

Monitoring Data Analysis for August 13, 2014 – September 22, 2014

Kinley Creek Monitoring Sites

Data Gaps

- At KINA, the turbidity probe became fouled on three brief occasions: August 22nd – 23rd, August 24th – 25th, and August 31st.
- The KINB site also experienced turbidity sensor fouling; at this location the fouling occurred on August 21st – 25th, and September 18th – 19th.

SCDHEC Standards

- The average DO at KINA fell slightly below the 5 mg/L standard during this monitoring period. The periods of low DO occurred during dry periods; the storm events were observed to increase DO concentrations.
- The KINB station had a mean DO level of 5.7 mg/L for this monitoring period, which is above the SCDHEC standard; however, the instantaneous DO did drop below the 4 mg/L standard on several occasions, once following an illicit discharge on August 27th, and following rain events on several other occasions.
- The pH standards were not contravened at either site during this monitoring period.

Storm Events

- The KIN rain gage recorded 7 storm events during this monitoring period.
- One significant rain event was observed on September 3rd, when 1.6 inches fell in one hour. This storm exceeded the 5 year 1 hour return period¹.
- Several of the rain events during this monitoring period caused the water temperature at KINB to increase significantly. This may have been the result of warm rain water temperatures or the warming of runoff as it came into contact with hot asphalt surfaces in the watershed area.

1 http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=sc

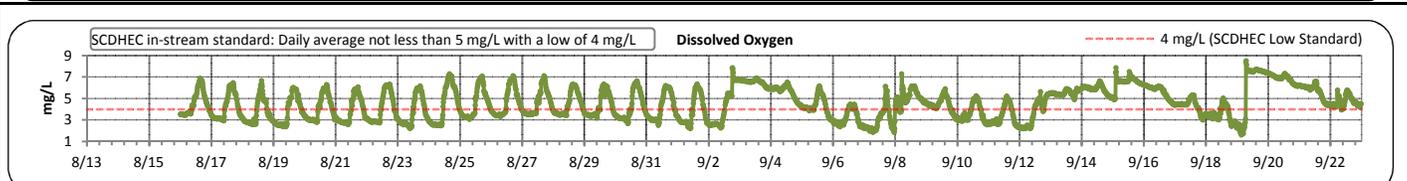
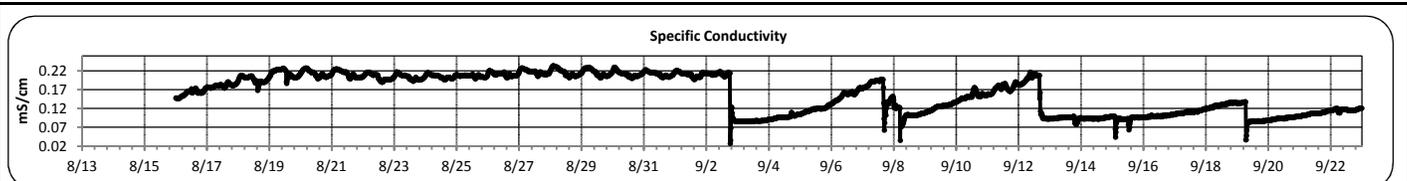
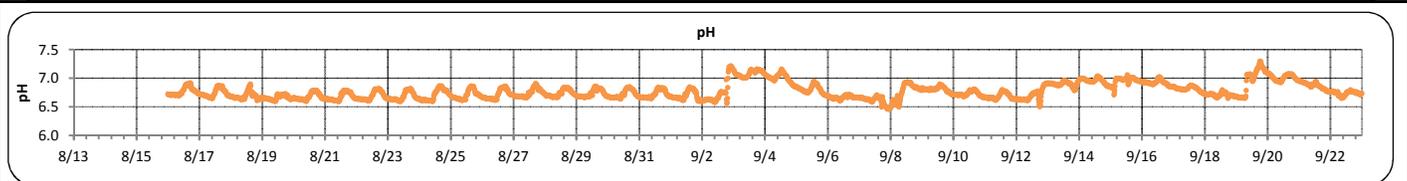
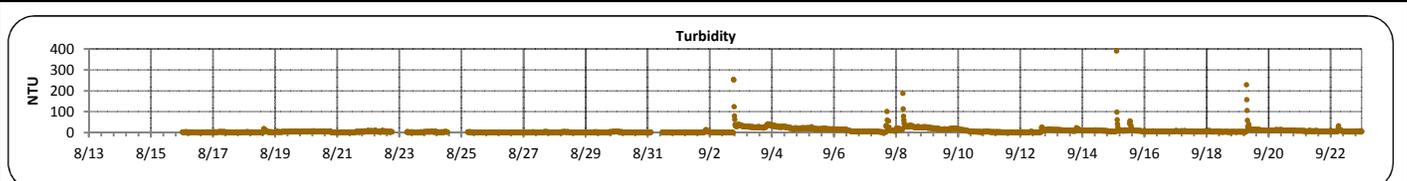
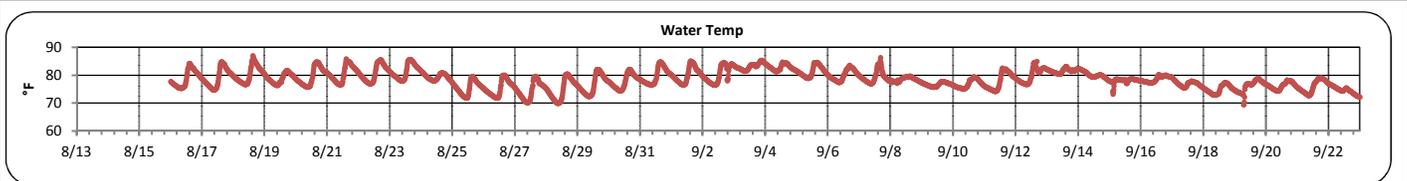
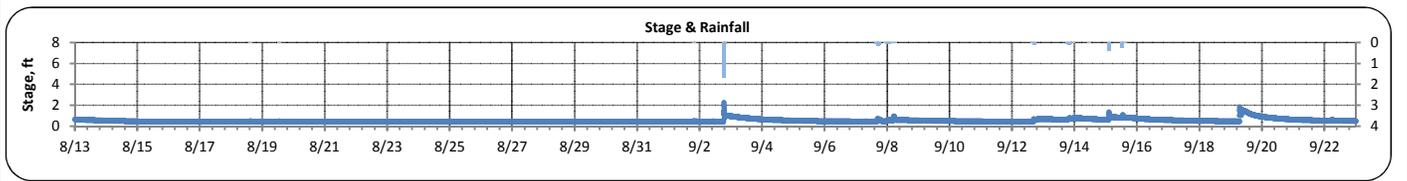
Potential Illicit Discharges

- One potential illicit discharge event was recorded at KINA during this monitoring period. On September 16th, the pH became slightly elevated coincident with a temperature increase. The impact of this event appears to have been minor.
- At KINB, several potential illicit discharge events were noted:
- During the hours of 10pm and 12pm, there appears to often be a relatively small potential illicit discharge which causes fluctuations in the specific conductivity, an increase in DO, and a slight increase in stage. This pattern does not have a readily available explanation, but may be related to closing activities of the many surrounding restaurants and businesses.
- Several other small illicit discharge events were noted at the KINB site, occurring on August 29th, September 4th, September 5th, and September 18th, and all resulting in increased conductivity levels.
- The most notable illicit event of this monitoring period occurred on August 27th, when an SSO event was noted at the KINB station. The event was reported by the City of Columbia to SCDHEC

as a spill of 825 gallons. The map below shows the reported spill location in relation to the monitoring sites. The station recorded an increase in specific conductivity, a drop in DO to a level of 3 mg/L, a drop in pH, an increase in turbidity to 50 NTU, and a slight increase in temperature and stage. While the specific conductivity increased at the start of this event, it decreased to below ambient levels in the hours following; it is hypothesized that this decrease was the result of maintenance and clean-up activities at the spill.

Kinley Creek A (Aug 13, 2014 -- Sep 22, 2014)

PARAMETER	DESCRIPTION	CONTINUOUS WATER QUALITY PARAMETERS:	SUMMARY STATISTICS				
			MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION
STREAM NAME:	Kinley Creek	STAGE (FT):	0.4	2.3	0.5	0.5	0.2
LOCATION:	Longhorn Steakhouse	TEMPERATURE (°F):	69	87	78	79	3
ADDRESS:	171 Harbison Blvd Columbia, SC 29212	TURBIDITY (NTU):	1	390	5	9	14
COORDINATES:	34.069897, -81.164592	pH:	6.5	7.3	6.8	6.8	0.1
TMDL/IMPAIRMENT:	Fecal Coliform	SPECIFIC CONDUCTIVITY (mS/cm):	0.027	0.233	0.171	0.159	0.050
NEIGHBORING LANDUSE:	Residential and commercial	DISSOLVED OXYGEN (mg/L):	1.6	8.5	4.5	4.6	1.4
SPATIAL LOCATION:	Most upstream site						
TOTAL NO. STORMS OVER 0.1 INCH:	7						
MAX. DAILY RAINFALL:	1.8 inches						
TOTAL RAINFALL (FOR PERIOD):	3.7 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**

Kinley Creek A (Aug 13, 2014 -- Sep 22, 2014)

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.

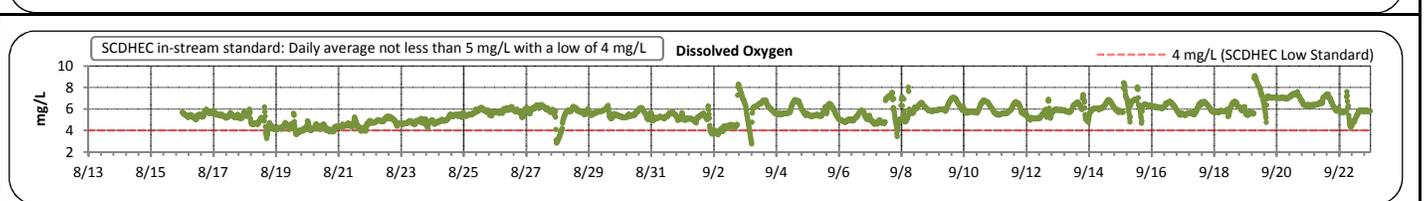
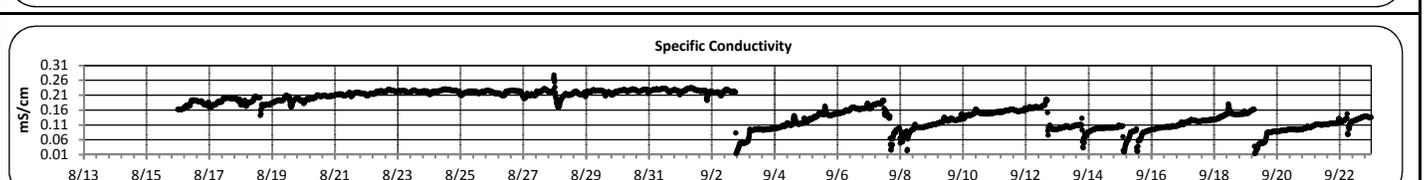
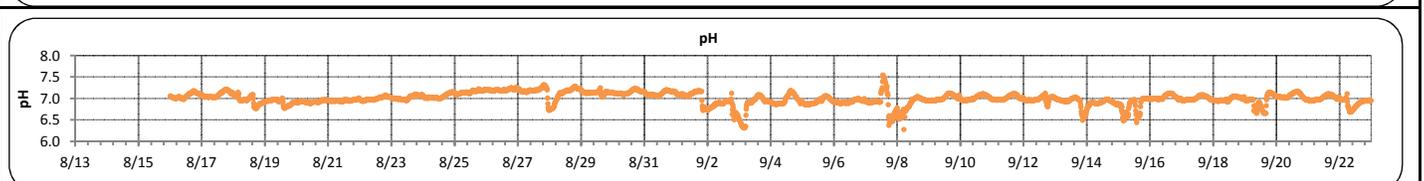
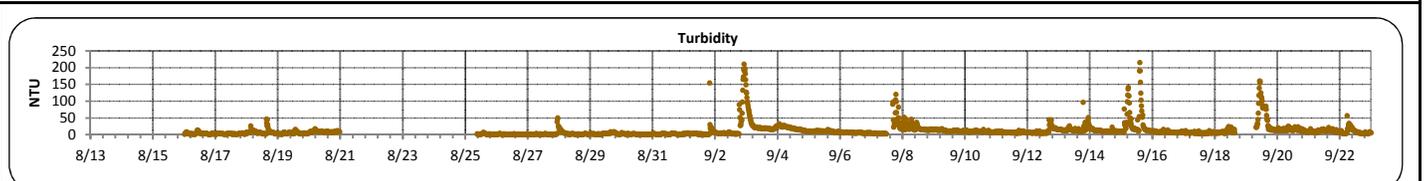
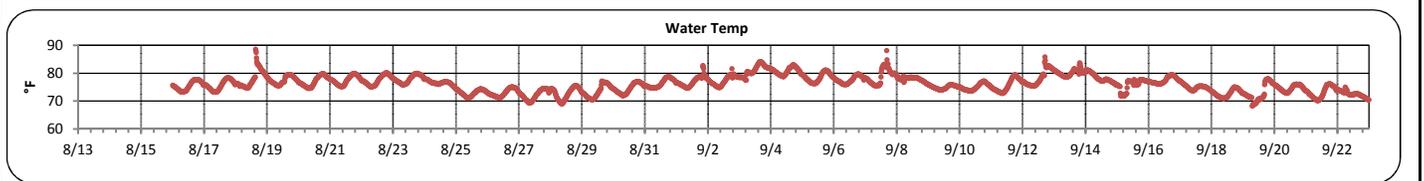
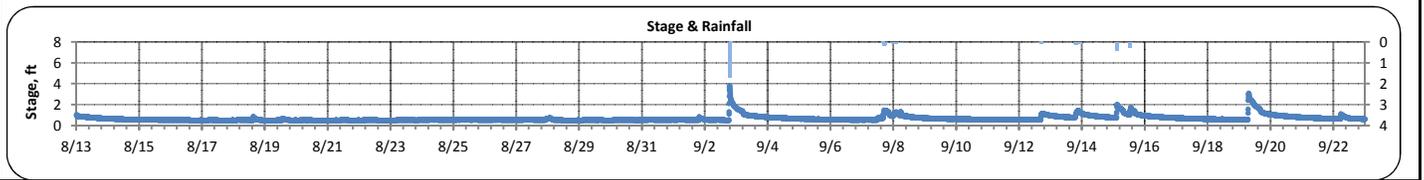
Grab Sample Data:

Analyte (units)	Sample 1		Sample 2		Sample 3	
	Time	Result	Time	Result	Time	Result
<i>Escherichia coli</i> (MPN/100mL)						
Total Suspended Solids (mg/L)						
Total Phosphorus (mg/L)						
Total Nitrogen (mg/L)						

Note:

Kinley Creek B (Aug 13, 2014 -- Sep 22, 2014)

PARAMETER	DESCRIPTION	CONTINUOUS WATER QUALITY PARAMETERS:	SUMMARY STATISTICS				
			MINIMUM OBSERVED	MAXIMUM OBSERVED	MEDIAN OBSERVED	MEAN OBSERVED	STANDARD DEVIATION
STREAM NAME:	Kinley Creek	STAGE (FT):	0.5	3.8	0.6	0.7	0.3
LOCATION:	Broken Hill Rd	TEMPERATURE (°F):	68	89	76	76	3
ADDRESS:	609 Broken Hill Rd Columbia, SC 29212	TURBIDITY (NTU):	1	215	7	12	19
COORDINATES:	34.06635, -81.159986	pH:	6.3	7.6	7.0	7.0	0.1
TMDL/IMPAIRMENT:	Fecal Coliform	SPECIFIC CONDUCTIVITY (mS/cm):	0.014	0.278	0.166	0.162	0.054
NEIGHBORING LANDUSE:	Residential and commercial	DISSOLVED OXYGEN (mg/L):	2.8	9.1	5.7	5.6	0.8
SPATIAL LOCATION:	Most downstream site						
TOTAL NO. STORMS OVER 0.1 INCH:	7						
MAX. DAILY RAINFALL:	1.8 inches						
TOTAL RAINFALL (FOR PERIOD):	3.7 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**

Kinley Creek B (Aug 13, 2014 -- Sep 22, 2014)

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	
	Time	Result	Time	Result	Time	Result
<i>Escherichia coli</i> (MPN/100mL)						
Total Suspended Solids (mg/L)						
Total Phosphorus (mg/L)						
Total Nitrogen (mg/L)						

Note: