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:
Description: Test pit soils

¹ 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



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

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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/County: Frankin	8	Sampling Date: _	10/1 /2019
Applicant/Owner: FORVA		State: VA		
	Section, Township, Range:	N/A	1 3	
Landform (hillslope, terrace, etc.): Depression L		Concave	Slone	. /%). 2
Subregion (LRR or MLRA): LRR P Lat: 36°59'40"				
			Datum. ion:	
Soil Map Unit Name:				
Are climatic / hydrologic conditions on the site typical for this time of				
Are Vegetation , Soil , or Hydrology significan	•	•		No L
Are Vegetation, Soil, or Hydrology naturally	problematic? (If needed,	explain any answers	in Remarks.)	
SUMMARY OF FINDINGS - Attach site map showing	g sampling point locatio	ns, transects, ii	mportant feat	tures, etc.
Hydrophytic Vegetation Present? Yes ✓ No				
Hydric Soil Present? Yes ✓ No	Is the Sampled Area	Yes		
Wetland Hydrology Present? Yes No	within a Wetland?	Yes _	No	
Remarks:	<u> </u>			
All three wetland parameters (i.e., wetland hydrology, hydrophytic	vegetation, and hydric soils) were	e satisfied at this dat	a point, which ch	naracterizes
a palustrine forested wetland at Site #2.				
HYDROLOGY				
Wetland Hydrology Indicators:		Secondary Indicato	rs (minimum of t	wo required)
Primary Indicators (minimum of one is required; check all that app		Surface Soil Cr	` '	
	Plants (B14)		ated Concave Su	urface (B8)
_ , ,	ulfide Odor (C1)	✓ Drainage Patte		
	izospheres on Living Roots (C3)	Moss Trim Line		
<u> </u>	Reduced Iron (C4)	Dry-Season Wa		
l	Reduction in Tilled Soils (C6)	Crayfish Burrov	` '	~~n/ (CQ)
☐ Drift Deposits (B3) ☐ Thin Muck S☐ Algal Mat or Crust (B4) ☐ Other (Expla	ыпасе (С7) iin in Remarks)		ole on Aerial Imag ssed Plants (D1)	
Iron Deposits (B5)	III III remarks)	✓ Geomorphic Po	, ,	
Inundation Visible on Aerial Imagery (B7)		Shallow Aquita		
Water-Stained Leaves (B9)		Microtopograph		
Aquatic Fauna (B13)		✓ FAC-Neutral Te	` '	
Field Observations:		<u> </u>		
Surface Water Present? Yes No Depth (inche	es):			
Water Table Present? Yes Vo Depth (inche				
Saturation Present? Yes Vo Depth (inche	` -	ydrology Present?	Yes 🗸	No
(includes capillary fringe)				
Describe Recorded Data (stream gauge, monitoring well, aerial ph	iotos, previous inspections), it av	ailable:		
Remarks:				

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point: Site#2,DP-1 Dominant Indicator Dominance Test worksheet: Tree Stratum (Plot size: 30' Radius) % Cover Species? Status **Number of Dominant Species** That Are OBL. FACW, or FAC: (A) 2. **Total Number of Dominant** 3. (B) Species Across All Strata: Percent of Dominant Species 5 100 0% _ (A/B) That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: 50% of total cover: 20% of total cover: **OBL** species x 1 =Sapling/Shrub Stratum (Plot size: _____) **FACW** species x2 =FAC species x3 =2. **FACU** species 3 UPL species x 5 = Column Totals: (A) (B) 5. . Prevalence Index = B/A = 6. _ Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 8. 9. ✓ 2 - Dominance Test is >50% 10. 3 - Prevalence Index is ≤3.0¹ 50% of total cover: 20% of total cover: _____= Total Cover 4 - Morphological Adaptations¹ (Provide supporting Herb Stratum (Plot size: 5' Radius data in Remarks or on a separate sheet) Ludwigia alternifolia **FACW** Problematic Hydrophytic Vegetation¹ (Explain) 1. OBL Iris pseudacorus 2. 5 Boehmeria cylindrica FACW 3. ¹Indicators of hydric soil and wetland hydrology must 1 FACW Persicaria maculosa be present, unless disturbed or problematic. 4. 5. **Definitions of Four Vegetation Strata:** 6. Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or 7 more in diameter at breast height (DBH), regardless of 8. Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. 11. _ 12. Herb - All herbaceous (non-woody) plants, regardless -= Total Cover of size, and woody plants less than 3.28 ft tall. 50% of total cover: 38 20% of total cover: 15.2 Woody Vine Stratum (Plot size: 30' Radius Woody vine - All woody vines greater than 3.28 ft in height. 2. 3. Hydrophytic Vegetation Present? No ____= Total Cover 50% of total cover: 20% of total cover: 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/shurb, 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

	ription: (Describe to Matrix	the depth		ent the in		or confirm	the absence	e of indicators.)
Depth (Inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc²	Texture	Remarks
0-18	10YR3/1	60	10YR3/4	40	C		Silt Loam	
0-10	101110/1		101110/4				Ont Loans	_
			_					_
								_
47 00				 .		 		<u></u>
	ncentration, D=Deple	etion, RM=F	Reduced Matrix, MS	S=Masked	Sand Gr	ains.		PL=Pore Lining, M=Matrix
Hydric Soil				(07)				cators for Problematic Hydric Soils ³ :
Histoso			☐ Dark Surfac	. ,	(0.0)			2 cm Muck (A10)
	pipedon (A2)		Polyvalue B			-	7, 148)	Coast Prairie Redox (A16)
	listic (A3)		☐ Thin Dark S		-	147, 148)		(MLRA 147, 148)
	en Sulfide (A4)		Loamy Gley		(F2)			Piedmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Ma					(MLRA 136, 147)
	uck (A10) (LRR N)		Redox Dark	-	-			Very Shallow Dark Surface (TF12)
	d Below Dark Surfac	e (A11)	Depleted Da					Other (Explain in Remarks)
	ark Surface (A12)		Redox Depr	-				
	Mucky Mineral (S1) (I	LRR N,	Iron Mangar		ses (F12)	(LRR N,		
ML	RA 147, 148)		MLRA	136)				
☐ Sandy (Gleyed Matrix (S4)		Umbric Surf	ace (F13)			³Ind	icators of hydrophytic vegetation and
☐ Sandy I	Redox (S5)		☐ Piedmont FI	oodplain S	Soils (F19)(MLRA 14	48) wetl	and hydrology must be present, unless
Strippe	d Matrix (S6)		Red Parent	Material (F	=21) (ML F	RA 127, 14	7) distu	urbed or problematic.
Restrictive L	ayer (if observed):							
Type:								
Depth (Inc	ches):						Hydric S	oil Present? Yes 🔽 No 🔲
	·							
Remarks:								

Project/Site: Pigg River Year 3	City/County: Fran	kin	Sampling Date: 10/1 /2019
Applicant/Owner: FORVA			Sampling Point: Site#2,DP-2
Investigator(s): MH	Section, Township,	A1/A	
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, o	convex, none): Concave	Slope (%): 1
Subregion (LRR or MLRA): LRR P			Datum: NAD 83
Soil Map Unit Name:		NWI classifi	
Are climatic / hydrologic conditions on the site typ	oical for this time of year?Yes N	lo (If no, explain in R	emarks)
Are Vegetation, Soil, or Hydrology		re "Normal Circumstances"	·
Are Vegetation , Soil , or Hydrology		If needed, explain any answ	
SUMMARY OF FINDINGS - Attach site		•	·
	1	·	, , , , , , , , , , , , , , , , , , ,
Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Yes	No Is the Sam		
Wetland Hydrology Present? Yes	No within a We	etland? Yes 🔽	No <u></u>
Remarks:			
All three wetland parameters (i.e., wetland hydro	logy, hydrophytic vegetation, and hydric	c soils) were satisfied at this	data point, which characterizes
a palustrine forested wetland at Site #2.			
HYDROLOGY			
Wetland Hydrology Indicators:	check all that apply)		ators (minimum of two required)
Primary Indicators (minimum of one is required;			Cracks (B6)
Surface Water (A1)	☐ True Aquatic Plants (B14) ☐ Hydrogen Sulfide Odor (C1)	Sparsely Ve	getated Concave Surface (B8)
High Water Table (A2) Saturation (A3)	✓ Oxidized Rhizospheres on Living F		
Water Marks (B1)	Presence of Reduced Iron (C4)	• • —	Water Table (C2)
Sediment Deposits (B2)	Recent Iron Reduction in Tilled So		
Drift Deposits (B3)	Thin Muck Surface (C7)		isible on Aerial Imagery (C9)
☐ Algal Mat or Crust (B4)	Other (Explain in Remarks)	Stunted or S	Stressed Plants (D1)
☐ Iron Deposits (B5)			Position (D2)
Inundation Visible on Aerial Imagery (B7)		Shallow Aqu	
Water-Stained Leaves (B9)			aphic Relief (D4)
Aquatic Fauna (B13)		✓ FAC-Neutra	Tilest (D5)
Field Observations: Surface Water Present? Yes No	Depth (inches):		
	Depth (inches):		
	Double (in alcos)	Wetland Hydrology Preser	nt? Yes 🔽 No 🔲
(includes capillary fringe)			it: les <u>to</u> No <u> </u>
Describe Recorded Data (stream gauge, monitor	ing well, aerial photos, previous inspec	tions), if available:	
Remarks:			

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point: Site#2,DP-2 Dominant Indicator Dominance Test worksheet: Tree Stratum (Plot size: 30' Radius) % Cover Species? Status **Number of Dominant Species** 1. That Are OBL. FACW. or FAC: (A) 2. **Total Number of Dominant** 3. Species Across All Strata: (B) Percent of Dominant Species 5 100.0% _ (A/B) That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: 50% of total cover: 20% of total cover: **OBL** species x 1 =Sapling/Shrub Stratum (Plot size: 15' Radius FACW species x2 =Salix nigra **FAC** species x3 =2. ____ **FACU** species 3. UPL species x 5 = 4. Column Totals: (A) (B) 5. Prevalence Index = B/A = 6. **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 8. 9. ✓ 2 - Dominance Test is >50% 10. 3 - Prevalence Index is ≤3.0¹ 10 __= Total Cover 20% of total cover: 2 50% of total cover: 5 4 - Morphological Adaptations¹ (Provide supporting Herb Stratum (Plot size: 5' Radius data in Remarks or on a separate sheet) Ludwigia alternifolia 100 **FACW** Problematic Hydrophytic Vegetation¹ (Explain) 30 OBL Persicaria hydropiper 2. Carex sp. 5 NI 3. ¹Indicators of hydric soil and wetland hydrology must 2 FAC Polygonum ramosissimum be present, unless disturbed or problematic. 4. 5. **Definitions of Four Vegetation Strata:** 6. Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or 7 more in diameter at breast height (DBH), regardless of 8. 9 Sapling/Shrub - Woody plants, excluding vines, less 10. than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. 11. 12. Herb - All herbaceous (non-woody) plants, regardless -= Total Cover of size, and woody plants less than 3.28 ft tall. 50% of total cover: 68.5 20% of total cover: 27.4 Woody Vine Stratum (Plot size: 30' Radius Woody vine - All woody vines greater than 3.28 ft in height. 1 2. 3. Hydrophytic Vegetation Present? No ____= Total Cover 50% of total cover: 20% of total cover: 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 Desc	ription: (Describe to Matrix	the depth		ent the in		or confirm	the absence of ir	ndicators.)
(Inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc²	Texture	Remarks
0-18	10YR3/2	60	5YR3/4	40	С	PL & M	Silty Clay Loam	
			-					
			-					
			-					
¹Typo: C=Co	ncentration, D=Deple	ation PM-P	oduced Matrix MS	-Maskad	Sand Gr	nine	2l ocation: DI -D	ore Lining, M=Matrix
Hydric Soil		elion, Rivi-R	educed Matrix, MS	-waskeu	Sand Gr	airis.		for Problematic Hydric Soils ³ :
Histoso			☐ Dark Surface	e (S7)				Muck (A10)
	pipedon (A2)		Polyvalue Be	` '	ice (S8)	(MI RA 14 [.]		Prairie Redox (A16)
	istic (A3)		☐ Thin Dark Su					RA 147, 148)
	en Sulfide (A4)		Loamy Gleye		-	, , , , , ,		ont Floodplain Soils (F19)
	d Layers (A5)		Depleted Ma		,			RA 136, 147)
	uck (A10) (LRR N)		✓ Redox Dark		- 6)		-	hallow Dark Surface (TF12)
	d Below Dark Surfac	e (A11)	Depleted Da	rk Surface	e (F7)		Other ((Explain in Remarks)
☐ Thick D	ark Surface (A12)		Redox Depre	essions (F	8)			
Sandy I	Mucky Mineral (S1) (I	RR N,	☐ Iron Mangan	ese Mass	es (F12)	(LRR N,		
ML	RA 147, 148)		MLRA	136)				
☐ Sandy (Gleyed Matrix (S4)		Umbric Surfa	ace (F13)			3Indicators	of hydrophytic vegetation and
	Redox (S5)		☐ Piedmont Flo		Soils (F19)(MLRA 14		drology must be present, unless
Strippe	d Matrix (S6)		Red Parent I	Material (F	21) (ML F	A 127, 14	7) disturbed o	or problematic.
Restrictive L	ayer (if observed):							
Type:								
Depth (Inc	ches):						Hydric Soil Pre	esent? Yes 🔽 No 🔲
Damanka							L	
Remarks:								

City/County: Frankin		Sampling Date: 10/1 /2019
	State: VA	Sampling Point: Site#2,DP-3
Section, Township, Range:	N/A	
Local relief (concave, convex, r	one): Concave	Slope (%): 1
		Datum: NAD 83
	NWI classific	
for this time of year?Yes No	(If no, explain in R	emarks)
		•
No Is the Sampled Are within a Wetland?	a Yes <u>v</u>	No
, hydrophytic vegetation, and hydric soils) w	ere satisfied at this o	data point, which characterizes
	Secondary Indica	ators (minimum of two required)
True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1)	Sparsely Veg ✓ Drainage Par Moss Trim Li Dry-Season Crayfish Buri Saturation Vi Stunted or S ✓ Geomorphic Shallow Aqui	getated Concave Surface (B8) tterns (B10) ines (B16) Water Table (C2) rows (C8) isible on Aerial Imagery (C9) tressed Plants (D1) Position (D2) itard (D3) aphic Relief (D4)
_ Depth (inches): _ Depth (inches): _ Depth (inches): 16	Hydrology Presen	t? Yes <u>✔</u> No
well, aerial photos, previous inspections), if	available:	
	Section, Township, Range:Local relief (concave, convex, nounce, nounce, nounce)Section, Township, Range:Local relief (concave, convex, nounce)	Section, Township, Range: Section, Township, Range: N/A Local relief (concave, convex, none): Concave 36°59'41" Long: 79°51'38" NWI classification of year?Yes V No (If no, explain in R significantly disturbed? Are "Normal Circumstances" part naturally problematic? (If needed, explain any answer ap showing sampling point locations, transects No Is the Sampled Area within a Wetland? Yes V hydrophytic vegetation, and hydric soils) were satisfied at this of sk all that apply) Surface Soil True Aquatic Plants (B14) Sparsely Veg Hydrogen Sulfide Odor (C1) V Drainage Pa Oxidized Rhizospheres on Living Roots (C3) Moss Trim L Presence of Reduced Iron (C4) Dry-Season Recent Iron Reduction in Tilled Soils (C6) Crayfish Bur Thin Muck Surface (C7) Saturation V Other (Explain in Remarks) Stunted or S Geomorphic Shallow Aqu Microtopogra FAC-Neutral Depth (inches): Depth (inches):

Sampling Point: Site#2,DP-3 **VEGETATION** (Four Strata) - Use scientific names of plants. Dominant Indicator Dominance Test worksheet: Tree Stratum (Plot size: 30' Radius) % Cover Species? Status **Number of Dominant Species** That Are OBL. FACW. or FAC: (A) 2. **Total Number of Dominant** 3. Species Across All Strata: (B) Percent of Dominant Species 5 100.0% _ (A/B) That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: 50% of total cover: 20% of total cover: **OBL** species x 1 =Sapling/Shrub Stratum (Plot size: 15' Radius FACW species x2 =Salix nigra **FAC** species x3 =2. ____ **FACU** species 3 UPL species x 5 = 4. Column Totals: (A) (B) 5. Prevalence Index = B/A = 6. **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 8. 9. ✓ 2 - Dominance Test is >50% 10. 3 - Prevalence Index is ≤3.0¹ 15 __= Total Cover 20% of total cover: 3 4 - Morphological Adaptations¹ (Provide supporting 50% of total cover: 7.5 Herb Stratum (Plot size: 5' Radius data in Remarks or on a separate sheet) Ludwigia alternifolia **FACW** Problematic Hydrophytic Vegetation¹ (Explain) 80 15 FACW Scirpus cyperinus 2. 15 Juncus effusus FACW 3. ¹Indicators of hydric soil and wetland hydrology must 10 Carex sp. NI be present, unless disturbed or problematic. 4 10 OBL Juncus canadensis 5. **Definitions of Four Vegetation Strata:** 5 NI Poa sp. 6. Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or 2 Persicaria sp. NI 7 more in diameter at breast height (DBH), regardless of 2 Polygonum argyrocoleon OBL 8. 9. Sapling/Shrub - Woody plants, excluding vines, less 10. than 3 in. DBH and greater than or equal to 3.28 ft (1 11. m) tall. 12. Herb - All herbaceous (non-woody) plants, regardless -= Total Cover of size, and woody plants less than 3.28 ft tall. 50% of total cover: 69.5 20% of total cover: 27.8 Woody Vine Stratum (Plot size: 30' Radius Woody vine - All woody vines greater than 3.28 ft in height. 1 2. 3. Hydrophytic Vegetation Present? No = Total Cover 50% of total cover: 20% of total cover: 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

Profile Descr	ription: (Describe to	the depth r				or confirm	the absence	of indicators.)
Depth	Matrix			dox Feature				
(Inches)	Color (moist)	<u></u> %	Color (moist)	<u></u> %	Type ¹	Loc²	Texture	Remarks
0-18	10YR4/2	60	10YR4/6	40	С	PL	Silt Loam	
				· · · · · · · · · · · · · · · · · · ·				
								-
				·				
								
				· <u></u>				
								-
	ncentration, D=Deple	etion, RM=Re	educed Matrix, M	S=Masked S	Sand Gr	ains.		PL=Pore Lining, M=Matrix
Hydric Soil	Indicators:						Indica	tors for Problematic Hydric Soils ³ :
☐ Histoso	I (A1)		Dark Surfac	e (S7)			2	cm Muck (A10)
Histic E	pipedon (A2)		Polyvalue B	elow Surfac	ce (S8)	(MLRA 14	7, 148) 🗌 C	oast Prairie Redox (A16)
☐ Black H	listic (A3)		☐ Thin Dark S	uface (S9)	(MLRA 1	147, 148)		(MLRA 147, 148)
☐ Hydroge	en Sulfide (A4)		Loamy Gley	ed Matrix (F	- 2)		□ P	iedmont Floodplain Soils (F19)
☐ Stratifie	d Layers (A5)		✓ Depleted Ma	atrix (F3)				(MLRA 136, 147)
☐ 2 cm M	uck (A10) (LRR N)		Redox Dark	Surface (F	6)		□ V	ery Shallow Dark Surface (TF12)
Deplete	d Below Dark Surfac	e (A11)	Depleted Da	ark Surface	(F7)		□ 0	ther (Explain in Remarks)
☐ Thick D	ark Surface (A12)		Redox Depr	essions (F8	3)			
☐ Sandy I	Mucky Mineral (S1) (I	LRR N,	☐ Iron Mangai	nese Masse	s (F12)	(LRR N,		
	RA 147, 148)	·	MLRA		, ,	•		
	Gleyed Matrix (S4)		Umbric Surf	-				
	Redox (S5)		☐ Piedmont F		oile (E10	VMI DA 1		ators of hydrophytic vegetation and
					-			nd hydrology must be present, unless bed or problematic.
	d Matrix (S6)		Red Parent	Material (F2	21)(WLF	KA 127, 14	1)	200 0. p. 02.0
	ayer (if observed):							
Type:								
Depth (Inc	enes):						Hydric So	il Present? Yes No
Damada							•	
Remarks:								

Project/Site: Pigg River Year 3	City/County: Frankin		Sampling Date: 10/1 /2019
Applicant/Owner: FORVA			_ Sampling Point: Site#2,DP-4
Investigator(s): MH	Section, Township, Range		_ ,
Landform (hillslope, terrace, etc.): Depression			Slope (%): 1
Subregion (LRR or MLRA): LRR P Lat: 36°59'36)" Long:	79°51'36"	Datum: NAD 83
Soil Map Unit Name:			ation:
Are climatic / hydrologic conditions on the site typical for this tin	ne of year?Ves 🗸 No		
Are Vegetation, Soil, or Hydrology signifi	•		
	•		
Are Vegetation , Soil , or Hydrology natura			·
SUMMARY OF FINDINGS - Attach site map show	ving sampling point loca	ations, transects,	important features, etc.
Hydrophytic Vegetation Present? Yes ✓ No			
Hydric Soil Present? Yes No	Is the Sampled Ai		No
Wetland Hydrology Present? Yes No	within a wettand	: les <u></u>	_ NO <u></u>
Remarks:			
All three wetland parameters (i.e., wetland hydrology, hydrophy a palustrine forested wetland at Site #2.	ytic vegetation, and hydric soils)	were satisfied at this d	ata point, which characterizes
a parastime forested wettand at one #2.			
HYDROLOGY		_	
Wetland Hydrology Indicators:		Secondary Indicat	tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that	apply)	Surface Soil (
	atic Plants (B14)		etated Concave Surface (B8)
	n Sulfide Odor (C1)	☐ Drainage Patt	
_ , , ,	Rhizospheres on Living Roots (0		
	e of Reduced Iron (C4)	· <u> </u>	Vater Table (C2)
Sediment Deposits (B2)	ron Reduction in Tilled Soils (C6)	Crayfish Burro	ows (C8)
☐ Drift Deposits (B3) ☐ Thin Muc	ck Surface (C7)	Saturation Vis	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Ex	xplain in Remarks)	Stunted or Str	ressed Plants (D1)
☐ Iron Deposits (B5)		Geomorphic F	Position (D2)
☐ Inundation Visible on Aerial Imagery (B7)		Shallow Aquit	ard (D3)
Water-Stained Leaves (B9)			ohic Relief (D4)
Aquatic Fauna (B13)		✓ FAC-Neutral	ſest (D5)
Field Observations:	t \		
Surface Water Present? Yes No Depth (in	-		
Water Table Present? Yes ☐ No ✔ Depth (ii Saturation Present? Yes ☐ No ✔ Depth (ii			
(includes capillary fringe)	Wetlar	nd Hydrology Present	? Yes 🔽 No 🔽
Describe Recorded Data (stream gauge, monitoring well, aeria	photos, previous inspections),	if available:	
Remarks:			
Remarks.			

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point: Site#2,DP-4 Dominant Indicator Dominance Test worksheet: Tree Stratum (Plot size: 30' Radius) % Cover Species? Status **Number of Dominant Species** That Are OBL. FACW. or FAC: (A) 2. **Total Number of Dominant** 3. (B) Species Across All Strata: Percent of Dominant Species 5 100.0% _ (A/B) That Are OBL, FACW, or FAC: Prevalence Index worksheet: Total % Cover of: Multiply by: 50% of total cover: 20% of total cover: **OBL** species x 1 =Sapling/Shrub Stratum (Plot size: 15' Radius FACW species x2 =**FAC** species x3 =**FACU** species 3 UPL species x 5 = Column Totals: (A) (B) 5. Prevalence Index = B/A = 6. _ **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 8. 9. ✓ 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0¹ 50% of total cover: 20% of total cover: _____= Total Cover 4 - Morphological Adaptations¹ (Provide supporting Herb Stratum (Plot size: 5' Radius data in Remarks or on a separate sheet) Ludwigia alternifolia **FACW** Problematic Hydrophytic Vegetation¹ (Explain) OBL Persicaria hydropiper 2. 3. ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 4. 5. **Definitions of Four Vegetation Strata:** 6. Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or 7 more in diameter at breast height (DBH), regardless of 8. Sapling/Shrub - Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. 11. _ 12. Herb - All herbaceous (non-woody) plants, regardless -= Total Cover of size, and woody plants less than 3.28 ft tall. 50% of total cover: 80 20% of total cover: 32 Woody Vine Stratum (Plot size: 30' Radius Woody vine - All woody vines greater than 3.28 ft in height. 2. 3. Hydrophytic Vegetation Present? No ____= Total Cover 50% of total cover: 20% of total cover: 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 Descr		the depth n				or confirm	the absence of indic	cators.)
Depth	Matrix			dox Feature			- .	5
(Inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-18	10YR4/2	80	10YR3/6	20	С	PL & M	Silty Clay Loam	
			_					
¹Type: C=Co	ncentration, D=Deple	etion, RM=Re	duced Matrix, MS	S=Masked S	Sand Gr	ains.	² Location: PL=Pore	Lining, M=Matrix
Hydric Soil	Indicators:						Indicators for	Problematic Hydric Soils ³ :
Histosol	I (A1)		Dark Surfac	e (S7)			2 cm Muc	k (A10)
☐ Histic E	pipedon (A2)		Polyvalue B	elow Surfac	e (S8)	(MLRA 147	7, 148) 🔲 Coast Pra	airie Redox (A16)
Black H	istic (A3)		☐ Thin Dark S	uface (S9) (MLRA	147, 148)		147, 148)
	en Sulfide (A4)		Loamy Gley			•	-	Floodplain Soils (F19)
	d Layers (A5)		✓ Depleted Ma		ŕ			136, 147)
	uck (A10) (LRR N)		Redox Dark	, ,	6)		-	llow Dark Surface (TF12)
	d Below Dark Surfac	e (A11)	Depleted Da		-			plain in Remarks)
	ark Surface (A12)	,	Redox Depr		. ,			,
	Mucky Mineral (S1) (I	RR N.	☐ Iron Mangar	-		(LRR N.		
	RA 147, 148)	,	MLRA		,	(=		
	Gleyed Matrix (S4)		Umbric Surf	-				
					ila (E10	\/841 D A 44		hydrophytic vegetation and
	Redox (S5)		☐ Piedmont Fl		-			logy must be present, unless
	Matrix (S6)		Red Parent	Material (F2	2 1) (IVI L F	KA 127, 14	1	
	ayer (if observed):							
Type: Depth (Inc	shoc):							
Deptii (iiid							Hydric Soil Prese	nt? Yes No
Remarks:								
Nemaiks.								

Project/Site: Pigg River Year 3	City/County: Frankin		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, n	none): <u>Concave</u>	Slope (%): 2
Subregion (LRR or MLRA): LRR P			Datum: NAD 83
Soil Map Unit Name:		NWI classific	cation:
Are climatic / hydrologic conditions on the site typic	cal for this time of year?Yes No	(If no, explain in R	emarks)
Are Vegetation , Soil , or Hydrology _		•	oresent? Yes <u>V</u> No <u> </u>
Are Vegetation , Soil , or Hydrology _		d, explain any answe	
SUMMARY OF FINDINGS - Attach site			•
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes Ves	No Is the Sampled Area within a Wetland?	a Yes <u>✓</u>	No
Remarks: All three wetland parameters (i.e., wetland hydrologa palustrine forested wetland at Site #4.	ogy, hydrophytic vegetation, and hydric soils) w	ere satisfied at this	data point, which characterizes
HYDROLOGY			
Wetland Hydrology Indicators:	the election with		ators (minimum of two required)
Primary Indicators (minimum of one is required; c Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13) Field Observations:	True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)	Sparsely Veg Drainage Pa B) Moss Trim L Dry-Season Crayfish Bur Saturation V Stunted or S Geomorphic Shallow Aqu	water Table (C2) water Table (C2) wrows (C8) wisible on Aerial Imagery (C9) wrossed Plants (D1) Position (D2) witard (D3) aphic Relief (D4)
	Depth (inches):		
	Depth (inches): Depth (inches): Wetland		
(includes capillary fringe)	Welland	l Hydrology Presen	nt? Yes V No
Describe Recorded Data (stream gauge, monitori	ng well, aerial photos, previous inspections), if	available:	
Remarks:			_

Sampling Point: Site#3,DP-1 **VEGETATION** (Four Strata) - Use scientific names of plants. Absolute Dominant Indicator Dominance Test worksheet: Tree Stratum (Plot size: 30' Radius Species? Status % Cover **Number of Dominant Species** Acer negundo 60 FAC That Are OBL. FACW, or FAC: (A) 2. **Total Number of Dominant** 6 3. Species Across All Strata: (B) 4. Percent of Dominant Species 5 66 7% That Are OBL, FACW, or FAC: (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: 60 _= Total Cover 50% of total cover: 30 20% of total cover: 12 **OBL** species x 1 =Sapling/Shrub Stratum (Plot size: ____ **FACW** species x 2 = Acer negundo FAC **FAC** species x3 =FAC Lindera benzoin 2. **FACU** species 3. UPL species x 5 = 4. Column Totals: (B) (A) 5. Prevalence Index = B/A = 6. **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 8. 9. ✓ 2 - Dominance Test is >50% 10. 3 - Prevalence Index is ≤3.0¹ 25__= Total Cover 5 4 - Morphological Adaptations¹ (Provide supporting 50% of total cover: 12.5 20% of total cover: Herb Stratum (Plot size: 5' Radius data in Remarks or on a separate sheet) Glechoma hederacea **FACU** Problematic Hydrophytic Vegetation¹ (Explain) 50 1. 30 NI Carex sp. 2. 15 Boehmeria cylindrica FACW 3. ¹Indicators of hydric soil and wetland hydrology must 10 FACW Persicaria maculosa be present, unless disturbed or problematic. 4 2 Unknown NI 5. **Definitions of Four Vegetation Strata:** 6. Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or 7 more in diameter at breast height (DBH), regardless of 8. 9 Sapling/Shrub - Woody plants, excluding vines, less 10. than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. 11. 12. Herb - All herbaceous (non-woody) plants, regardless = Total Cover of size, and woody plants less than 3.28 ft tall. 50% of total cover: 53.5 20% of total cover: 21.4 Woody Vine Stratum (Plot size: 30' Radius Woody vine - All woody vines greater than 3.28 ft in height. FACU Humulus japonicus 1 Unknown NΙ 2. 3. Hydrophytic Vegetation No Present? 21 = Total Cover 50% of total cover: 20% of total cover: 10.5 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 Desci		the depth				or confirm	n the absence of indicators.)	
Depth (teachers)	Matrix			dox Featur		12	- Tautura Damanka	
(Inches)	Color (moist)	<u></u> %	Color (moist)	%	Type ¹	Loc²	Texture Remarks	
0-3	10YR4/3	100					Silty Clay Loam	
3-18	10YR4/2	60	5YR3/3	40	С	М	Silty Clay Loam	
								_
								
¹Type: C=Co	ncentration, D=Deple	etion RM=F	Reduced Matrix MS	S=Masked	Sand Gr	ains	² Location: PL=Pore Lining, M=Matrix	
Hydric Soil		Stion, Itivi–i	teduced Matrix, Mi	5-Masked	Cana Oi	unio.	Indicators for Problematic Hydric Soils ³ :	
Histoso			☐ Dark Surfac	e (S7)			2 cm Muck (A10)	
	pipedon (A2)		☐ Polyvalue B		ace (S8)	(MLRA 14		
	istic (A3)		☐ Thin Dark S			-	(MLRA 147, 148)	
	en Sulfide (A4)		Loamy Gley		-	, ,	Piedmont Floodplain Soils (F19)	
	d Layers (A5)		✓ Depleted Ma		` ,		(MLRA 136, 147)	
2 cm M	uck (A10) (LRR N)		Redox Dark	Surface (F6)		☐ Very Shallow Dark Surface (TF12)	
Deplete	d Below Dark Surfac	e (A11)	Depleted Da	ark Surface	e (F7)		Other (Explain in Remarks)	
☐ Thick D	ark Surface (A12)		Redox Depr	essions (F	8)			
☐ Sandy N	Mucky Mineral (S1) (I	_RR N,	Iron Mangar	nese Mass	ses (F12)	(LRR N,		
ML	RA 147, 148)		MLRA	136)				
☐ Sandy 0	Gleyed Matrix (S4)		Umbric Surf	face (F13)			³ Indicators of hydrophytic vegetation and	
☐ Sandy F	Redox (S5)		☐ Piedmont F	loodplain S	Soils (F19)(MLRA 1	(148) wetland hydrology must be present, unless	;
Stripped	d Matrix (S6)		Red Parent	Material (F	=21) (MLF	RA 127, 14	disturbed or problematic.	
Restrictive L	ayer (if observed):							
Type:								
Depth (Inc	ches):						Hydric Soil Present? Yes No	_
-							1	
Remarks:								

Project/Site: Pigg River Year 3	City/County: Frankin		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, n	none): <u>Convex</u>	Slope (%): 2
Subregion (LRR or MLRA): LRR P			Datum: NAD 83
Soil Map Unit Name:		NWI classifica	ation:
Are climatic / hydrologic conditions on the site typi	ical for this time of year?Yes No	(If no, explain in Re	marks)
Are Vegetation , Soil , or Hydrology .			resent? Yes 🔽 No 🔲
Are Vegetation , Soil , or Hydrology .	· ·	d, explain any answei	
SUMMARY OF FINDINGS - Attach site		-	•
Hydrophytic Vegetation Present? Yes	No Is the Sampled Arewithin a Wetland?	a Yes <u>v</u>	No
Remarks: All three wetland parameters (i.e., wetland hydrol a palustrine forested wetland at Site #4.	ogy, hydrophytic vegetation, and hydric soils) w	ere satisfied at this d	ata point, which characterizes
HYDROLOGY		_	
Wetland Hydrology Indicators:			tors (minimum of two required)
Primary Indicators (minimum of one is required; of Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Aquatic Fauna (B13) Field Observations: Surface Water Present? Yes No	True Aquatic Plants (B14) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks)	☐ Drainage Patt B) ☐ Moss Trim Lir ☐ Dry-Season V ☐ Crayfish Burro ☐ Saturation Vis ☐ Stunted or Sto ☐ Geomorphic F ☐ Shallow Aquit	etated Concave Surface (B8) terns (B10) nes (B16) Vater Table (C2) ows (C8) sible on Aerial Imagery (C9) ressed Plants (D1) Position (D2) tard (D3) phic Relief (D4)
	✓ Depth (inches): ✓ Depth (inches):		
		l Hydrology Present	? Yes ✓ No □
(includes capillary fringe) Describe Recorded Data (stream gauge, monitori			
Describe Recorded Data (stream gauge, monitori	ng weil, aeriai priotos, previous inspections), in	avaliable.	
Remarks:			

Sampling Point: Site#3,DP-2 **VEGETATION** (Four Strata) - Use scientific names of plants. Absolute Dominant Indicator Dominance Test worksheet: Tree Stratum (Plot size: 30' Radius Species? Status % Cover **Number of Dominant Species** Acer negundo 50 FAC That Are OBL. FACW, or FAC: (A) 2. **Total Number of Dominant** 3. Species Across All Strata: (B) 4. Percent of Dominant Species 5 83.3% That Are OBL, FACW, or FAC: (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: 50 _= Total Cover 50% of total cover: 25 20% of total cover: 10 **OBL** species x 1 =Sapling/Shrub Stratum (Plot size: 15' Radius FACW species x 2 = Boehmeria cylindrica **FACW FAC** species x3 =FACU Rhus copallinum 2. **FACU** species 3. UPL species x 5 = 4. Column Totals: (B) (A) 5. Prevalence Index = B/A = 6. **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 8. 9. ✓ 2 - Dominance Test is >50% 10. 3 - Prevalence Index is ≤3.0¹ 15__= Total Cover 50% of total cover: 7.5 20% of total cover: 3 4 - Morphological Adaptations¹ (Provide supporting Herb Stratum (Plot size: 5' Radius data in Remarks or on a separate sheet) Microstegium vimineum FAC Problematic Hydrophytic Vegetation¹ (Explain) 50 1 30 FACW Boehmeria cylindrica 2. 20 Persicaria maculosa FACW 3. ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 4 5. **Definitions of Four Vegetation Strata:** 6. Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or 7 more in diameter at breast height (DBH), regardless of 8. 9 Sapling/Shrub - Woody plants, excluding vines, less 10. than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. 11. 12. Herb - All herbaceous (non-woody) plants, regardless 100 -= Total Cover of size, and woody plants less than 3.28 ft tall. 50% of total cover: 50 20% of total cover: 20 Woody Vine Stratum (Plot size: 30' Radius Woody vine - All woody vines greater than 3.28 ft in height. 2. 3. Hydrophytic Vegetation Present? No = Total Cover 50% of total cover: 20% of total cover:

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

	ription: (Describe to Matrix	the depth		ent the ir		or confirm	the absence of indi	cators.)
Depth (Inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc²	Texture	Remarks
0-18	10YR4/2	70	5YR3/3	30	C		Silty Clay Loam	_
0-10	1011(4/2		311(0/0				Only Olay Loan	
								
	ncentration, D=Depl	etion, RM=F	deduced Matrix, MS	S=Masked	Sand Gr	ains.	²Location: PL=Pore	
Hydric Soil				(0.7)				Problematic Hydric Soils ³ :
Histoso			☐ Dark Surfac	. ,	(0.0)		2 cm Muc	
	pipedon (A2)		Polyvalue B			-	· -	airie Redox (A16)
	listic (A3)		☐ Thin Dark S		-	147, 148)	•	147, 148)
	en Sulfide (A4)		Loamy Gley		(F2)			t Floodplain Soils (F19)
	ed Layers (A5)		✓ Depleted Ma	. ,				136, 147)
	uck (A10) (LRR N)		Redox Dark	•	,			llow Dark Surface (TF12)
	ed Below Dark Surfac	e (A11)	Depleted Da		, ,		U Other (Ex	κplain in Remarks)
	ark Surface (A12)		Redox Depr	-				
	Mucky Mineral (S1) (I	LRR N,	☐ Iron Mangar		ses (F12)	(LRR N,		
ML	.RA 147, 148)		MLRA	136)				
☐ Sandy (Gleyed Matrix (S4)		Umbric Surf	ace (F13)			³ Indicators of	hydrophytic vegetation and
☐ Sandy I	Redox (S5)		Piedmont FI	oodplain S	Soils (F19)(MLRA 1	48) wetland hydro	ology must be present, unless
Strippe	d Matrix (S6)		Red Parent	Material (I	=21) (ML F	RA 127, 14	7) disturbed or p	problematic.
Restrictive L	.ayer (if observed):							
Type:								
Depth (Ind	ches):						Hydric Soil Prese	ent? Yes 🔽 No 🔲
							<u> </u>	
Remarks:								

Project/Site: Pigg River Year 3	City/County: Frankin		Sampling Date: 9 /30/2019
Applicant/Owner: FORVA	<u> </u>		Sampling Point: Site#4,DP-1
Investigator(s):MH			
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, convex, no	one): Concave	Slope (%): 4
Subregion (LRR or MLRA): LRR P			Datum: NAD 83
Soil Map Unit Name:		NWI classifica	
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 Vegetation, Soil, or Hydrology _		explain any answer	
SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.			
Hydric Soil Present? Yes	No Is the Sampled Area		
Hydric Soil Present? Yes Wetland Hydrology Present? Yes	No within a Wetland?	Yes	No 🔽
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.			
HYDROLOGY			
Wetland Hydrology Indicators:	the strail that apply		tors (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		☐ Surface Soil Cracks (B6)☐ Sparsely Vegetated Concave Surface (B8)	
Surface Water (A1) High Water Table (A2)	☐ True Aquatic Plants (B14)☐ Hydrogen Sulfide Odor (C1)	Sparsely Veg	
Saturation (A3)	Oxidized Rhizospheres on Living Roots (C3)		
Water Marks (B1)	Presence of Reduced Iron (C4)		Vater Table (C2)
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)	Crayfish Burro	
Drift Deposits (B3)	Thin Muck Surface (C7)	Saturation Vis	sible on Aerial Imagery (C9)
Algal Mat or Crust (B4)	Other (Explain in Remarks)	_	ressed Plants (D1)
Iron Deposits (B5)		✓ Geomorphic F	` '
Inundation Visible on Aerial Imagery (B7)		Shallow Aquit	
Water-Stained Leaves (B9) Aquatic Fauna (B13)		☐ Microtopograp	phic Relief (D4) Test (D5)
Field Observations:		FAC-Neutiai	1651 (D3)
	✓ Depth (inches):		
	Depth (inches):		
	Danth (in ala as)	Hydrology Present	? Yes _ No _
(includes capillary fringe)			
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 Absolute Dominant Indicator Dominance Test worksheet:

Tree Stratum (Plot size: 30' Radius)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:	
1 Acer negundo	30		FAC	Number of Dominant Species 4	
On marketing a constitution of	25		FAC	That Are OBL, FACW, or FAC: (A)	
Z	5		OBL	Total Number of Dominant 5	
3. Alnus serrulata Platanus occidentalis				Species Across All Strata: (B)	
4.	5		FACW	Demonstrat Demoissant On a size	
5				Percent of Dominant Species That Are OBL, FACW, or FAC: (A/	B)
6				mat Ale OBE, I AOW, OI I AO.	ا (ا
7				Prevalence Index worksheet:	
8				Total % Cover of: Multiply by:	
50% of total cover: 32.5 20% of total cover: 13	65	= Total Cove	r	OBL species x 1 =	
	-				
Sapling/Shrub Stratum (Plot size: 15' Radius				FACW species x 2 =	
1 Lindera benzoin	25	✓	FAC	FAC species x 3 =	
2. Rhus copallinum	10	<u> </u>	FACU	FACU species x 4 =	
3				UPL species x 5 =	
4				Column Totals: (A) (E	3)
5				Prevalence Index = B/A =	
6					
7				Hydrophytic Vegetation Indicators:	
8				1 - Rapid Test for Hydrophytic Vegetation	
9				✓ 2 - Dominance Test is >50%	
10				☐ 3 - Prevalence Index is ≤3.0¹	
50% of total cover: 17.5 20% of total cover: 7	35	= Total Cove	r	4 - Morphological Adaptations (Provide support	ing
Herb Stratum (Plot size: 5' Radius)	=			data in Remarks or on a separate sheet)	Ĭ
	05		EAC	Drahlamatia Hydranhytia Vagatatian (Evalain)	
1. Microstegium vimineum	95		FAC	Problematic Hydrophytic Vegetation¹ (Explain)	
2. Boehmeria cylindrica	5		FACW		
3. Desmodium paniculatum	5		FACU	¹ Indicators of hydric soil and wetland hydrology must	
4. Glechoma hederacea	1		FACU	be present, unless disturbed or problematic.	
5				Definitions of Four Vegetation Strata:	
6					
7				Tree - Woody plants, excluding vines, 3 in. (7.6 cm) of more in diameter at breast height (DBH), regardless	or of
8.				height.	OI
9				1.5.3	
10				Sapling/Shrub - Woody plants, excluding vines, less	
				than 3 in. DBH and greater than or equal to 3.28 ft (1	
11				m) tall.	
12	106			Herb - All herbaceous (non-woody) plants, regardless	s
50% of total cover: 53 20% of total cover: 21.2		= Total Cove	r	of size, and woody plants less than 3.28 ft tall.	
	_			Manda da dina Allamanda dina manda da dina 200 ft in	
Woody Vine Stratum (Plot size: 30' Radius)				Woody vine - All woody vines greater than 3.28 ft in height.	
1				Tioight.	
2					
3.					
4.					
				Hydrophytic	
56.				Vegetation	
0				Present? Yes V	
50% of total cover: 20% of total cover:		= Total Cove	ſ		
Remarks: (Include photo numbers here or on a separate sl	neet.)				
,	,	16 watland r	otio ao witl	h undataa thraugh lulu 2010; NII anaajaa ara nat uaad i	
Nomenclature and indicators from The National Wetland P the Dominance Test Calculation. No woody vine stratum pi			aurigs will	n updates through July 2019, Nr species are not used i	III
the Bernmanee Feet Galeanation. He weekly time enaturn pr	occini at an	o data ponit.			

SOIL Sampling Point: Site#4,DP-1

Profile Desc	ription: (Describe to Matrix	the depth		nent the ir		or confirm	m the absence of indicators.)	
(Inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc²	Texture Remarks	
0-18	10YR4/4	100					Silty Clay Loam	
							_ <u> </u>	
							-	
	_	_	_		-	_		_
1Type: C=Cc	oncentration, D=Depl	ction RM=R	Poducod Matrix M	C-Masked	Sand Gr	cinc	² Location: PL=Pore Lining, M=Matrix	
Hydric Soil		etion, rivi-ix	.equceu maiiix, mi	5-IVId5Neu	I Sanu Gi	alris.	Indicators for Problematic Hydric Soils	-3-
Histoso			☐ Dark Surfac	·^ (\$7)			2 cm Muck (A10)	5°.
	pipedon (A2)		Polyvalue B		oce (S8)	/MI PA 14	· · · · · · · · · · · · · · · · · · ·	
	listic (A3)		☐ Polyvalue B			-	• • •	
	en Sulfide (A4)		Loamy Gley			41, 170)	Piedmont Floodplain Soils (F19)	
	ed Layers (A5)		Depleted Ma		(1 2)		(MLRA 136, 147)	
	uck (A10) (LRR N)		Redox Dark		F6)		Very Shallow Dark Surface (TF12)	
	ed Below Dark Surfac	e (A11)	Depleted Da				Other (Explain in Remarks)	
	ark Surface (A12)	,	Redox Depr					
	Mucky Mineral (S1) (I	LRR N,	☐ Iron Mangar	-	-	(LRR N,		
	.RA 147, 148)	= ,	MLRA		,	(=		
	Gleyed Matrix (S4)		Umbric Surf	•				
	Redox (S5)		☐ Piedmont Fl	, ,		WMI RA 16	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unle	
	d Matrix (S6)		Red Parent		-			,55
	ayer (if observed):			,	/(, .	1)	
Type:	,							
Depth (Inc	ches):						Hydric Soil Present? Yes No	7
							nyunc con riesent: 163 140	
Remarks:								
								I

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Pigg River Year 3	City/County: Frankin		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, no	ne): Concave	Slope (%): 2
Subregion (LRR or MLRA): LRR P			Datum: NAD 83
Soil Map Unit Name:		NWI classific	cation:
Are climatic / hydrologic conditions on the site typ	vical for this time of year?Yes No	— (If no, explain in R∉	emarks)
Are Vegetation , Soil , or Hydrology			oresent? Yes 🔽 No 🔲
Are Vegetation , Soil , or Hydrology	-	explain any answe	
SUMMARY OF FINDINGS - Attach site		-	·
			<u> </u>
Hydrophytic Vegetation Present? Hydric Soil Present? Yes Yes	No Is the Sampled Area		
Wetland Hydrology Present? Yes	within a Wetland?	Yes	No <u></u>
Remarks:			
	d hydrology) of the three wetland parameters were	e satisfied at this d	ata point, which characterizes
a forested upland at Site #4.			
UVDDOI OGV			
HYDROLOGY Wetland Hydrology Indicators:		Secondary Indica	ators (minimum of two required)
Primary Indicators (minimum of one is required; of	check all that apply)	Surface Soil	
Surface Water (A1)	☐ True Aquatic Plants (B14)		getated Concave Surface (B8)
High Water Table (A2)	Hydrogen Sulfide Odor (C1)	Drainage Pat	
Saturation (A3)	Oxidized Rhizospheres on Living Roots (C3)		
Water Marks (B1)	Presence of Reduced Iron (C4)		Water Table (C2)
Sediment Deposits (B2)	Recent Iron Reduction in Tilled Soils (C6)	Crayfish Burr	
Drift Deposits (B3)	☐ Thin Muck Surface (C7)☐ Other (Explain in Remarks)		sible on Aerial Imagery (C9) tressed Plants (D1)
☐ Algal Mat or Crust (B4) ☐ Iron Deposits (B5)	Uner (Explain in Remarks)	✓ Geomorphic	` '
Inundation Visible on Aerial Imagery (B7)		Shallow Aqui	, ,
Water-Stained Leaves (B9)			aphic Relief (D4)
Aquatic Fauna (B13)		✓ FAC-Neutral	. , ,
Field Observations:			
	Depth (inches):		
	Depth (inches):		
Saturation Present? Yes No _ (includes capillary fringe)	Depth (inches): Wetland F	Hydrology Present	t? Yes 🔽 No 🔽
	ring well, aerial photos, previous inspections), if av	/ailable:	
Remarks:			

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point: Site#4,DP-2

Troo Stratum (Plot size: 20! Padius)	Absolute	Dominant 1		Dominance Test worksheet:
Tree Stratum (Plot size: 30' Radius)	% Cover	Species?		Number of Dominant Species 5
1. Acer negundo	50		FAC	That Are OBL, FACW, or FAC: (A)
2. Carpinus caroliniana	40		FAC	Total Number of Dominant
3. Fraxinus pennsylvanica	10		FACW	Species Across All Strata: 6 (B)
4				
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)
6				That Ale OBE, I AOW, OI I AO (A/B)
7				Prevalence Index worksheet:
8				Total % Cover of: Multiply by:
50% of total cover: 50 20% of total cover: 20	100	= Total Cover	-	OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15' Radius				FACW species x 2 =
				'
1. Lindera benzoin	10	✓	FAC	FAC species x 3 =
2. Rhus copallinum	2		FACU	FACU species x 4 =
3. Fraxinus pennsylvanica	2		FACW	UPL species x 5 =
4				· —
5				` '
6				Prevalence Index = B/A =
7				Hydrophytic Vegetation Indicators:
8				☐ 1 - Rapid Test for Hydrophytic Vegetation
9				✓ 2 - Dominance Test is >50%
10				☐ 3 - Prevalence Index is ≤3.0¹
50% of total cover: 7 20% of total cover: 2.8	14	= Total Cover	-	4 - Morphological Adaptations¹ (Provide supporting
Herb Stratum (Plot size: 5' Radius)				data in Remarks or on a separate sheet)
1 Persicaria maculosa	40		FACW	Problematic Hydrophytic Vegetation¹ (Explain)
1. Glechoma hederacea	30		FACU	
Z	10		FAC	
3. Microstegium vimineum		✓	FAC	¹Indicators of hydric soil and wetland hydrology must
4				be present, unless disturbed or problematic.
5				Definitions of Four Vegetation Strata:
6				Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
7				more in diameter at breast height (DBH), regardless of
8				height.
9				Sapling/Shrub - Woody plants, excluding vines, less
10				than 3 in. DBH and greater than or equal to 3.28 ft (1
11				m) tall.
12				Herb - All herbaceous (non-woody) plants, regardless
50% of total cover: 40 20% of total cover: 16	80	= Total Cover		of size, and woody plants less than 3.28 ft tall.
	_			
Woody Vine Stratum (Plot size: 30' Radius)				Woody vine - All woody vines greater than 3.28 ft in height.
1				noight.
2.				
3.				
4.				
5				Hydrophytic
6				Vegetation No. 7
		= Total Cover		Present? Yes Vo No
50% of total cover: 20% of total cover:				
Remarks: (Include photo numbers here or on a separate sh	neet.)			
Nomenclature and indicators from The National Wetland Pl	lant List: 20	16 wetland ra	atings with	n updates through July 2019; NI species are not used in
the Dominance Test Calculation. No woody vine stratum pr			5	

SOIL Sampling Point: Site#4,DP-2

Profile Descr Depth	ription: (Describe to Matrix	the depth		ent the in		or confirm	the absence of indicators.)	
(Inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc²	Texture F	Remarks
0-18	10YR4/3	100					Silty Clay Loam	
	1011(4/3	100					Olity Olay Loan	
			_					_
¹Typo: C=Co	ncentration, D=Deple	otion PM-I	Poducod Matrix MS	S-Maskad	Sand Gr	oine	21 ocation: DI -Poro Lining	M-Matrix
Hydric Soil		elion, Rivi-i	Reduced Matrix, Mis	5-Iviaskeu	Sand Gr	airis.	² Location: PL=Pore Lining, Indicators for Proble	
Histosol			☐ Dark Surfac	o (S7)			2 cm Muck (A10)	•
	pipedon (A2)		☐ Polyvalue B		co (S8)	/MI DA 14	· · ·	
	istic (A3)		☐ Thin Dark S			-	(MLRA 147, 14)	
	en Sulfide (A4)		Loamy Gley		-	147, 140)	Piedmont Floodp	•
	d Layers (A5)		Depleted Ma		1 2)		(MLRA 136, 14	· · ·
	uck (A10) (LRR N)		Redox Dark		-6)		-	rk Surface (TF12)
	d Below Dark Surfac	e (A11)	Depleted Da	,	•		Other (Explain in	` '
	ark Surface (A12)	· ()	Redox Depr					. tomanto)
	Mucky Mineral (S1) (I	LRR N.	☐ Iron Mangar	-	-	(LRR N.		
	RA 147, 148)	,	MLRA		,	(=		
	Gleyed Matrix (S4)		Umbric Surf	•				
	Redox (S5)		☐ Piedmont FI		oile (F10	VMI DA 1	³ Indicators of hydropl	nytic vegetation and ust be present, unless
	d Matrix (S6)		Red Parent		-	• •		
	ayer (if observed):		rtea r arent	iviatoriai (i	21)(IVILI	XA 121, 14	<u>''</u>	
Type:	ayer (ii observea).							
Depth (Inc	ches):						Hydric Soil Present? Ye	s No 🗸
	,						nyunc son Fresent? Te	5 <u> </u>
Remarks:								

Pigg River Restoration at Power Dam Year 3 Monitoring Report December 2019 Appendix D

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

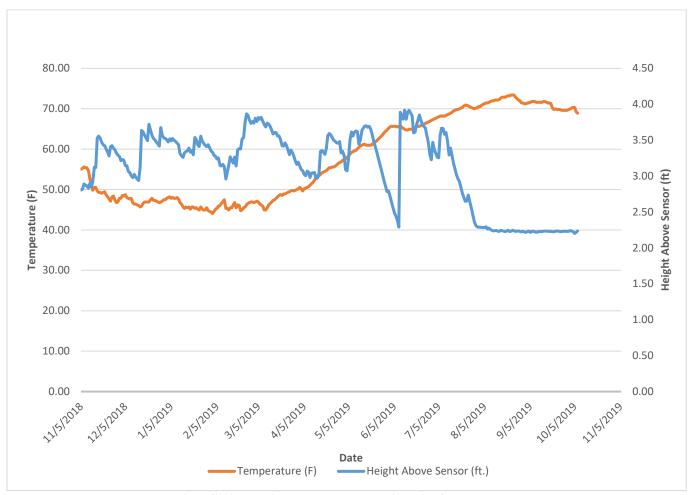


Figure 2: Well #4 – Year 3 Water Temperature and Height Above Sensor



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

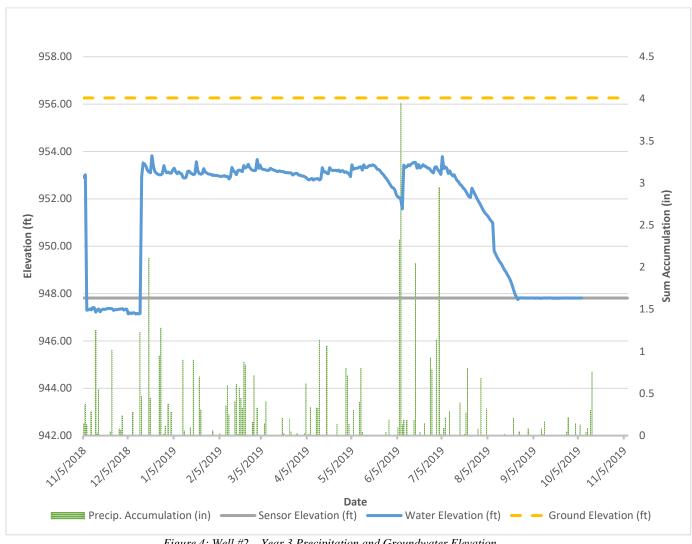


Figure 4: Well #2 – Year 3 Precipitation and Groundwater Elevation

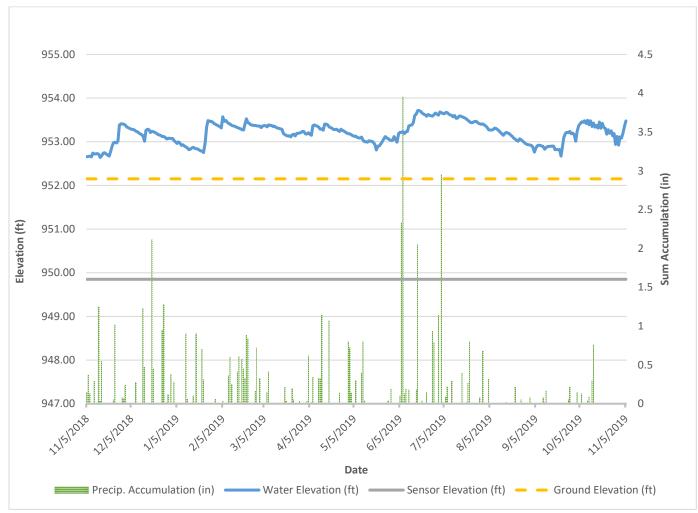


Figure 5: Well #4 – Year 3 Precipitation and Surface Water Elevation



Figure 6: Year 3 Combined Precipitation and Water Elevations





Pigg River Restoration at Power Dam Year-3 Monitoring Report December 2019 Appendix E

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)

(36.9769°, -79.8	80K1°)	levation: 1,314.96 ft.		
(30.9709 , -79.0		ature (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 12/4/2017	53 63	31 28	0	
12/4/2017		-	0	
12/5/2017	56 65	28 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	0.1	
12/12/2017	49	29	0	
12/13/2017	46	22	0	
12/13/2017	43	22	0	
12/14/2017	46	25	0	
12/15/2017	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	*	*	0.17	
12/26/2017	32	25	0	
12/27/2017	38	21	0	
12/28/2017	39	13	0	
12/29/2017	26	13	0	
12/29/2017	42	18	0	
14/50/401/		16	0	
12/31/2017				
12/31/2017	23			
12/31/2017 1/1/2018 1/2/2018	23	10	0	

IFLOWS: Rocky Mount/Pigg (1477)					
(Unknown)		Е	levation: Unknown		
		ature (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 11/5/2017	N/A	N/A	0.24		
11/5/2017	N/A N/A	N/A N/A	0.12		
11/7/2017	N/A	N/A	0.12		
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 11/22/2017	N/A	N/A N/A	0		
	N/A		0		
11/23/2017 11/24/2017	N/A N/A	N/A N/A	0.16		
11/25/2017	N/A 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 12/12/2017	N/A N/A	N/A N/A	0.16		
12/13/2017	N/A	N/A N/A	0.10		
12/13/2017	N/A	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	N/A N/A	0.16		
12/31/2017 1/1/2018	N/A N/A	N/A N/A	0.16		
1/2/2018	N/A N/A	N/A N/A	0.24		
1/3/2018	N/A	N/A	0		
1/3/2010	14/71	11//1	J		

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 1/17/2018	34 44	8	0.05
1/18/2018	25	10	0.12
1/19/2018	40	13	0.12
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 2/5/2018	38 41	14 29	0.97
2/6/2018	42	29	0.57
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 2/22/2018	70 75	49 49	0
2/23/2018	79	49	0
2/24/2018	64	43	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 52	29	0
3/11/2018	53 44	31	0
	- ++	32	U.44
3/12/2018 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 N/A	0
1/13/2018	N/A N/A		0.32
1/14/2018 1/15/2018	N/A N/A	N/A N/A	0
1/16/2018	N/A N/A	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	0.00
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 2/22/2018	N/A	N/A	0
2/23/2018	N/A N/A	N/A N/A	0
2/23/2018	N/A N/A	N/A N/A	0
2/25/2018	N/A N/A	N/A N/A	0.04
2/26/2018	N/A	N/A	0.04
2/27/2018	N/A	N/A	0.04
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

211 112 212		l	1
3/14/2018	45	28	0
3/15/2018	37	28	0
3/16/2018	59	29	0
3/17/2018 3/18/2018	60 70	29 30	0.45
3/19/2018	62	37	0.43
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	0.05
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 4/21/2018	60	32 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
E/1E/2010	75	65	0.34
5/17/2018		C 4	0.55
5/18/2018	81	64	0.55
5/18/2018 5/19/2018	81 70	60	1.45
5/18/2018	81		

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 4/12/2018	N/A N/A	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	0.10
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 0.32
5/16/2018 5/17/2018	N/A N/A	N/A N/A	0.32
5/18/2018	N/A N/A	N/A N/A	1.91
5/19/2018	N/A N/A	N/A N/A	1.15
5/20/2018	N/A N/A	N/A N/A	0
5/20/2018	N/A N/A	N/A N/A	0
3/21/2010	14/ <i>P</i> 1	IN/PA	U

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 6/6/2018	87 87	55 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 6/30/2018	88	65	0
7/1/2018	88 89	63	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
		<i>c</i> n	2.21
7/25/2018	78	69	2.21
7/25/2018 7/26/2018	78 84	63	0.55
7/25/2018	78		

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	0.10
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

F/20/2010	0.7		
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
	92		
8/31/2018		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
	80	61	0
9/26/2018		61	0.13
9/26/2018 9/27/2018	83	01	
	83 68	58	1.12
9/27/2018 9/28/2018	68	58	1.12
9/27/2018 9/28/2018 9/29/2018	68 78	58 61	1.12 0.03
9/27/2018 9/28/2018 9/29/2018 9/30/2018	68 78 77	58 61 57	1.12 0.03 0
9/27/2018 9/28/2018 9/29/2018 9/30/2018 10/1/2018	68 78 77 72	58 61 57 59	1.12 0.03 0
9/27/2018 9/28/2018 9/29/2018 9/30/2018 10/1/2018 10/2/2018	68 78 77 72 83	58 61 57 59 61	1.12 0.03 0 0
9/27/2018 9/28/2018 9/29/2018 9/30/2018 10/1/2018 10/2/2018 10/3/2018	68 78 77 72 83 82	58 61 57 59 61 62	1.12 0.03 0 0 0 0 0
9/27/2018 9/28/2018 9/29/2018 9/30/2018 10/1/2018 10/2/2018 10/3/2018 10/4/2018	68 78 77 72 83 82 85	58 61 57 59 61 62 62	1.12 0.03 0 0 0 0 0 0.16
9/27/2018 9/28/2018 9/29/2018 9/30/2018 10/1/2018 10/2/2018 10/3/2018	68 78 77 72 83 82	58 61 57 59 61 62	1.12 0.03 0 0 0 0 0

7/30/2018 N/A N/A 0.6 8/1/2018 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 0.04 8/7/2018 N/A N/A 0.04 8/7/2018 N/A N/A 0.04 8/8/2018 N/A N/A 0.04 8/8/2018 N/A N/A 0.04 8/9/2018 N/A N/A 0 8/10/2018 N/A N/A 0 8/11/2018 N/A N/A 0 8/11/2018 N/A N/A 0.04 8/13/2018 N/A N/A 0.04 8/15/2018 N/A N/A 0.04 8/17/2018 N/A N/A 0.04 8/18/2018 N/A N/A <	
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 0.04 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 8/11/2018 N/A N/A 0.04 8/13/2018 N/A N/A 0.04 8/13/2018 N/A N/A 0.04 8/14/2018 N/A N/A 0.04 8/15/2018 N/A N/A 0.04 8/17/2018 N/A N/A 0.44 8/19/2018 N/A N/A 0.04 8/21/2018 N/A N/A	
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 0.04 8/13/2018 N/A N/A 0.04 8/13/2018 N/A N/A 0.04 8/13/2018 N/A N/A 0.04 8/14/2018 N/A N/A 0.04 8/15/2018 N/A N/A 0.12 8/15/2018 N/A N/A 0.44 8/17/2018 N/A N/A 0.44 8/19/2018 N/A N/A 0.04 8/19/2018 N/A N/A	
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 8/11/2018 N/A N/A 0.04 8/13/2018 N/A N/A 0.04 8/14/2018 N/A N/A 0.04 8/15/2018 N/A N/A 0.04 8/18/2018 N/A N/A 0.04 8/18/2018 N/A N/A 0.04 8/19/2018 N/A N/A 0.04 8/19/2018 N/A N/A 0.04 8/21/2018 N/A N/A 0.04 8/21/2018 N/A N/A	
8/4/2018 N/A N/A 0.02 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 8/11/2018 N/A N/A 0.04 8/13/2018 N/A N/A 0.04 8/13/2018 N/A N/A 0.04 8/15/2018 N/A N/A 0.64 8/16/2018 N/A N/A 0.16 8/18/2018 N/A N/A 0.04 8/19/2018 N/A N/A	
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9/3/2018 N/A N/A 0 9/4/2018 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	
10/1/2018 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	70	67	0.02	10/7/2018	NT/A	NT/A	
10/8/2018	78 85	67 65	0.03	10/8/2018	N/A N/A	N/A N/A	0
10/9/2018	81	66	0	10/9/2018	N/A	N/A	0
10/10/2018	77	66	0.05	10/10/2018	N/A	N/A	0
10/11/2018	73	67	0.69	10/11/2018	N/A	N/A	0
10/12/2018	72	50	3.32	10/12/2018	N/A	N/A	0
10/13/2018	68	48	0	10/13/2018	N/A	N/A	0
10/14/2018	62	43	0.03	10/14/2018	N/A	N/A	0
10/15/2018	55	46	0.05	10/15/2018	N/A	N/A	0
10/16/2018	78	53	0.02	10/16/2018	N/A	N/A	0
10/17/2018	67	55	0.14	10/17/2018	N/A	N/A	0
10/18/2018 10/19/2018	69 60	43 34	0	10/18/2018 10/19/2018	N/A N/A	N/A N/A	0
11/1/2018	00	34	0	11/1/2018	N/A	N/A	0
11/2/2018			0.1	11/2/2018	N/A	N/A	0
11/3/2018			0.98	11/3/2018	N/A	N/A	0
11/4/2018			0	11/4/2018	N/A	N/A	0
11/5/2018			0.15	11/5/2018	N/A	N/A	0
11/6/2018			0.37	11/6/2018	N/A	N/A	0
11/7/2018			0.13	11/7/2018	N/A	N/A	0
11/8/2018			0	11/8/2018	N/A	N/A	0
11/9/2018			0 20	11/9/2018	N/A	N/A	0
11/10/2018 11/11/2018			0.29	11/10/2018 11/11/2018	N/A N/A	N/A N/A	0
11/11/2018			0	11/11/2018	N/A	N/A	0
11/13/2018			1,25	11/13/2018	N/A	N/A	0
11/14/2018			0.03	11/14/2018	N/A	N/A	0
11/16/2018			0.55	11/16/2018	N/A	N/A	0
11/17/2018			0	11/17/2018	N/A	N/A	0
11/18/2018			0	11/18/2018	N/A	N/A	0
11/19/2018			0	11/19/2018	N/A	N/A	0
11/20/2018	40	26	0	11/20/2018	N/A	N/A	0
11/21/2018 11/22/2018	49 55	26	0	11/21/2018 11/22/2018	N/A N/A	N/A N/A	0
11/23/2018	51	29	0	11/23/2018	N/A	N/A	0
11/24/2018	35	29	0.05	11/24/2018	N/A	N/A	0
11/25/2018	44	28	1.02	11/25/2018	N/A	N/A	0
11/26/2018	56	32	0	11/26/2018	N/A	N/A	0
11/27/2018	56	32	0	11/27/2018	N/A	N/A	0
11/28/2018	38	23	0	11/28/2018	N/A	N/A	0
11/29/2018	38	21	0	11/29/2018	N/A	N/A	0
11/30/2018	51	20	0.08	11/30/2018	N/A	N/A	0
12/1/2018 12/2/2018	59 48	38	0.07 0.24	12/1/2018 12/2/2018	N/A N/A	N/A N/A	0
12/3/2018	58	36	0	12/3/2018	N/A	N/A	0
12/4/2018	61	36	0	12/4/2018	N/A	N/A	0
12/5/2018	46	32	0	12/5/2018	N/A	N/A	0
12/6/2018	42	21	0	12/6/2018	N/A	N/A	0
12/7/2018	44	23	0	12/7/2018	N/A	N/A	0
12/8/2018	44	26	0	12/8/2018	N/A	N/A	0
12/9/2018	39	25	0.28	12/9/2018	N/A	N/A	0
		13		12/11/2018	N/A	N/A N/A	0
12/11/2018	44	12	0	12/12/2018	N/A		U
12/12/2018	46	13 25	0	12/12/2018	N/A N/A		0
12/12/2018 12/13/2018	46 45	25	0	12/13/2018	N/A	N/A	0
12/12/2018	46						0 0
12/12/2018 12/13/2018 12/14/2018	46 45 50	25 26	0	12/13/2018 12/14/2018	N/A N/A	N/A N/A	0
12/12/2018 12/13/2018 12/14/2018 12/15/2018	46 45 50 41	25 26 34	0 0 1.23	12/13/2018 12/14/2018 12/15/2018	N/A N/A N/A	N/A N/A N/A	0
12/12/2018 12/13/2018 12/14/2018 12/15/2018 12/16/2018	46 45 50 41 47	25 26 34 41 41 35	0 0 1.23 0.47	12/13/2018 12/14/2018 12/15/2018 12/16/2018 12/17/2018 12/18/2018	N/A N/A N/A N/A	N/A N/A N/A N/A	0 0 0
12/12/2018 12/13/2018 12/14/2018 12/15/2018 12/16/2018 12/17/2018 12/17/2018 12/18/2018 12/19/2018	46 45 50 41 47 55 57 51	25 26 34 41 41 35 25	0 0 1.23 0.47 0 0	12/13/2018 12/14/2018 12/15/2018 12/16/2018 12/17/2018 12/18/2018 12/19/2018	N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A	0 0 0 0 0
12/12/2018 12/13/2018 12/14/2018 12/15/2018 12/16/2018 12/17/2018 12/18/2018 12/19/2018 12/19/2018	46 45 50 41 47 55 57	25 26 34 41 41 35	0 0 1.23 0.47 0 0 0	12/13/2018 12/14/2018 12/15/2018 12/16/2018 12/17/2018 12/18/2018 12/19/2018 12/20/2018	N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A	0 0 0 0 0 0
12/12/2018 12/13/2018 12/14/2018 12/15/2018 12/16/2018 12/17/2018 12/18/2018 12/19/2018 12/20/2018	46 45 50 41 47 55 57 51 52	25 26 34 41 41 35 25 25	0 0 1.23 0.47 0 0 0 0	12/13/2018 12/14/2018 12/15/2018 12/16/2018 12/17/2018 12/18/2018 12/19/2018 12/20/2018 12/21/2018	N/A N/A N/A N/A N/A N/A N/A N/A	N/A	0 0 0 0 0 0 0
12/12/2018 12/13/2018 12/14/2018 12/15/2018 12/16/2018 12/17/2018 12/18/2018 12/19/2018 12/20/2018 12/20/2018 12/21/2018	46 45 50 41 47 55 57 51 52	25 26 34 41 41 35 25 25	0 0 1.23 0.47 0 0 0 0 0 2.11	12/13/2018 12/14/2018 12/15/2018 12/16/2018 12/17/2018 12/18/2018 12/19/2018 12/20/2018 12/21/2018 12/21/2018	N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A	0 0 0 0 0 0 0 0
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12/12/2018 12/13/2018 12/14/2018 12/15/2018 12/16/2018 12/17/2018 12/17/2018 12/19/2018 12/20/2018 12/20/2018 12/21/2018 12/21/2018 12/22/2018 12/22/2018	46 45 50 41 47 55 57 51 52 58 45	25 26 34 41 41 35 25 25 25 38 24 24	0 0 1.23 0.47 0 0 0 0 0 2.11 0.45	12/13/2018 12/14/2018 12/15/2018 12/16/2018 12/17/2018 12/18/2018 12/19/2018 12/20/2018 12/21/2018 12/22/2018 12/22/2018 12/23/2018 12/23/2018	N/A	N/A	0 0 0 0 0 0 0 0 0
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12/12/2018 12/13/2018 12/14/2018 12/15/2018 12/16/2018 12/17/2018 12/17/2018 12/19/2018 12/20/2018 12/20/2018 12/21/2018 12/21/2018 12/22/2018 12/22/2018	46 45 50 41 47 55 57 51 52 58 45	25 26 34 41 41 35 25 25 25 28 24 24	0 0 1.23 0.47 0 0 0 0 0 2.11 0.45 0	12/13/2018 12/14/2018 12/15/2018 12/16/2018 12/17/2018 12/18/2018 12/19/2018 12/20/2018 12/21/2018 12/22/2018 12/22/2018 12/23/2018 12/23/2018	N/A	N/A	0 0 0 0 0 0 0 0 0 0

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1/5/2019	42	37	0,28
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1/9/2019	62	39	0
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1/25/2019	57	27	0.31
1/26/2019	42	25	0
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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
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2/14/2019	52	28	0
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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 2/23/2019	62 46	32 36	0.33 0.88
2/23/2019	39		0.84
2/25/2019	66	36 37	0.84
2/26/2019	55	28	0
2/27/2019	64	29	0
2/28/2019	54	32	0
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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

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3/20/2019 54 22 0	3/18/2019	57	26	0
3/21/2019 58				
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 3/39/2019 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 75 44 0.03 4/1/2019 52 28 0 4/4/2019 71 34 0 4/5/2019 74 42 0.03 4/6/2019 75 42 0.62 4/7/2019 77 52 0 4/8/2019 78 44 0.03 4/1/2019 79 50 0.02 4/9/2019 81 58 0.34 4/10/2019 77 42 0 4/11/2019 77 42 0 4/11/2019 77 42 0 4/11/2019 78 44 0 4/11/2019 77 52 0 4/11/2019 78 44 0 4/11/2019 79 50 0.02 4/9/2019 81 58 0.34 4/10/2019 77 42 0 4/11/2019 78 44 0 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 79 50 0.02 4/11/2019 79 50 0.02 4/11/2019 79 50 0.02 4/11/2019 79 50 0.02 4/11/2019 79 50 0.02 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 79 50 0.03 4/11/2019 83 52 0 4/12/2019 83 52 0 4/12/2019 83 52 0 4/12/2019 84 50 0 4/22/2019 85 50 0.03 5/11/2019 86 50 0 5/11/2019 86 50 0 5/11/2019 87 50 0.03 5/11/2019 88 50 0 5/11/2019 88 50 0 5/11/2019 89 50 0 5/11/2019 80 50 0 5/11/2019 80 50 0 5/11/2019 79 64 0 5/11/2019 79 64 0 5/11/2019 79 64 0 5/11/2019 79 64 0 5/11/2019 79 64 0				·
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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
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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 0,93
6/29/2019	88	65	1
6/30/2019 7/1/2019	90	65	0.79
7/1/2019	90	66	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 7/23/2019	90 88	70 67	0.02 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
	1 1		
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
			0.32
7/11/2019	N/A	N/A	
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
	N/A	N/A	0.04
7/19/2019	A 17 A A	- 1/	····
7/19/2019	N/A	N/A	0.04
7/20/2019	N/A	N/A	0.04
7/20/2019 7/21/2019	N/A	N/A	0
7/20/2019			

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 8/18/2019	88	65 65	0
	89	65	0.02
8/19/2019	92	65	0
8/20/2019 8/21/2019	93	68	0
8/22/2019	92	67	
	92	67	0
8/23/2019 8/24/2019	89 88	68	0.21
8/25/2019	71	60	0.21
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
9/11/2019			
	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 D	ata 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

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