TCEQ Analysis of TCEQ Contractor Surface Water Quality Sampling Data Collected on March 21, 2019 (Final lab results)

The Texas Commission on Environmental Quality (TCEQ) received final surface water quality data for up to 92 constituents at one (1) site. One sample was collected at the site on March 21, 2019 by the TCEQ's contractor. The constituents consist of inorganics, organics, metals, nutrients, chemical oxygen demand (COD), carbonaceous biochemical oxygen demand (CBOD), and oil and grease in water. The sampling sites were the following:

- Tucker Bayou @ Buffalo Bayou Inside Containment Boom

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

	Tucker Bayou @ Buffalo Bayou Inside Containment Boom
Number of Constituents	92[1]
Number of constituents analyzed but not detected (not detected above the method detection limit or quantitation limit)	75
Number of constituents detected above the method detection limit or quantitation limit	16
Number of constituents detected but below their known PCLs	2
Number of constituents that exceeded their known PCLs	9
Number of constituents that are still pending further TCEQ evaluation	0
Number of constituents that do not have a PCL or are assessed with other constituents[2]	5

[1]The sample had a significant amount of product/oil and the constituent Oil and grease was reported as a percentage, 34.1 %, rather than a concentration. It could not be evaluated against the PCL and was not included in this assessment of laboratory results.

[2]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 parameters are also 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 is a table of the constituents that exceeded their known PCL at the sampling site.

Table 2: Tucker Bayou @ Buffalo Bayou Inside Containment Boom

Constituent	Maximum (micrograms/L)	PCL (micrograms/L)
Arsenic	92.9	10
Chromium	87.7	49.6
COD	1200000	150000*
Copper	370	3.6
Lead	247	3.83
Naphthalene	1890	125
Nickel	222	13.1
Phenolic	0.29	49.1
Zinc	6710	84.2

Footnote:
*COD is a measure of the oxygen demand exerted by chemical constituents in water. There was not a known PCL for COD, therefore the permitted technology-based limit was used for comparison purposes. Although COD levels for treated process wastewater vary 150000 micrograms/L for noncontact stormwater was provided for comparison purposes.