

During this monitoring period, a historic rain event was observed across the City of Columbia. Within each of the watershed sections below is a description of stations where sensor data was lost due to storm damage. The water quality data presented below should be interpreted cautiously during the flood event time period, since at this time many of the sensors recorded values considerable higher or lower than their typical operating range.

Gills Creek Monitoring Sites

Data Gaps

- The Gills Creek watershed was severely impacted by the October flood event. The GILA sonde remained intact and functioning throughout the storm; however, communication was lost with the GILB and GILC rain gages during the storm, and the GILC stage data became unreliable during the flood.
- The GILA sonde was unsubmerged for the first several days of the monitoring period.
- The GILB sonde was removed from the station for one day (10/6-10/7) following the flood event to ensure proper functioning of equipment.
- The GILC station did not experience any data interruptions during this monitoring period, with the exception of turbidity probe fouling during the peak of the flood event.

SCDHEC Standards

- The GILA station did not record any violations of the DHEC DO standards. At the GILB station, a period of low DO levels was recorded from September 19th – 21st, during dry weather conditions. At the GILC station, low DO levels were noted in the aftermath of the flood event, possibly as a result of BOD contributed during the flood, or as a result of the stagnant water conditions present around the station due to high water levels in the Congaree River downstream.
- The lower pH standard of 6 was contravened at all three of the Gills Creek stations during this deployment period. These low values occurred during the flood, when excessive runoff volumes were entering the creek.

Storm Events

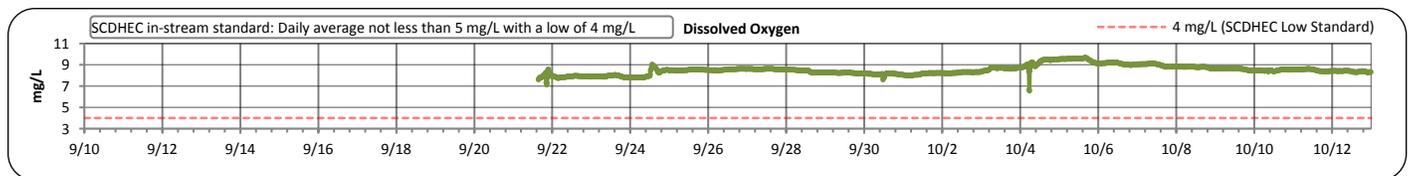
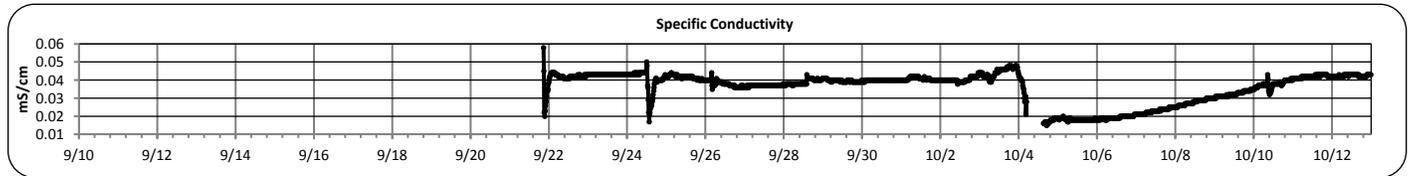
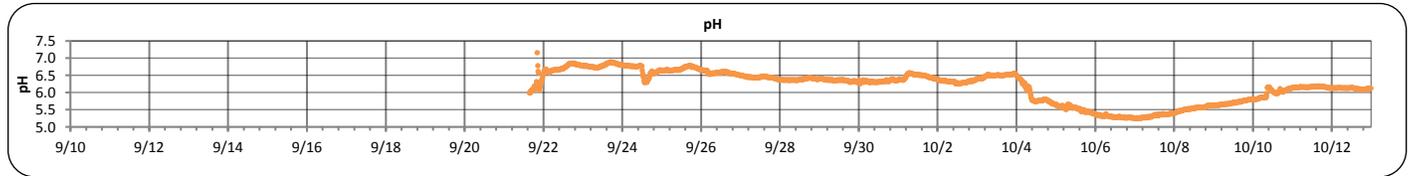
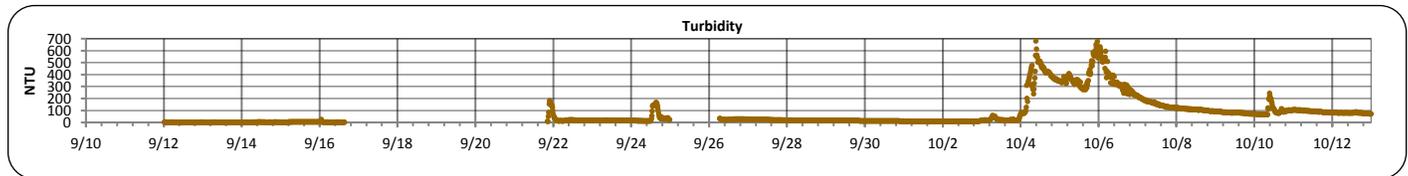
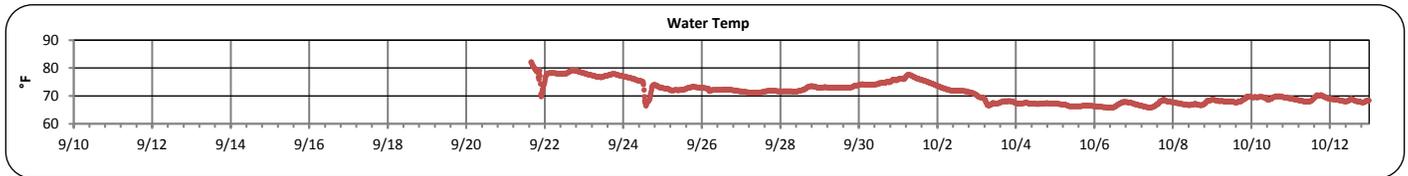
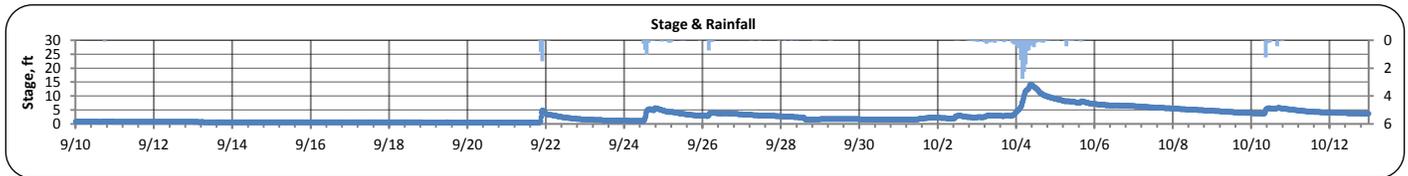
- Four significant storm events impacted the Gills Creek watershed during this monitoring period, with the most significant event occurring on October 3rd and 4th. The GILA station recorded a storm total of 16.2 inches during this storm, which equated to a return interval of 1000 years at the 6 hour, 12 hour, 24 hour, 2 day, 3 day, and 4 day durations, according to the NOAA Precipitation Frequency Data Server. (Note that the GILB and GILC rain gages did not record a complete dataset during this event.)
- During this monitoring period, the 1000-year rainfall event caused extremely elevated turbidity and stage levels, low pH levels, and very low specific conductivity levels. These patterns, typical of storm events, were observed to an unprecedented degree during this period.

Potential Illicit Discharges and Abnormal Events

- None to report

Gills Creek A (September 10, 2015 -- October 12, 2015)

PARAMETER	DESCRIPTION	CONTINUOUS WATER QUALITY PARAMETERS:	SUMMARY STATISTICS				
			MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION
STREAM NAME:	Gills Creek	STAGE (FT):	0.6	14.2	1.8	2.8	2.5
LOCATION:	Forest Drive Bridge	TEMPERATURE (°F):	66	82	71	71	4
ADDRESS:	4840 Forest Drive, Columbia, SC 29206	TURBIDITY (NTU):	4	681	20	81	123
COORDINATES:	34.019826, -80.963566	pH:	5.3	7.2	6.3	6.2	0.5
TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen	SPECIFIC CONDUCTIVITY (mS/cm):	0.015	0.058	0.040	0.036	0.008
NEIGHBORING LANDUSE:	Residential and commercial	DISSOLVED OXYGEN (mg/L):	6.6	9.7	8.5	8.5	0.4
APPROX. DRAINAGE AREA:	48 square miles						
SPATIAL LOCATION:	Most upstream site						
TOTAL NO. STORMS OVER 0.1 INCH:	8						
MAX. DAILY RAINFALL:	12.6 inches						
TOTAL RAINFALL (FOR PERIOD):	25.0 inches						



Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

**Continuous Water Quality
Monitoring Periodic Report**

Gills Creek A (September 10, 2015 -- October 12, 2015)

Explanation of Statistics:

MINIMUM OBSERVED	The minimum of the values recorded by the datasonde in 15 minute intervals.
MAXIMUM OBSERVED	The maximum of the values recorded by the datasonde in 15 minute intervals.
MEDIAN OBSERVED	The median of all the values recorded by the datasonde in 15 minute intervals.
MEAN OBSERVED	The average of all the values recorded by the datasonde in 15 minute intervals.
STANDARD DEVIATION	The standard deviation of all the values recorded by the datasonde in 15 minute intervals.

Sampled Data:

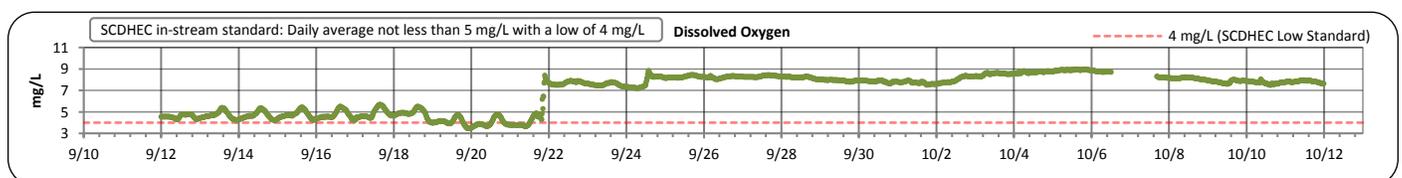
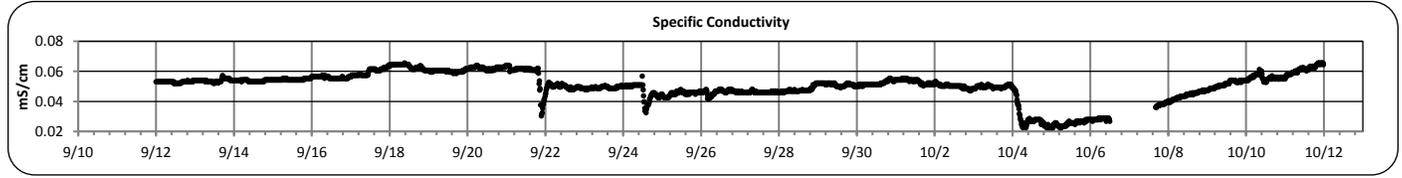
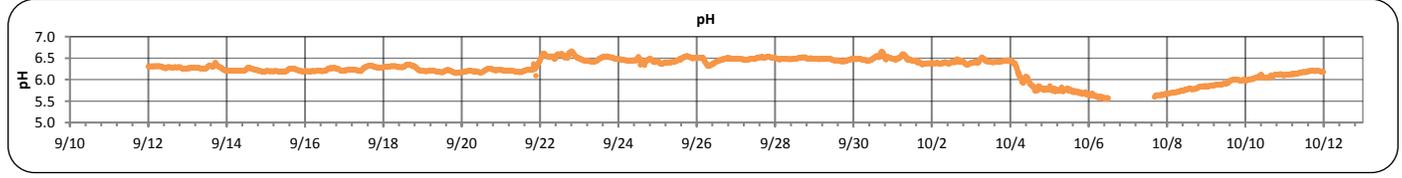
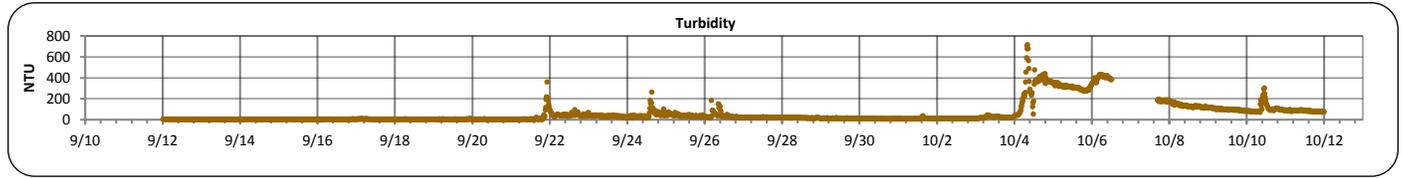
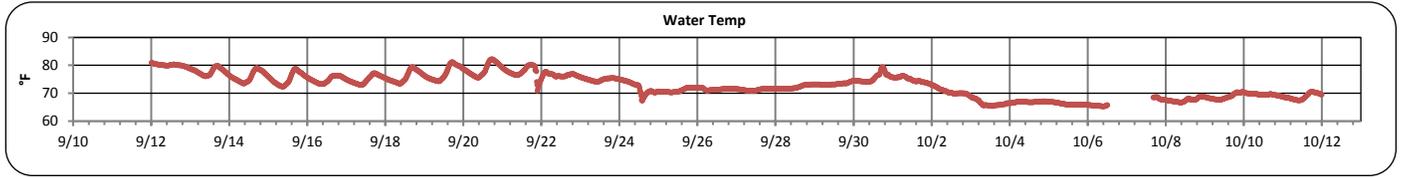
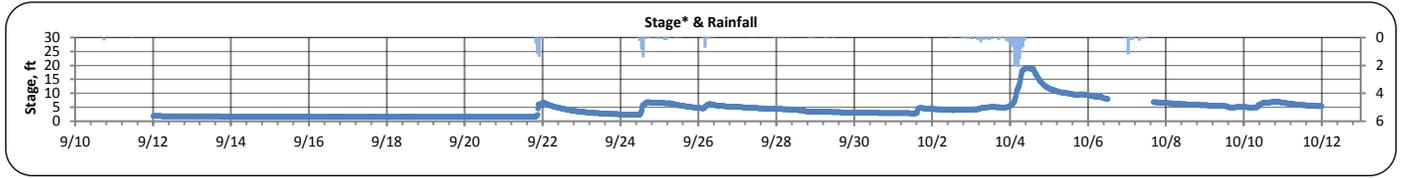
Analyte (units)	Sample 1		Sample 2		Sample 3		Sample 4	
	9/24/2015							
	Time	Results	Time	Results	Time	Results	Time	Results
<i>Escherichia coli</i> (MPN/100mL)	15:09	14,830						
Total Suspended Solids (mg/L)	15:09	110						
Total Phosphorus (mg/L)	15:09	0.12						
Total Nitrogen (mg/L)	15:09	0.757						

Notes:

Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

Gills Creek B (September 10, 2015 -- October 12, 2015)

PARAMETER	DESCRIPTION	CONTINUOUS WATER QUALITY PARAMETERS:	SUMMARY STATISTICS				
			MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION
STREAM NAME:	Gills Creek	STAGE (FT):	1.5	19.1	3.6	4.3	3.0
LOCATION:	Devine Street bridge	TEMPERATURE (°F):	65	82	73	73	4
ADDRESS:	4716 Devine Street Columbia, SC 29209	TURBIDITY (NTU):	2	717	20	60	98
COORDINATES:	33.989656, -80.97433	pH:	5.6	6.7	6.3	6.3	0.2
TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen	SPECIFIC CONDUCTIVITY (mS/cm):	0.023	0.066	0.051	0.051	0.009
NEIGHBORING LANDUSE:	Residential and commercial	DISSOLVED OXYGEN (mg/L):	3.5	9.0	7.8	6.9	1.7
APPROX. DRAINAGE AREA:	59 square miles						
SPATIAL LOCATION:	Middle site						
TOTAL NO. STORMS OVER 0.1 INCH:	8						
MAX. DAILY RAINFALL:	12.3 inches						
TOTAL RAINFALL (FOR PERIOD):	37.3 inches**						



Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

**Continuous Water Quality
Monitoring Periodic Report**

Gills Creek B (September 10, 2015 -- October 12, 2015)

Explanation of Statistics:

MINIMUM OBSERVED	The minimum of the values recorded by the datasonde in 15 minute intervals.
MAXIMUM OBSERVED	The maximum of the values recorded by the datasonde in 15 minute intervals.
MEDIAN OBSERVED	The median of all the values recorded by the datasonde in 15 minute intervals.
MEAN OBSERVED	The average of all the values recorded by the datasonde in 15 minute intervals.
STANDARD DEVIATION	The standard deviation of all the values recorded by the datasonde in 15 minute intervals.

Sampled Data:

Analyte (units)	Sample 1		Sample 2		Sample 3		Sample 4	
	9/24/2015							
	Time	Results	Time	Results	Time	Results	Time	Results
<i>Escherichia coli</i> (MPN/100mL)	13:35	27,550						
Total Suspended Solids (mg/L)	13:35	150						
Total Phosphorus (mg/L)	13:35	0.77						
Total Nitrogen (mg/L)	13:35	0.91						

Notes:

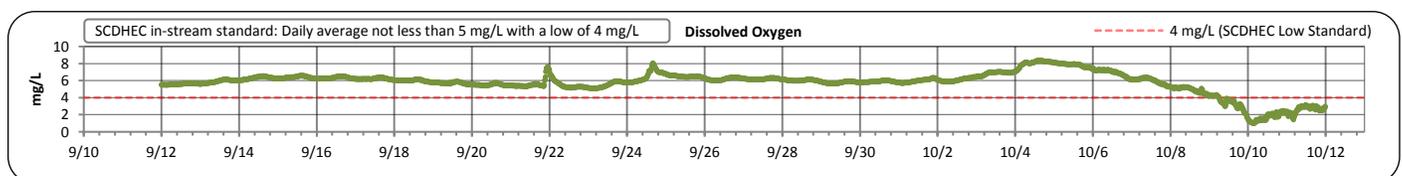
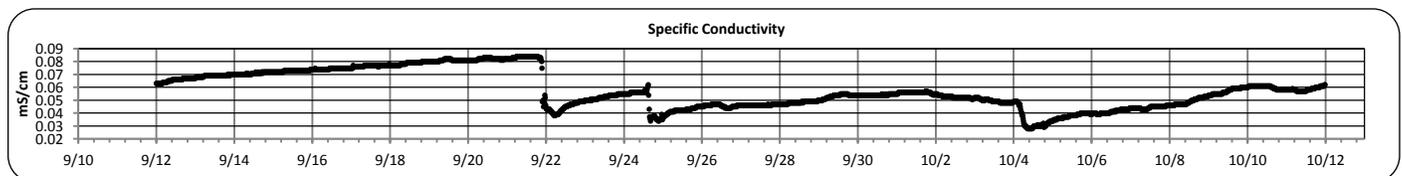
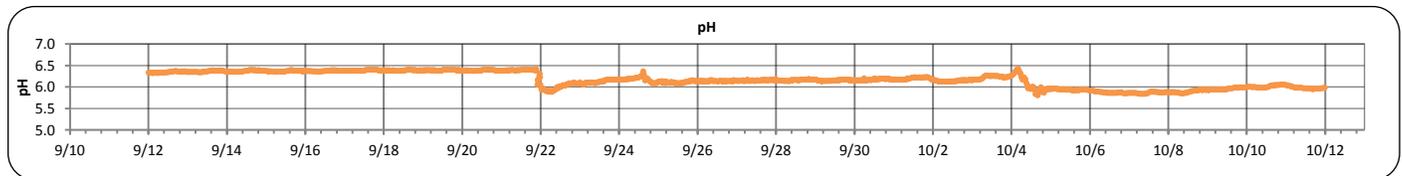
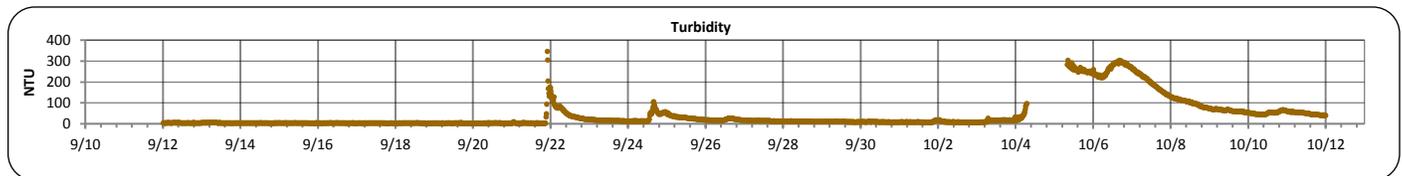
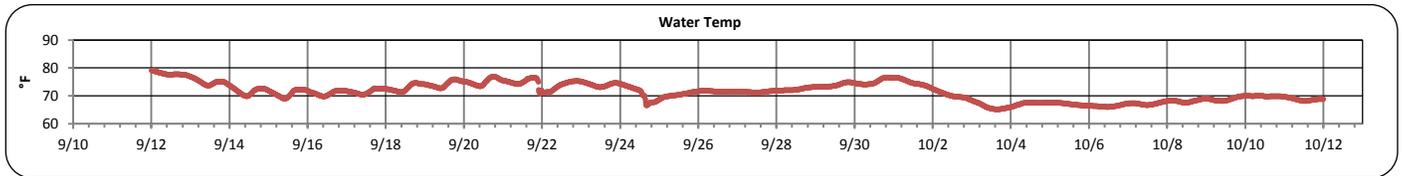
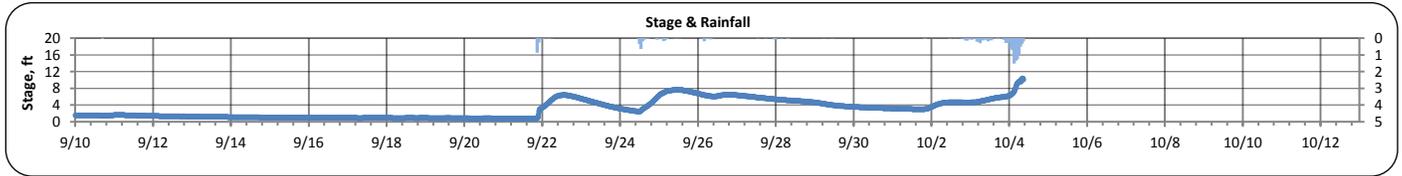
*Sonde transducer data is reported in place of CS451 transducer data.

**Communication was lost with the rain gauge during the October 4th flood event, so the reported total does not represent all of the rainfall that fell in this period.

Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

Gills Creek C (September 10, 2015 -- October 12, 2015)

PARAMETER	DESCRIPTION	CONTINUOUS WATER QUALITY PARAMETERS:	SUMMARY STATISTICS				
			MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION
STREAM NAME:	Gills Creek	STAGE (FT):	0.8	10.4	2.7	3.1	2.2
LOCATION:	Bluff Road bridge	TEMPERATURE (°F):	65	79	72	71	3
ADDRESS:	3009 Bluff Rd. Columbia, SC 29209	TURBIDITY (NTU):	4	347	13	42	69
COORDINATES:	33.948043, -80.98889	pH:	5.8	6.4	6.2	6.2	0.2
TMDL/IMPAIRMENT:	Fecal & Dissolved Oxygen	SPECIFIC CONDUCTIVITY (mS/cm):	0.028	0.084	0.055	0.058	0.014
NEIGHBORING LANDUSE:	Residential and commercial	DISSOLVED OXYGEN (mg/L):	1.0	8.4	6.1	5.8	1.3
APPROX. DRAINAGE AREA:	64 square miles						
SPATIAL LOCATION:	Most downstream site						
TOTAL NO. STORMS OVER 0.1 INCH:	6						
MAX. DAILY RAINFALL:	9.17 inches						
TOTAL RAINFALL (FOR PERIOD):	16.4 inches*						



Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors

**Continuous Water Quality
Monitoring Periodic Report**

Gills Creek C (September 10, 2015 -- October 12, 2015)

Explanation of Statistics:

MINIMUM OBSERVED	The minimum of the values recorded by the datasonde in 15 minute intervals.
MAXIMUM OBSERVED	The maximum of the values recorded by the datasonde in 15 minute intervals.
MEDIAN OBSERVED	The median of all the values recorded by the datasonde in 15 minute intervals.
MEAN OBSERVED	The average of all the values recorded by the datasonde in 15 minute intervals.
STANDARD DEVIATION	The standard deviation of all the values recorded by the datasonde in 15 minute intervals.

Sampled Data:

Analyte (units)	Sample 1		Sample 2		Sample 3		Sample 4	
	9/24/2015							
	Time	Results	Time	Results	Time	Results	Time	Results
<i>Escherichia coli</i> (MPN/100mL)	14:28	3,500						
Total Suspended Solids (mg/L)	14:28	32						
Total Phosphorus (mg/L)	14:28	0.24						
Total Nitrogen (mg/L)	14:28	0.578						

Notes:

*Communication was lost with the rain gauge during the October 4th flood event, so the reported total does not represent all fo the rainfall that fell in this period.

Note: Data gaps appear when the sonde is removed for calibration or when the flow depth is below the sensors