling method and random point generations near known nesting sites. Focusing on generating suitable habit for nesting on reclaimed coal-mine area.

Wildlife Research Technician, Colorado Parks and Wildlife; Hayden, CO; August 2013.
Aid in annual report of flora growth by conducting vegetation surveys on private and public lands to regenerate sage-brush nesting areas for Sage Grouse populations. Use of line-point method and random point generations.

Environmental Mgmt. Systems:

- Pond surveys (water quality, fish identification, mapping) for Schoharie County residents January – May 2009
- Angler Surveys and Census for the Ice Fishery of Otsego Lake, NYDEC December-February 2010
- Wetland delineation, Field work in various wetlands throughout the Cobleskill N.Y. area from September- December 2010
- Waterfowl habitat survey, Activity budget survey, Nest Predation survey, various research projects around Cobleskill N.Y. September - December 2010.
- Population surveys of ruffed grouse, NYDEC, trapping and banding, various study areas around Cobleskill N.Y. December 2009-January 2010.

CHRONOLOGICAL WORK HISTORY:

Wetland/Environmental Scientist I; Tetra Tech, Inc.; Pittsburgh, PA, May 2013 – Present.

Wildlife Research Technician; Colorado Parks and Wildlife; Steamboat Springs, CO April-August 2013

Wildlife Survey Technician; Western Ecosystems Inc.; Lowville, NY; July 2012-January 2013

Wildlife Research Technician; University of Tennessee; Drakesboro, KY; July-October 2011

Animal Husbandry Technician; Stonewall Boarding and Game Preserve; Esperence, NY; June 2009-April 2011

PUBLICATIONS/ARTICLES:

Morin. M.M, Stott, A.M.; "Wildlife Management Report for: Native Meadows Preserve"; New Milford, Connecticut; October 2012

TETRA TECH

Cody R. Stoliker

ENVIRONMENTAL SCIENTIST I

EXPERIENCE SUMMARY

Cody R. Stoliker has approximately 1 year of professional experience in wetland delineation, permitting, and stream assessments and classification in Pennsylvania, New York, Ohio, and West Virginia. With 4 years of fisheries and wildlife management experience, specializing in large game conservation, Mr. Stoliker has technician experience working with bear, elk, moose, deer, and wolves in Wyoming, as well as biologist work with whitetail deer, red stag, feral hogs, and the endangered American Burying Beetle in Oklahoma along pipeline routes where he produced habitat assessments, post monitoring impact statements and performed population control. Mr. Stoliker is assisting Tetra Tech field leads and other environmental scientists to assess and delineate streams and wetlands along natural gas pipeline routes, access roads, right-of-ways, and well pad sites. Cody R. Stoliker's educational background is in Wildlife Management with a minor focus in wetland assessment/delineation and fisheries.

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RELEVANT EXPERIENCE

Environmental Scientist I; Sunoco Logistics; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects Pennsylvania. Responsible for performing and assisting with wetland delineations and stream assessments for the proposed Pennsylvania Pipeline Project. Other responsibilities included report preparation and wetland functional assessments.

Environmental Scientist I; MarkWest Liberty Midstream & Resources, LLC; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Pennsylvania. Responsible for performing and assisting with wetland delineations for various proposed natural gas pipeline projects in southwestern Pennsylvania. Specific tasks included field survey, report preparation, and wetland functional assessments.

Environmental Scientist I; MarkWest Ohio Gathering Company, LLC; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Ohio. Responsible for performing and assisting with wetland delineations for various proposed natural gas pipeline projects in eastern Ohio. Specific tasks included field survey, report preparation, and completion of Ohio EPA specific wetland and stream assessments.

EDUCATION

Bachelor of Technology, Wildlife Management, 2013, State University of New York at Cobleskill

AREA OF EXPERTISE

Large Game Wildlife Management & Conservation, Wetland Assessment

REGISTRATIONS/ AFFILIATIONS

Ducks Unlimited 2012- Present

Rocky Mountain Elk Foundation 2013 – Present

National Wild Turkey Federation 2013 - Present

TRAINING/CERTIFICATIONS

Certified Wetland Assessment Delineator, NY, 2010

NYS Certified Class A Interior Firefighter

OFFICE

Tetra Tech OGA
Pittsburgh, PA

YEARS OF EXPERIENCE

1

YEARS WITH TETRA TECH

1

SCIENTIFIC/TECHNICAL PUBLICATIONS

N/A

CHRONOLOGICAL HISTORY

Environmental Scientist I, Tetra Tech, 2014-2015, Pittsburgh, PA

Wildlife Biologist/Ranch Manager, Oklahoma Trophy Ranch, 2013-2014, Allen, OK

Wildlife Management Technician, Rolling Thunder & Rim Ranches, Spring-Fall 2013, Bondurant, WY

Assistant Herdsman, Bison Island, 2012-2013, Sharon Springs, NY

Avian Survey Technician, NYS Dept. of Environmental Conservation, Winter 2011, Albany NY

TETRA TECH

Kevin Pulver
Wetland/Environmental Scientist I

EXPERIENCE SUMMARY

Mr. Kevin Pulver has a background in mapping, watershed management and environmental consulting. His education background includes studies in chemistry, ecology, wildlife and fisheries, biology, geography, hydrology, limnology, statistics, wetland assessment and delineation, geographic information systems, permitting, etc. As a Wetland Environmental Scientist I, Kevin had the opportunity to perform numerous wetland delineations under the supervision of seasoned professionals within the wetland department of Tetra Tech. These delineations were primarily performed for Marcellus shale projects. Kevin also has experience in watershed management/stream restoration techniques as well as GIS and AutoCAD software application.

RELEVANT EXPERIENCE

Environmental Scientist I; Sunoco Logistics; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects Pennsylvania. Responsible for performing and assisting with wetland delineations and stream assessments for the proposed Pennsylvania Pipeline Project. Other responsibilities included report preparation and wetland functional assessments.

Environmental Scientist I; MarkWest Liberty Midstream & Resources, LLC; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Pennsylvania. Responsible for performing and assisting with wetland delineations for various proposed natural gas pipeline projects in southwestern Pennsylvania. Specific tasks included field survey, report preparation, and wetland functional assessments.

Environmental Scientist I; MarkWest Ohio Gathering Company, LLC; Wetland Delineations for Miscellaneous Natural Gas Pipeline Projects; Ohio. Responsible for performing and assisting with wetland delineations for various proposed natural gas pipeline projects in eastern Ohio. Specific tasks included field survey, report preparation, and completion of Ohio EPA specific wetland and stream assessments.

EDUCATION

B.A. Environmental Studies, 2011, Penn State University - Altoona

B.S. Geography: Watershed Management; Environmental Science, 2013, Mansfield University of Pennsylvania

TRAINING/CERTIFICATIONS

Certificate in Wetland Delineation from Wetland Training Institute

OFFICE

Pittsburgh, PA

YEARS OF EXPERIENCE

1

YEARS WITH TETRA TECH

1

CHRONOLOGICAL HISTORY

Wetland/Environmental Scientist I, Tetra Tech, Inc., November, 2014 – Present, Pittsburgh, PA

AutoCAD Drafter, Land Services Group, November 2013-July 2014, Wellsboro, PA

Cartographer, Intelligent Direct, Inc., May 2013 – November 2013, Wellsboro, PA

Biological Scientist Intern, United States Geologic Survey - Northern Appalachian Research Laboratory, Summer 2012, Wellsboro, PA

SCIENTIFIC/TECHNICAL PUBLICATIONS

- N/A

MEMBERSHIPS

- N/A

AWARDS

- N/A

Environmental Consultation Services, Inc

DAVID J. BONOMO
Senior Environmental Scientist

Profile

- Environmental scientist with over ten years experience in environmental consulting and conducting ecological field studies in Northeastern US.
- Professional experience in environmental consulting managing projects and performing wetland delineation and stream assessments; preparing permit applications; performing biological site assessments including existing vegetation evaluations, habitat and species evaluations and searches for federal and state endangered, threatened, and rare plant and animal species; conducting wetland and stream mitigation design and monitoring; and designing and conducting research studies on wildlife in the Northeastern US.
- Provides technical support for the planning, permitting and construction of wind and solar energy facilities, transmission line corridors, as well as large commercial and residential projects.
- Advanced technical skills and training for water of the US evaluations in multiple regions, including *Northcentral and Northeast, Eastern Mountains and Piedmont, and Atlantic and Gulf Coastal Plain*.

PROFESSIONAL EXPERIENCE

Environmental Consultation Services, Inc. Pen Argyl, PA
Senior Environmental Scientist 2014 - Present

- Provide ecological services for large-scale gas pipeline and electrical transmission utility projects, residential and industrial construction projects, and private residential owners and small business.
- Conduct site reconnaissance, wetland and stream delineations; habitat assessments; threatened and endangered plant and animal surveys.
- Conduct habitat evaluations, ecological assessments, and threatened and endangered wildlife and plant species and rare community surveys. Perform habitat assessments and searches for PA Special Concern species, including the bog turtle (*Glyptemys muhlenbergii*).
- Provide site environmental surveys utilizing Trimble GPS. Prepare site mapping using Geographic Information Systems (GIS) and AutoCAD software.

Shoener Environmental, Inc. Dickson City, PA
Senior Environmental Scientist 2004 - 2014

- Provide direct project management of ecological services for high value and/or complex large-scale wind farm projects, linear state and local utility projects, Marcellus shale projects, residential and industrial construction projects, and private residential owners and small business.
- Prepare federal, state, and local permit applications, wetland mitigation designs, and erosion and sediment control plans to meet regulatory requirements for site development.
- Prepare and review ecological project plans and budgets.
- Conduct site reconnaissance, wetland and stream delineations; habitat assessments; threatened and endangered plant and animal surveys.
- Inspect wetland mitigation and construction sites for regulatory compliance of erosion and stormwater controls.
- Conduct habitat evaluation and technical services for the Ecological Services Division, including habitat evaluations, ecological assessments, and threatened and endangered wildlife and plant species and rare community surveys. Perform habitat assessments and searches for PA Special Concern species, including the small-footed bat (*Myotis leibii*), timber rattlesnake (*Crotalus horridus*), wood rat (*Neotoma magister*), and the Indiana Bat (*Myotis sodalis*).
- Provide field mapping of environmental survey data utilizing survey quality Trimble Global Positioning System (GPS). Prepare site mapping using Geographic Information Systems (GIS) and AutoCAD software.
- Manage field personnel for post-construction bat/bird mortality monitoring studies on wind energy facilities in Pennsylvania.

Ecoscientific Solutions, Inc Scranton, PA
Environmental Scientist 2004

- Lake and Pond Management and Water Quality technician.
- Conducted aquatic plant surveys; water quality analysis; and benthic surveys
- Certified pesticide applicator for the control of invasive aquatic vegetation.

COMPUTER SKILLS

AutoCAD (2010-2014), ARCView (10.1), Microsoft Office (Word, Excel, PowerPoint),

EDUCATION

Wilkes University Wilkes-Barre, PA
Bachelor of Science, Environmental Science 2004

- Lake and Stream Ecology, Field Botany, Water Quality Analysis, and Environmental Engineering
- Research assistant and water quality specialist for the study of freshwater bivalve populations in natural lakes of northeastern Pennsylvania.

Continuing Education

- A Consulting Botanist Workshop, Morris Arboretum, Philadelphia, PA, April 18, 2014
- Acoustical Bat Monitoring Workshop, Albany, New York, January 2013.
- Outdoor Emergency Care, National Ski Patrol, Poconos, Pa. Fall 2012.
- Acoustical Bat Monitoring Workshop. Bat Conservation and Management, Gettysburg, PA. Instructed by Joe Szewczak (Developer of SonoBat software), October, 2011.
- Advanced Bat Capture Techniques Workshop, Bat Conservation International and Bat Conservation Management, Patuxent Research Refuge, Laurel, MD. September 2010.
- Final Chapter 102 Training Session. Changes to the PA Chapter 102 Regulations (Erosion and Sediment Control and Stormwater Management) (effective November 19, 2010). PA DEP. Wilkes-Barre, PA. November 3, 2010.
- Annual Industry Training Workshop. PA DEP, Bureau of Oil & Gas Management. Williamsport, PA. May 11, 2010.
- Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual Northcentral and Northeast Region. PAPSS Training Conference. Laporte, Sullivan County, PA. April 27, 2010.
- Bat Capture Techniques Workshop, Bat Conservation and Management Workshop, Bat Conservation Management and Pennsylvania Game Commission (PGC), August 2007.
- Soil Science, Soil Morphology, and Field Applications, Wilkes University, June 2007.
- Hydric Soils, Rutgers University, June 2006.

PROFESSIONAL MEMBERSHIPS

- Society of Wetland Scientist (SWS)
- Pennsylvania Lake Management Society (PALMS)
- North American Society for Bat Research (NASBR)
- National Ski Patrol (NSP)

PROJECT PORTFOLIO

- Allegheny Ridge Wind Farm, Cambria and Blair Counties, PA (2007) - 132 MW/66 Turbines
- Highland Wind Farm, Cambria County, PA (2008) - 50MW/25 Turbines
- North Allegheny Wind, Blair County, PA (2008) – 20 MW/10 Turbines
- Sandy Ridge Wind Farm, Centre and Blair Counties, PA (2009)- 62.5 MW/25 Turbines
- Twin Ridges Wind Farm, Somerset County, PA (2011) – 136 MW/68 Turbines
- Mehoopany Wind Farm, Wyoming County, PA (2012)–180 MW/90 Turbines
- Penelec HTC Power Line – Cambria County, PA (2008), 17 lineal miles
- Valley View Business Park Phase 2, Lackawanna County, PA (2007), 810 Acres
- Harrisburg – Allentown Communication Line, Dauphin, Lebanon, Berks, and Lehigh Counties, PA (2012) – 90 lineal miles
- PA Pipeline - Natural Gas Pipeline, Western Pennsylvania to Marcus Hook Industrial Complex, Philadelphia

KEVIN S. KEAT, *PWS, Sr. Biologist*
Environmental Consultation Services, Inc.
1095 Mill Road, Pen Argyl, PA 18072
Phone: (484) 515-6806 Email: kevinkeat@ptd.net

YEARS OF EXPERIENCE: 23

EDUCATION: B.S. Earth and Environmental Science, Wilkes University, Wilkes-Barre, PA;1992

PROFESSIONAL REGISTRATIONS AND TRAINING

- Professional Wetland Scientist Certification – Society of Wetland Scientists Since 2013
- PA Fish & Boat Commission – Recognized Qualified Biologist, March 2006
- US Fish & Wildlife Service-Recognized Qualified Biologist, March 2006
- US Army Corps of Engineers – Recognized Qualified Wetlands Delineator, May 1998
- NY DEC - Recognized Qualified Biologist, May 2009
- NJ Fish & Wildlife Service – Recognized Qualified Biologist, March 2006
- MD Department of Natural Resources – Recognized Qualified Biologist, March 2006
- Rutgers University Certificate of Completion for Endangered and Threatened Species of Northern NJ, Survey Techniques and Habitat Assessment Regulatory Implications, 2005
- Rutgers University Certificate of Completion for Environmental and Ecological Risk Assessment; 2000
- Ohio State University, Certificate of Completion for Creation and Restoration of Wetlands for Mitigation of Wetland Loss; 1999
- Pennsylvania Department of Environmental Protection Certificate of Achievement in the Application of Pennsylvania Department of Environmental Protection Act 2 Regulations and Procedures in the Act 2 Technical Manual; 1999
- Plant Identification: Wetlands and Their Borders; 1999
- U.S. Army Corps of Engineers Wetlands Delineator Training; 1998
- USEPA Certification for Hazardous Materials Incident Response Operations (29 CFR1910.120); 1992

PROFESSIONAL AFFILIATIONS

Society of Wetlands Scientists

PA Fish & Boat Commission Timber Rattlesnake Site Assessment and Inventory Project, 2006-Present *Field Specialist for the Northeast Region of Pennsylvania*

KEY QUALIFICATIONS

Mr. Keat has worked continuously in Environmental Consulting from December 1992 to the present. He conducted environmental studies and obtained local, state and federal environmental approvals for multiple project sites throughout Pennsylvania, New Jersey and New York. Mr. Keat has performed studies for public and private projects including power transmission lines, gas pipelines, commercial and residential development, telecommunications facilities, transportation and port facilities. He has also conducted surveys for state resource protection agencies. Mr. Keat is proficient in construction monitoring, wetland delineation, biological

cause and effect stream surveys, wildlife habitat surveys and environmental impact assessments. He is experienced in surveys for endangered and threatened plant and animal species including bog turtles. He has performed phase 1, 2 and 3 surveys for bog turtles and conducted trapping surveys for the pine and corn snakes in southern New Jersey. He has conducted benthic macroinvertebrate surveys to assess stream quality. He has prepared baseline ecological evaluations to assess the effects of contamination on environmentally sensitive areas. He has prepared environmental screening and environmental assessment reports in accordance with state and federal requirements. He has performed Phase I environmental site assessments to screen for hazardous waste contamination and has performed soil and groundwater site characterizations and prepared and implemented site remediation plans.

Mr. Keat has 23 continuous years of environmental consulting experience which is extensive in conducting Wetlands Delineation, Flora/Fauna Threatened and Endangered Species Surveys, PA Chapter 105 Environmental Assessments, Ecological Assessments, Freshwater Macroinvertebrate Stream Surveys, Groundwater Monitoring, and Wetlands Mitigation/Restoration for the following:

Project Types:

Several Hundred Miles of Linear Projects*:*
Electric Power Transmission Lines, Oil and Gas Pipelines, State Highway and Railway Corridors - Wetlands Delineation, T&E Species Habitat Surveys, Construction Monitoring, Wetlands Mitigation

Oil and Gas Well Development Pads and Pump Stations:
Wetlands delineation, T&E Botanical Species Surveys

Large Land Tract Subdivisions*:* Residential, Commercial and Industrial Development – Wetlands Delineation, Mitigation/Restoration, T&E Species Surveys, PA Chapter 105 Environmental Assessments, Construction Monitoring

Soil and Groundwater Remediation Projects*:* Soil Excavation and Disposal, Groundwater Pump and Treat Technologies including Petroleum-Related Volatile Organic Compounds, Heavy Metals from Industrial Contaminants – Wetlands Delineation, Wetlands Hydrological Monitoring and Mitigation, T&E Species Surveys, Ecological Risk Assessment

Bridge Repair/Reconstruction Projects*:* Including Wetlands Delineation, T&E Species Surveys and Environmental Assessments as Per PA Chapter 105

Government Funded Local, County, State and Federal Agency Research Projects: For flora/fauna species presence/absence determinations, diversity assessments, population size and distribution in PA, NJ, MD and NY.

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Permitted Municipal Waste Landfill Disposal Facilities: Groundwater and Surface Water Monitoring, Methane Gas Monitoring, Wetlands Mitigation/Restoration, Quantitative Macroinvertebrate Stream Surveys

State and / or Federally Listed Threatened, Endangered or Concern Species Surveyed w/Random Visual Search Methods and / or Trapping:

Reptiles: Bog Turtle, Wood Turtle, Spotted Turtle, Timber Rattlesnake, Copperhead, Diamond Back Rattlesnake, Eastern Coral Snake, Pine Snake, Corn Snake

Amphibians: Mole Salamanders, Pine Barrens Treefrog

PA and NJ Botanical Surveys: Wild pea (*Lathyrus ochroleucus*) Eared-false foxglove (*Agalinis auriculata*), Northeastern bulrush (*Scirpus ancistrochaetus*), Swamp dog hobble bush (*Leucothoe racemosa*), Swamp pink (*Helonias bullata*), Knieskern's beaked rush (*Rhynchospora knieskernii)*, Twin flower *(Linnaea borealis)*, Spreading globeflower (*Trollius laxus*), Carex fava, Carex shortiana, Sand cherry (*Prunus pumila*), Prickly pear cactus (*Opuntia humifusa*), Racemed milkwort (*Polygala polygama*), Small whorled pogonia (*Isotria medeoloides*), Nuttall's ticktrefoil (*Desmodium nuttallii*), Quill fameflower (*Phemeranthus teretifolius*), Mountain bugbane (*Actaea podocarpa*), Wild gooseberry (*Ribes missouriense*), Shale barren Evening primrose (*Oenothera argillicola*), Serpentine aster (*Symphyotrichum depauperatum)*, Small's ragwort (*Packera anonyma*), Torrey's rush (*Juncus torreyi*), Netted chain fern (*Woodwardia areolata*)

Potential Hazardous Waste Site Assessments and Remediation:

ASTM E1527-1528 Phase 1 Environmental Site Assessments for Due Diligence

PA ACT 2 Site Characterization and Remediation for Soil and Groundwater including NPL/Superfund Sites

Underground Storage Tank Indemnification Fund (USTIF) Projects

NJ ISRA Site Characterization and Remediation Projects