

TCEQ Analysis of TCEQ Contractor Surface Water Quality Sampling Data Collected on May 25, 2019 (Final Lab Results)

The Texas Commission on Environmental Quality (TCEQ) received final surface water quality data for 129 constituents at four (4) different sites. One sample was collected at each site on May 25, 2019 by the TCEQ's contractor. The constituents consist of inorganics, organics, metals, nutrients, chemical oxygen demand (COD), carbonaceous biochemical oxygen demand (CBOD), total suspended solids, total petroleum hydrocarbons, and oil and grease in water. The sampling sites were the following:

- Tidal Rd @ Tucker Bayou
- Tidal Rd @ Gate #13
- Upstream Tucker Bayou Clean
- Mouth of Tucker Bayou & Buffalo Bayou

This assessment is based on final results received from the laboratory. As additional water quality sampling is completed, the data will be assessed, and results made available.

The TCEQ used the Texas Water Quality Standards and the Texas Risk Reduction Program as references for determining the known health protective concentration levels (PCLs) in surface water. PCLs are very conservative and below levels where we would expect any health impacts. The TCEQ is using these PCLs to evaluate impacts to aquatic life and human health. No public drinking water system draws its source water from the Houston Ship Channel. This methodology was also used for previously reviewed data from samples collected by ITC and will be used to review samples from the TCEQ contractor. The TCEQ used the PCLs listed in the tables below to assess the surface water quality data.

Table 1: Assessment of Final Laboratory Results

	Tidal Rd @ Tucker Bayou	Tidal Rd @ Gate #13	Upstream Tucker Bayou Clean	Mouth of Tucker Bayou & Buffalo Bayou
Number of Constituents	129*	129*	129*	129*
Number of constituents analyzed but not detected (not detected above the method detection limit or quantitation limit)	113	108	117	118
Number of constituents detected above the method detection limit or quantitation limit	15	20	11	10
Number of constituents detected but below their known PCLs	7	11	3	1
Number of constituents that exceeded their known PCLs	4	5	4	5
Number of constituents that are still pending further TCEQ evaluation	0	0	0	0
Number of constituents that do not have a PCL or are assessed with other constituents**	4	4	4	4

*One constituent, total Kjeldahl nitrogen, collected at the Mouth of Tucker Bayou & Buffalo Bayou site, included a sample where the MS/MSD recovery was found to be outside of the laboratory control limit due to possible matrix/chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD. Another constituent, total phosphate, collected at the Tidal Rd @ Tucker Bayou, Tidal Rd @ Gate #13, and Upstream Tucker Bayou Clean sites, was analyzed outside of the recommended holding time. Therefore, samples for these constituents were excluded from the assessment of final laboratory results.

**The water quality parameters ammonia nitrogen (as N), total Kjeldahl nitrogen, total phosphate, total organic nitrogen, and total suspended solids are not related to human health; therefore, it is not appropriate to develop human health comparison values to evaluate these parameters. Three chemicals on the laboratory target analyte list (4-bromophenyl phenyl ether, 4-chlorophenyl phenyl ether, and benzo(g,h,i)perylene) do not have surface water comparison values and consequently will not be evaluated. These water quality parameters and chemicals are not directly related to the ITC incident, and the TCEQ is evaluating the chemicals that are directly related to the ITC incident (benzene and toluene, for example). C6-12, C12-28 and C28-35 range hydrocarbons, as well as total petroleum hydrocarbons, are included in the assessment of oil and grease. Therefore, these constituents are not assessed individually.

Below are tables of the constituents that exceeded their known PCL at the sampling site(s).

Table 2: Tidal Rd @ Tucker Bayou

Constituent	Maximum (micrograms/L)	PCL (micrograms/L)
Chromium	90.5	49.6
Copper	39.9	3.6
Nickel	122	13.1
Zinc	149	84.2

Table 3: Tidal Rd @ Gate #13

Constituent	Maximum (micrograms/L)	PCL (micrograms/L)
Chromium	94.4	49.6
Copper	38.7	3.6
Nickel	123	13.1
Phenolic	16.6	0.29
Zinc	152	84.2

Table 4: Upstream Tucker Bayou Clean

Constituent	Maximum (micrograms/L)	PCL (micrograms/L)
Chromium	96.2	49.6
Copper	40.1	3.6
Nickel	127	13.1
Zinc	321	84.2

Table 5: Mouth of Tucker Bayou & Buffalo Bayou

Constituent	Maximum (micrograms/L)	PCL (micrograms/L)
Chromium	80.7	49.6
Copper	34.7	3.6
Lead	4.19	3.83
Nickel	105	13.1
Zinc	127	84.2