

2016  
WATER SAMPLING  
RESULTS  
FOR SELECTED  
MS4 SITES

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## IN-STREAM SAMPLING PROTOCOLS FOR MS4 SITES

Beginning the last week of April and ending the last week of September, the Storm Water Section of the Environmental Health Division conducted surface water testing on a weekly basis throughout the county on ditches, creeks, lakes, and the Elkhart River. The sampling provides data to help prioritize sites with a high illicit discharge potential, characterizes water quality problems, helps determine critical areas for improvement, and documents the long term success of the illicit discharge and elimination program.

The sites are selected by storm water representatives from the MS4 Partnership which includes the cities of Elkhart and Goshen, the town of Bristol, and Elkhart County agencies which meet annually to determine if changes need to be made to the locations. The standard procedure is to obtain a minimum of three years of data in order to identify any trends. The following is a list of the sites from the 2016 season:

New Miller Stutsman Ditch; CR 28  
Shaffer Ditch; CR 28  
Fulmer Ditch; CR 28  
Hoke Ditch; CR 9  
Yellow Creek; CR 32, CR 138, and CR 18  
Little Yellow Creek; CR 13  
Weaver Ditch; CR 44  
Turkey Creek; CR 17 and CR 50  
Swoveland Ditch; CR 21  
Christiana Creek; CR 4  
Rock Run Creek; CR 21  
Solomon Creek; CR 52 and CR 33  
Cobus Creek; CR 10  
Elkhart River; CR 43, CR 40, Indiana Avenue, and Old CR 17  
Heaton Lake; Ideal Beach and 22892 Lake Shore  
Simonton Lake; 51093 Beach Drive and 51330 SR 19

The sampling form includes whether the sample was considered wet or dry and whether it was raining at the time of sample collection. A wet weather event is defined as a rain event with precipitation greater than .1 inches of rain within a twenty-four hour period prior to collection. A dry weather event is defined as a sampling event with no precipitation twenty-four hours prior to collection.

Data gathered for chlorides, dissolved oxygen, pH, temperature, and conductivity are obtained in the field by using a YSI Professional Plus Instrument Probe. Calibration of the instrument probe is done in accordance with the owner's manual. The instrument probe is lowered into the approximate center part of the waterway and placed below the surface of the water to obtain actual real time data. At the sites with piers (Heaton Lake and Simonton Lake) the instrument probe is lowered into the water at the end of the piers. According to the technical experts at YSI, this information is to be used for trending purposes only.

Tests for nitrates, phosphorus, total suspended solids, and E. coli are grab samples in which a single volume of water is obtained at a given point in time, placed in a prepared sample bottle, and then analyzed. Water samples were collected using one of two methods. For low flow sampling and sites with piers, a dipper was used. The dipper is rinsed three times at each site prior to collection to prevent

cross contamination between samples sites. For high flow streams, a Van Dorn sampler is used. The device is lowered into the approximate center of the waterway and placed below the water surface for a minimum of twenty seconds with the ends open to allow rinsing of the unit between sampling sites. A weight is then dropped on a line striking a triggering mechanism which tightly closes each end of the tube at the same time. This captures the free flowing water to be sampled. All samples are placed in pre-labeled and prepared sample bottles.

Nitrates and phosphorus samples are collected for analysis in the Elkhart County Health Department Laboratory using a Hach portable spectrophotometer. Chain of custody procedures are required and implemented. These include labeling the bottles with the sample site number and all other information as recorded on the water sampling form. Items on the water sampling form include the sampling site identification, sampling date and time, sampling number, dry or wet event, raining at the time of collection, and the initials of the individuals who collected the sample.

Total suspended solids are collected every Tuesday at the new sampling sites: New Miller Stutsman on CR 28; Shaffer Ditch on CR 28; and Hoke Ditch on CR 9 for analysis by the Elkhart Public Works and Utilities Laboratory. Every other Thursday, total suspended solids are collected at Solomon Creek on CR 52 and CR 33 and Cobus Creek on CR 10 for analysis by the City of Goshen Waste Water Treatment Plant Laboratory. For all E. coli samples and the Tuesday total suspended solids samples, a label is filled out with the site number, location, collection date, who collected the sample, who transported and relinquished the sample. These documents are attached to the sample container. Upon arrival at the Elkhart Public Works and Utilities Laboratory, time is also added to the label. The label included a space to acknowledge who received the sample. The Elkhart County Health Department's water sampling form is also signed by an Elkhart laboratory representative with the time of sample delivery and a copy is made and kept in their laboratory records. This procedure is implemented to verify chain of custody. For the Thursday total suspended solids, the samples are collected in pre-labeled containers with the site number, location, date, and who collected the sample.

The time is added to the sampling form when the samples are delivered to the City of Goshen Waste Water Treatment Plant Laboratory. Upon delivery, an Elkhart County Health Department representative places the total suspended solids samples into a refrigerated unit to ensure proper temperature requirements before analysis.

All samples collected are immediately placed in a cooler with chill packs as soon as they are obtained in order to maintain proper temperature requirements during transportation per standard methods protocol.

## PARAMETER DEFINITIONS AND THEIR IMPORTANCE

CHLORIDES are found in groundwater, streams, and lakes and may be of natural mineral origin or from human or animal sewage, industrial process wastewaters, agricultural fields and roadway deicing salts. It is recommended if very high levels (500 mg/l or more) are found, further investigation should take place to locate the source.

CONDUCTIVITY (SpC) is a measure of how easily electricity flows through water. It is strongly correlated with total dissolved solids. It is useful as a general measure of water quality. Each water body has a fairly constant range of conductivity that can be used for baseline readings. Significant changes in conductivity may be an indicator that a discharge or some other source of pollution has entered the water way. If this occurs, it is recommended that further investigation should take place to locate the source.

DISSOLVED OXYGEN (DO) is considered to be one of the most important parameters of water quality in streams, rivers, and lakes. All aquatic organisms need dissolved oxygen in the water to survive. Stream systems produce and consume oxygen. If more oxygen is consumed than produced, dissolved oxygen levels decline and some organisms move away, weaken, or die. Higher concentrations of dissolved oxygen equate to better water quality. Aquatic life is stressed at levels below 5.0 mg/l and levels below 2 mg/l will not support fish. Dissolved oxygen is very sensitive to temperature. The solubility of oxygen in water decreases as temperature increases. A waste discharge can have a dramatic effect on the oxygen balance of a water body by raising water temperature or introducing pollutants which remove the dissolved oxygen. According to 327 IAC 2-1-6 and the US EPA, the recommended target value is > 6 mg/l and not > 9 mg/l.

E. COLI is a species of fecal coliform bacteria that is specific to fecal matter from humans and other warm-blooded animals. E. coli indicates the possible presence of pathogenic bacteria, viruses, and protozoa that also live in the digestive systems of humans and animals. Their presence in a water body suggest pathogens might be present and that swimming/full body contact recreation can be a health risk. As required by the United States Environmental Protection Agency, total maximum daily load (TMDL) calculations have been established by the Indiana Pollution Control Board (327 IAC 2-1-6 Section 6(d)) for E. coli using membrane filter count and are the following numeric Standards:

“Concentrations shall not exceed 125 cfu/100 ml as a geoemetric mean based on not less than five samples equally spaced over a 30-day period nor exceed 235 cfu/100 ml in any one sample in a 30-day period.”

NITRATES (NO<sub>3</sub>) are one of the four forms of nitrogen in the nitrogen cycle. They are essential plant nutrients but in excess amounts they can cause significant water quality problems. Together with phosphorus they can cause increase in plant growth and changes in the types of plants and animals that live in surface water. In turn this affects dissolved oxygen and temperature. Excess nutrients can cause hypoxia which is a condition characterized by low levels of dissolved oxygen when the plants decay. The natural level of nitrates in surface water is typically low, less than 1 mg/l. Sources of nitrates include failing onsite septic systems, runoff from animal manure storage areas, fertilizer runoff from lawns and cropland, wastewater treatment plants and industrial discharges that contain corrosion inhibitors. The US EPA reference level is < 1.5 mg/l.

pH The pH scale measures the logarithmic concentration of hydrogen and hydroxide ions which make up water. Pure water, equal ion concentrations, is neutral with a pH of 7.0. Below 7.0 the water is acidic and above 7.0 the water is alkaline. pH affects many chemical and biological processes in water. The majority of the aquatic organisms survive and thrive at a range of 6.5-8.0. pH outside of this range reduces the diversity of the water way because it stresses the physiological systems of most organisms and can reduce reproduction. Low pH also allows toxic elements and compounds to become soluble and available for uptake by aquatic plants and animals. Some industrial discharges contain very high 12-14 pH or very low 1-3 pH. pH is a good monitoring parameter and significant fluctuations need to be investigated. According to 327 IAC 2-1-6, the target value is  $> 6$  or  $< 9$ .

PHOSPHORUS Like nitrogen, phosphorus is an essential nutrient for plants and animals that make up the aquatic food chain. Phosphorus in waterways accelerates plant growth and algae blooms and with their decomposition result in low dissolved oxygen and death of some fish, invertebrates and other aquatic species. There are many natural and human sources of phosphorus. These include soil and rocks, wastewater treatment plants, runoff from fertilized lawns and cropland, failing onsite septic systems, runoff from animal manure storage areas, disturbed land areas and commercial cleaning preparations. Phosphorus is the limiting nutrient in many aquatic environments and very small inputs greatly affect photosynthetic productivity and can initiate a massive bloom of plants and algae in slow moving streams and ponds. These blooms are not desired and have a deleterious effect on the aquatic environments where phosphorus has been enriched. The IDEM 303(d) listing criteria is  $< 0.3$  mg/l.

TEMPERATURE is a very important water quality parameter and influences all biological and chemical reactions. Temperature influences the dissolved oxygen content of the water, the metabolism of all aquatic organisms, the rate of photosynthesis, and the sensitivity of organisms to pollutants such as toxic wastes and parasites. All aquatic organisms have optimal temperatures for their survival. Many factors affect temperature including stream flow, sunlight, shade, water depth, turbidity, bottom color and composition, soil erosion, storm water runoff, and seasonal changes. Temperature is measured in degrees Celsius.

TOTAL SUSPENDED SOLIDS (TSS) are particulates in water and can include many organic and inorganic sources such as silt, decaying plant and animal matter, sewage and industrial wastes. They cause the water to be milky or muddy looking due to the light scattering from very small particles in the water. This is called turbidity. Suspended solids can destroy fish habitat because they can settle to the bottom and smother the eggs of fish and aquatic insects and suffocate newly hatched insect larvae. High levels of suspended solids can clog the gills of fish and reduce their growth rates and reduce dissolved oxygen. Also, pollutants and contaminants adhere to the suspended solids. Total suspended solids are measured in mg/l. There are no numeric standards for total suspended solids however they must meet narrative standards which state in part: "all waters at all times and places, including the mixing zone, shall meet the minimum conditions of being free from substances, materials, floating debris, oil, or scum attributable to municipal, industrial, agricultural, and other land use practices, or other discharges which are in amounts sufficient to injure, be acutely toxic to, or otherwise produce serious adverse physiological responses in humans, animals, aquatic life or plants."

NOTE: The above information was obtained from the United States Environmental Protection Agency (US EPA), the Indiana Department of Environmental Management (IDEM), The Center for Watershed Protection, and Purdue University Department of Agricultural and Biological Engineering.

## SAMPLING RESULTS AND CHARTS

The sampling results do contain missing data for the following various reasons:

On May 21, pH and chlorides were not analyzed due to YSI equipment issues.

On May 3, May 31, July 5, August 16, August 18, and September 6 no E. coli and/or total suspended samples were collected for analysis at the Elkhart Public Works and Utilities Laboratory due to lab staffing issues.

On May 19, Ideal Beach on Heaton Lake was not accessible to staff members for sample collection.

On June 14, July 12, July 19, July 26, August 2, August 9, September 6, September 13, September 20, and September 27 no samples were taken at New Miller Stutsman Ditch because there was not any water in the ditch.

On June 28, no samples were taken at Shaffer, Fulmer, and Weaver Ditches due to staff member issues.

On August 9 and September 27 there was not enough water to collect E. coli and total suspended solids samples at Fulmer Ditch.

On August 9 there was not enough water to collect E. coli and total suspended solids at Hoke Ditch.

On September 13, September 20, and September 27 there was not enough water to collect samples at Weaver Ditch.

On September 15, September 22, and September 29 no samples were collected on the Elkhart River at County Road 40 due to the safety of staff members because of heavy volumes of traffic.

On September 29 at all sites the dissolved oxygen probe was malfunctioning.

Charts were prepared for E. coli due to the health risks associated with their presence in a waterway.

Appendix 1 contains the surface water sampling data. Appendix 2 contains the E. coli charts.

## SUMMARY AND CONCLUSIONS

According to the United States Environmental Protection Agency, “a water body is considered impaired when a water quality standard is violated, whether through exceedance of a numeric or narrative criterion, impairment of a designated use or violation of anti-degradation policy.” The results of the 2016 sampling season continue to indicate E. coli levels in excess of the total maximum daily load of 235 cfu/100 ml at the majority of the sample sites. The sites on Heaton Lake, Simonton Lake, and Christiana Creek are the exceptions.

All water bodies are capable of assimilating a certain amount of pollution without adverse effects because of the dilution and self-purification capabilities of natural processes. The ability of a water body to mitigate for an organic pollutant, such as E. coli is dependent on many factors such as stream flow, depth, dissolved oxygen, temperature, available sunlight, and time. However the high levels of E. coli indicate these pathogens are being infused at a rate greater than can be mitigated through natural processes resulting in these higher than acceptable numbers. Results such as these are indicators of illicit discharges entering the water bodies and will require further investigation to determine the source.



## ACKNOWLEDGEMENTS

I would like to thank the following vector technicians who assisted with the sampling: Logan Miller, Landon Hughes, and Brenda Lozano. Also, recognition goes to fellow colleagues Marc Stewart, Danielle Atkins, and Clay Reagan who assisted me with sample collections prior to the technicians arriving and after their departure.

Special recognition goes to the laboratory staff at the Elkhart Public Works and Utilities and Goshen Waste Water Treatment Plant. Their cooperation and expertise was instrumental to this effort and is very much appreciated.

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APPENDIX 1:

SURFACE

WATER

DATA



Shaffer Ditch CR 28

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/26/2016	9:40	13.4	3.73	408.5	7.41	4.48	6.100	72.95	49	2575	n	y
5/3/2016	10:10	10.7	8.80	378.6	7.61	3.33	1.700	51.93			n	n
5/10/2016	9:40	10.8	3.64	430.1	7.54	2.09	0.190	94.95	47	1050	n	y
5/17/2016	9:25	11.7	6.14	460.2	7.61	2.08	0.201	98.38	6	125	n	n
5/24/2016	10:00	14.1	2.25	533.0	7.39	1.15	0.288	469.39	6	263	n	n
5/31/2016	9:35	17.0	0.60	648.0	7.43	1.02	0.664	306.00			n	n
6/7/2016	9:35	15.1	0.44	539.0	7.56	1.06	4.290	108.08	78	160	n	n
6/14/2016	8:35	16.3	4.04	603.0	7.87	1.76	1.100	96.39	40	1340	n	n
6/21/2016	8:30	18.3	2.21	586.0	7.42	11.1	0.468	192.89	28	7950	n	y
6/28/2016	8:30											
7/5/2016	8:30	17.8	2.37	479.0	7.68	1.86	0.515	89.37			n	n
7/12/2016	8:30	19.3	3.79	530.0	7.50	1.30	0.939	125.14	64	1150	n	n
7/19/2016	8:45	18.0	0.91	742.0	7.58	1.25	0.892	107.92	29	520	n	n
7/26/2016	8:20	19.5	2.22	883.0	7.34	1.13	0.858	470.25	46	660	n	n
8/2/2016	8:35	18.4	1.31	638.0	7.51	1.15	0.887	99.81	138	1040	n	n
8/9/2016	8:30	17.6	1.06	845.0	7.62	1.55	6.360	164.10	81	390	n	n
8/16/2016	8:25	21.4	3.89	353.3	7.55	4.04	1.120	39.73			n	y
8/23/2016	8:55	16.6	4.72	609.0	7.60	1.07	0.431	134.06	26	330	n	n
8/30/2016	8:40	20.2	3.75	563.0	7.69	1.14	0.898	63.24	22	310	n	n
9/6/2016	8:25	19.3	3.20	847.0	7.24	1.92	3.710	256.93			n	n
9/13/2016	8:50	16.1	9.12	512.0	7.74	1.89	3.480	113.80	28	220	n	n
9/20/2016	8:40	17.4	4.06	539.0	7.54	1.79	1.230	181.19	74	278	n	n
9/27/2016	8:50	13.2	5.27	596.0	7.86	1.81	1.198	261.93	24	254	n	n

Fulmer Ditch CR 28

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/26/2016	9:50	13.1	6.02	419.8	7.35	6.42	3.71	73.45	21	7200	n	y
5/3/2016	10:20	11.5	9.95	441.9	7.55	4.33	0.639	70.09			n	n
5/10/2016	9:45	11.2	7.22	428.6	7.48	3.92	0.13	85.60	3	133	n	y
5/17/2016	9:35	11.8	5.91	454.7	7.49	4.86	0.294	76.08	19	31	n	n
5/24/2016	10:10	15.2	4.08	467.2	7.54	3.45	0.192	193.27	5	48	n	n
5/31/2016	9:40	19.2	4.01	522.0	7.69	3.67	7.39	165.87			n	n
6/7/2016	9:40	15.5	3.77	470.3	7.59	1.83	9.22	148.51	688	6300	n	n
6/14/2016	8:45	18.5	0.10	436.0	7.40	3.63	5.52	77.27	92	91	n	n
6/21/2016	8:40	19.2	3.90	635.0	7.25	19.2	0.652	79.40	7	39000	n	y
6/28/2016												
7/5/2016												
7/12/2016	8:40	20.3	0.62	687.0	7.60	1.36	1.51	300.28	442	1240	n	n
7/19/2016	8:55	17.6	1.38	681.0	7.66	0.924	1.96	147.46	90	1513	n	n
7/26/2016	8:30	19.4	0.28	893.0	7.05	1.12	1.20	354.01	62	720	n	n
8/2/2016	8:45	18.3	0.079	745.0	7.64	0.942	1.94	230.69	60	580	n	n
8/9/2016	8:40	19.1	0.12	781.0	7.52	2.75	10.00	349.91			n	n
8/16/2016	8:30	21.9	3.83	319.6	7.52	3.00	1.60	36.56			n	y
8/23/2016	9:05	18.3	0.77	518.0	7.44	1.06	0.482	145.19	26	640	n	n
8/30/2016	8:45	22.7	2.22	448.9	7.35	0.998	1.92	51.19	17	1260	n	n
9/6/2016	8:40	21.1	2.88	502.0	7.43	1.25	4.26	68.32			n	n
9/13/2016	9:00	18.1	3.32	475.3	7.39	1.15	3.97	75.76	9	620	n	n
9/20/2016	8:50	18.6	1.49	471.2	7.41	1.23	4.01	123.24	44	600	n	n
9/27/2016	9:05	12.8	4.06	518.0	7.73	1.17	3.81	139.42			n	n

Hoke Ditch CR 9

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/26/2016	10:00	11.6	7.97	436.7	7.55	9.85	7.170	85.13	60	13800	n	y
5/3/2016	10:25	10.9	10.42	465.7	7.65	11.20	0.848	74.03			n	n
5/10/2016	9:55	10.6	8.31	531.0	7.76	7.69	1.170	241.03	11	6400	n	y
5/17/2016	9:45	11.0	8.28	520.0	7.83	9.28	0.296	85.05	7	143	n	n
5/24/2016	10:20	14.7	9.45	330.8	7.97	7.16	0.525	135.88	4	940	n	n
5/31/2016	9:45	19.1	6.72	570.0	7.96	4.50	0.955	247.07			n	n
6/7/2016	9:50	16.5	7.48	586.0	8.07	6.77	1.280	231.02	10	153	n	n
6/14/2016	8:55	18.5	4.01	606.0	7.88	2.57	1.550	191.52	67	2000	n	n
6/21/2016	8:45	18.3	6.18	241.8	7.27	23.20	0.852	137.70	21	39000	n	y
6/28/2016	8:40	19.0	6.18	588.0	7.39	2.07	1.540	110.58	22	860	n	n
7/5/2016	8:40	18.9	6.37	732.0	7.35	8.74	0.930	127.28			n	n
7/12/2016	8:50	21.6	4.21	616.0	7.83	4.55	1.080	156.69	108	2075	n	n
7/19/2016	9:05	19.8	5.37	602.0	7.98	2.01	1.320	195.66	34	900	n	n
7/26/2016	8:35	20.8	5.39	581.0	7.96	4.40	0.650	194.49	20	1250	n	n
8/2/2016	8:55	20.5	4.06	885.0	8.01	2.11	1.250	230.21	58	3875	n	n
8/9/2016	9:35	19.6	3.97	621.0	8.02	3.49	12.000	344.76			n	n
8/16/2016	8:35	21.4	5.21	272.4	7.31	5.18	2.270	24.91			n	y
8/23/2016	9:15	17.6	6.67	623.0	7.77	2.99	0.608	236.03	16	520	n	n
8/30/2016	8:50	20.0	5.92	534.0	7.42	2.16	1.340	50.83	13	540	n	n
9/6/2016	8:45	20.9	5.53	714.0	8.00	2.57	1.510	235.64			n	n
9/13/2016	9:10	17.2	6.31	640.0	7.72	2.41	1.420	254.71	8	350	n	n
9/20/2016	9:00	17.9	6.76	692.0	8.06	2.53	1.390	292.48	27	640	n	n
9/27/2016	9:15	13.8	6.71	531.0	8.24	2.47	1.320	415.45	18	1380	n	n

CR 13 - Little Yellow Creek

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/26/2016	10:20	12.5	7.63	426.7	7.41	6.60	1.03	94.02		18200	n	y
5/3/2016	10:45	11.5	10.74	463.2	7.72	7.20	0.794	131.69			n	n
5/10/2016	10:15	11.0	9.27	463.6	7.89	4.20	0.504	136.01		5250	n	y
5/17/2016	10:00	11.5	8.82	494.5	7.77	5.70	0.283	112.10		143	n	n
5/24/2016	10:35	13.7	6.32	538.0	7.99	4.03	0.285	152.12		105	n	n
5/31/2016	10:00	16.2	7.02	586.0	7.70	2.80	1.26	151.61			n	n
6/7/2016	10:05	15.2	3.57	584.0	7.64	3.46	0.665	127.08		134	n	n
6/14/2016	9:10	17.2	2.70	600.0	7.57	2.48	1.73	173.51		650	n	n
6/21/2016	9:00	18.4	3.88	586.0	7.25	14.30	0.788	130.71		15800	n	y
6/28/2016	9:05	18.4	4.74	570.0	7.38	2.01	1.47	123.63		960	n	n
7/5/2016	8:55	17.9	3.49	574.0	7.60	5.15	2.87	177.54			n	n
7/12/2016	9:10	19.6	3.41	603.0	7.67	2.87	0.858	134.11		1355	n	n
7/19/2016	9:25	17.4	3.62	630.0	7.76	2.13	1.850	229.60		520	n	n
7/26/2016	8:55	18.3	2.47	586.0	7.72	1.37	0.811	196.57		300	n	n
8/2/2016	9:10	17.8	2.77	661.0	7.71	2.03	1.58	404.09		1260	n	n
8/9/2016	10:00	17.2	2.06	650.0	7.75	2.67	4.980	490.98		745	n	n
8/16/2016	8:50	21.3	2.33	397.1	7.46	5.72	3.78	391.10			n	y
8/23/2016	9:35	16.3	3.46	639.0	7.65	2.29	1.01	153.24		320	n	n
8/30/2016	9:10	20.1	1.85	684.0	7.54	2.08	1.480	187.34		575	n	n
9/6/2016	8:55	19.2	3.61	664.0	7.63	1.62	0.914	342.50			n	n
9/13/2016	9:30	16.4	2.10	541.0	7.53	1.57	1.210	428.18		450	n	n
9/20/2016	9:25	17.1	7.89	662.0	7.84	1.48	1.370	264.48		840	n	n
9/27/2016	9:35	12.9	3.52	597.0	7.98	1.52	1.410	300.21		1240	n	n

CR 32 - Yellow Creek

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/26/2016	10:10	14.0	7.96	497.6	7.91	5.64	1.760	197.06		4600	n	n
5/3/2016	10:35	11.0	9.72	612.0	7.95	11.70	5.000	217.60			n	n
5/10/2016	10:05	11.3	9.23	555.0	8.02	7.93	0.734	233.19		9800	n	y
5/17/2016	9:55	11.9	9.59	505.0	8.07	10.60	0.348	210.95		1000	n	n
5/24/2016	10:30	15.1	9.02	719.0	8.11	8.45	0.471	244.21		306	n	n
5/31/2016	9:55	17.9	7.01	689.0	8.07	5.43	1.160	258.65			n	n
6/7/2016	10:00	15.5	8.30	659.0	8.11	6.06	0.795	326.95		2200	n	n
6/14/2016	9:05	17.3	6.71	654.0	8.06	4.36	1.000	248.88		1200	n	n
6/21/2016	8:55	18.9	7.55	571.0	7.86	16.4	1.170	211.58		34500	n	y
6/28/2016	8:55	19.6	7.53	561.0	7.92	3.12	1.010	200.20		1730	n	n
7/5/2016	8:50	18.4	7.30	721.0	8.09	8.07	0.962	209.31			n	n
7/12/2016	9:00	20.1	6.77	765.0	8.11	5.72	0.809	150.97		1650	n	n
7/19/2016	9:10	18.6	6.53	682.0	8.12	2.16	0.989	135.35		1240	n	n
7/26/2016	8:45	19.6	6.40	650.0	8.08	3.66	0.926	183.41		1260	n	n
8/2/2016	9:05	19.0	6.17	820.0	8.11	2.20	0.968	119.88		980	n	n
8/9/2016	9:50	18.5	7.36	799.0	8.29	3.52	1.02	310.39		790	n	n
8/16/2016	8:45	21.5	5.71	431.7	7.66	8.55	4.26	54.87			n	y
8/23/2016	9:30	17.1	8.39	538.0	8.20	6.54	0.998	276.77		900	n	n
8/30/2016	9:00	20.6	7.18	810.0	8.17	2.42	0.986	311.12		1095	n	n
9/6/2016	8:50	19.7	6.39	683.0	8.14	4.30	1.980	317.69			n	n
9/13/2016	9:20	16.8	8.96	548.0	8.22	3.95	1.780	396.63		580	n	n
9/20/2016	9:15	17.8	6.52	707.0	8.23	3.69	1.12	468.61		880	n	n
9/27/2016	9:25	13.6	7.95	616.0	8.27	3.42	1.680	460.71		440	n	n



Yellow Creek CR 138

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/26/2016	10:30	13.5	8.52	615	7.91	8.54	7.340	281.46		2500	n	y
5/3/2016	10:55	11.6	10.59	523.1	7.86	13.90	0.703	215.34			n	n
5/10/2016	10:25	11.4	9.48	479.2	7.94	11.80	0.454	310.59		2400	n	y
5/17/2016	10:15	11.8	9.15	603.0	7.90	14.70	0.385	306.32		257	n	n
5/24/2016	10:45	13.6	9.60	690.0	8.09	15.80	0.551	294.05		920	n	n
5/31/2016	10:15	16.9	6.69	850.0	8.01	11.40	1.130	318.77			n	n
6/7/2016	10:15	14.9	6.44	727.0	8.07	13.50	0.993	369.23		3000	n	n
6/14/2016	9:25	17.5	5.13	634.0	7.92	7.35	1.260	291.62		950	n	n
6/21/2016	9:15	18.2	6.40	734.0	7.80	19.50	1.090	206.09		38500	n	y
6/28/2016	9:20	19.8	5.57	494.2	7.54	4.86	1.620	107.46		400	n	n
7/5/2016	9:10	18.4	7.73	321.0	7.97	11.90	1.520	236.89			n	n
7/12/2016	9:20	19.9	6.25	619.0	7.97	20.70	4.070	204.25		2300	n	n
7/19/2016	9:40	18.7	6.36	832.0	8.08	5.98	1.120	299.70		640	n	n
7/26/2016	9:05	19.8	5.49	982.0	8.01	10.30	2.480	251.97		3000	n	n
8/2/2016	9:20	19.1	5.63	437.0	8.17	6.34	1.000	217.09		860	n	n
8/9/2016	10:10	17.6	3.23	562.0	8.24	7.40	1.180	157.09		1190	n	n
8/16/2016	9:00	21.2	5.42	660.0	7.47	17.00	2.660	142.36			n	y
8/23/2016	9:50	17.3	7.77	102.6	8.04	17.10	1.260	360.70		960	n	n
8/30/2016	9:20	20.6	5.69	915.0	7.91	6.78	1.020	164.67		2375	n	n
9/6/2016	9:15	20.1	5.83	963.0	8.11	12.10	7.390	542.68			n	n
9/13/2016	9:40	16.8	6.73	752.0	8.11	10.40	6.390	428.96		560	n	n
9/20/2016	9:40	17.8	7.57	877.0	8.22	11.60	5.980	497.34		640	n	n
9/27/2016	9:50	13.4	6.59	907.0	8.37	12.01	6.120	771.61		1360	n	n

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DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/26/2016	12:00	13.9	7.53	400.6	7.75	5.53	8.540	75.58		63200	n	Y
5/3/2016	12:10	11.8	10.39	522.0	7.98	8.06	5.560	198.33			n	n
5/10/2016	11:55	11.4	9.36	519.0	8.03	5.45	0.336	345.24		4083	n	Y
5/17/2016	11:30	12.8	9.84	601.0	8.11	5.97	0.246	303.77		143	n	n
5/24/2016	12:00	15.7	10.27	766.0	8.14	3.50	0.206	362.45		164	n	n
5/31/2016	11:25	18.4	9.01	721.0	8.08	2.32	0.346	338.87			n	n
6/7/2016	11:25	16.0	8.76	539.0	8.08	2.96	0.657	315.24		211	n	n
6/14/2016	10:35	17.5	5.30	820.0	8.00	1.55	0.271	372.92		490	n	n
6/21/2016	10:35	19.8	7.27	605.0	7.71	17.50	1.190	164.79		14400	n	Y
6/28/2016	10:40	20.2	7.36	507.0	7.69	1.54	0.201	189.32		1670	n	n
7/5/2016	10:15	18.0	8.72	842.0	8.00	3.84	0.367	296.01			n	n
7/12/2016	10:40	20.0	8.26	767.0	8.08	1.94	0.256	284.07		300	n	n
7/19/2016	10:55	19.0	8.62	727.0	8.08	1.54	0.243	378.27		302	n	n
7/26/2016	10:30	20.5	7.93	642.0	8.08	1.72	0.298	266.81		226	n	n
8/2/2016	10:35	19.8	8.09	865.0	8.09	1.17	0.242	447.03		300	n	n
8/9/2016	11:20	18.3	8.90	547.0	8.10	1.02	1.300	264.76		267	n	n
8/16/2016	10:10	21.4	6.36	384.2	7.68	5.21	3.430	121.20		420	n	Y
8/23/2016	11:50	17.5	9.42	773.0	8.16	2.18	3.970	228.81			n	n
8/30/2016	10:40	20.9	7.78	319.0	7.91	1.11	0.261	128.62		980	n	n
9/6/2016	10:45	19.1	7.41	880.0	8.07	1.57	0.357	347.38			n	n
9/13/2016	11:25	17.4	8.70	646.0	8.05	1.12	0.437	326.35		980	n	n
9/20/2016	11:10	17.6	9.17	697.0	8.15	1.32	0.547	434.95		262	n	n
9/27/2016	11:15	14.1	9.44	701.0	8.17	1.29	0.601	459.60		390	n	n



CR 17 Turkey Creek

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/26/2016	11:00	14.7	7.18	560.0	7.85	2.86	7.800	69.35		230	n	y
5/3/2016	11:25	11.9	8.97	451.2	7.79	5.25	0.027	152.03			n	n
5/10/2016	10:55	12.2	8.38	432.3	7.59	2.64	0.146	76.23		1060	n	y
5/17/2016	10:45	13.0	8.17	472.5	7.89	3.21	0.097	73.20		144	n	n
5/24/2016	11:15	16.8	7.28	475.2	7.96	1.89	0.254	57.58		176	n	n
5/31/2016	10:40	17.7	7.34	494.6	7.93	2.17	0.158	157.14			n	n
6/7/2016	10:40	15.7	8.65	507.0	7.95	2.64	0.162	172.03		590	n	n
6/14/2016	9:50	17.6	6.54	625.0	7.92	1.92	0.173	208.49		390	n	n
6/21/2016	9:50	20.0	4.95	478.1	7.52	12.10	0.661	98.68		37500	n	y
6/28/2016	9:45	19.4	6.48	594.0	7.66	1.82	0.167	122.35		520	n	n
7/5/2016	9:25	17.7	6.61	756.0	7.82	2.73	1.010	95.43			n	n
7/12/2016	9:50	20.3	6.15	735.0	7.88	2.36	0.182	134.68		780	n	n
7/19/2016	10:10	18.4	6.45	699.0	7.97	1.72	0.242	140.77		475	n	n
7/26/2016	9:40	20.2	6.68	637.0	7.94	1.69	0.264	164.75		610	n	n
8/2/2016	9:50	19.6	6.27	753.0	8.04	1.83	0.232	252.59		320	n	n
8/9/2016	10:30	19.4	5.99	732.0	8.11	2.20	1.490	232.28		270	n	n
8/16/2016	9:35	21.6	5.16	384.7	7.83	2.19	1.140	50.94			n	y
8/23/2016	10:40	17.4	7.21	592.0	8.05	2.87	0.216	181.16		260	n	n
8/30/2016	9:50	20.4	5.80	723.0	8.01	1.92	0.238	105.93		510	n	n
9/6/2016	9:50	19.5	5.89	737.0	8.03	2.29	0.483	208.86			n	n
9/13/2016	10:15	17.3	10.05	591.0	8.11	1.02	0.498	252.91		665	n	n
9/20/2016	10:10	17.0	7.10	959.0	8.14	1.98	0.512	237.52		320	n	n
9/27/2016	10:20	13.3	8.61	570.0	8.23	1.89	0.487	372.31		290	n	n

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DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/26/2016	11:15	14.9	7.40	477.4	7.91	2.96	6.000	225.13		164	n	y
5/3/2016	11:35	11.6	8.92	463.6	7.34	5.19	1.630	156.75			n	n
5/10/2016	11:05	12.1	8.27	449.4	7.91	3.09	0.316	84.66		7100	n	y
5/17/2016	10:55	13.2	8.20	458.1	7.94	3.51	0.090	107.32		62	n	n
5/24/2016	11:25	16.4	7.65	518.0	7.98	2.05	0.136	121.48		119	n	n
5/31/2016	10:55	17.9	7.13	611.0	8.01	2.34	0.185	182.37			n	n
6/7/2016	10:51	16.1	7.33	612.0	8.01	2.41	0.220	240.27		291	n	n
6/14/2016	10:00	18.2	7.07	636.0	8.01	2.21	0.190	230.31		360	n	n
6/21/2016	10:00	20.1	5.26	294.6	7.61	11.10	0.792	124.36		37000	n	y
6/28/2016	9:55	19.7	6.08	527.0	7.74	2.01	0.148	167.44		540	n	n
7/5/2016	9:40	17.8	7.52	693.0	7.94	3.04	0.755	217.01			n	n
7/12/2016	10:05	20.5	6.46	652.0	7.81	2.52	0.188	202.37		420	n	n
7/19/2016	10:20	18.9	6.99	579.0	8.01	2.11	0.261	171.27		258	n	n
7/26/2016	9:50	20.9	6.33	621.0	8.07	2.01	0.235	156.42		370	n	n
8/2/2016	10:05	20.7	6.36	617.0	8.15	2.08	0.215	329.77		600	n	n
8/9/2016	10:50	20.4	7.53	677.0	8.15	2.46	0.206	256.38		230	n	n
8/16/2016	9:40	21.5	5.13	391.5	7.81	2.06	1.330	116.62			n	y
8/23/2016	10:50	18.2	7.41	698.0	8.07	3.13	0.218	158.02		400	n	n
8/30/2016	10:05	20.9	5.69	589.0	8.08	2.18	0.214	179.48		945	n	n
9/6/2016	10:10	20.3	8.47	716.0	8.13	2.34	2.780	218.11			n	n
9/13/2016	10:40	17.0	7.50	636.0	8.14	2.31	3.120	258.15		430	n	n
9/20/2016	10:35	17.8	7.28	676.0	8.17	2.13	2.980	292.12		194	n	n
9/27/2016	10:35	14.4	7.85	549.0	8.28	2.01	2.690	415.93		208	n	n

CR 21 Swoveland

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/26/2016	11:25	14.5	6.27	523.0	7.83	12.00	3.210	182.14		3800	n	y
5/3/2016	11:45	11.6	8.80	507.0	7.78	19.20	5.070	199.56			n	n
5/10/2016	11:30	11.0	8.23	775.0	7.87	14.90	1.310	147.08		3775	n	y
5/17/2016	11:05	11.8	8.22	544.0	7.86	17.90	1.760	171.77		200	n	n
5/24/2016	11:35	15.9	7.42	616.0	7.78	15.80	1.560	214.20		172	n	n
5/31/2016	11:05	19.8	4.04	857.0	7.84	11.40	1.290	190.73			n	n
6/7/2016	11:00	17.5	5.74	614.0	7.87	4.29	1.550	201.34		165	n	n
6/14/2016	10:10	19.9	3.41	620.0	7.91	7.59	1.090	213.75		132	n	n
6/21/2016	10:10	19.4	5.57	649.0	7.59	12.10	2.010	127.98		14800	n	y
6/28/2016	10:10	18.8	5.16	632.0	7.66	7.48	1.270	168.08		760	n	n
7/5/2016	9:50	19.6	4.20	550.0	7.84	15.60	0.974	146.77			n	n
7/12/2016	10:15	22.9	3.15	729.0	7.76	12.00	1.250	113.07		440	n	n
7/19/2016	10:30	21.1	5.42	572.0	7.91	1.67	1.920	86.40		299	n	n
7/26/2016	10:05	22.7	1.93	797.0	7.79	13.20	4.280	212.85		3500	n	n
8/2/2016	10:15	23.4	5.14	509.0	8.17	1.71	1.290	207.77		314	n	n
8/9/2016	11:00	23.9	6.94	535.0	8.25	0.565	5.340	148.40		188	n	n
8/16/2016	9:50	21.3	3.55	454.1	7.69	9.20	3.450	53.31			n	y
8/23/2016	11:20	20.4	4.63	658.0	7.90	11.10	1.820	196.65		140	n	n
8/30/2016	10:15	22.2	3.71	752.0	7.99	1.91	1.980	216.45		329	n	n
9/6/2016	10:25	22.5	4.34	849.0	7.93	8.42	1.360	217.76			n	n
9/13/2016	10:50	17.8	7.13	610.0	8.07	7.14	1.420	247.85		124	n	n
9/20/2016	10:45	18.8	4.46	820.0	8.05	7.98	1.512	316.79		790	n	n
9/27/2016	10:50	14.8	2.77	516.0	8.10	6.42	1.398	356.83		92	n	n

CR 4 - Christiana Creek

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/26/2016	12:20	15.5	10.31	361.3	8.01	1.270	4.320	24.40		128	n	y
5/3/2016	12:30	14.4	11.49	227.9	8.46	1.090	4.130	59.42			n	n
5/10/2016	12:15	13.6	10.10	346.2	8.33	1.190	0.008	33.42		83	n	y
5/17/2016	11:55	13.8	10.97	279.4	8.36	1.140	0.010	46.11		26	n	n
5/24/2016	12:30	19.1	10.48	390.2	7.54	1.260	0.024	26.54		32	n	n
5/31/2016	11:45	22.2	8.92	443.1	8.24	1.390	0.640	41.83			n	n
6/7/2016	11:45	19.1	9.05	419.4	8.24	1.240	0.224	61.25		128	n	n
6/14/2016	10:55	20.2	8.22	419.6	8.18	1.530	0.015	23.22		120	n	n
6/21/2016	10:55	22.6	7.95	422.4	7.40	1.180	0.093	26.49		2900	n	y
6/28/2016	11:10	22.4	7.76	410.2	7.20	0.982	0.014	20.62		138	n	n
7/5/2016	10:35	21.4	8.17	414.2	7.68	1.330	0.413	19.31			n	n
7/12/2016	11:00	23.7	8.22	430.3	8.27	1.370	0.620	30.53		180	n	n
7/19/2016	11:15	22.4	9.08	411.5	8.09	1.010	0.029	18.49		169	n	n
7/26/2016	10:50	23.9	8.48	309.0	8.02	1.100	0.048	47.28		66	n	n
8/2/2016	11:00	23.4	7.88	398.8	8.13	1.010	0.027	47.44		78	n	n
8/9/2016	11:45	22.5	10.17	399.5	8.19	1.010	1.400	47.14		46	n	n
8/16/2016	10:30	23.8	6.53	297.3	8.02	0.700	0.470	31.40			n	y
8/23/2016	12:20	23.1	6.99	354.5	8.14	0.297	0.068	32.74		70	n	n
8/30/2016	11:00	24.8	7.86	377.6	8.11	1.010	0.021	43.01		116	n	n
9/6/2016	11:15	23.4	8.16	388.9	8.06	0.622	0.091	39.78			n	n
9/13/2016	11:50	21.1	7.44	388.1	8.22	0.598	0.089	52.42		72	n	n
9/20/2016	11:45	22.0	8.31	389.5	8.26	0.612	0.081	41.51		90	n	n
9/27/2016	11:40	18.0	10.48	319.6	8.23	0.498	0.069	68.76		94	n	n

CR 21 Rock Run Creek

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/21/2016	9:10	12.6	8.98	738.0		3.81	0.312			54	n	n
4/28/2016	10:00	10.2	10.71	491.5	8.02	3.88	0.228	256.84		800	n	Y
5/5/2016	8:55	9.1	10.24	477.6	8.06	4.63	0.528	210.26		430	n	Y
5/12/2016	8:45	13.4	9.56	526.0	8.04	3.01	0.204	255.35		650	n	n
5/19/2016	9:45	11.7	10.09	484.6	8.18	3.68	0.195	244.69		260	n	n
5/26/2016	8:40	17.5	8.21	603.0	8.09	3.16	0.165	257.10		355	n	n
6/2/2016	8:40	16.3	8.28	593.0	8.11	3.21	0.789	217.03		263	n	n
6/9/2016	8:35	13.8	9.82	647.0	8.20	2.86	0.381	226.19		420	n	n
6/16/2016	8:25	19.4	7.37	572.0	8.02	3.46	0.383	149.56		2300	n	n
6/23/2016	8:35	19.5	7.03	393.2	7.64	8.63	2.650	100.74		85000	n	Y
6/30/2016	8:15	15.6	8.24	555.0	8.25	4.02	0.209	231.16		900	n	n
7/7/2016	8:20	19.2	8.57	552.0	8.07	2.46	0.574	131.06		720	n	n
7/14/2016	8:30	19.9	7.72	606.0	8.06	2.47	0.617	135.87		1400	n	Y
7/21/2016	8:25	20.2	7.75	584.0	8.05	2.21	0.138	126.90		380	n	n
7/28/2016	8:30	19.8	7.58	281.2	8.13	2.11	0.199	128.26		385	n	n
8/4/2016	8:35	20.0	7.31	614.0	8.08	2.13	0.208	213.92		395	n	n
8/11/2016	8:20	21.2	7.39	626.0	8.03	2.25	0.251	138.76		315	n	n
8/18/2016	8:30	20.0	7.56	621.0	8.09	2.77	1.330	198.60			n	Y
8/25/2016	8:45	19.1	7.88	622.0	8.17	2.33	2.480	212.87		590	n	n
9/1/2016	8:20	18.0	8.82	637.0	8.25	2.41	0.576	323.32		620	n	n
9/8/2016	9:30	21.7	7.68	621.0	8.13	2.16	0.272	244.38		2800	n	Y
9/15/2016	8:45	16.6	8.56	527.0	8.29	2.00	0.563	231.04		420	n	n
9/22/2016	8:35	18.0	7.04	562.0	8.28	1.87	0.498	314.18		150	n	n
9/29/2016	8:45	14.6		480.3	8.14	2.12	0.545	172.72		560	n	Y



CR 43 Elkhart River

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/21/2016	9:40	15.9	7.43	736.3		2.01	0.142			40	n	n
4/28/2016	10:30	13.1	8.69	443.7	8.01	1.78	0.135	116.56		264	n	Y
5/5/2016	9:30	11.4	9.46	444.6	8.05	2.00	0.099	245.70		420	n	Y
5/12/2016	9:15	15.0	7.91	487.1	7.95	1.47	0.286	194.07		126	n	n
5/19/2016	10:20	14.4	8.45	482.7	8.01	1.22	0.128	202.09		50	n	n
5/26/2016	9:10	20.6	6.34	515.0	7.93	1.08	0.216	206.35		62	n	n
6/2/2016	9:25	21.0	6.18	1360.0	7.95	1.20	1.980	161.06		70	n	n
6/9/2016	9:05	17.3	6.69	261.0	8.00	1.04	0.487	242.55		72	n	n
6/16/2016	8:55	21.9	6.20	370.6	7.87	1.10	0.430	114.49		118	n	n
6/23/2016	9:10	21.3	6.34	519.0	7.86	2.98	0.465	120.03		1420	n	Y
6/30/2016	8:45	19.7	6.27	533.0	7.99	1.57	0.268	164.33		156	n	n
7/7/2016	8:50	22.7	6.01	804.0	7.77	1.37	0.260	79.75		120	n	n
7/14/2016	9:10	23.7	5.36	608.0	8.02	1.54	0.415	185.81		180	n	Y
7/21/2016	9:00	23.8	5.64	571.0	8.02	1.37	0.542	198.44		132	n	n
7/28/2016	9:10	23.9	5.35	587.0	8.04	1.37	0.555	183.15		99	n	n
8/4/2016	9:05	23.7	5.71	402.0	8.11	1.58	0.571	158.84		130	n	n
8/11/2016	8:50	24.5	5.80	532.0	8.04	1.27	0.445	141.44		121	n	n
8/18/2016	9:00	22.9	5.78	471.7	8.02	1.63	0.479	122.24			n	Y
8/25/2016	9:15	21.3	6.53	520.0	8.13	1.36	0.889	199.53		198	n	n
9/1/2016	8:55	20.9	6.24	465.3	8.12	1.27	0.265	224.85		116	n	n
9/8/2016	10:05	23.9	6.18	562.0	8.01	1.21	0.277	252.37		280	n	Y
9/15/2016	9:20	18.5	8.42	631.0	8.21	1.30	0.492	315.71		150	n	n
9/22/2016	9:20	19.7	6.94	553.0	8.21	1.21	0.469	276.68		182	n	n
9/29/2016	9:20	14.8		486.2	8.16	1.32	0.512	186.40		440	n	Y



Indiana Avenue

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/21/2016	10:40	15.8	8.85	737.5		1.27	0.242			39	n	n
4/28/2016	11:25	13.1	9.97	495.7	8.13	1.71	0.224	199.05		308	n	Y
5/5/2016	10:30	11.4	10.31	477.1	8.18	3.50	0.139	157.44		118	n	Y
5/12/2016	10:10	14.9	9.32	478.2	7.99	3.47	0.268	139.69		470	n	n
5/19/2016	11:15	14.7	9.91	509.0	8.19	2.21	0.207	137.38		19	n	n
5/26/2016	10:05	20.5	8.18	398.0	8.14	1.60	0.161	160.86		22	n	n
6/2/2016	10:25	21.0	8.18	562.0	8.12	1.52	0.314	149.85		37	n	n
6/9/2016	9:55	18.3	8.89	573.0	8.09	1.12	0.560	201.12		40	n	n
6/16/2016	9:50	22.1	7.26	593.0	8.02	1.13	0.559	150.14		95	n	n
6/23/2016	10:00	21.8	6.89	470.3	7.93	4.18	0.322	123.95		300	n	Y
6/30/2016	9:35	19.7	8.05	586.0	8.06	3.41	0.234	158.12		104	n	n
7/7/2016	9:50	21.8	7.46	592.0	7.98	1.66	0.861	147.65		690	n	n
7/14/2016	10:00	23.5	6.86	530.0	8.03	1.40	1.240	185.36		61	n	Y
7/21/2016	10:05	23.8	6.33	655.0	7.89	1.40	0.289	146.98		44	n	n
7/28/2016	10:00	24.4	5.65	778.0	8.04	1.25	0.435	206.37		29	n	n
8/4/2016	10:00	24.1	6.01	513.0	7.92	1.41	0.436	122.49		76	n	n
8/11/2016	9:50	24.0	5.56	392.4	7.92	1.77	0.249	130.78		22	n	n
8/18/2016	9:45	23.2	6.09	554.0	8.00	2.09	1.250	226.42			n	Y
8/25/2016	10:20	21.6	7.70	537.0	8.12	1.83	0.295	214.55		46	n	n
9/1/2016	9:45	21.5	7.02	297.7	8.07	1.46	0.865	285.83		50	n	n
9/8/2016	11:05	23.7	6.12	562.0	8.09	1.27	0.132	225.09		2500	n	Y
9/15/2016	10:15	19.6	8.25	589.0	8.28	1.32	1.250	320.26		105	n	n
9/22/2016	10:10	20.6	7.22	589.0	8.20	1.27	1.420	305.07		50	n	n
9/29/2016	10:15	15.9		561.0	8.26	1.38	1.512	281.79		96	n	Y

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/21/2016	11:00	15.7	8.78	737.8		2.01	0.342			103	n	n
4/28/2016	11:40	13.1	9.88	497.1	8.12	2.39	0.318	172.46		310	n	y
5/5/2016	10:50	11.5	10.72	469.7	8.17	3.60	0.156	213.48		100	n	y
5/12/2016	10:25	15.0	9.17	480.4	8.03	3.28	0.284	209.05		520	n	n
5/19/2016	11:30	14.6	10.22	436.2	8.22	2.42	0.416	197.89		50	n	n
5/26/2016	10:15	20.6	7.78	456.0	8.15	1.79	0.154	234.34		56	n	n
6/2/2016	10:40	20.7	7.64	604.0	8.14	1.79	0.234	174.25		23	n	n
6/9/2016	10:10	17.6	8.06	562.0	8.18	1.48	1.280	266.93		84	n	n
6/16/2016	10:00	21.5	6.43	670.0	8.00	1.52	1.360	152.75		131	n	n
6/23/2016	10:15	21.4	5.98	513.0	7.83	4.22	0.692	161.26		5700	n	y
6/30/2016	9:50	19.2	7.77	594.0	8.01	3.91	0.285	182.17		92	n	n
7/7/2016	10:05	21.7	7.23	374.0	8.04	2.21	0.295	133.12		84	n	n
7/14/2016	10:15	23.6	6.30	667.0	8.12	1.97	1.170	181.26		100	n	y
7/21/2016	10:20	23.9	6.25	753.0	8.01	2.51	0.336	175.21		58	n	n
7/28/2016	10:15	24.3	5.70	882.0	8.01	2.23	0.370	207.43		42	n	n
8/4/2016	10:10	23.7	5.92	600.0	8.02	2.49	5.600	294.60		53	n	n
8/11/2016	10:00	23.9	5.67	705.0	8.04	2.32	0.325	203.24		56	n	n
8/18/2016	10:00	22.6	5.72	667.0	7.98	2.51	0.866	213.85			n	y
8/25/2016	10:30	21.3	6.73	653.0	8.14	2.30	0.614	176.09		80	n	n
9/1/2016	10:00	21.1	6.21	321.0	8.19	2.12	0.291	351.02		106	n	n
9/8/2016	11:20	23.5	6.24	588.0	8.23	1.94	0.210	326.32		76	n	y
9/15/2016	10:30	19.0	7.37	610.0	8.26	3.15	0.494	348.75		83	n	n
9/22/2016	10:25	19.9	6.99	611.0	8.25	2.98	0.399	345.66		48	n	n
9/29/2016	10:30	16.0		489.3	8.26	2.42	0.387	333.93		136	n	y

Ideal Beach - Heaton Lake

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/21/2016	11:20	15.0	9.33	727.0		0.178	0.038			0	n	n
4/28/2016	12:00	14.1	8.85	352.6	8.24	0.199	0.041	70.34		10	n	y
5/5/2016	11:15	13.2	9.11	336.2	9.35	0.280	0.013	112.70		12	n	y
5/12/2016	10:45	15.8	9.79	359.1	8.32	0.144	0.046	83.52		26	n	n
5/19/2016												
5/26/2016	10:30	23.9	8.62	421.2	8.72	0.091	0.057	26.42		320	n	n
6/2/2016	11:00	24.2	7.49	395.4	8.49	0.100	0.060	32.56		1500	n	n
6/9/2016	10:25	21.1	9.38	355.0	8.02	0.067	0.415	71.02		5	n	n
6/16/2016	10:20	24.2	7.84	241.5	8.12	0.066	0.415	23.70		196	n	n
6/23/2016	10:30	25.2	7.52	309.3	8.24	0.117	0.056	35.47		62	n	y
6/30/2016	10:05	24.8	7.53	312.9	8.61	0.146	0.026	30.73		8	n	n
7/7/2017	10:25	26.5	7.98	324.6	7.68	0.320	0.511	26.21		20	n	n
7/14/2016	10:35	26.4	6.78	317.0	8.42	0.079	1.490	56.73		600	n	y
7/21/2016	10:45	27.6	8.25	298.6	8.31	0.126	0.084	23.17		76	n	n
7/28/2016	10:30	28.3	6.44	292.0	8.49	0.094	0.233	30.10		13	n	n
8/4/2016	10:30	28.1	7.52	233.6	8.59	0.118	0.061	31.72		47	n	n
8/11/2016	10:15	27.8	7.84	291.3	8.55	0.151	0.094	34.51		638	n	n
8/18/2016	10:20	26.4	6.35	282.9	8.78	0.057	0.111	44.19			n	y
8/25/2016	10:55	25.0	7.81	305.3	8.53	0.135	0.546	32.17		212	n	n
9/1/2016	10:30	25.1	8.33	303.6	8.56	0.301	0.586	31.81		48	n	n
9/8/2016	11:40	27.2	5.57	340.2	8.28	0.126	0.041	69.80		8	n	y
9/15/2016	10:50	22.7	7.87	315.7	8.41	0.152	2.420	41.11		2	n	n
9/22/2016	10:45	24.4	6.44	341.6	8.49	0.141	2.020	62.64		8	n	n
9/29/2016	10:55	19.2		320.7	8.30	0.139	2.001	95.59		18	n	y

22892 Lake Shore

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/21/2016	11:30	15.5	9.12	732.0		0.188	0.040			4	n	n
4/28/2016	12:10	14.7	8.49	356.1	8.31	0.211	0.043	54.0		47	n	y
5/5/2016	11:25	13.3	9.86	333.0	9.32	0.238	0.020	101.8		7	n	y
5/12/2016	10:55	17.3	8.62	442.1	8.35	0.162	0.029	81.43		22	n	n
5/19/2016	11:55	16.9	9.76	351.4	8.46	0.171	0.025	28.77		0	n	n
5/26/2016	10:45	23.7	8.98	428.2	8.68	0.053	1.920	31.27		2000	n	n
6/2/2016	11:15	24.1	7.99	386.5	8.41	0.068	0.054	29.08		44	n	n
6/9/2016	10:35	20.9	9.41	351.1	8.62	0.086	0.067	32.99		9	n	n
6/16/2016	10:30	24.6	7.80	345.2	8.60	0.087	0.066	21.29		308	n	n
6/23/2016	10:40	25.3	7.86	296.7	8.21	0.104	0.064	23.27		136	n	y
6/30/2016	10:20	24.2	7.58	304.5	8.56	0.122	0.029	17.37		8	n	n
7/7/2016	10:35	25.8	7.86	310.2	7.62	0.117	0.461	25.41		3	n	n
7/14/2016	10:45	26.1	6.98	280.2	8.40	0.062	1.610	16.07		14	n	y
7/21/2016	10:55	28.4	6.38	309.1	8.85	0.115	2.670	37.48		8	n	n
7/28/2016	10:40	28.7	6.67	314.5	9.02	0.111	0.087	59.88		1	n	n
8/4/2016	10:40	28.4	6.57	312.7	8.98	0.104	0.420	72.80		9	n	n
8/11/2016	10:25	27.9	6.18	306.2	8.65	0.125	0.128	29.33		550	n	n
8/18/2016	10:25	26.4	6.36	293.5	8.47	0.080	0.051	29.26			n	y
8/25/2016	11:10	25.0	6.12	311.2	8.47	0.146	0.117	31.70		12	n	n
9/1/2016	10:40	24.7	6.27	310.7	8.44	0.112	0.416	31.22		11	n	n
9/8/2016	11:50	26.9	5.91	334.9	8.37	0.162	0.074	31.68		30	n	y
9/15/2016	11:00	23.0	6.11	320.9	8.33	0.160	1.720	31.50		5	n	n
9/22/2016	11:00	24.5	6.68	327.5	8.63	0.138	1.680	32.34		1	n	n
9/29/2016	11:05	19.3		329.8	8.22	0.142	1.591	75.06		2	n	y

51093 Beach Drive - Simonton Lake

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/21/2016	11:40	15.3	9.37	728.0		0.512	0.021			2	n	n
4/28/2016	12:20	14.3	10.50	333.4	8.36	0.457	0.028	58.39		4	n	y
5/5/2016	11:35	12.6	10.25	257.6	8.37	0.586	0.009	87.52		0	n	y
5/12/2016	11:10	17.2	8.47	300.6	8.44	0.098	0.045	110.26		2	n	n
5/19/2016	12:05	17.1	11.51	227.4	8.8	0.453	0.055	69.38		0	n	n
5/26/2016	10:55	24.1	8.42	397.2	8.48	0.272	0.068	58.15		43	n	n
6/2/2016	11:30	24.2	6.86	398.7	8.32	0.178	0.116	47.88		62	n	n
6/9/2016	10:50	20.3	8.98	359.6	8.70	0.092	0.091	102.53		7	n	n
6/16/2016	10:40	25.2	8.74	349.7	8.12	0.095	0.091	31.25		79	n	n
6/23/2016	10:50	25.2	7.86	362.1	7.59	0.092	0.069	71.22		100	n	y
6/30/2016	10:30	23.5	7.00	301.2	8.61	0.087	0.044	42.95		5	n	n
7/7/2016	10:45	26.3	7.02	359.5	7.18	0.046	0.105	28.19		55	n	n
7/14/2016	10:55	25.7	6.19	364.0	8.54	0.039	2.390	37.19		63	n	y
7/21/2016	11:15	28.6	6.72	324.2	8.67	0.047	4.970	42.64		252	n	n
7/28/2016	11:00	28.7	6.58	380.2	8.57	0.093	3.440	37.08		7	n	n
8/4/2016	10:50	28.4	7.02	389.1	8.43	0.021	0.303	42.08		15	n	n
8/11/2016	10:35	27.6	7.75	377.6	8.56	0.191	3.420	35.63		180	n	n
8/18/2016	10:35	26.2	5.59	346.5	8.31	0.131	2.690	43.51			n	y
8/25/2016	11:20	24.8	7.66	339.0	8.65	0.090	1.180	48.34		12	n	n
9/1/2016	10:55	23.8	6.74	342.1	8.34	0.041	0.112	43.17		45	n	n
9/8/2016	12:00	26.6	6.12	366.2	8.32	0.164	0.025	51.37		22	n	y
9/15/2016	11:15	22.4	6.26	371.3	8.11	0.113	0.476	60.22		3	n	n
9/22/2016	11:10	24.4	6.35	374.2	8.47	0.127	0.437	53.31		28	n	n
9/29/2016	11:20	17.5		337.1	8.37	0.131	0.424	110.31		43	n	y

51330 SR 19

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/21/2016	11:55	15.8	9.42	737.0		0.548	0.026			4	n	n
4/28/2016	12:35	13.6	10.3	312.4	8.40	0.598	0.027	64.28		21	n	y
5/5/2016	11:50	13.5	8.00	320.3	8.49	0.617	0.005	127.09		2	n	y
5/12/2016	11:20	16.2	8.25	345.9	8.38	0.102	0.047	118.54		3	n	n
5/19/2016	12:15	17.1	8.76	310.4	8.37	0.485	0.099	65.37		8	n	n
5/26/2016	11:10	22.8	8.64	403.3	8.21	0.503	0.030	56.47		96	n	n
6/2/2016	11:40	24.0	7.34	415.2	8.38	0.423	0.793	89.27		101	n	n
6/9/2016	11:00	20.9	8.08	342.6	8.45	0.099	0.106	80.25		7	n	n
6/16/2016	10:50	23.3	6.86	346.2	8.01	0.299	0.106	34.54		156	n	n
6/23/2016	11:05	24.9	6.80	321.6	7.40	0.297	0.067	69.27		144	n	y
6/30/2016	10:45	24.5	7.01	312.6	8.32	0.189	0.022	68.02		32	n	n
7/7/2016	11:00	25.3	7.61	202.7	7.81	0.167	0.044	52.08		42	n	n
7/14/2016	11:10	25.8	6.49	362.0	8.21	0.153	1.080	31.48		300	n	y
7/21/2016	11:25	28.2	6.78	312.8	8.42	0.082	0.099	41.62		44	n	n
7/28/2016	11:10	28.8	6.47	393.2	8.27	0.015	0.580	42.68		33	n	n
8/4/2016	11:05	28.2	7.14	326.8	8.40	0.085	0.374	37.60		5	n	n
8/11/2016	10:45	27.8	7.62	356.4	8.42	0.016	6.700	31.46		1800	n	n
8/18/2016	10:50	26.1	7.75	354.6	8.46	0.032	2.580	63.19			n	y
8/25/2016	11:30	25.1	6.45	354.9	8.42	0.107	2.430	57.42		23	n	n
9/1/2016	11:05	23.9	6.79	341.8	8.26	0.107	0.046	44.21		18	n	n
9/8/2016	12:10	27.1	6.95	302.4	8.07	0.004	0.006	48.76		11	n	y
9/15/2016	11:30	22.4	6.86	342.6	8.48	0.076	0.365	56.28		4	n	n
9/22/2016	11:25	24.3	7.45	372.9	8.55	0.098	0.312	111.97		2	n	n
9/29/2016	11:35	18.4		313.7	8.52	0.089	0.294	160.55		80	n	y



Solomon Creek CR 52

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/21/2016	10:00	12.1	7.02	736.0		2.10	0.061			30	n	n
4/28/2016	10:45	10.1	9.47	985.0	7.65	2.12	0.036	180.65	2.25	114	n	y
5/5/2016	9:45	9.70	8.95	494.1	7.82	3.66	0.033	195.12		83	n	y
5/12/2016	9:30	14.2	7.84	446.4	7.75	1.24	0.042	140.67	4.8	168	n	n
5/19/2016	10:35	13.0	9.79	534.0	7.88	2.88	0.076	230.51		33	n	n
5/26/2016	9:25	18.3	7.27	681.0	7.85	1.83	0.036	163.99	2.8	115	n	n
6/2/2016	9:40	17.4	7.90	568.0	7.91	2.00	0.550	194.22		144	n	n
6/9/2016	9:20	15.0	8.75	629.0	7.94	1.42	0.822	146.04	1.25	124	n	n
6/16/2016	9:10	19.5	6.17	207.0	7.69	1.57	0.802	140.20		96	n	n
6/23/2016	9:20	18.5	5.61	623.0	7.71	1.92	0.075	98.72	3.17	540	n	y
6/30/2016	8:55	15.8	7.54	546.0	7.77	1.34	0.031	119.49		400	n	n
7/7/2016	9:05	18.9	6.29	524.0	7.75	1.20	0.185	78.36	5	390	n	n
7/14/2016	9:20	19.7	6.01	630.0	7.83	1.14	2.260	114.61		295	n	y
7/21/2016	9:15	19.8	6.21	687.0	7.79	1.26	0.075	112.84	2.6	640	n	n
7/28/2016	9:25	18.4	6.95	760.0	7.80	1.37	1.070	100.18		150	n	n
8/4/2016	9:20	18.6	6.31	356.0	7.79	1.11	0.179	147.98	1	248	n	n
8/11/2016	9:05	21.3	5.21	553.0	7.74	1.28	7.680	65.93		270	n	n
8/18/2016	9:10	19.7	6.61	628.0	7.86	1.44	0.293	141.49	4.83		n	y
8/25/2016	9:30	17.5	7.45	660.0	7.89	3.28	0.912	162.42		350	n	n
9/1/2016	9:05	15.7	6.95	563.0	7.93	1.19	0.189	158.50	27.5	540	n	n
9/8/2016	10:20	20.1	6.04	697.0	7.90	0.864	0.063	135.13		250	n	y
9/15/2016	9:35	14.2	7.63	684.0	8.05	0.997	2.020	217.57	32.3	275	n	n
9/22/2016	9:35	15.2	7.46	646.0	8.07	0.969	1.980	252.36		262	n	n
9/29/2016	9:40	13.4		596.0	8.21	0.985	1.780	175.76	43.3	465	n	y

Solomon Creek CR 33

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E.COLI	RAINING	WET
4/21/2016	10:10	12.5	8.14	736.4		2.32	0.062			39	n	n
4/28/2016	10:55	10.5	9.55	577.0	7.96	2.45	0.047	177.18	4.6	122	n	y
5/5/2016	10:00	9.6	9.09	512.0	7.95	4.24	0.056	147.87		113	n	y
5/12/2016	9:40	14.0	7.92	516.0	7.87	2.01	0.038	213.12	10.3	116	n	n
5/19/2016	10:45	12.8	8.97	519.0	8.01	3.36	0.266	237.52		40	n	n
5/26/2016	9:35	18.0	7.34	630.0	8.00	1.97	0.045	156.87	5	84	n	n
6/2/2016	9:55	17.0	8.05	150.0	8.06	2.20	0.212	160.08		122	n	n
6/9/2016	9:25	14.3	8.50	638.0	8.10	1.62	0.412	220.95	5.6	146	n	n
6/16/2016	9:20	19.2	7.32	327.0	7.78	1.69	0.366	113.36		640	n	n
6/23/2016	9:30	18.7	6.23	565.0	7.76	5.36	0.645	147.68	5.6	3400	n	y
6/30/2016	9:05	15.5	8.27	640.0	7.67	2.03	0.036	153.02		260	n	n
7/7/2016	9:15	22.1	8.61	417.0	8.14	1.50	0.228	22.73	6.75	240	n	n
7/14/2016	9:30	20.2	6.83	583.0	8.07	1.67	0.824	115.21		169	n	y
7/21/2016	9:25	20.5	6.96	368.0	8.02	1.35	0.328	120.35	2.5	180	n	n
7/28/2016	9:35	19.9	7.15	689.0	8.09	1.40	1.130	115.73		144	n	n
8/4/2016	9:30	20.6	7.08	465.0	8.10	1.23	0.052	144.04	1.67	136	n	n
8/11/2016	9:20	22.9	6.73	530.0	8.15	1.60	0.050	119.61		158	n	n
8/18/2016	9:20	21.4	6.69	801.0	8.15	2.60	0.066	157.32	9.33	385	n	y
8/25/2016	9:40	19.1	7.41	635.0	8.17	1.62	0.342	168.15		260	n	n
9/1/2016	9:15	17.2	7.58	600.0	8.24	1.40	0.218	218.44	13.5	160	n	n
9/8/2016	10:30	21.5	6.63	783.0	8.17	1.08	0.108	160.79		112	n	y
9/15/2016	9:45	15.4	8.05	229.2	8.29	1.11	1.070	253.45	11.5	124	n	n
9/22/2016	9:45	16.8	7.82	620.0	8.26	1.02	1.170	238.73		290	n	n
9/29/2016	9:50	13.7		568.0	8.21	1.07	1.090	172.88	13.6		n	y

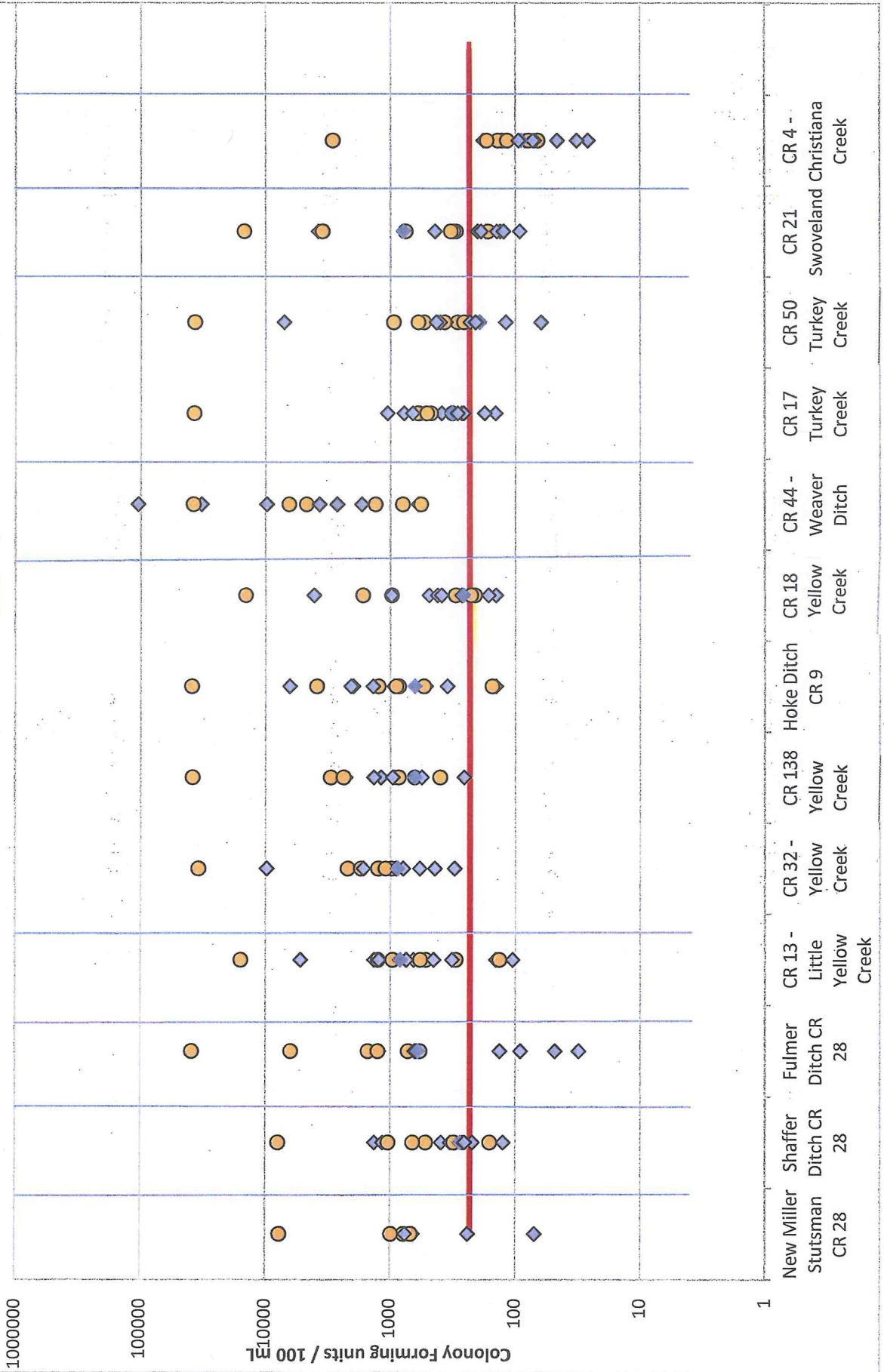
CR 10 - Cobus Creek

DATE	TIME	TEMP	DO	SPC	PH	NITRATES	PHOSPHORUS	CHLORIDES	TSS	E. COLI	RAINING	WET
4/21/2016	12:10	13.4	9.36	734.0		0.512	0.021			171	n	n
4/28/2016	12:50	12.0	10.23	212.1	8.25	0.551	0.039	82.97	2.5	56	n	y
5/5/2016	12:05	12.8	10.37	211.9	8.13	0.472	0.085	51.27		136	n	y
5/12/2016	11:45	16.7	9.30	247.6	8.20	0.576	0.086	38.76	6.2	212	n	n
5/19/2016	12:35	15.4	10.37	295.4	8.39	0.462	0.071	37.54		50	n	n
5/26/2016	11:25	19.6	7.96	347.2	8.12	0.567	0.089	74.01	11	420	n	n
6/2/2016	12:00	18.1	8.95	335.2	8.16	0.687	3.830	28.29		266	n	n
6/9/2016	11:15	14.4	9.56	302.8	8.21	0.512	2.960	40.27	5.5	310	n	n
6/16/2016	11:05	19.5	8.37	326.9	8.02	0.503	3.820	23.31		680	n	n
6/23/2016	11:20	20.0	6.02	224.6	7.69	0.522	0.201	23.39	17.3	7000	n	y
6/30/2016	10:55	16.4	9.27	298.2	8.01	0.504	0.074	18.61		570	n	n
7/7/2016	11:15	20.7	8.27	333.5	8.21	0.427	0.424	22.90	25.5	700	n	n
7/14/2016	11:25	22.1	8.01	328.3	8.11	0.291	0.309	24.96		1000	n	y
7/21/2016	11:40	22.2	7.58	278.9	7.78	0.552	0.074	23.82	6.25	630	n	n
7/28/2016	11:25	21.7	7.55	369.7	8.15	0.276	5.730	39.80		400	n	n
8/4/2016	11:20	21.6	8.01	377.9	8.01	0.302	0.321	29.73	6.25	218	n	n
8/11/2016	11:00	22.9	7.23	357.2	8.02	0.445	0.229	22.48		2700	n	n
8/18/2016	11:05	24.0	4.92	268.6	7.69	0.267	0.107	27.09	2.83		n	y
8/25/2016	11:45	22.2	6.61	347.2	7.87	0.444	2.490	39.32		340	n	n
9/1/2016	11:20	20.1	6.02	294.3	7.95	0.312	0.398	28.28	4.75	140	n	n
9/8/2016	12:25	22.3	6.77	303.1	8.05	0.475	0.072	39.23		275	n	y
9/15/2016	11:45	18.0	7.79	290.7	8.08	0.504	0.592	29.10	7.25	168	n	n
9/22/2016	11:45	20.5	7.39	302.1	8.07	0.512	0.601	25.97		156	n	n
9/29/2016	11:50	15.7		273.5	8.14	0.497	0.592	44.19	3.8	210	n	y

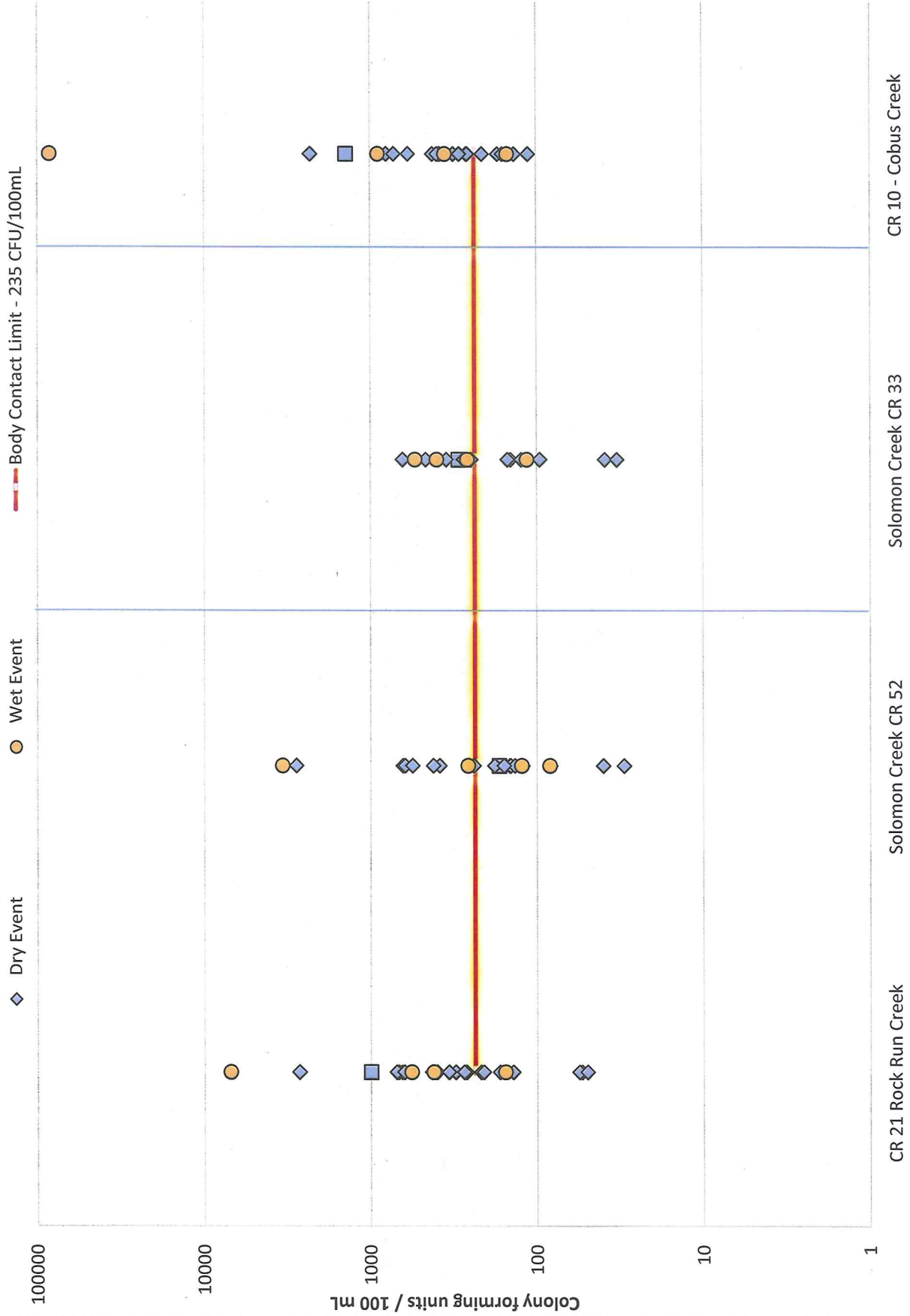
APPENDIX 2:  
CHARTS  
FOR E. COLI

# 2016 Tributary *E. coli* Data

● Wet Event    ◆ Dry Event    — Body Contact Limit - 235 CFU/100 mL



# 2016 Tributary *E. coli* Data



# 2016 Rivers & Lakes *E. coli* Data

◆ Dry Event   ● Wet Event   ■ Body Contact Limit - 235 CFU/100 mL

