



Mike DeWine, Governor  
 Jon Husted, Lt. Governor  
 Laurie A. Stevenson, Director

**Addendum the Biological and Water Quality Study of  
 the Upper Tuscarawas River and Select Tributaries Study Plan - 2017**

**Section 1: Additional Sampling in 2019.**

The following addition is to the Biological and Water Quality Study of the Upper Tuscarawas River and Select Tributaries Study Plan - 2017. The objective of the additional sampling outlined in this addendum is to collect data to clarify causes and sources of impairment and collect data not obtainable in 2017 & 2018.

Below, the sampling type and count for 2019 are summarized in Table 1. In Table 2, sample location and type of sampling is detailed. The chemical /physical water quality parameters to be analyzed/measured are specified in Table 3.

**Table 1. Sampling Type and Count**

Sample Type	Count
Fish (F) – 2 pass	3
Fish (f) – 1 pass	2
Macro (MQ)-Quantitative	3
Macro (Mq)-Qualitative	2
Chemistry (C)-Inorganic	16
Chemistry (O)-Organics	16
Sonde (D)	1

**Table 2. Sample Locations and sampling details for Tuscarawas River in 2019.**

Location Description	Station ID	RM	Drainage	Lat	Long	Sampling
TUSCARAWAS R. NEAR BOLIVAR, DST. SANDY CREEK	R06K03	72.6	1090	40.655	-81.4453	Sd, C, O
TUSCARAWAS R. W OF BOLIVAR @ ST. RT. 212	R06A02	78.16	574	40.6547	-81.4856	Sd, C, O
TUSCARAWAS R. 0.42 MI. DST NAVARRE WWTP	R06W92	83	549	40.7122	-81.505	Sd, C, O
TUSCARAWAS R. 0.08 MI. UPST. NAVARRE WWTP	R06W90	83.5	549	40.7175	-81.5108	Sd, C, O
TUSCARAWAS R. AT MASSILLON @ WARMINGTON ST.	601930	87.37	520	40.7522	-81.5292	Sd, F, MQ, C, O
TUSCARAWAS R. 0.47 MI. DST. MASSILLON WWTP	R06W82	88.4	518	40.7656	-81.5333	Sd, F, MQ, C, O
TUSCARAWAS R. 0.13 MI. UPST. MASSILLON WWTP	R06W79	89	518	40.7706	-81.5242	Sd, F, MQ, C, O
TUSCARAWAS R. AT MASSILLON, DST. NEWMAN CREEK	R06K07	91.8	478	40.8069	-81.5272	Sd, C, O
TUSCARAWAS R. AT MASSILLON @ LAKE AVE.	R06S26	92.17	439	40.8119	-81.5297	Sd, C, O
TUSCARAWAS R. AT CRYSTAL SPRINGS @ HIGH MILL RD.	R06P49	94.87	435	40.8453	-81.5325	Sd,C, O

TUSCARAWAS R. AT CANAL FULTON @ CHERRY ST.	611830	100.18	403	40.8887	-81.5991	Sd,C, O
TUSCARAWAS R. AT CLINTON @ CLINTON RD.	601920	104.27	174	40.9281	-81.6325	Sd,C, O
PANCAKE CREEK NE OF CLINTON @ MOUTH	R06P23	0.01	7.9	40.9428	-81.6161	Sd,C, O
HUDSON RUN NEAR NORTON @ GREENWICH RD	R06G39	3.66	4.9	41.026	-81.662	Sd,C, O, f, Mq
HUDSON RUN AT BARBERTON @ WOOSTER RD.	R06S50	1.38	12.8	41.0069	-81.6342	Sd, C, O
FOX RUN W OF CRYSTAL SPRINGS @ BUTTER RIDGE RD.	R06K31	0.6	13.4	40.8556	-81.5808	f, Mq, D
WOLF CREEK AT BARBERTON @ RR NEAR MOUTH	R06S34	0.19	77	41.0028	-81.6089	Sd,C, O

Table 3. List of chemical/physical water quality parameters to be analyzed/ measured in surface water and sediment from the Tuscarawas River, 2019.

Parameters	Test Method	Holding Time	Water	Sediment
Alkalinity	USEPA 310.1	14 days	X	
Solids, Dissolved (TDS)	SM 2540C	7 days	X	
Solids, Suspended (TSS)	SM 2540D	7 days	X	
Ammonia-N	USEPA 350.1	28 days	X	X
Total Kjeldahl Nitrogen (TKN)	USEPA 351.2	28 days	X	
Nitrate-Nitrite	USEPA 350.1	28 days	X	
Nitrite	USEPA 353.2	48 hours	X	
Chloride	USEPA 325.1	28 days	X	
Chemical Oxygen Demand (COD)	USEPA 410.4	28 days	X	
Sulfate	USEPA 375.2	28 days	X	
Total Phosphorus	USEPA 365.4	28 days	X	X
Orthophosphate (as P)	USEPA 365.1	28 hours	X	
ICP 1 (Al,Ba,Ca,Fe, Mg, Mn, Na, K, Sr, Zn, Hardness)	USEPA 200.7	6 months	X	
ICP 3 (Al,Ba,Ca,Fe,Mg,Mn,Na,K,S,Zn)	USEPA 200.7	6 months		X
ICPMS 1 (As,Cd,Cr,Cu, Ni,Pb,Se)	USEPA 200.8	6 months	X	
ICPMS 5 (As,Be,Cd,Co,Cr,Cu,Ni,Pb,Se)	USEPA 6020A	6 months		X
BNA Organics (SVOCs)	USEPA 625	7 days(water) 14 days (sed)	X	X (USEPA 8270)
pH	Field Meter	n/a	X	
Specific conductivity	Field Meter	n/a	X	
Dissolved Oxygen (mg/L and % saturation)	Field Meter	n/a	X	
Temperature	Field Meter	n/a	X	
Percent Solids	SM 2540G	7 days		X
Total Organic Carbon	OEPA 335.4	28 days		X
Dissolved Organic Carbon (DOC)	SM 5310B	7 days	X	
PCBs	USEPA 508 (Water)	7 days (water) 14 days (sed)	X	X (USEPA 8082)
Pesticides	USEPA 505 (water)	7 days (water) 14 days (sed)	X	X (USEPA 8081)

Review: Brian Hall [Signature] Date: 8/21/19 Mari Peikutowski [Signature] Date: 8/21/19 Audrey Rush [Signature] Date: 8/21/19  
 Bill Zawiski [Signature] Date: 8-16-19 Ellie Hagen [Signature] Date: 8/20/19 Mandy Razzano [Signature] Date: 9-10-19