

## **Appendix C**

### **DEQ Wetland Data Sheets and Photos**

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Photo 4-1  
Location, Orientation: Wetland Site 4, DP#1 Looking at the soil  
Permit Number: JPA #15-1551  
Wetland Data Sheet Reference: Site 4, DP#1  
9/30/19, 12:19 PM  
Taken by:<sup>1</sup>  
Description: Test pit soils

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<sup>1</sup> All DEQ hydrology monitoring photos taken by M. Hutchins





Photo 4-2

Location, Orientation: Wetland Site 4, DP#1 Looking south

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: Site 4, DP#1

09/30/19, 12:19 PM

Description: Taken from wetland site looking downstream at XS#2





Photo 4-3

Location, Orientation: Wetland Site 4, DP#2 Looking at the soils

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: Site 4, DP#2

09/30/19, 12:44 PM

Description: Test pit soils





Photo 4-4

Location, Orientation: Wetland Site 4, DP#2 looking south

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: Site 4, DP#2

09/30/19, 12:44 PM

Description: Taken from wetland site looking downstream at XS#2





Photo 3-1

Location, Orientation: Wetland Site 3, DP#1 Looking at the soils

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: Site 3, DP#1

09/30/19, 3:07 PM

Description: Taken from wetland looking upstream at XS4





Photo 3-2  
Location, Orientation: Wetland Site 4, DP#1 Looking at the soils  
Permit Number: JPA #15-1551  
Wetland Data Sheet Reference: Site 3, DP#1  
10/2/18, 4:04 PM  
Description: Test pit soil.





Photo 3-3  
Location, Orientation: Wetland Site 3, DP#2 Looking west  
Permit Number: JPA #15-1551  
Wetland Data Sheet Reference: Site 3, DP#2  
09/30/19, 3:08 PM  
Description: From the wetland looking downstream at XS#4





Photo 3-4  
Location, Orientation: Wetland Site 3, DP#2 Looking at the soils  
Permit Number: JPA #15-1551  
Wetland Data Sheet Reference: Site 3, DP#2  
09/30/19, 3:08 PM  
Description: Test pit soils.





Photo 2-1

Location, Orientation: Wetland Site 2, DP#1 Looking at the soils

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: Site 2, DP#1

10/01/19, 3:04 PM

Description: Test pit soils





Photo 2-2  
Location, Orientation: Wetland Site 2, DP#1 Looking east  
Permit Number: JPA #15-1551  
Wetland Data Sheet Reference: Site 2, DP#1  
10/1/19, 3:05 PM  
Description: Looking east at the wetland site





Photo 2-3

Location, Orientation: Wetland Site 2, DP#2 Looking at the soils

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: Site 2, DP#2

10/01/19, 3:23 PM

Description: Test pit soils





Photo 2-4

Location, Orientation: Wetland Site 2, DP#2 Looking west

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: Site 2, DP#2

10/01/19, 3:23 PM

Description: Taken from wetland looking west





Photo 2-5

Location, Orientation: Wetland Site 2, DP#3 Looking at the soils

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: Site 2, DP#3

10/01/19, 3:51 PM

Description: Test pit soils. This location is closest to "Point 2" in Exhibit #1





Photo 2-6

Location, Orientation: Wetland Site 2, DP#3 Looking northwest

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: Site 2, DP#3

10/01/19, 3:51 PM

Description: Taken from the wetland site looking northwest. This location is closest to “Point 2” in Exhibit #1





Photo 2-7

Location, Orientation: Wetland Site 2, DP#4 Looking at the soils

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: Site 2, DP#4

10/01/19, 4:06 PM

Description: Test pit soils. This location is closest to "Point 1" in Exhibit #1





Photo 2-8

Location, Orientation: Wetland Site 2, DP#4 Looking north

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: Site 2, DP#4

10/01/19, 4:06 PM

Description: At the convergence of the two depressions in Wetland Site #2, near the most southern end of the system looking north. This location is closest to "Point 1" in Exhibit #1



Project/Site: Pigg River Year 3 City/Country: Franklin Sampling Date: 10/1 /2019  
 Applicant/Owner: FORVA State: VA Sampling Point: Site#2, DP-1  
 Investigator(s): MH Section, Township, Range: N/A  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2  
 Subregion (LRR or MLRA): LRR P Lat: 36°59'40" Long: 79°51'39" Datum: NAD 83  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

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

Hydrophytic Vegetation Present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Hydric Soil Present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>					
Wetland Hydrology Present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>					
<b>Remarks:</b> All three wetland parameters (i.e., wetland hydrology, hydrophytic vegetation, and hydric soils) were satisfied at this data point, which characterizes a palustrine forested wetland at Site #2.									

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 5 Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 0 (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			



**VEGETATION (Four Strata) - Use scientific names of plants.**

 Sampling Point: Site#2,DP-1

Tree Stratum (Plot size: <u>30' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_ = Total Cover

Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_ = Total Cover

Herb Stratum (Plot size: <u>5' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Ludwigia alternifolia</u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>FACW</u>
2. <u>Iris pseudacorus</u>	<u>10</u>	<input type="checkbox"/>	<u>OBL</u>
3. <u>Boehmeria cylindrica</u>	<u>5</u>	<input type="checkbox"/>	<u>FACW</u>
4. <u>Persicaria maculosa</u>	<u>1</u>	<input type="checkbox"/>	<u>FACW</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	<u>76</u>	_____	_____

50% of total cover: 38 20% of total cover: 15.2 = Total Cover

Woody Vine Stratum (Plot size: <u>30' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_ = Total Cover

**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: 100.0% (A/B)

**Prevalence Index worksheet:**

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

☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>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.)

Nomenclature and indicators from The National Wetland Plant List: 2016 wetland ratings with updates through July 2019; NI species are not used in the Dominance Test Calculation. No woody vine, sapling/shrub, or tree stratum present at this data point. There was a Fagus grandifolia that was rooted outside the wetland.



## SOIL

Sampling Point: Site#2,DP-1

[illegible]



Project/Site: Pigg River Year 3 City/Country: Franklin Sampling Date: 10/1 /2019  
 Applicant/Owner: FORVA State: VA Sampling Point: Site#2, DP-2  
 Investigator(s): MH Section, Township, Range: N/A  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR or MLRA): LRR P Lat: 36°59'38" Long: 79°51'38" Datum: NAD 83  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

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

Hydrophytic Vegetation Present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Hydric Soil Present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>					
Wetland Hydrology Present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>					
Remarks:  All three wetland parameters (i.e., wetland hydrology, hydrophytic vegetation, and hydric soils) were satisfied at this data point, which characterizes a palustrine forested wetland at Site #2.									

Wetland Hydrology Indicators:			Secondary Indicators (minimum of two required)		
Primary Indicators (minimum of one is required; check all that apply)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)			
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)			
<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)			<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

**VEGETATION (Four Strata) - Use scientific names of plants.**

 Sampling Point: Site#2,DP-2

Tree Stratum (Plot size: <u>30' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_ = Total Cover

Sapling/Shrub Stratum (Plot size: <u>15' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Salix nigra</u>	<u>10</u>	<input checked="" type="checkbox"/>	OBL
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____

50% of total cover: 5 20% of total cover: 2 10 = Total Cover

Herb Stratum (Plot size: <u>5' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Ludwigia alternifolia</u>	<u>100</u>	<input checked="" type="checkbox"/>	FACW
2. <u>Persicaria hydropiper</u>	<u>30</u>	<input checked="" type="checkbox"/>	OBL
3. <u>Carex sp.</u>	<u>5</u>	<input type="checkbox"/>	NI
4. <u>Polygonum ramosissimum</u>	<u>2</u>	<input type="checkbox"/>	FAC
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____

50% of total cover: 68.5 20% of total cover: 27.4 137 = Total Cover

Woody Vine Stratum (Plot size: <u>30' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_ = Total Cover

**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: 100.0% (A/B)

**Prevalence Index worksheet:**

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

☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>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.)

Nomenclature and indicators from The National Wetland Plant List: 2016 wetland ratings with updates through July 2019; NI species are not used in the Dominance Test Calculation. No woody vine or tree stratum present at this data point.



## SOIL

Sampling Point: Site#2,DP-2**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-18	10YR3/2	60	5YR3/4	40	C	PL & M	Silty Clay Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>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)  
☐ Piedmont Floodplain Soils (F19)(**MLRA 148**)  
☐ Red Parent Material (F21)(**MLRA 127, 147**)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>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:

Project/Site: Pigg River Year 3 City/Country: Franklin Sampling Date: 10/1 /2019  
Applicant/Owner: FORVA State: VA Sampling Point: Site#2, DP-3  
Investigator(s): MH Section, Township, Range: N/A  
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1  
Subregion (LRR or MLRA): LRR P Lat: 36°59'41" Long: 79°51'38" Datum: NAD 83  
Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

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

Hydrophytic Vegetation Present?      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present?                      Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present?            Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:  All three wetland parameters (i.e., wetland hydrology, hydrophytic vegetation, and hydric soils) were satisfied at this data point, which characterizes a palustrine forested wetland at Site #2.	

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 16 (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			



**VEGETATION (Four Strata) - Use scientific names of plants.**

 Sampling Point: Site#2,DP-3

Tree Stratum (Plot size: <u>30' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_ = Total Cover

Sapling/Shrub Stratum (Plot size: <u>15' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Salix nigra</u>	<u>15</u>	<input checked="" type="checkbox"/>	OBL
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____

50% of total cover: 7.5 20% of total cover: 3 15 = Total Cover

Herb Stratum (Plot size: <u>5' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Ludwigia alternifolia</u>	<u>80</u>	<input checked="" type="checkbox"/>	FACW
2. <u>Scirpus cyperinus</u>	<u>15</u>	<input type="checkbox"/>	FACW
3. <u>Juncus effusus</u>	<u>15</u>	<input type="checkbox"/>	FACW
4. <u>Carex sp.</u>	<u>10</u>	<input type="checkbox"/>	NI
5. <u>Juncus canadensis</u>	<u>10</u>	<input type="checkbox"/>	OBL
6. <u>Poa sp.</u>	<u>5</u>	<input type="checkbox"/>	NI
7. <u>Persicaria sp.</u>	<u>2</u>	<input type="checkbox"/>	NI
8. <u>Polygonum argyrocoleon</u>	<u>2</u>	<input type="checkbox"/>	OBL
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____

50% of total cover: 69.5 20% of total cover: 27.8 139 = Total Cover

Woody Vine Stratum (Plot size: <u>30' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_ = Total Cover

**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: 100.0% (A/B)

**Prevalence Index worksheet:**

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

☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>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.)

Nomenclature and indicators from The National Wetland Plant List: 2016 wetland ratings with updates through July 2019; NI species are not used in the Dominance Test Calculation. No woody vine or tree stratum present at this data point.

## SOIL

Sampling Point: Site#2,DP-3

[illegible]



Project/Site: Pigg River Year 3 City/Country: Franklin Sampling Date: 10/1 /2019  
Applicant/Owner: FORVA State: VA Sampling Point: Site#2, DP-4  
Investigator(s): MH Section, Township, Range: N/A  
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1  
Subregion (LRR or MLRA): LRR P Lat: 36°59'36" Long: 79°51'36" Datum: NAD 83  
Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

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

Hydrophytic Vegetation Present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b>	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Hydric Soil Present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>					
Wetland Hydrology Present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>					
Remarks: All three wetland parameters (i.e., wetland hydrology, hydrophytic vegetation, and hydric soils) were satisfied at this data point, which characterizes a palustrine forested wetland at Site #2.									

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): Water Table Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): Saturation Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): (includes capillary fringe)		<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

**VEGETATION (Four Strata) - Use scientific names of plants.**

 Sampling Point: Site#2,DP-4

Tree Stratum (Plot size: <u>30' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_ = Total Cover

Sapling/Shrub Stratum (Plot size: <u>15' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_ = Total Cover

Herb Stratum (Plot size: <u>5' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Ludwigia alternifolia</u>	<u>90</u>	<input checked="" type="checkbox"/>	FACW
2. <u>Persicaria hydropiper</u>	<u>70</u>	<input checked="" type="checkbox"/>	OBL
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____

50% of total cover: 80 20% of total cover: 32 160 = Total Cover

Woody Vine Stratum (Plot size: <u>30' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____

50% of total cover: \_\_\_\_\_ 20% of total cover: \_\_\_\_\_ = Total Cover

**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: 100.0% (A/B)

**Prevalence Index worksheet:**

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

☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>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.)

Nomenclature and indicators from The National Wetland Plant List: 2016 wetland ratings with updates through July 2019; NI species are not used in the Dominance Test Calculation. No woody vine, sapling/shrub or tree stratum present at this data point.



## SOIL

Sampling Point: Site#2,DP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-18	10YR4/2	80	10YR3/6	20	C	PL & M	Silty Clay Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix

<b>Hydric Soil Indicators:</b>			<b>Indicators for Problematic Hydric Soils³:</b>		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) ( <b>MLRA 147, 148</b> )	<input type="checkbox"/> Coast Prairie Redox (A16)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) ( <b>MLRA 147, 148</b> )	<input checked="" type="checkbox"/> ( <b>MLRA 147, 148</b> )			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)			
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input checked="" type="checkbox"/> ( <b>MLRA 136, 147</b> )			
<input type="checkbox"/> 2 cm Muck (A10) ( <b>LRR N</b> )	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)				
<input type="checkbox"/> Sandy Mucky Mineral (S1) ( <b>LRR N, MLRA 147, 148</b> )	<input type="checkbox"/> Iron Manganese Masses (F12) ( <b>LRR N, MLRA 136</b> )				
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13)				
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)( <b>MLRA 148</b> )				
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21)( <b>MLRA 127, 147</b> )				

**Restrictive Layer (if observed):**  
Type: \_\_\_\_\_  
Depth (Inches): \_\_\_\_\_

Hydric Soil Present? Yes ☒ No ☐

Remarks:

# WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Pigg River Year 3 City/County: Franklin Sampling Date: 9/30/2019  
Applicant/Owner: FORVA State: VA Sampling Point: Site#3, DP-1  
Investigator(s): MH Section, Township, Range: N/A  
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 2  
Subregion (LRR or MLRA): LRR P Lat: 36°59'07" Long: 79°51'86" Datum: NAD 83  
Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)  
Are Vegetation ☐, Soil ☐, 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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: All three wetland parameters (i.e., wetland hydrology, hydrophytic vegetation, and hydric soils) were satisfied at this data point, which characterizes a palustrine forested wetland at Site #4.	

## HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Aquatic Fauna (B13)		<input checked="" type="checkbox"/> Microtopographic Relief (D4)
		<input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b>		
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
(includes capillary fringe)		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		



**VEGETATION (Four Strata) - Use scientific names of plants.**

 Sampling Point: Site#3,DP-1

Tree Stratum (Plot size: <u>30' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer negundo</u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
50% of total cover: <u>30</u> 20% of total cover: <u>12</u>	<u>60</u> = Total Cover		

Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer negundo</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2. <u>Lindera benzoin</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
50% of total cover: <u>12.5</u> 20% of total cover: <u>5</u>	<u>25</u> = Total Cover		

Herb Stratum (Plot size: <u>5' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Glechoma hederacea</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FACU</u>
2. <u>Carex sp.</u>	<u>30</u>	<input type="checkbox"/>	<u>NI</u>
3. <u>Boehmeria cylindrica</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FACW</u>
4. <u>Persicaria maculosa</u>	<u>10</u>	<input type="checkbox"/>	<u>FACW</u>
5. <u>Unknown</u>	<u>2</u>	<input type="checkbox"/>	<u>NI</u>
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
50% of total cover: <u>53.5</u> 20% of total cover: <u>21.4</u>	<u>107</u> = Total Cover		

Woody Vine Stratum (Plot size: <u>30' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Humulus japonicus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACU</u>
2. <u>Unknown</u>	<u>1</u>	<input type="checkbox"/>	<u>NI</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
50% of total cover: <u>10.5</u> 20% of total cover: <u>4.2</u>	<u>21</u> = Total Cover		

**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: 66.7% (A/B)

**Prevalence Index worksheet:**

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

**Hydrophytic Vegetation Indicators:**

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0<sup>1</sup>

☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>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.)

Nomenclature and indicators from The National Wetland Plant List: 2016 wetland ratings with updates through July 2019; NI species are not used in the Dominance Test Calculation.

## SOIL

Sampling Point: Site#3,DP-1**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR4/3	100					Silty Clay Loam	
3-18	10YR4/2	60	5YR3/3	40	C	M	Silty Clay Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>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)  
☐ Piedmont Floodplain Soils (F19)(**MLRA 148**)  
☐ Red Parent Material (F21)(**MLRA 127, 147**)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>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: Pigg River Year 3 City/County: Franklin Sampling Date: 9/30/2019  
 Applicant/Owner: FORVA State: VA Sampling Point: Site#3, DP-2  
 Investigator(s): MH Section, Township, Range: N/A  
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Convex Slope (%): 2  
 Subregion (LRR or MLRA): LRR P Lat: 36°59'07" Long: 79°51'86" Datum: NAD 83  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)  
 Are Vegetation ☐, Soil ☐, 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks: All three wetland parameters (i.e., wetland hydrology, hydrophytic vegetation, and hydric soils) were satisfied at this data point, which characterizes a palustrine forested wetland at Site #4.					

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<b>Field Observations:</b> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

**VEGETATION (Four Strata) - Use scientific names of plants.**

 Sampling Point: Site#3,DP-2

Tree Stratum (Plot size: <u>30' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer negundo</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
50% of total cover: <u>25</u> 20% of total cover: <u>10</u>	<u>50</u>	= Total Cover	

Sapling/Shrub Stratum (Plot size: <u>15' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Boehmeria cylindrica</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACW</u>
2. <u>Rhus copallinum</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
50% of total cover: <u>7.5</u> 20% of total cover: <u>3</u>	<u>15</u>	= Total Cover	

Herb Stratum (Plot size: <u>5' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Microstegium vimineum</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2. <u>Boehmeria cylindrica</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACW</u>
3. <u>Persicaria maculosa</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>	<u>100</u>	= Total Cover	

Woody Vine Stratum (Plot size: <u>30' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
50% of total cover: _____ 20% of total cover: _____	_____	= Total Cover	

**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: 83.3% (A/B)

**Prevalence Index worksheet:**

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

**Hydrophytic Vegetation Indicators:**

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0<sup>1</sup>

☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>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.)

Nomenclature and indicators from The National Wetland Plant List: 2016 wetland ratings with updates through July 2019; NI species are not used in the Dominance Test Calculation. No woody vine stratum present at this data point.

## SOIL

Sampling Point: Site#3,DP-2**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-18	10YR4/2	70	5YR3/3	30	C	M	Silty Clay Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.<sup>2</sup>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)  
☐ Piedmont Floodplain Soils (F19)(**MLRA 148**)  
☐ Red Parent Material (F21)(**MLRA 127, 147**)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

<sup>3</sup>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:



Project/Site: Pigg River Year 3 City/Country: Franklin Sampling Date: 9/30/2019  
Applicant/Owner: FORVA State: VA Sampling Point: Site#4, DP-1  
Investigator(s): MH Section, Township, Range: N/A  
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 4  
Subregion (LRR or MLRA): LRR P Lat: 36°59'59" Long: 79°51'53" Datum: NAD 83  
Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: Only one (i.e., hydrophytic vegetation) of the three wetland parameters was satisfied at this data point, which characterizes a forested upland at Site #4.			

Wetland Hydrology Indicators:			Secondary Indicators (minimum of two required)		
Primary Indicators (minimum of one is required; check all that apply)					
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Moss Trim Lines (B16)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)			
<input type="checkbox"/> Aquatic Fauna (B13)		<input type="checkbox"/> Microtopographic Relief (D4)			
		<input type="checkbox"/> FAC-Neutral Test (D5)			
<b>Field Observations:</b> Surface Water Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): Water Table Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): Saturation Present?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): (includes capillary fringe)			<b>Wetland Hydrology Present?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Remarks:					

**VEGETATION (Four Strata) - Use scientific names of plants.**

 Sampling Point: Site#4,DP-1

Tree Stratum (Plot size: <u>30' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer negundo</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2. <u>Carpinus caroliniana</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
3. <u>Alnus serrulata</u>	<u>5</u>	<input type="checkbox"/>	<u>OBL</u>
4. <u>Platanus occidentalis</u>	<u>5</u>	<input type="checkbox"/>	<u>FACW</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
50% of total cover: <u>32.5</u> 20% of total cover: <u>13</u>	<u>65</u> = Total Cover		

Sapling/Shrub Stratum (Plot size: <u>15' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Lindera benzoin</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2. <u>Rhus copallinum</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
50% of total cover: <u>17.5</u> 20% of total cover: <u>7</u>	<u>35</u> = Total Cover		

Herb Stratum (Plot size: <u>5' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Microstegium vimineum</u>	<u>95</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2. <u>Boehmeria cylindrica</u>	<u>5</u>	<input type="checkbox"/>	<u>FACW</u>
3. <u>Desmodium paniculatum</u>	<u>5</u>	<input type="checkbox"/>	<u>FACU</u>
4. <u>Glechoma hederacea</u>	<u>1</u>	<input type="checkbox"/>	<u>FACU</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
50% of total cover: <u>53</u> 20% of total cover: <u>21.2</u>	<u>106</u> = Total Cover		

Woody Vine Stratum (Plot size: <u>30' Radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
50% of total cover: _____ 20% of total cover: _____	_____ = Total Cover		

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

**Prevalence Index worksheet:**

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

**Hydrophytic Vegetation Indicators:**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0<sup>1</sup>
- ☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>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.)

Nomenclature and indicators from The National Wetland Plant List: 2016 wetland ratings with updates through July 2019; NI species are not used in the Dominance Test Calculation. No woody vine stratum present at this data point.

## SOIL

Sampling Point: Site#4,DP-1

[illegible]



# WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Pigg River Year 3 City/County: Franklin Sampling Date: 9/30/2019  
Applicant/Owner: FORVA State: VA Sampling Point: Site#4, DP-2  
Investigator(s): MH Section, Township, Range: N/A  
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 2  
Subregion (LRR or MLRA): LRR P Lat: 36°59'59" Long: 79°51'53" Datum: NAD 83  
Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)  
Are Vegetation ☐, Soil ☐, 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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks: Only two (i.e., hydrophytic vegetation and wetland hydrology) of the three wetland parameters were satisfied at this data point, which characterizes a forested upland at Site #4.		

## HYDROLOGY

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

**VEGETATION (Four Strata) - Use scientific names of plants.**

 Sampling Point: Site#4,DP-2

Tree Stratum (Plot size: <u>30' Radius</u> )		Absolute % Cover	Dominant Species?	Indicator Status
1.	<u><i>Acer negundo</i></u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2.	<u><i>Carpinus caroliniana</i></u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
3.	<u><i>Fraxinus pennsylvanica</i></u>	<u>10</u>	<input type="checkbox"/>	<u>FACW</u>
4.				
5.				
6.				
7.				
8.				
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>		<u>100</u>	= Total Cover	

Sapling/Shrub Stratum (Plot size: <u>15' Radius</u> )		Absolute % Cover	Dominant Species?	Indicator Status
1.	<u><i>Lindera benzoin</i></u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
2.	<u><i>Rhus copallinum</i></u>	<u>2</u>	<input type="checkbox"/>	<u>FACU</u>
3.	<u><i>Fraxinus pennsylvanica</i></u>	<u>2</u>	<input type="checkbox"/>	<u>FACW</u>
4.				
5.				
6.				
7.				
8.				
9.				
10.				
50% of total cover: <u>7</u> 20% of total cover: <u>2.8</u>		<u>14</u>	= Total Cover	

Herb Stratum (Plot size: <u>5' Radius</u> )		Absolute % Cover	Dominant Species?	Indicator Status
1.	<u><i>Persicaria maculosa</i></u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>FACW</u>
2.	<u><i>Glechoma hederacea</i></u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACU</u>
3.	<u><i>Microstegium vimineum</i></u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
50% of total cover: <u>40</u> 20% of total cover: <u>16</u>		<u>80</u>	= Total Cover	

Woody Vine Stratum (Plot size: <u>30' Radius</u> )		Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
5.				
6.				
50% of total cover: _____ 20% of total cover: _____			= Total Cover	

**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: 83.3% (A/B)

**Prevalence Index worksheet:**

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

**Hydrophytic Vegetation Indicators:**

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0<sup>1</sup>
- ☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>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.)

Nomenclature and indicators from The National Wetland Plant List: 2016 wetland ratings with updates through July 2019; NI species are not used in the Dominance Test Calculation. No woody vine stratum present at this data point.

## SOIL

Sampling Point: Site#4,DP-2

[illegible]



## **Appendix D**

### **Groundwater Monitoring Data**

Per the signed additional services proposal with the permittee (FORVA) dated December 28, 2016, on February 02, 2017, WSSI installed three (3) ground/surface water monitoring wells in and adjacent to Wetland Site #2. For the Year-1 Monitoring Period, two (2) of the monitoring wells, Wells #1 and #2, were installed within the wetland area to monitor the area's hydroperiod following dam removal. One additional well, Well #3, was installed upslope of the wetland area in order to better understand the source and magnitude of groundwater contribution to the existing wetland area.

On November 17, 2017, WSSI staff removed Well #1 and reinstalled an additional well as Well #4. Well #4 was located at a low point of the wetland depression to further expand monitoring on surface hydrology and provide a record of flood depth, frequency and duration for the Year 2 Monitoring Period.

#### **Year 3 Methods**

At Wells #2 and #4, Solinst pressure transducers were used in conjunction with an onsite barometer to collect water surface elevation data. These automated wells were programmed to take readings twice daily, recording both water depth and temperature. Manual well data collection occurred monthly, wherein transducer data from Wells #2 and #4 were downloaded and depth-to-water measurements were taken at Well #3.

Note that pressure transducers record absolute pressure (barometric pressure + water pressure). This information was then calibrated using an onsite barometer to give a water height above sensor in ft. Solinst pressure transducers also record groundwater temperature assuming the water level is above the sensor on the transducer. Once the water level falls below the transducer sensor, the water height reads 0 ft. and temperature readings become air temperature at sensor depth. Groundwater and surface water results for the Year 3 Monitoring Period are shown in Figures 1-6.

Daily sum accumulation information for precipitation, used in Figures 1-6, was taken from weather station USC00447338 accessible through NOAA's National Centers for Environmental Information Website. Precipitation data for the IFLOWS "Rocky Mount/Pigg" (referenced in the applicable permit) did not have sufficient data available for the monitoring period. Historical precipitation data for the NOAA and IFLOWS stations from both Year-1 and Year 2 monitoring periods can be found in **Appendix E**. Note that the IFLOWS weather station reports a "0" if the system has an outage or is non-responsive.

## Year 3 Results

Automated hydrology information for Well #2 is shown in Figure 1 and Well #4 in Figure 2. Manual-read data from Well #3 is shown in Figure 3. Well #3 readings were taken using a water-level meter probe. Measurements were taken by lowering a sensor down the well and recording the depth to water level.

In Figures 4 – 6 elevations are given for ground and surface water levels. These figures also show daily precipitation data as a total accumulation sum in inches. Weather data referenced was taken from the NOAA station referenced in **Appendix E**, located 2.3 miles from the Wells. Average ground elevation adjacent to the well and sensor elevation are shown in Figures 4 and 5 to illustrate surface water ponding. Figure 6 shows each of the three (3) monitoring wells including daily rainfall accumulation data.

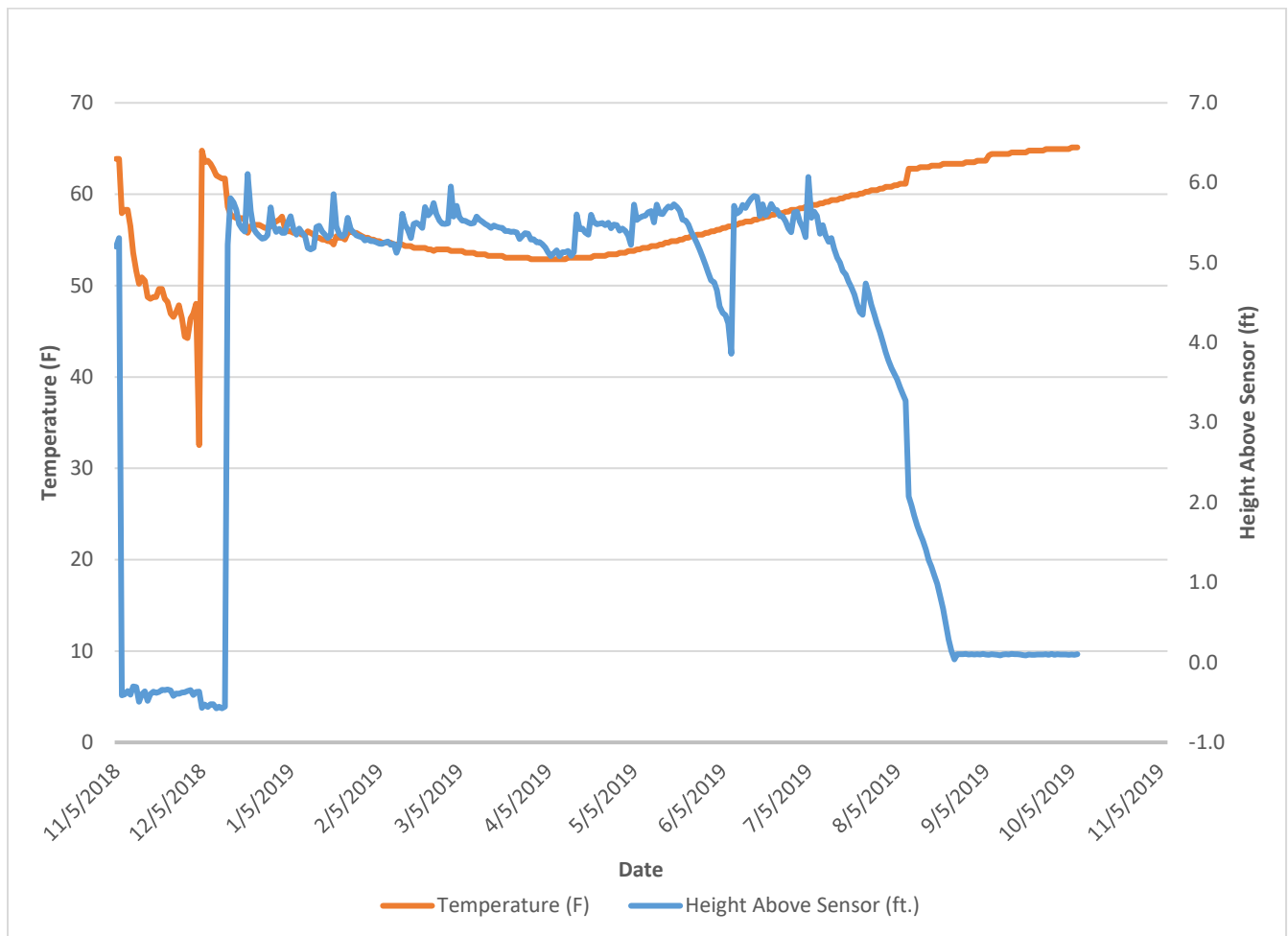


Figure 1: Well #2 – Year-3 Water Temperature and Height Above Sensor

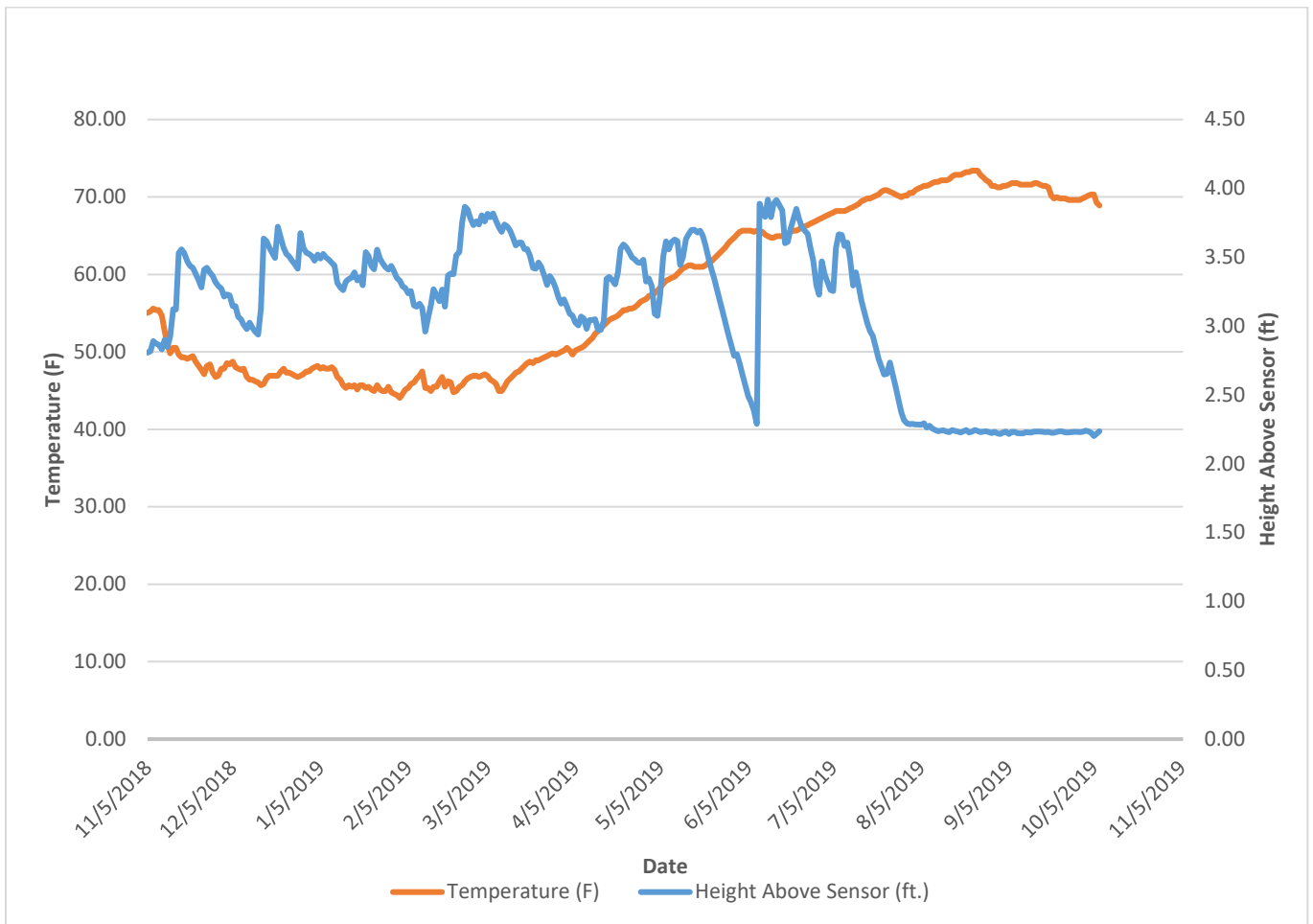


Figure 2: Well #4 – Year 3 Water Temperature and Height Above Sensor



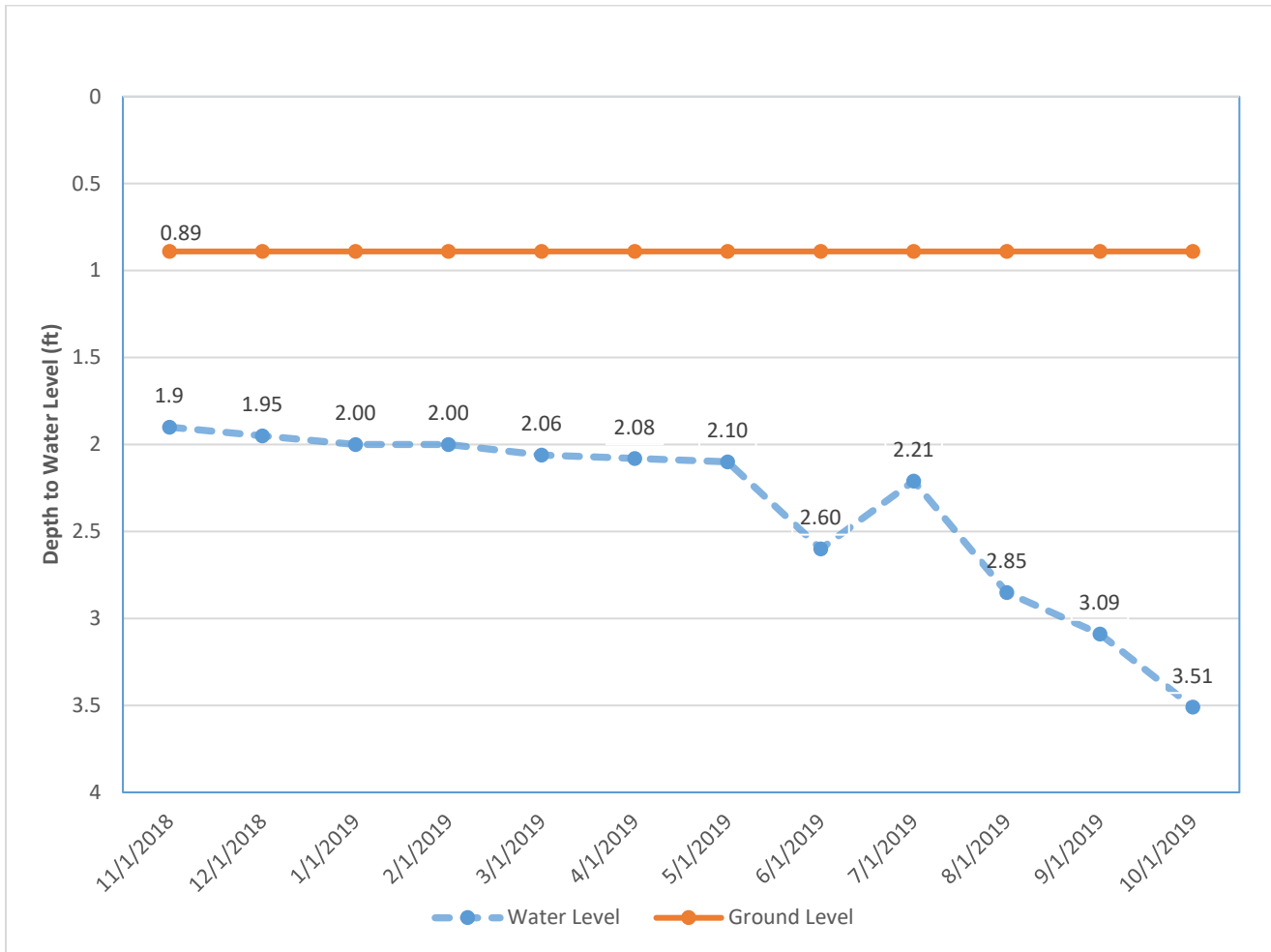


Figure 3: Well #3 – Year 3 Depth to Water Level (Manual-Read)

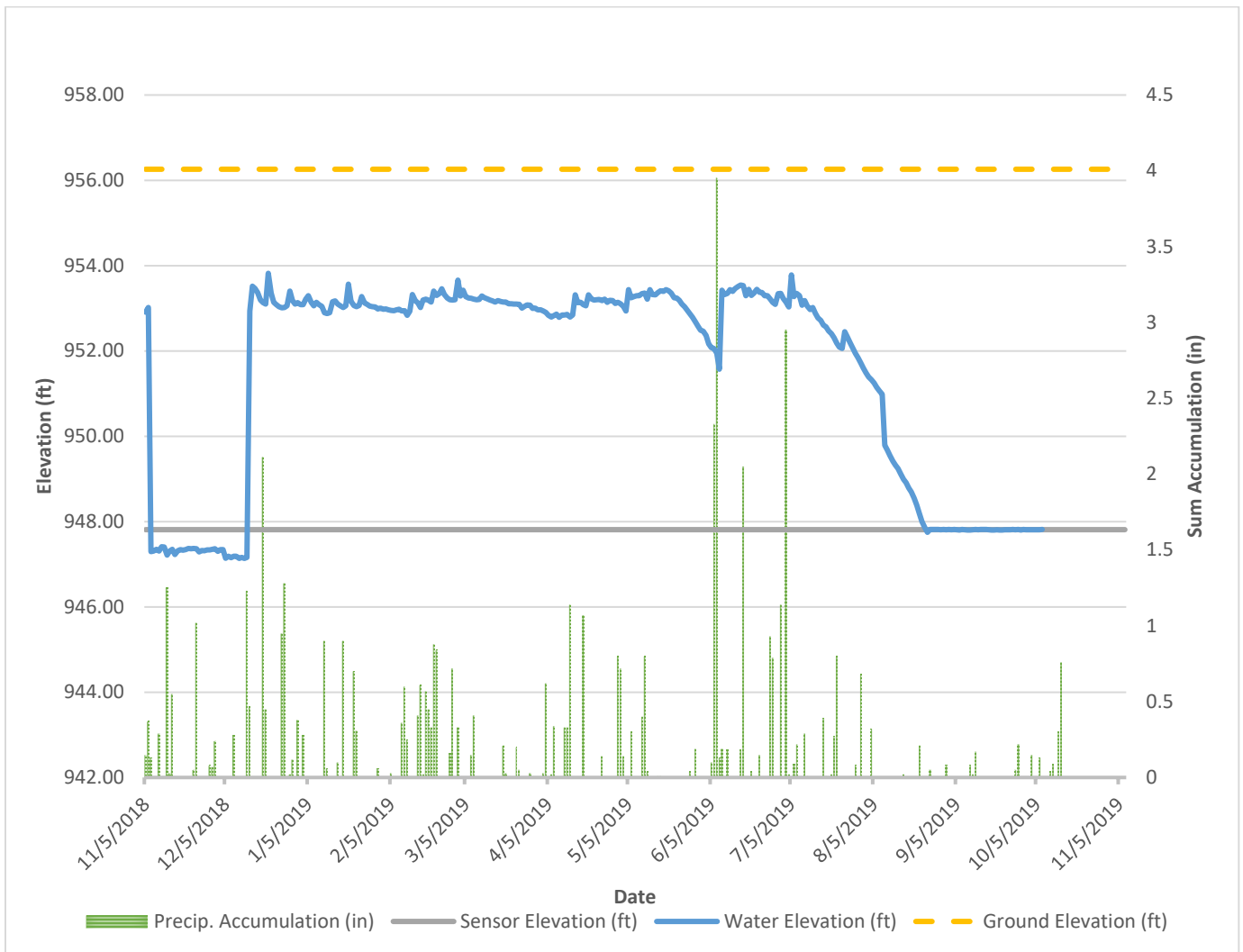


Figure 4: Well #2 – Year 3 Precipitation and Groundwater Elevation

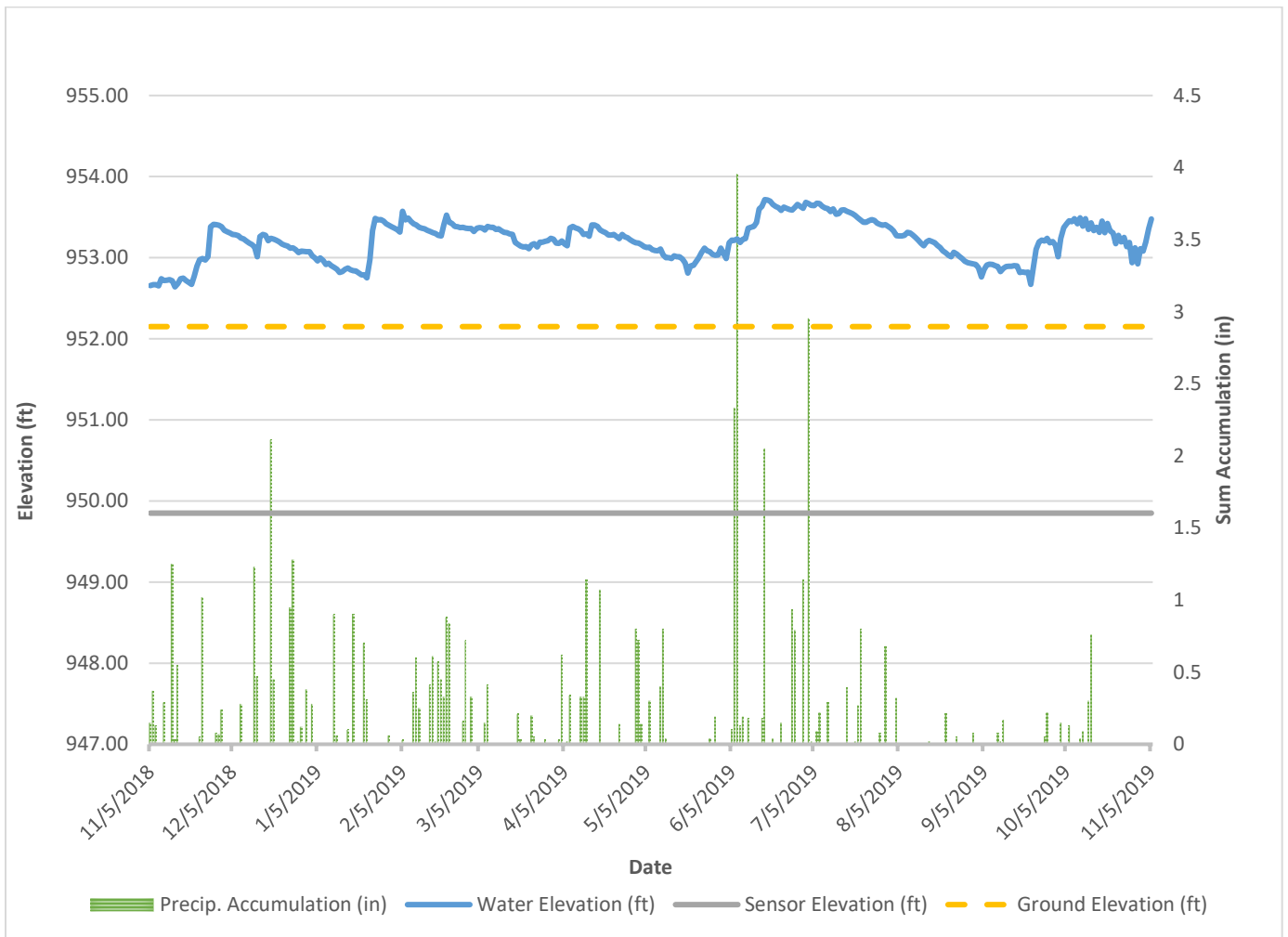


Figure 5: Well #4 – Year 3 Precipitation and Surface Water Elevation

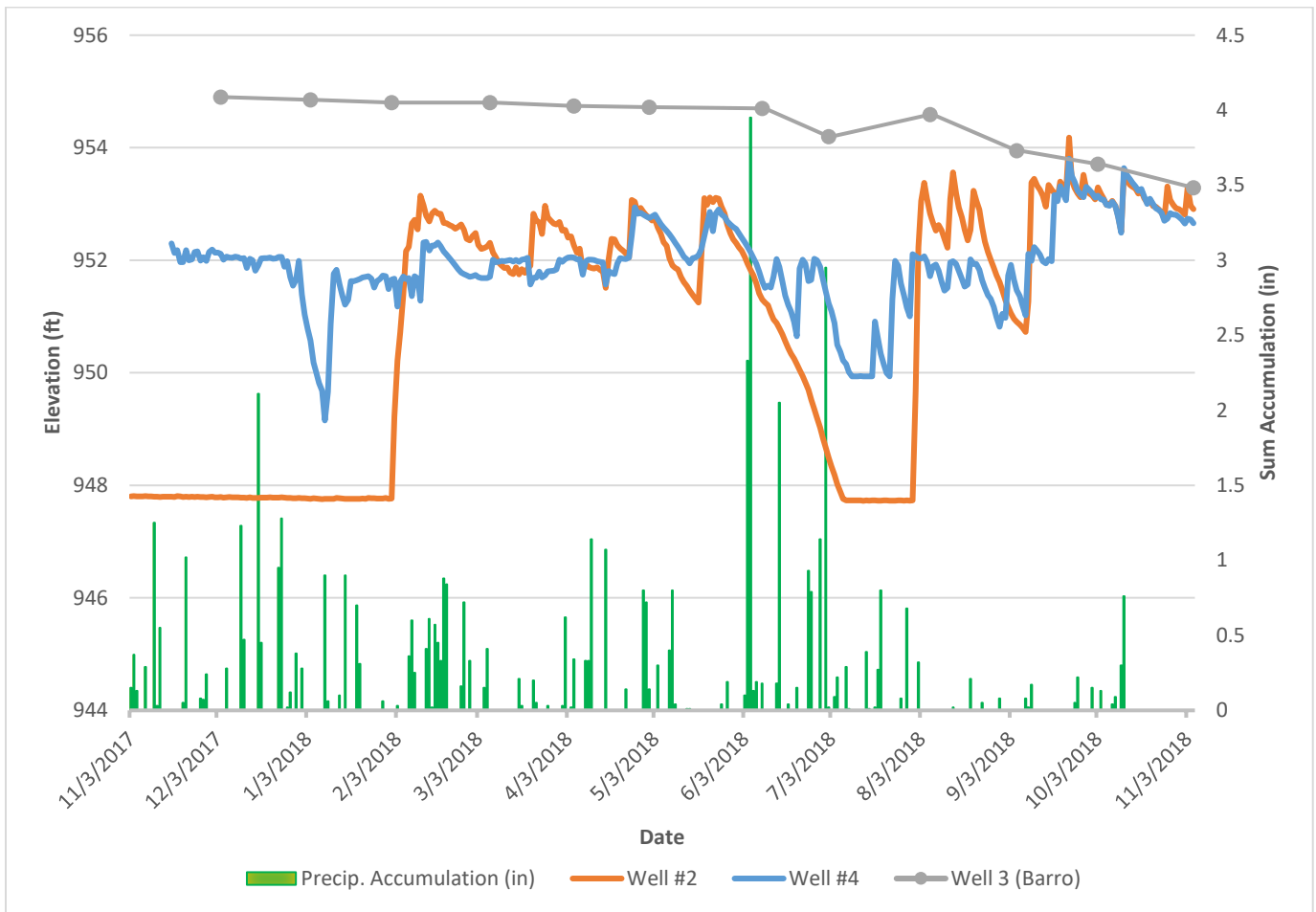


Figure 6: Year 3 Combined Precipitation and Water Elevations



Pigg River Power Dam Site  
Appendix D - Wetland Well Locations

Franklin County, Virginia





## **Appendix E**

(Daily precipitation accumulation totals for Year-1, Year-2 and Year-3 monitoring periods, 1/30/2017-10/18/2019, are shown for the Rocky Mount/Pigg IFLOWS station as well as the Rocky Mount NOAA Station for comparison)

NOAA: Rocky Mount (USC00447338)			
(36.9769°, -79.8961°)		Elevation: 1,314.96 ft.	
	Temperature (F)		Precipitation (in)
Date	High	Low	Sum Accumulation
11/1/2017	65	36	0
11/2/2017	65	36	0
11/3/2017	74	36	0
11/4/2017	80	53	0.1
11/5/2017	63	47	0.12
11/6/2017	58	48	0
11/7/2017	76	55	0
11/8/2017	56	42	0.06
11/9/2017	45	42	0.33
11/10/2017	51	32	0.05
11/11/2017	53	22	0.01
11/12/2017	41	26	0
11/13/2017	45	28	0.22
11/14/2017	56	37	0
11/15/2017	49	33	0
11/16/2017	49	33	0.02
11/17/2017	64	28	0
11/18/2017	56	35	0
11/19/2017	62	38	0.03
11/20/2017	49	31	0
11/21/2017	54	28	0
11/22/2017	59	29	0
11/23/2017	55	24	0
11/24/2017	50	23	0
11/25/2017	58	23	0
11/26/2017	64	28	0
11/27/2017	57	27	0
11/28/2017	61	27	0
11/29/2017	63	27	0
11/30/2017	68	31	0
12/1/2017	62	31	0
12/2/2017	62	36	0
12/3/2017	53	31	0
12/4/2017	63	28	0
12/5/2017	56	28	0
12/6/2017	65	32	0
12/7/2017	44	37	0
12/8/2017	48	34	0
12/9/2017	38	29	0.3
12/10/2017	35	30	0.1
12/11/2017	40	28	0
12/12/2017	49	29	0
12/13/2017	46	22	0
12/14/2017	43	22	0
12/15/2017	46	25	0
12/16/2017	38	27	0
12/17/2017	50	27	0
12/18/2017	46	28	0
12/19/2017	60	38	0
12/20/2017	68	43	0
12/21/2017	57	33	0
12/22/2017	51	31	0
12/23/2017	59	33	0.04
12/24/2017	61	41	0.19
12/25/2017	*	*	0
12/26/2017	32	25	0
12/27/2017	38	21	0
12/28/2017	39	13	0
12/29/2017	26	13	0
12/30/2017	42	18	0
12/31/2017	41	16	0
1/1/2018	23	10	0
1/2/2018	24	3	0
1/3/2018	32	2	0

IFLOWS: Rocky Mount/Pigg (1477)			
(Unknown)		Elevation: Unknown	
	Temperature (F)		Precipitation (in)
Date	High	Low	Sum Accumulation
11/1/2017	N/A	N/A	0
11/2/2017	N/A	N/A	0
11/3/2017	N/A	N/A	0
11/4/2017	N/A	N/A	0.24
11/5/2017	N/A	N/A	0
11/6/2017	N/A	N/A	0.12
11/7/2017	N/A	N/A	0
11/8/2017	N/A	N/A	0.04
11/9/2017	N/A	N/A	0.2
11/10/2017	N/A	N/A	0
11/11/2017	N/A	N/A	0
11/12/2017	N/A	N/A	0.2
11/13/2017	N/A	N/A	0
11/14/2017	N/A	N/A	0
11/15/2017	N/A	N/A	0
11/16/2017	N/A	N/A	0.16
11/17/2017	N/A	N/A	0
11/18/2017	N/A	N/A	0
11/19/2017	N/A	N/A	0
11/20/2017	N/A	N/A	0.16
11/21/2017	N/A	N/A	0
11/22/2017	N/A	N/A	0
11/23/2017	N/A	N/A	0.16
11/24/2017	N/A	N/A	0
11/25/2017	N/A	N/A	0.2
11/26/2017	N/A	N/A	0.04
11/27/2017	N/A	N/A	0
11/28/2017	N/A	N/A	0
11/29/2017	N/A	N/A	0
11/30/2017	N/A	N/A	0
12/1/2017	N/A	N/A	0
12/2/2017	N/A	N/A	0
12/3/2017	N/A	N/A	0
12/4/2017	N/A	N/A	0
12/5/2017	N/A	N/A	0.08
12/6/2017	N/A	N/A	0
12/7/2017	N/A	N/A	0
12/8/2017	N/A	N/A	0
12/9/2017	N/A	N/A	0.08
12/10/2017	N/A	N/A	0.16
12/11/2017	N/A	N/A	0
12/12/2017	N/A	N/A	0.16
12/13/2017	N/A	N/A	0
12/14/2017	N/A	N/A	0
12/15/2017	N/A	N/A	0
12/16/2017	N/A	N/A	0
12/17/2017	N/A	N/A	0
12/18/2017	N/A	N/A	0
12/19/2017	N/A	N/A	0.47
12/20/2017	N/A	N/A	0
12/21/2017	N/A	N/A	0
12/22/2017	N/A	N/A	0
12/23/2017	N/A	N/A	0.16
12/24/2017	N/A	N/A	0
12/25/2017	N/A	N/A	0
12/26/2017	N/A	N/A	0
12/27/2017	N/A	N/A	0
12/28/2017	N/A	N/A	0
12/29/2017	N/A	N/A	0.04
12/30/2017	N/A	N/A	0
12/31/2017	N/A	N/A	0.16
1/1/2018	N/A	N/A	0.24
1/2/2018	N/A	N/A	0
1/3/2018	N/A	N/A	0

1/4/2018	32	9	0
1/5/2018	24	13	0
1/6/2018	22	6	0
1/7/2018	22	0	0
1/8/2018	15	-1	0
1/9/2018	45	14	0.08
1/10/2018	58	*	0
1/11/2018	47	39	0
1/12/2018	62	41	0.4
1/13/2018	65	30	0.59
1/14/2018	32	15	0
1/15/2018	25	8	0
1/16/2018	34	8	0
1/17/2018	44	16	0.05
1/18/2018	25	10	0.12
1/19/2018	40	13	0
1/20/2018	53	*	0
1/21/2018	62	36	0
1/22/2018	64	35	0
1/23/2018	61	37	0.58
1/24/2018	63	39	0
1/25/2018	63	31	0
1/26/2018	48	21	0
1/27/2018	55	21	0
1/28/2018	50	29	0.07
1/29/2018	54	42	0.54
1/30/2018	42	28	0
1/31/2018	32	18	0
2/1/2018	46	18	0
2/2/2018	54	29	0
2/3/2018	40	13	0
2/4/2018	38	14	0
2/5/2018	41	29	0.97
2/6/2018	42	22	0
2/7/2018	52	28	0.05
2/8/2018	52	27	0.86
2/9/2018	47	23	0
2/10/2018	56	25	0.01
2/11/2018	57	46	2.72
2/12/2018	66	57	0.3
2/13/2018	58	35	0.11
2/14/2018	42	28	0
2/15/2018	53	32	0
2/16/2018	70	50	0
2/17/2018	66	38	0.05
2/18/2018	47	35	0.13
2/19/2018	*	*	0.12
2/20/2018	56	39	0.02
2/21/2018	70	49	0
2/22/2018	75	49	0
2/23/2018	79	45	0
2/24/2018	64	44	0
2/25/2018	74	45	0.02
2/26/2018	65	52	0.09
2/27/2018	52	27	0.09
2/28/2018	60	28	0
3/1/2018	54	41	0.09
3/2/2018	58	40	0.29
3/3/2018	49	40	0.02
3/4/2018	54	34	0
3/5/2018	59	26	0
3/6/2018	53	29	0
3/7/2018	42	35	0.09
3/8/2018	45	27	0.02
3/9/2018	43	27	0
3/10/2018	47	29	0
3/11/2018	53	31	0
3/12/2018	44	32	0.22
3/13/2018	36	31	0.34

1/4/2018	N/A	N/A	0
1/5/2018	N/A	N/A	0.31
1/6/2018	N/A	N/A	0
1/7/2018	N/A	N/A	0
1/8/2018	N/A	N/A	0.04
1/9/2018	N/A	N/A	0.04
1/10/2018	N/A	N/A	0
1/11/2018	N/A	N/A	0
1/12/2018	N/A	N/A	0
1/13/2018	N/A	N/A	0.32
1/14/2018	N/A	N/A	0
1/15/2018	N/A	N/A	0
1/16/2018	N/A	N/A	0
1/17/2018	N/A	N/A	0
1/18/2018	N/A	N/A	0.08
1/19/2018	N/A	N/A	0
1/20/2018	N/A	N/A	0.31
1/21/2018	N/A	N/A	0
1/22/2018	N/A	N/A	0
1/23/2018	N/A	N/A	0.48
1/24/2018	N/A	N/A	0
1/25/2018	N/A	N/A	0
1/26/2018	N/A	N/A	0
1/27/2018	N/A	N/A	0.04
1/28/2018	N/A	N/A	0.16
1/29/2018	N/A	N/A	0
1/30/2018	N/A	N/A	0
1/31/2018	N/A	N/A	0
2/1/2018	N/A	N/A	0
2/2/2018	N/A	N/A	0
2/3/2018	N/A	N/A	0
2/4/2018	N/A	N/A	0.88
2/5/2018	N/A	N/A	0
2/6/2018	N/A	N/A	0
2/7/2018	N/A	N/A	0
2/8/2018	N/A	N/A	0
2/9/2018	N/A	N/A	0
2/10/2018	N/A	N/A	0.72
2/11/2018	N/A	N/A	0.08
2/12/2018	N/A	N/A	0
2/13/2018	N/A	N/A	0
2/14/2018	N/A	N/A	0.43
2/15/2018	N/A	N/A	0
2/16/2018	N/A	N/A	0
2/17/2018	N/A	N/A	0.08
2/18/2018	N/A	N/A	0
2/19/2018	N/A	N/A	0.08
2/20/2018	N/A	N/A	0
2/21/2018	N/A	N/A	0
2/22/2018	N/A	N/A	0
2/23/2018	N/A	N/A	0
2/24/2018	N/A	N/A	0
2/25/2018	N/A	N/A	0.04
2/26/2018	N/A	N/A	0.04
2/27/2018	N/A	N/A	0
2/28/2018	N/A	N/A	0
3/1/2018	N/A	N/A	0.24
3/2/2018	N/A	N/A	0
3/3/2018	N/A	N/A	0
3/4/2018	N/A	N/A	0
3/5/2018	N/A	N/A	0
3/6/2018	N/A	N/A	0.04
3/7/2018	N/A	N/A	0
3/8/2018	N/A	N/A	0
3/9/2018	N/A	N/A	0.16
3/10/2018	N/A	N/A	0
3/11/2018	N/A	N/A	0
3/12/2018	N/A	N/A	0.16
3/13/2018	N/A	N/A	0.4



3/14/2018	45	28	0
3/15/2018	37	28	0
3/16/2018	59	29	0
3/17/2018	60	29	0
3/18/2018	70	30	0.45
3/19/2018	62	37	0
3/20/2018	64	39	0.95
3/21/2018	41	30	0.35
3/22/2018	37	30	0.05
3/23/2018	49	33	0
3/24/2018	51	25	0
3/25/2018	41	27	0.98
3/26/2018	49	28	0
3/27/2018	52	28	0
3/28/2018	51	33	0
3/29/2018	75	38	0
3/30/2018	78	54	0.05
3/31/2018	67	30	0
4/1/2018	64	31	0
4/2/2018	68	45	0
4/3/2018	64	43	0
4/4/2018	73	43	0.22
4/5/2018	66	29	0
4/6/2018	59	31	0
4/7/2018	71	33	0.29
4/8/2018	49	29	0.13
4/9/2018	51	29	0
4/10/2018	*	*	0
4/11/2018	60	31	0
4/12/2018	64	36	0
4/13/2018	76	43	0
4/14/2018	80	53	0
4/15/2018	81	59	0
4/16/2018	81	47	1.45
4/17/2018	63	35	0
4/18/2018	64	35	0
4/19/2018	82	41	0
4/20/2018	60	32	0
4/21/2018	66	29	0
4/22/2018	69	33	0
4/23/2018	71	37	0
4/24/2018	*	*	1.53
4/25/2018	57	48	2.04
4/26/2018	70	45	0.06
4/27/2018	72	48	0.34
4/28/2018	69	41	0
4/29/2018	77	41	0
4/30/2018	64	34	0
5/1/2018	75	35	0
5/2/2018	85	47	0
5/3/2018	87	46	0
5/4/2018	88	59	0
5/5/2018	89	61	0
5/6/2018	75	58	0.01
5/7/2018	75	47	0.12
5/8/2018	76	50	0.11
5/9/2018	75	49	0
5/10/2018	79	51	0
5/11/2018	84	54	0
5/12/2018	89	60	0
5/13/2018	92	65	0
5/14/2018	92	60	0
5/15/2018	92	62	0
5/16/2018	88	64	0.34
5/17/2018	75	65	0.34
5/18/2018	81	64	0.55
5/19/2018	70	60	1.45
5/20/2018	77	63	1.92
5/21/2018	87	63	0.02

3/14/2018	N/A	N/A	0
3/15/2018	N/A	N/A	0.04
3/16/2018	N/A	N/A	0
3/17/2018	N/A	N/A	0.08
3/18/2018	N/A	N/A	0.28
3/19/2018	N/A	N/A	0.08
3/20/2018	N/A	N/A	0.92
3/21/2018	N/A	N/A	0.24
3/22/2018	N/A	N/A	0
3/23/2018	N/A	N/A	0
3/24/2018	N/A	N/A	0
3/25/2018	N/A	N/A	1.18
3/26/2018	N/A	N/A	0
3/27/2018	N/A	N/A	0.12
3/28/2018	N/A	N/A	0
3/29/2018	N/A	N/A	0
3/30/2018	N/A	N/A	0.12
3/31/2018	N/A	N/A	0
4/1/2018	N/A	N/A	0
4/2/2018	N/A	N/A	0.12
4/3/2018	N/A	N/A	0.08
4/4/2018	N/A	N/A	0.04
4/5/2018	N/A	N/A	0
4/6/2018	N/A	N/A	0.04
4/7/2018	N/A	N/A	0.2
4/8/2018	N/A	N/A	0.12
4/9/2018	N/A	N/A	0
4/10/2018	N/A	N/A	0
4/11/2018	N/A	N/A	0
4/12/2018	N/A	N/A	0
4/13/2018	N/A	N/A	0
4/14/2018	N/A	N/A	0.16
4/15/2018	N/A	N/A	0.16
4/16/2018	N/A	N/A	0
4/17/2018	N/A	N/A	0
4/18/2018	N/A	N/A	0
4/19/2018	N/A	N/A	0
4/20/2018	N/A	N/A	0
4/21/2018	N/A	N/A	0
4/22/2018	N/A	N/A	0
4/23/2018	N/A	N/A	0.28
4/24/2018	N/A	N/A	0.92
4/25/2018	N/A	N/A	0.92
4/26/2018	N/A	N/A	0.08
4/27/2018	N/A	N/A	0
4/28/2018	N/A	N/A	0
4/29/2018	N/A	N/A	0
4/30/2018	N/A	N/A	0.16
5/1/2018	N/A	N/A	0
5/2/2018	N/A	N/A	0
5/3/2018	N/A	N/A	0
5/4/2018	N/A	N/A	0
5/5/2018	N/A	N/A	0
5/6/2018	N/A	N/A	0
5/7/2018	N/A	N/A	0.04
5/8/2018	N/A	N/A	0
5/9/2018	N/A	N/A	0
5/10/2018	N/A	N/A	0
5/11/2018	N/A	N/A	0
5/12/2018	N/A	N/A	0
5/13/2018	N/A	N/A	0
5/14/2018	N/A	N/A	0
5/15/2018	N/A	N/A	0.24
5/16/2018	N/A	N/A	0.32
5/17/2018	N/A	N/A	0.32
5/18/2018	N/A	N/A	1.91
5/19/2018	N/A	N/A	1.15
5/20/2018	N/A	N/A	0
5/21/2018	N/A	N/A	0

5/22/2018	83	64	0.04
5/23/2018	83	64	0.9
5/24/2018	85	63	0
5/25/2018	81	59	0
5/26/2018	83	59	0.02
5/27/2018	77	66	0.2
5/28/2018	85	67	0
5/29/2018	77	66	0.16
5/30/2018	77	66	0.12
5/31/2018	81	66	0.2
6/1/2018	86	64	0
6/2/2018	89	66	0.01
6/3/2018	82	67	0.04
6/4/2018	87	58	0
6/5/2018	87	55	0
6/6/2018	87	53	0
6/7/2018	83	59	0
6/8/2018	82	58	0
6/9/2018	86	58	0
6/10/2018	87	64	0
6/11/2018	89	64	0.1
6/12/2018	77	59	0.1
6/13/2018	69	60	0
6/14/2018	85	64	0.48
6/15/2018	88	56	0
6/16/2018	87	56	0
6/17/2018	88	60	0
6/18/2018	92	64	0
6/19/2018	94	72	0
6/20/2018	95	69	0
6/21/2018	92	71	0
6/22/2018	87	69	0.89
6/23/2018	88	66	0.67
6/24/2018	85	68	0.05
6/25/2018	89	69	0
6/26/2018	79	68	0.36
6/27/2018	69	65	0.56
6/28/2018	83	65	0
6/29/2018	88	65	0
6/30/2018	88	63	0
7/1/2018	89	66	0
7/2/2018	92	68	0
7/3/2018	93	70	0
7/4/2018	92	71	0
7/5/2018	90	70	0
7/6/2018	92	70	0
7/7/2018	88	68	0.43
7/8/2018	80	53	0
7/9/2018	80	51	0
7/10/2018	86	56	0
7/11/2018	91	60	0
7/12/2018	92	68	0.35
7/13/2018	86	66	0
7/14/2018	86	62	0
7/15/2018	89	62	0
7/16/2018	92	63	0
7/17/2018	91	70	0
7/18/2018	89	67	0.09
7/19/2018	86	58	0
7/20/2018	87	60	0
7/21/2018	86	64	0
7/22/2018	83	64	0.07
7/23/2018	84	61	0.5
7/24/2018	83	65	0.25
7/25/2018	78	69	2.21
7/26/2018	84	63	0.55
7/27/2018	89	63	0
7/28/2018	87	67	0
7/29/2018	86	65	0

5/22/2018	N/A	N/A	0.79
5/23/2018	N/A	N/A	0
5/24/2018	N/A	N/A	0
5/25/2018	N/A	N/A	0
5/26/2018	N/A	N/A	0.16
5/27/2018	N/A	N/A	0
5/28/2018	N/A	N/A	0
5/29/2018	N/A	N/A	0.08
5/30/2018	N/A	N/A	0.28
5/31/2018	N/A	N/A	0
6/1/2018	N/A	N/A	0
6/2/2018	N/A	N/A	0
6/3/2018	N/A	N/A	0
6/4/2018	N/A	N/A	0
6/5/2018	N/A	N/A	0
6/6/2018	N/A	N/A	0
6/7/2018	N/A	N/A	0
6/8/2018	N/A	N/A	0
6/9/2018	N/A	N/A	0
6/10/2018	N/A	N/A	0.12
6/11/2018	N/A	N/A	0
6/12/2018	N/A	N/A	0.04
6/13/2018	N/A	N/A	0.43
6/14/2018	N/A	N/A	0
6/15/2018	N/A	N/A	0
6/16/2018	N/A	N/A	0
6/17/2018	N/A	N/A	0
6/18/2018	N/A	N/A	0
6/19/2018	N/A	N/A	0
6/20/2018	N/A	N/A	0
6/21/2018	N/A	N/A	0.44
6/22/2018	N/A	N/A	0.63
6/23/2018	N/A	N/A	0
6/24/2018	N/A	N/A	0
6/25/2018	N/A	N/A	0.04
6/26/2018	N/A	N/A	0.59
6/27/2018	N/A	N/A	0.04
6/28/2018	N/A	N/A	0
6/29/2018	N/A	N/A	0
6/30/2018	N/A	N/A	0
7/1/2018	N/A	N/A	0
7/2/2018	N/A	N/A	0
7/3/2018	N/A	N/A	0
7/4/2018	N/A	N/A	0.08
7/5/2018	N/A	N/A	0
7/6/2018	N/A	N/A	0.24
7/7/2018	N/A	N/A	0.04
7/8/2018	N/A	N/A	0
7/9/2018	N/A	N/A	0
7/10/2018	N/A	N/A	0
7/11/2018	N/A	N/A	0.28
7/12/2018	N/A	N/A	0
7/13/2018	N/A	N/A	0
7/14/2018	N/A	N/A	0
7/15/2018	N/A	N/A	0
7/16/2018	N/A	N/A	0
7/17/2018	N/A	N/A	0.24
7/18/2018	N/A	N/A	0
7/19/2018	N/A	N/A	0.04
7/20/2018	N/A	N/A	0
7/21/2018	N/A	N/A	0.04
7/22/2018	N/A	N/A	0.63
7/23/2018	N/A	N/A	0.08
7/24/2018	N/A	N/A	1.42
7/25/2018	N/A	N/A	0.71
7/26/2018	N/A	N/A	0
7/27/2018	N/A	N/A	0
7/28/2018	N/A	N/A	0
7/29/2018	N/A	N/A	0

7/30/2018	87	65	0
7/31/2018	84	66	2.45
8/1/2018	80	67	0.48
8/2/2018	85	69	0.58
8/3/2018	83	67	0.17
8/4/2018	79	66	0.65
8/5/2018	88	66	0
8/6/2018	91	66	0
8/7/2018	90	66	0.4
8/8/2018	91	66	0
8/9/2018	92	68	0.24
8/10/2018	89	64	0
8/11/2018	87	70	0
8/12/2018	85	64	0.35
8/13/2018	83	62	1.2
8/14/2018	82	61	0.27
8/15/2018	85	61	0
8/16/2018	85	62	0
8/17/2018	89	66	0
8/18/2018	89	69	0
8/19/2018	79	66	0.12
8/20/2018	84	67	1.48
8/21/2018	76	68	0.03
8/22/2018	85	65	0.09
8/23/2018	83	53	0.02
8/24/2018	77	51	0
8/25/2018	78	53	0
8/26/2018	82	55	0
8/27/2018	86	59	0
8/28/2018	89	59	0
8/29/2018	92	51	0
8/30/2018	92	67	0
8/31/2018	92	65	0.19
9/1/2018	86	65	0.02
9/2/2018	88	67	0.98
9/3/2018	88	66	0.05
9/4/2018	90	67	0
9/5/2018	90	67	0
9/6/2018	88	65	0
9/7/2018	90	66	0
9/8/2018	89	67	0
9/9/2018	83	62	1.64
9/10/2018	65	61	0.86
9/11/2018	69	61	0.02
9/12/2018	79	67	0.95
9/13/2018	81	69	0.04
9/14/2018	80	69	0
9/15/2018	77	71	0.35
9/16/2018	76	66	0.82
9/17/2018	73	66	2.85
9/18/2018	84	69	0.11
9/19/2018	85	60	0.03
9/20/2018	88	60	0
9/21/2018	87	64	0.22
9/22/2018	85	64	0
9/23/2018	86	61	4.56
9/24/2018	66	60	0.02
9/25/2018	65	60	0.12
9/26/2018	80	61	0
9/27/2018	83	61	0.13
9/28/2018	68	58	1.12
9/29/2018	78	61	0.03
9/30/2018	77	57	0
10/1/2018	72	59	0
10/2/2018	83	61	0
10/3/2018	82	62	0.16
10/4/2018	85	62	0
10/5/2018	87	63	0
10/6/2018	84	68	0

7/30/2018	N/A	N/A	1.55
7/31/2018	N/A	N/A	0.6
8/1/2018	N/A	N/A	0.08
8/2/2018	N/A	N/A	0.6
8/3/2018	N/A	N/A	0.36
8/4/2018	N/A	N/A	0.12
8/5/2018	N/A	N/A	0.08
8/6/2018	N/A	N/A	0.04
8/7/2018	N/A	N/A	0.04
8/8/2018	N/A	N/A	0
8/9/2018	N/A	N/A	0
8/10/2018	N/A	N/A	0
8/11/2018	N/A	N/A	0
8/12/2018	N/A	N/A	0.04
8/13/2018	N/A	N/A	0.08
8/14/2018	N/A	N/A	0.12
8/15/2018	N/A	N/A	0.64
8/16/2018	N/A	N/A	0.44
8/17/2018	N/A	N/A	0.16
8/18/2018	N/A	N/A	0
8/19/2018	N/A	N/A	0.04
8/20/2018	N/A	N/A	0.16
8/21/2018	N/A	N/A	0.08
8/22/2018	N/A	N/A	0
8/23/2018	N/A	N/A	0
8/24/2018	N/A	N/A	0
8/25/2018	N/A	N/A	0
8/26/2018	N/A	N/A	0
8/27/2018	N/A	N/A	0
8/28/2018	N/A	N/A	0
8/29/2018	N/A	N/A	0
8/30/2018	N/A	N/A	0
8/31/2018	N/A	N/A	0.04
9/1/2018	N/A	N/A	0.87
9/2/2018	N/A	N/A	0.2
9/3/2018	N/A	N/A	0
9/4/2018	N/A	N/A	0
9/5/2018	N/A	N/A	0
9/6/2018	N/A	N/A	0
9/7/2018	N/A	N/A	0
9/8/2018	N/A	N/A	0.32
9/9/2018	N/A	N/A	1.07
9/10/2018	N/A	N/A	0.48
9/11/2018	N/A	N/A	0.47
9/12/2018	N/A	N/A	0.39
9/13/2018	N/A	N/A	0.04
9/14/2018	N/A	N/A	0
9/15/2018	N/A	N/A	0.44
9/16/2018	N/A	N/A	1.04
9/17/2018	N/A	N/A	1.43
9/18/2018	N/A	N/A	0.16
9/19/2018	N/A	N/A	0
9/20/2018	N/A	N/A	0.08
9/21/2018	N/A	N/A	0
9/22/2018	N/A	N/A	1.9
9/23/2018	N/A	N/A	0.67
9/24/2018	N/A	N/A	0
9/25/2018	N/A	N/A	0.31
9/26/2018	N/A	N/A	0.04
9/27/2018	N/A	N/A	0
9/28/2018	N/A	N/A	0
9/29/2018	N/A	N/A	0
9/30/2018	N/A	N/A	0
10/1/2018	N/A	N/A	0
10/2/2018	N/A	N/A	0.04
10/3/2018	N/A	N/A	0
10/4/2018	N/A	N/A	0
10/5/2018	N/A	N/A	0
10/6/2018	N/A	N/A	0

10/7/2018	78	67	0.03
10/8/2018	85	65	0
10/9/2018	81	66	0
10/10/2018	77	66	0.05
10/11/2018	73	67	0.69
10/12/2018	72	50	3.32
10/13/2018	68	48	0
10/14/2018	62	43	0.03
10/15/2018	55	46	0.05
10/16/2018	78	53	0.02
10/17/2018	67	55	0.14
10/18/2018	69	43	0
10/19/2018	60	34	0
11/1/2018			0
11/2/2018			0.1
11/3/2018			0.98
11/4/2018			0
11/5/2018			0.15
11/6/2018			0.37
11/7/2018			0.13
11/8/2018			0
11/9/2018			0
11/10/2018			0.29
11/11/2018			0
11/12/2018			0
11/13/2018			1.25
11/14/2018			0.03
11/16/2018			0.55
11/17/2018			0
11/18/2018			0
11/19/2018			0
11/20/2018			0
11/21/2018	49	26	0
11/22/2018	55	29	0
11/23/2018	51	29	0
11/24/2018	35	29	0.05
11/25/2018	44	28	1.02
11/26/2018	56	32	0
11/27/2018	56	32	0
11/28/2018	38	23	0
11/29/2018	38	21	0
11/30/2018	51	20	0.08
12/1/2018	59	38	0.07
12/2/2018	48	38	0.24
12/3/2018	58	36	0
12/4/2018	61	36	0
12/5/2018	46	32	0
12/6/2018	42	21	0
12/7/2018	44	23	0
12/8/2018	44	26	0
12/9/2018	39	25	0.28
12/11/2018	44	13	
12/12/2018	46	13	0
12/13/2018	45	25	0
12/14/2018	50	26	0
12/15/2018	41	34	1.23
12/16/2018	47	41	0.47
12/17/2018	55	41	0
12/18/2018	57	35	0
12/19/2018	51	25	0
12/20/2018	52	25	0
12/21/2018			2.11
12/22/2018	58	38	0.45
12/23/2018	45	24	0
12/24/2018	53	24	0
12/25/2018	45	26	0
12/26/2018	48	23	0
12/27/2018	48	22	0
12/28/2018	41	26	0.95

10/7/2018	N/A	N/A	0
10/8/2018	N/A	N/A	0
10/9/2018	N/A	N/A	0
10/10/2018	N/A	N/A	0
10/11/2018	N/A	N/A	0
10/12/2018	N/A	N/A	0
10/13/2018	N/A	N/A	0
10/14/2018	N/A	N/A	0
10/15/2018	N/A	N/A	0
10/16/2018	N/A	N/A	0
10/17/2018	N/A	N/A	0
10/18/2018	N/A	N/A	0
10/19/2018	N/A	N/A	0
11/1/2018	N/A	N/A	0
11/2/2018	N/A	N/A	0
11/3/2018	N/A	N/A	0
11/4/2018	N/A	N/A	0
11/5/2018	N/A	N/A	0
11/6/2018	N/A	N/A	0
11/7/2018	N/A	N/A	0
11/8/2018	N/A	N/A	0
11/9/2018	N/A	N/A	0
11/10/2018	N/A	N/A	0
11/11/2018	N/A	N/A	0
11/12/2018	N/A	N/A	0
11/13/2018	N/A	N/A	0
11/14/2018	N/A	N/A	0
11/16/2018	N/A	N/A	0
11/17/2018	N/A	N/A	0
11/18/2018	N/A	N/A	0
11/19/2018	N/A	N/A	0
11/20/2018	N/A	N/A	0
11/21/2018	N/A	N/A	0
11/22/2018	N/A	N/A	0
11/23/2018	N/A	N/A	0
11/24/2018	N/A	N/A	0
11/25/2018	N/A	N/A	0
11/26/2018	N/A	N/A	0
11/27/2018	N/A	N/A	0
11/28/2018	N/A	N/A	0
11/29/2018	N/A	N/A	0
11/30/2018	N/A	N/A	0
12/1/2018	N/A	N/A	0
12/2/2018	N/A	N/A	0
12/3/2018	N/A	N/A	0
12/4/2018	N/A	N/A	0
12/5/2018	N/A	N/A	0
12/6/2018	N/A	N/A	0
12/7/2018	N/A	N/A	0
12/8/2018	N/A	N/A	0
12/9/2018	N/A	N/A	0
12/11/2018	N/A	N/A	0
12/12/2018	N/A	N/A	0
12/13/2018	N/A	N/A	0
12/14/2018	N/A	N/A	0
12/15/2018	N/A	N/A	0
12/16/2018	N/A	N/A	0
12/17/2018	N/A	N/A	0
12/18/2018	N/A	N/A	0
12/19/2018	N/A	N/A	0
12/20/2018	N/A	N/A	0
12/21/2018	N/A	N/A	0
12/22/2018	N/A	N/A	0
12/23/2018	N/A	N/A	0
12/24/2018	N/A	N/A	0
12/25/2018	N/A	N/A	0
12/26/2018	N/A	N/A	0
12/27/2018	N/A	N/A	0
12/28/2018	N/A	N/A	0



12/29/2018	53	39	1.28
12/30/2018	60	38	0
12/31/2018	57	40	0.02
1/1/2019	64	41	0.12
1/2/2019	61	37	0
1/3/2019	46	37	0.38
1/4/2019	52	36	0
1/5/2019	42	37	0.28
1/6/2019	55	41	0
1/7/2019	59	35	0
1/8/2019	43	37	0
1/9/2019	62	39	0
1/10/2019	45	24	0
1/11/2019	33	22	0
1/12/2019	41	22	0
1/13/2019	33	28	0.9
1/14/2019	32	28	0.06
1/15/2019	34	29	0
1/16/2019	40	24	0
1/17/2019	44	24	0
1/18/2019	35	25	0.1
1/19/2019	50	29	0
1/20/2019	49	35	0.9
1/21/2019	47	10	0
1/22/2019	29	10	0
1/23/2019	36	10	0
1/24/2019	58	32	0.7
1/25/2019	57	27	0.31
1/26/2019	42	25	0
1/27/2019	43	19	0
1/28/2019	47	20	0
1/29/2019	50	20	0
1/30/2019	50	15	0
1/31/2019	34	12	0
2/1/2019	36	12	0
2/2/2019	43	26	0.06
2/3/2019	59	26	0
2/4/2019	65	28	0
2/5/2019	67	28	0
2/6/2019	71	41	0
2/7/2019	68	41	0.03
2/8/2019	75	60	0
2/9/2019	61	30	0
2/10/2019	43	17	0
2/11/2019	39	17	0.36
2/12/2019	43	33	0.6
2/13/2019	44	33	0.25
2/14/2019	52	28	0
2/15/2019	60	25	0
2/16/2019	61	42	0
2/17/2019	45	32	0.41
2/18/2019	44	32	0.61
2/19/2019	50	27	0.02
2/20/2019	44	29	0.57
2/21/2019	32	31	0.45
2/22/2019	62	32	0.33
2/23/2019	46	36	0.88
2/24/2019	39	36	0.84
2/25/2019	66	37	0
2/26/2019	55	28	0
2/27/2019	64	29	0
2/28/2019	54	32	0
3/1/2019	60	32	0.16
3/2/2019	39	36	0.72
3/3/2019	59	36	0
3/4/2019	41	34	0.33
3/5/2019	40	24	0
3/6/2019	43	21	0
3/7/2019	37	22	0

12/29/2018	N/A	N/A	0
12/30/2018	N/A	N/A	0
12/31/2018	N/A	N/A	0
1/1/2019	N/A	N/A	0
1/2/2019	N/A	N/A	0
1/3/2019	N/A	N/A	0
1/4/2019	N/A	N/A	0
1/5/2019	N/A	N/A	0
1/6/2019	N/A	N/A	0
1/7/2019	N/A	N/A	0
1/8/2019	N/A	N/A	0
1/9/2019	N/A	N/A	0
1/10/2019	N/A	N/A	0
1/11/2019	N/A	N/A	0
1/12/2019	N/A	N/A	0
1/13/2019	N/A	N/A	0
1/14/2019	N/A	N/A	0
1/15/2019	N/A	N/A	0
1/16/2019	N/A	N/A	0
1/17/2019	N/A	N/A	0
1/18/2019	N/A	N/A	0
1/19/2019	N/A	N/A	0
1/20/2019	N/A	N/A	0
1/21/2019	N/A	N/A	0
1/22/2019	N/A	N/A	0
1/23/2019	N/A	N/A	0
1/24/2019	N/A	N/A	0
1/25/2019	N/A	N/A	0
1/26/2019	N/A	N/A	0
1/27/2019	N/A	N/A	0
1/28/2019	N/A	N/A	0
1/29/2019	N/A	N/A	0
1/30/2019	N/A	N/A	0
1/31/2019	N/A	N/A	0
2/1/2019	N/A	N/A	0
2/2/2019	N/A	N/A	0
2/3/2019	N/A	N/A	0
2/4/2019	N/A	N/A	0
2/5/2019	N/A	N/A	0
2/6/2019	N/A	N/A	0
2/7/2019	N/A	N/A	0
2/8/2019	N/A	N/A	0
2/9/2019	N/A	N/A	0
2/10/2019	N/A	N/A	0
2/11/2019	N/A	N/A	0
2/12/2019	N/A	N/A	0
2/13/2019	N/A	N/A	0
2/14/2019	N/A	N/A	0
2/15/2019	N/A	N/A	0
2/16/2019	N/A	N/A	0
2/17/2019	N/A	N/A	0
2/18/2019	N/A	N/A	0.55
2/19/2019	N/A	N/A	0
2/20/2019	N/A	N/A	0.4
2/21/2019	N/A	N/A	0.6
2/22/2019	N/A	N/A	0.52
2/23/2019	N/A	N/A	1.32
2/24/2019	N/A	N/A	0
2/25/2019	N/A	N/A	0.08
2/26/2019	N/A	N/A	0
2/27/2019	N/A	N/A	0
2/28/2019	N/A	N/A	0
3/1/2019	N/A	N/A	0.8
3/2/2019	N/A	N/A	0
3/3/2019	N/A	N/A	0.28
3/4/2019	N/A	N/A	0
3/5/2019	N/A	N/A	0
3/6/2019	N/A	N/A	0
3/7/2019	N/A	N/A	0

3/8/2019	42	30	0
3/9/2019	38	32	0.15
3/10/2019	37	34	0.41
3/11/2019	66	34	0
3/12/2019	66	27	0
3/13/2019	58	26	0
3/14/2019	62	26	0
3/15/2019	66	50	0
3/16/2019	68	39	0
3/17/2019	56	26	0
3/18/2019	57	26	0
3/19/2019	52	22	0
3/20/2019	54	22	0
3/21/2019	58	25	0.21
3/22/2019	58	40	0.03
3/23/2019	57	38	0
3/24/2019	61	26	0
3/25/2019	72	27	0
3/26/2019	65	42	0.2
3/27/2019		25	0.05
3/28/2019		24	0
3/29/2019	68	26	0
3/30/2019	76	42	0
3/31/2019	75	44	0.03
4/1/2019	57	27	0
4/2/2019	52	26	0
4/3/2019	52	28	0
4/4/2019	71	34	0
4/5/2019	74	42	0.03
4/6/2019	52	42	0.62
4/7/2019	74	50	0
4/8/2019	72	50	0.02
4/9/2019	81	58	0.34
4/10/2019	77	42	0
4/11/2019	78	44	0
4/12/2019	77	52	0
4/13/2019	68	56	0.33
4/14/2019	66	56	0.33
4/15/2019	72	50	1.14
4/16/2019	59	32	0
4/17/2019	74	34	0
4/18/2019	83	52	0
4/19/2019	83	52	0
4/20/2019	74	51	1.07
4/21/2019	58	36	0
4/22/2019	65	36	0
4/23/2019	75	40	0
4/24/2019			0
4/25/2019	82	52	0
4/26/2019	83	58	0
4/27/2019	65	63	0.14
4/28/2019	74	51	0
4/29/2019	81	48	0
4/30/2019	65	48	0
5/1/2019	86	50	0
5/2/2019	86	56	0
5/3/2019	85	57	0.8
5/4/2019	82	58	0.72
5/5/2019	81	61	0.14
5/6/2019	77	55	0
5/7/2019	78	50	0
5/8/2019	77	52	0.3
5/9/2019	82	60	0
5/10/2019	79	62	0
5/11/2019	79	64	0
5/12/2019	72	60	0.4
5/13/2019	78	53	0.8
5/14/2019	70	46	0.04
5/15/2019	64	40	0

3/8/2019	N/A	N/A	0.04
3/9/2019	N/A	N/A	0.12
3/10/2019	N/A	N/A	0
3/11/2019	N/A	N/A	0.28
3/12/2019	N/A	N/A	0
3/13/2019	N/A	N/A	0
3/14/2019	N/A	N/A	0
3/15/2019	N/A	N/A	0
3/16/2019	N/A	N/A	0
3/17/2019	N/A	N/A	0
3/18/2019	N/A	N/A	0
3/19/2019	N/A	N/A	0
3/20/2019	N/A	N/A	0
3/21/2019	N/A	N/A	0.04
3/22/2019	N/A	N/A	0.08
3/23/2019	N/A	N/A	0
3/24/2019	N/A	N/A	0
3/25/2019	N/A	N/A	0
3/26/2019	N/A	N/A	0
3/27/2019	N/A	N/A	0
3/28/2019	N/A	N/A	0
3/29/2019	N/A	N/A	0
3/30/2019	N/A	N/A	0
3/31/2019	N/A	N/A	0
4/1/2019	N/A	N/A	0
4/2/2019	N/A	N/A	0
4/3/2019	N/A	N/A	0
4/4/2019	N/A	N/A	0
4/5/2019	N/A	N/A	0.64
4/6/2019	N/A	N/A	0
4/7/2019	N/A	N/A	0
4/8/2019	N/A	N/A	0.28
4/9/2019	N/A	N/A	0
4/10/2019	N/A	N/A	0
4/11/2019	N/A	N/A	0
4/12/2019	N/A	N/A	0.16
4/13/2019	N/A	N/A	0.51
4/14/2019	N/A	N/A	0.04
4/15/2019	N/A	N/A	0
4/16/2019	N/A	N/A	0
4/17/2019	N/A	N/A	0
4/18/2019	N/A	N/A	0
4/19/2019	N/A	N/A	0.95
4/20/2019	N/A	N/A	0.04
4/21/2019	N/A	N/A	0
4/22/2019	N/A	N/A	0
4/23/2019	N/A	N/A	0
4/24/2019	N/A	N/A	0
4/25/2019	N/A	N/A	0
4/26/2019	N/A	N/A	0.12
4/27/2019	N/A	N/A	0
4/28/2019	N/A	N/A	0
4/29/2019	N/A	N/A	0
4/30/2019	N/A	N/A	0
5/1/2019	N/A	N/A	0
5/2/2019	N/A	N/A	0.99
5/3/2019	N/A	N/A	0.16
5/4/2019	N/A	N/A	0.2
5/5/2019	N/A	N/A	0.36
5/6/2019	N/A	N/A	0.04
5/7/2019	N/A	N/A	0
5/8/2019	N/A	N/A	0
5/9/2019	N/A	N/A	0.04
5/10/2019	N/A	N/A	0.04
5/11/2019	N/A	N/A	0.04
5/12/2019	N/A	N/A	0.08
5/13/2019	N/A	N/A	0.08
5/14/2019	N/A	N/A	0.04
5/15/2019	N/A	N/A	0.04

5/16/2019	73	46	0
5/17/2019	80	50	0
5/18/2019	85	55	0.01
5/19/2019	89	57	0.01
5/20/2019	88	61	0
5/21/2019	87	53	0
5/22/2019	81	52	0
5/23/2019	78	52	0
5/24/2019	86	66	0
5/25/2019	90	64	0
5/26/2019	89	64	0
5/27/2019	91	66	0
5/28/2019	87	62	0
5/29/2019	92	62	0
5/30/2019	92	61	0.04
5/31/2019	90	63	0
6/1/2019	82	54	0.19
6/2/2019	83	56	0
6/3/2019	83	59	0
6/4/2019	77	47	0
6/5/2019	81	49	0
6/6/2019	79	64	0
6/7/2019	82	66	0.1
6/8/2019	71	65	2.33
6/9/2019	68	61	3.95
6/10/2019	68	61	0.13
6/11/2019	83	62	0.19
6/12/2019	77	52	0
6/13/2019			0.18
6/14/2019	78	53	0
6/15/2019	79	49	0
6/16/2019	81	49	0
6/17/2019	87	61	0
6/18/2019	88	67	0.18
6/19/2019	83	66	2.05
6/20/2019	85	65	0
6/21/2019	84	68	0
6/22/2019	80	63	0.04
6/23/2019	79	61	0
6/24/2019	81	62	0
6/25/2019	90	62	0.15
6/26/2019	83	59	0
6/27/2019	88	60	0
6/28/2019	89	64	0
6/29/2019	88	65	0.93
6/30/2019	90	65	0.79
7/1/2019	90	66	0
7/2/2019	90	63	0
7/3/2019	90	65	1.14
7/4/2019	90	65	0
7/5/2019	86	66	2.95
7/6/2019	88	67	0.02
7/7/2019	90	70	0
7/8/2019	91	68	0.09
7/9/2019	89	68	0.22
7/10/2019	81	68	0
7/11/2019	87	68	0
7/12/2019	89	67	0.29
7/13/2019	90	67	0.01
7/14/2019	91	65	0
7/15/2019	91	65	0
7/16/2019	90	67	0
7/17/2019	91	68	0
7/18/2019	91	69	0
7/19/2019	89	70	0.39
7/20/2019	94	71	0.01
7/21/2019	94	71	0
7/22/2019	90	70	0.02
7/23/2019	88	67	0.27

5/16/2019	N/A	N/A	0.12
5/17/2019	N/A	N/A	0.04
5/18/2019	N/A	N/A	0.16
5/19/2019	N/A	N/A	0
5/20/2019	N/A	N/A	0.04
5/21/2019	N/A	N/A	0
5/22/2019	N/A	N/A	0
5/23/2019	N/A	N/A	0
5/24/2019	N/A	N/A	0
5/25/2019	N/A	N/A	0
5/26/2019	N/A	N/A	0
5/27/2019	N/A	N/A	0
5/28/2019	N/A	N/A	0
5/29/2019	N/A	N/A	0
5/30/2019	N/A	N/A	0
5/31/2019	N/A	N/A	0
6/1/2019	N/A	N/A	0
6/2/2019	N/A	N/A	0
6/3/2019	N/A	N/A	0
6/4/2019	N/A	N/A	0
6/5/2019	N/A	N/A	0
6/6/2019	N/A	N/A	0
6/7/2019	N/A	N/A	0
6/8/2019	N/A	N/A	0
6/9/2019	N/A	N/A	0
6/10/2019	N/A	N/A	0
6/11/2019	N/A	N/A	0
6/12/2019	N/A	N/A	0.04
6/13/2019	N/A	N/A	0.08
6/14/2019	N/A	N/A	0.04
6/15/2019	N/A	N/A	0
6/16/2019	N/A	N/A	0
6/17/2019	N/A	N/A	0
6/18/2019	N/A	N/A	0
6/19/2019	N/A	N/A	0.04
6/20/2019	N/A	N/A	0.04
6/21/2019	N/A	N/A	0.2
6/22/2019	N/A	N/A	0
6/23/2019	N/A	N/A	0.08
6/24/2019	N/A	N/A	0
6/25/2019	N/A	N/A	0.36
6/26/2019	N/A	N/A	0.04
6/27/2019	N/A	N/A	0.4
6/28/2019	N/A	N/A	0.28
6/29/2019	N/A	N/A	0.32
6/30/2019	N/A	N/A	0
7/1/2019	N/A	N/A	0.08
7/2/2019	N/A	N/A	0
7/3/2019	N/A	N/A	0.04
7/4/2019	N/A	N/A	0.12
7/5/2019	N/A	N/A	0.32
7/6/2019	N/A	N/A	0.36
7/7/2019	N/A	N/A	0.28
7/8/2019	N/A	N/A	0.12
7/9/2019	N/A	N/A	0
7/10/2019	N/A	N/A	0.32
7/11/2019	N/A	N/A	0.31
7/12/2019	N/A	N/A	0.88
7/13/2019	N/A	N/A	0.56
7/14/2019	N/A	N/A	0
7/15/2019	N/A	N/A	0
7/16/2019	N/A	N/A	0
7/17/2019	N/A	N/A	0.08
7/18/2019	N/A	N/A	0.04
7/19/2019	N/A	N/A	0.04
7/20/2019	N/A	N/A	0.04
7/21/2019	N/A	N/A	0
7/22/2019	N/A	N/A	0
7/23/2019	N/A	N/A	0.04



7/24/2019	70	56	0.8
7/25/2019	81	56	0
7/26/2019	83	56	0
7/27/2019	85	56	0
7/28/2019	86	59	0
7/29/2019	90	61	0
7/30/2019	89	61	0
7/31/2019	90	65	0.08
8/1/2019	88	64	0
8/2/2019	86	65	0.68
8/3/2019	82	66	0
8/4/2019	86	65	0
8/5/2019	88	65	0
8/6/2019	88	64	0.32
8/7/2019	89	65	0
8/8/2019	88	65	0
8/9/2019	89	65	0
8/10/2019	90	65	0
8/11/2019	86	59	0
8/12/2019	86	59	0
8/13/2019	90	59	0
8/14/2019	92	70	0
8/15/2019	91	66	0
8/16/2019	91	65	0
8/17/2019	88	65	0
8/18/2019	89	65	0.02
8/19/2019	92	65	0
8/20/2019	93	68	0
8/21/2019	92	67	0
8/22/2019	92	67	0
8/23/2019	89	68	0
8/24/2019	88	63	0.21
8/25/2019	71	60	0
8/26/2019	75	56	0
8/27/2019	78	61	0
8/28/2019	73	64	0.05
8/29/2019	86	53	0
8/30/2019	84	52	0
8/31/2019	87	53	0
9/1/2019	90	61	0
9/2/2019	86	59	0
9/3/2019	90	59	0.08
9/4/2019	88	62	0
9/5/2019	93	62	0
9/6/2019	93	62	0
9/7/2019	88	68	0
9/8/2019	85	56	0
9/9/2019	88	56	0
9/10/2019	88	64	0
9/11/2019	86	65	0
9/12/2019	95	65	0.08
9/13/2019	95	65	0.02
9/14/2019	76	66	0.17
9/15/2019	79	63	0
9/16/2019	86	58	0
9/17/2019	91	59	0
9/18/2019	91	59	0
9/19/2019	76	54	0
9/20/2019	73	44	0
9/21/2019	79	44	0
9/22/2019	88	55	0
9/23/2019	91	55	0
9/24/2019	90	60	0
9/25/2019	84	49	0
9/26/2019	84	50	0
9/27/2019	90	58	0
9/28/2019	85	60	0
9/29/2019	85	64	0.05
9/30/2019	91	64	0.22

7/24/2019	N/A	N/A	0.12
7/25/2019	N/A	N/A	0.2
7/26/2019	N/A	N/A	0
7/27/2019	N/A	N/A	0
7/28/2019	N/A	N/A	0
7/29/2019	N/A	N/A	0.04
7/30/2019	N/A	N/A	0.08
7/31/2019	N/A	N/A	0.16
8/1/2019	N/A	N/A	0
8/2/2019	N/A	N/A	0.2
8/3/2019	N/A	N/A	0.04
8/4/2019	N/A	N/A	0
8/5/2019	N/A	N/A	0
8/6/2019	N/A	N/A	0.04
8/7/2019	N/A	N/A	0.08
8/8/2019	N/A	N/A	0.04
8/9/2019	N/A	N/A	0
8/10/2019	N/A	N/A	0
8/11/2019	N/A	N/A	0
8/12/2019	N/A	N/A	0
8/13/2019	N/A	N/A	0
8/14/2019	N/A	N/A	0
8/15/2019	N/A	N/A	0
8/16/2019	N/A	N/A	0.08
8/17/2019	N/A	N/A	0
8/18/2019	N/A	N/A	0
8/19/2019	N/A	N/A	0
8/20/2019	N/A	N/A	0
8/21/2019	N/A	N/A	0
8/22/2019	N/A	N/A	0.36
8/23/2019	N/A	N/A	0
8/24/2019	N/A	N/A	0
8/25/2019	N/A	N/A	0
8/26/2019	N/A	N/A	0
8/27/2019	N/A	N/A	0.04
8/28/2019	N/A	N/A	0
8/29/2019	N/A	N/A	0
8/30/2019	N/A	N/A	0
8/31/2019	N/A	N/A	0
9/1/2019	N/A	N/A	0
9/2/2019	N/A	N/A	0.16
9/3/2019	N/A	N/A	0
9/4/2019	N/A	N/A	0.16
9/5/2019	N/A	N/A	0
9/6/2019	N/A	N/A	0
9/7/2019	N/A	N/A	0
9/8/2019	N/A	N/A	0
9/9/2019	N/A	N/A	0
9/10/2019	N/A	N/A	0.31
9/11/2019	N/A	N/A	0.32
9/12/2019	N/A	N/A	0
9/13/2019	N/A	N/A	0
9/14/2019	N/A	N/A	0
9/15/2019	N/A	N/A	0
9/16/2019	N/A	N/A	0
9/17/2019	N/A	N/A	0
9/18/2019	N/A	N/A	0
9/19/2019	N/A	N/A	0
9/20/2019	N/A	N/A	0
9/21/2019	N/A	N/A	0
9/22/2019	N/A	N/A	0
9/23/2019	N/A	N/A	0
9/24/2019	N/A	N/A	0.08
9/25/2019	N/A	N/A	0
9/26/2019	N/A	N/A	0
9/27/2019	N/A	N/A	0
9/28/2019	N/A	N/A	0
9/29/2019	N/A	N/A	0
9/30/2019	N/A	N/A	0

10/1/2019	83	64	0
10/2/2019	90	67	0
10/4/2019	96	63	0
10/5/2019	88	57	0
10/6/2019	68	51	0.15
10/7/2019	68	55	0
10/8/2019	80	59	0
10/9/2019	59	54	0.13
10/10/2019	72	54	0
10/11/2019	75	45	0
10/12/2019	78	45	0
10/13/2019	79	50	0.04
10/14/2019	61	45	0.09
10/15/2019	76	38	0
10/16/2019	74	38	0.3
10/17/2019	63	47	0.76
10/18/2019	61	35	0
** Incomplete or Missing Data reports as "0".			

10/1/2019	N/A	N/A	0
10/2/2019	N/A	N/A	0.32
10/4/2019	N/A	N/A	0
10/5/2019	N/A	N/A	0
10/6/2019	N/A	N/A	0
10/7/2019	N/A	N/A	0
10/8/2019	N/A	N/A	0
10/9/2019	N/A	N/A	0
10/10/2019	N/A	N/A	0.16
10/11/2019	N/A	N/A	0
10/12/2019	N/A	N/A	0
10/13/2019	N/A	N/A	0
10/14/2019	N/A	N/A	0
10/15/2019	N/A	N/A	0
10/16/2019	N/A	N/A	0
10/17/2019	N/A	N/A	0
10/18/2019	N/A	N/A	0
** Incomplete or Missing Data reports as "0".			

## **References**

Bass, K. 2015. Power Dam Sediment Capacity and Fate Modeling. Friends of The Rivers of Virginia, U.S. Fish and Wildlife Service, Town of Rock Mount. Prepared by Kris Bass Engineering.

Barbour, M. T., J. Gerritsen, B. D. Snyder, and J. B. Stribling. 1999. Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C. 339 pp.

Hitt, N.P., J. Jones, and K. Convery. 2009. Biomonitoring for the Rocky Mount Power Dam Removal Project: Establishing Baseline Conditions. Conservation Management Institute and U.S. Geological Survey.

Tetra Tech, Inc. 2003. A Stream Condition Index for Virginia Non-Coastal Streams. Tetra Tech, Inc. Owings Mills, Maryland. Prepared for Virginia Department of Environmental Quality, Richmond, Virginia. 163 pp.

Virginia Department of Environmental Quality (DEQ) 2006. Using Probabilistic Monitoring Data to Validate the Non-Coastal Virginia Stream Condition Index. Division of Water Quality. Biological Monitoring Program. Richmond, Virginia. 58 pp.

DEQ. 2008. Biological Monitoring Program Quality Assurance Project Plan for Wadeable Streams and Rivers. Richmond, Virginia. 43pp.