TEXTOX MENU #1 - INTERMITTENT STREAM

The water quality-based effluent limitations developed below are calculated using:

Table 1, 2014 Texas Surface Water Quality Standards (30 TAC 307) for Freshwater Aquatic Life
"Procedures to Implement the Texas Surface Water Quality Standards," TCEQ, June 2010

PERMIT INFORMATION

Permittee Name:	Yoakum Gas Plant
TPDES Permit No:	TX0134077
Outfall No:	001
Prepared By:	Nichole Young
Date:	March 20, 2019

DISCHARGE INFORMATION

Intermittent Receiving Waterbody:	Lavaca River Above Tidal
Segment No:	1602
TSS (mg/L):	6
pH (Standard Units):	7.7
Hardness (mg/L as $CaCO_3$):	177
Chloride (mg/L):	68
Effluent Flow for Aquatic Life (MGD):	0.01728
Critical Low Flow [7Q2] (cfs):	16
% Effluent for Acute Aquatic Life:	100

CALCULATE DISSOLVED FRACTION (AND ENTER WATER EFFECT RATIO IF APPLICABLE):

Stream/River Metal	*Intercept (b)*	*Slope (m)*	*Partition Coefficient (Kp)*	*Dissolved Fraction (Cd/Ct)*	*Source*	*Water Effect Ratio (WER)*	Source
Aluminum	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Arsenic	5.68	-0.73	129404.56	0.563		1.00	Assumed
Cadmium	6.60	-1.13	525640.82	0.241		1.00	Assumed
Chromium (total)	6.52	-0.93	625632.55	0.210		1.00	Assumed
Chromium (trivalent)	6.52	-0.93	625632.55	0.210		1.00	Assumed
Chromium (hexavalent)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Copper	6.02	-0.74	278078.92	0.375		1.00	Assumed
Lead	6.45	-0.80	672169.81	0.199		1.00	Assumed
Mercury	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Nickel	5.69	-0.57	176381.81	0.486		1.00	Assumed
Selenium	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Silver	6.38	-1.03	378882.21	0.306		1.00	Assumed
Zinc	6.10	-0.70	359165.10	0.317		1.00	Assumed

AQUATIC LIFE

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS:

Parameter	*FW Acute Criterion (µg/L)*	*WLAa (µg/L)*	*LTAa (µg/L)*	*Daily Avg. (µg/L)*	*Daily Max. (µg/L)*
Aldrin	3.0	3.0	1.72	2.53	5.35
Aluminum	991	991	568	835	1766
Arsenic	340	603.98531	346.083581	508.74286	1076.3199
Cadmium	14.9470538	62.087744	35.5762772	52.297127	110.64222
Carbaryl	2.0	2.0	1.15	1.68	3.56
Chlordane	2.4	2.4	1.38	2.02	4.28
Chlorpyrifos	0.083	0.083	0.048	0.070	0.148
Chromium (trivalent)	909.462318	4323.3977	2477.30688	3641.6411	7704.4244
Chromium (hexavalent)	15.7	15.7	9.00	13.2	28.0
Copper	24.3211486	64.900342	37.1878957	54.666207	115.65436
Cyanide (free)	45.8	45.8	26.2	38.6	81.6
4,4'-DDT	1.1	1.1	0.630	0.927	1.96
Demeton	N/A	N/A	N/A	N/A	N/A
Diazinon	0.17	0.17	0.097	0.143	0.303
Dicofol [Kelthane]	59.3	59.3	34.0	49.9	106
Dieldrin	0.24	0.24	0.138	0.202	0.428
Diuron	210	210	120	177	374
Endosulfan I (*alpha*)	0.22	0.22	0.126	0.185	0.392
Endosulfan II (*beta*)	0.22	0.22	0.126	0.185	0.392
Endosulfan sulfate	0.22	0.22	0.126	0.185	0.392
Endrin	0.086	0.086	0.049	0.072	0.153
Guthion [Azinphos Methyl]	N/A	N/A	N/A	N/A	N/A
Heptachlor	0.52	0.52	0.298	0.438	0.927
Hexachlorocyclohexane (*gamma*) [Lindane]	1.126	1.126	0.645	0.948	2.01
Lead	119.53975	601.64581	344.743051	506.77229	1072.1509
Malathion	N/A	N/A	N/A	N/A	N/A
Mercury	2.4	2.4	1.38	2.02	4.28
Methoxychlor	N/A	N/A	N/A	N/A	N/A
Mirex	N/A	N/A	N/A	N/A	N/A
Nickel	759.01434	1562.2723	895.182008	1315.9176	2784.016
Nonylphenol	28	28	16.0	23.6	49.9
Parathion (ethyl)	0.065	0.065	0.037	0.055	0.116
Pentachlorophenol	17.6282019	17.628202	10.101	14.848	31.414
Phenanthrene	30	30	17.2	25.3	53.5
Polychlorinated Biphenyls [PCBs]	2.0	2.0	1.15	1.68	3.56
Selenium	20	20	11.5	16.8	35.6
Silver	0.8	15.160623	8.68703708	12.769945	27.016685
Toxaphene	0.78	0.78	0.447	0.657	1.39

Tributyltin [TBT]	0.13	0.13	0.074	0.110	0.232
2,4,5 Trichlorophenol	136	136	77.9	115	242
Zinc	190.0916	599.73721	343.649419	505.16465	1068.7497

CALCULATE 70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS:

Aquatic Life	***70% of Daily Avg.***	***85% of Daily Avg.***
Parameter	***(µg/L)***	***(µg/L)***
Aldrin	1.77	2.15
Aluminum	584	710
Arsenic	356.120	432.431
Cadmium	36.608	44.453
Carbaryl	1.18	1.43
Chlordane	1.42	1.72
Chlorpyrifos	0.049	0.059
Chromium (trivalent)	2549.15	3095.39
Chromium (hexavalent)	9.26	11.2
Copper	38.266	46.466
Cyanide (free)	27.0	32.8
4,4'-DDT	0.649	0.788
Demeton	N/A	N/A
Diazinon	0.100	0.122
Dicofol [Kelthane]	35.0	42.5
Dieldrin	0.142	0.172
Diuron	124	150
Endosulfan I (*alpha*)	0.130	0.158
Endosulfan II (*beta*)	0.130	0.158
Endosulfan sulfate	0.130	0.158
Endrin	0.051	0.062
Guthion [Azinphos Methyl]	N/A	N/A
Heptachlor	0.307	0.372
Hexachlorocyclohexane (*gamma*) [Lindane]	0.664	0.806
Lead	354.741	430.756
Malathion	N/A	N/A
Mercury	1.42	1.72
Methoxychlor	N/A	N/A
Mirex	N/A	N/A
Nickel	921.14	1118.53
Nonylphenol	16.5	20.0
Parathion (ethyl)	0.038	0.047
Pentachlorophenol	10.3939	12.6211
Phenanthrene	17.7	21.5
Polychlorinated Biphenyls [PCBs]	1.18	1.43
Selenium	11.8	14.3
Silver	8.939	10.854
Toxaphene	0.460	0.558
Tributyltin [TBT]	0.077	0.093
2,4,5 Trichlorophenol	80.2	97.4
Zinc	353.615	429.390