

TCEQ Analysis of TCEQ Contractor Surface Water Quality Sampling Data Collected on April 2, 2019 (Preliminary lab results)

The Texas Commission on Environmental Quality (TCEQ) received preliminary surface water quality data for 128 constituents at four (4) different sites. One sample was collected at each site on April 2, 2019 by the TCEQ's contractor. The constituents consist of inorganics, organics, metals, nutrients, total suspended solids, chemical oxygen demand (COD), and oil and grease in water. The sampling sites were the following:

- Upstream Tucker Bayou Clean
- Mouth of Tucker Bayou @ Buffalo Bayou
- Tidal Road @ Tucker Bayou
- Tidal Road @ Gate 13

This assessment is based on preliminary results received from the laboratory. These laboratory results are subject to change once the final report is issued. The TCEQ is providing the assessment of preliminary results in abundance of caution to make this information publicly available as quickly as possible. As sample results are received, or 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 Preliminary Laboratory Results

	Upstream Tucker Bayou Clean	Mouth of Tucker Bayou @ Buffalo Bayou	Tidal Road @ Tucker Bayou	Tidal Road @ Gate 13
Number of Constituents	128	128	128	128**
Number of constituents analyzed but not detected (not detected above the method detection limit or quantitation limit)	117	115	110	75
Number of constituents detected above the method detection limit or quantitation limit	11	13	18	23
Number of constituents detected but below their known PCLs	2	4	5	6
Number of constituents that exceeded their known PCLs	4	1	6	9
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*	5	8	7	8

*The water quality parameters ammonia nitrogen (as N), total Kjeldahl nitrogen, total phosphate, total organic nitrogen, total sulfides, 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.

**Samples collected at the Tidal Road at Gate 13 site included multiple constituents, listed below, 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. Therefore, they were excluded from the assessment of laboratory results.

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|---------------------|-----------------------------|---------------------------|
| 1,2-Dichlorobenzene | 3,3-Dichlorobenzidine | Benzyl Alcohol |
| 1,3-Dichlorobenzene | 3-Nitroaniline | Carbazole |
| 1-Methylnaphthalene | 4,6-dinitro-2-methyl phenol | Hexachlorocyclopentadiene |
| 2,4-Dichlorophenol | 4-chloro-3-methylphenol | Hexachloroethane |
| 2,4-Dimethylphenol | 4-Chloroaniline | Naphthalene |
| 2,4-Dinitrophenol | 4-Nitroaniline | Nitrobenzene |
| 2-Chlorophenol | 4-Nitrophenol | n-Nitrosodi-n-Propylamine |
| 2-Methylnaphthalene | Acetophenone | n-Octadecane |
| 2-methylphenol | Benzidine | Oil & Grease, HEM |
| 3&4-Methylphenol | Benzoic Acid | Phenol |

Table 2: Upstream Tucker Bayou Clean

Constituent	Maximum (micrograms/L)	PCL (micrograms/L)
Copper	5.23	3.6
Cyanide, Total	8.97	5.6
Phenolic	16.3	0.29
Zinc	160	84.2

Table 3: Mouth of Tucker @ Buffalo Bayou

Constituent	Maximum (micrograms/L)	PCL (micrograms/L)
Oil & Grease, HEM	37900	28000

Table 4: Tidal Road @ Tucker Bayou

Constituent	Maximum (micrograms/L)	PCL (micrograms/L)
Benzene	14800	581
COD	380000	150000*
Copper	5.28	3.6
Phenolic	83.3	0.29
Toluene	3940	1000
Xylenes, Total	912	850

Table 5: Tidal Road @ Gate 13

Constituent	Maximum (micrograms/L)	PCL (micrograms/L)
Benzene	107000	581
bis (2-ethylhexyl) phthalate	33	7.55
COD	2500000	150000*
Copper	8.55	3.6
Lead	5.43	3.83
Phenolic	213	0.29
Toluene	32400	1000
Xylenes, Total	6420	850
Zinc	274	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.