TEXTOX MENU #6 - NARROW TIDAL RIVER

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

Table 1, 2000 Texas Surface Water Quality Standards (30 TAC 307) for Marine Aquatic Life
Table 3, 2000 Texas Surface Water Quality Standards for Human Health
"Procedures to Implement the Texas Surface Water Quality Standards," Texas Commission on Environmental Quality, January 2003

PERMITTEE INFORMATION:

Permittee Name:	Targa Resources - Mont Belvieu
TPDES Permit No:	TX0002887
Outfall No:	002
Prepared by:	Maria Okpala
Date:	7/12/2012

DISCHARGE INFORMATION:

Receiving Waterbody:	Cedar Bayou
Segment No.:	0901
TSS (mg/L):	18
Chloride (mg/L):	2570
Effluent Flow for Aquatic Life (MGD):	0.289
Critical Low Flow [7Q2] (cfs):	0.66
Percent Effluent for Mixing Zone:	3.12
Percent Effluent for Zone of Initial Dilution:	6.39
Effluent Flow for Human Health (MGD):	0.289
Harmonic Mean Flow (cfs):	2.64
Percent Effluent for Human Health:	2.52

CALCULATE TOTAL/DISSOLVED RATIO:

Estuarine Metal	*Intercept (b)*	*Slope (m)*	*Partition Coefficient (Kp)*	*Dissolved Fraction (Cd/Ct)*		*Water Effects Ratio (WER)*	
Aluminum	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Arsenic	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Cadmium	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Chromium (Total)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Chromium (+3)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Chromium (+6)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Copper	4.85	-0.72	8834.94	0.86		1.00	Assumed
Lead	6.06	-0.85	98405.27	0.36		1.00	Assumed
Mercury	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Nickel	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Selenium	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Silver	5.86	-0.74	85329.33	0.39		1.00	Assumed
Zinc	5.36	-0.52	50963.39	0.52		1.00	Assumed

AQUATIC LIFE
CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS

Parameter	*SW Acute Standard (ug/L)*	*SW Chronic Standard (ug/L)*	*SW WLAa*	*SW WLAC*	*SW LTAa*	*SW LTAc*	*Daily Avg. (ug/L)*	*Daily Max. (ug/L)*
Aldrin	1.3	N/A	20.34	N/A	11.66	N/A	17.14	36.25
Aluminum	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	149	78	2331.77	2500.00	1336.10	1925.00	1964.07	4155.28
Cadmium	45.4	10	710.49	320.51	407.11	246.79	362.79	767.53
Carbaryl	613	N/A	9593.11	N/A	5496.85	N/A	8080.38	17095.22

Chlordane	0.09	0.004	1.41	0.13	0.81	0.10	0.15	0.31
Chlorpyrifos	0.011	0.006	0.17	0.19	0.10	0.15	0.14	0.31
Chromium (+3)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium (+6)	1090	49.6	17057.90	1589.74	9774.18	1224.10	1799.43	3806.96
Copper	13.5	3.6	244.87	133.73	140.31	102.98	151.37	320.25
Cyanide	5.6	5.6	87.64	179.49	50.22	138.21	73.82	156.17
4,4'-DDT	0.13	0.001	2.03	0.03	1.17	0.02	0.04	0.08
Dementon	N/A	0.1	N/A	3.21	N/A	2.47	3.63	7.68
Dicofol	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	0.71	0.002	11.11	0.06	6.37	0.05	0.07	0.15
Diuron	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endosulfan I (alpha)	0.034	0.009	0.53	0.29	0.30	0.22	0.33	0.69
Endosulfan II (beta)	0.034	0.009	0.53	0.29	0.30	0.22	0.33	0.69
Endosulfan sulfate	0.034	0.009	0.53	0.29	0.30	0.22	0.33	0.69
Endrin	0.037	0.002	0.58	0.06	0.33	0.05	0.07	0.15
Guthion	N/A	0.01	N/A	0.32	N/A	0.25	0.36	0.77
Heptachlor	0.053	0.004	0.83	0.13	0.48	0.10	0.15	0.31
Hexachlorocyclohexane (Lindane)	0.16	N/A	2.50	N/A	1.43	N/A	2.11	4.46
Lead	133	5.3	5768.11	470.76	3305.13	362.49	532.86	1127.34
Malathion	N/A	0.01	N/A	0.32	N/A	0.25	0.36	0.77
Mercury	2.1	1.1	32.86	35.26	18.83	27.15	27.68	58.56
Methoxychlor	N/A	0.03	N/A	0.96	N/A	0.74	1.09	2.30
Mirex	N/A	0.001	N/A	0.03	N/A	0.02	0.04	0.08
Nickel	118	13.1	1846.64	419.87	1058.12	323.30	475.25	1005.47
Parathion (ethyl)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pentachlorophenol	15.10	9.60	236.31	307.69	135.40	236.92	199.04	421.11
Phenanthrene	7.7	4.6	120.50	147.44	69.05	113.53	101.50	214.74
Polychlorinated Biphenyls (PCBs)	10	0.03	156.49	0.96	89.67	0.74	1.09	2.30
Selenium	564	136	8826.29	4358.97	5057.46	3356.41	4933.92	10438.44
Silver, (free ion)	2	N/A	883.79	N/A	506.41	N/A	744.42	1574.94
Toxaphene	0.21	0.0002	3.29	0.01	1.88	0.00	0.01	0.02
Tributlytin (TBT)	0.24	0.043	3.76	1.38	2.15	1.06	1.56	3.30
2,4,5 Trichlorophenol	259	12	4053.21	384.62	2322.49	296.15	435.35	921.04
Zinc	92.7	84.2	2781.49	5174.36	1593.80	3984.26	2342.88	4956.71

HUMAN HEALTH

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS

Parameter	*SW Fish (ug/L)*	*WLAh*	*LTAh*	*Daily Avg. (ug/L)*	*Daily Max. (ug/L)*
Acrylonitrile	7.3	289.68	269.40	396.03	837.85
Aldrin	0.0028	0.11	0.10	0.15	0.32
Arsenic	N/A	N/A	N/A	N/A	N/A
Barium	N/A	N/A	N/A	N/A	N/A
Benzene	70.8	2809.52	2612.86	3840.90	8125.99
Benzidine	0.00232	0.09	0.09	0.13	0.27
Benzo(a)anthracene	0.54	21.43	19.93	29.30	61.98
Benzo(a)pyrene	0.54	21.43	19.93	29.30	61.98
Bis(chloromethyl)ether	0.0129	0.51	0.48	0.70	1.48
Cadmium	N/A	N/A	N/A	N/A	N/A
Carbon Tetrachloride	5.6	222.22	206.67	303.80	642.73
Chlordane	0.0213	0.85	0.79	1.16	2.44
Chlorobenzene	920	36507.94	33952.38	49910.00	105591.90
Chloroform	861	34166.67	31775.00	46709.25	98820.25
Chromiumd	2216	87936.51	81780.95	120218.00	254338.76
Chrysene	5.4	214.29	199.29	292.95	619.78
Cresols	8744	346984.13	322695.24	474362.00	1003582.19
Cyanide	N/A	N/A	N/A	N/A	N/A
4,4'-DDD	0.007	0.28	0.26	0.38	0.80
4,4'-DDE	0.005	0.20	0.18	0.27	0.57

4,4'-DDT	0.005	0.20	0.18	0.27	0.57
2,4'-D	N/A	N/A	N/A	N/A	N/A
Danitol	0.481	19.09	17.75	26.09	55.21
Dibromochloromethane	47.7	1892.86	1760.36	2587.73	5474.71
1,2-Dibromoethane	0.223	8.85	8.23	12.10	25.59
1,3-Dichloropropene (1,3- Dichloropropylene)	107	4246.03	3948.81	5804.75	12280.80
Dieldrin	0.001	0.04	0.04	0.05	0.11
p-Dichlorobenzene	N/A	N/A	N/A	N/A	N/A
1,2-Dichloroethane	49.3	1956.35	1819.40	2674.53	5658.35
1,1-Dichloroethylene	3.9	154.76	143.93	211.58	447.62
Dicofol	0.144	5.71	5.31	7.81	16.53
Dioxins/Furans (TCDD Equivalents)	9.33E-08	3.70E-06	3.44E-06	5.06E-06	1.07E-05
Endrin	0.893	35.44	32.96	48.45	102.49
Fluoride	N/A	N/A	N/A	N/A	N/A
Heptachlor	0.00177	0.07	0.07	0.10	0.20
Heptachlor Epoxide	0.723	28.69	26.68	39.22	82.98
Hexachlorobenzene	0.0132	0.52	0.49	0.72	1.52
Hexachlorobutadiene	2.4	95.24	88.57	130.20	275.46
Hexachlorocyclohexane (alpha)	0.275	10.91	10.15	14.92	31.56
Hexachlorocyclohexane (beta)	0.964	38.25	35.58	52.30	110.64
Hexachlorocyclohexane (gamma) (Lindane)	1.34	53.17	49.45	72.70	153.80
Hexachloroethane	185	7341.27	6827.38	10036.25	21233.15
Hexachlorophene	0.036	1.43	1.33	1.95	4.13
Lead	16.9	1858.53	1728.43	2540.79	5375.42
Mercury	0.025	0.99	0.92	1.36	2.87
Methoxyclor	1.48	58.73	54.62	80.29	169.87
Methyl Ethyl Ketone	6.63E+06	2.63E+08	2.45E+08	3.60E+08	7.61E+08
Nitrate-Nitrogen (as Total Nitrogen)	N/A	N/A	N/A	N/A	N/A
Nitrobenzene	156	6190.48	5757.14	8463.00	17904.71
N-Nitrosodiethylamine	5.12	203.17	188.95	277.76	587.64
N-Nitroso-di-n-Butylamine	8.98	356.35	331.40	487.17	1030.67
PCB's (Polychlorinated Biphenyls)	0.000885	0.04	0.03	0.05	0.10
Pentachlorobenzene	4.45	176.59	164.23	241.41	510.74
Pentachlorophenol	90	3571.43	3321.43	4882.50	10329.64
Pyridine	8889	352738.10	328046.43	482228.25	1020224.39
Selenium	N/A	N/A	N/A	N/A	N/A
1,2,4,5-Tetrachlorobenzene	0.162	6.43	5.98	8.79	18.59
Tetrachloroethylene	215	8531.75	7934.52	11663.75	24676.37
Toxaphene	0.009	0.36	0.33	0.49	1.03
2,4,5-TP (Silvex)	33.6	1333.33	1240.00	1822.80	3856.40
2,4,5-Trichlorophenol	712	28253.97	26276.19	38626.00	81718.95
Trichloroethylene	408	16190.48	15057.14	22134.00	46827.71
1,1,1-Trichloroethane	8391	332976.19	309667.86	455211.75	963067.04
TTHM (Sum of Total Trihalomethanes)	N/A	N/A	N/A	N/A	N/A
Vinyl Chloride	277	10992.06	10222.62	15027.25	31792.35

CALCULATE 70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS

Parameter	*70%*	*85%*
Aquatic Life		
Aldrin	11.995	14.566
Aluminum	N/A	N/A
Arsenic	1374.850	1669.461
Cadmium	253.952	308.370
Carbaryl	5656.263	6868.320
Chlordane	0.102	0.123
Chlorpyrifos	0.101	0.123
Chromium (+3)	N/A	N/A
Chromium (+6)	1259.602	1529.516

Copper	105.962	128.668	13.3
Cyanide	51.672	62.745	
4,4'-DDT	0.025	0.031	
Dementon	2.540	3.084	
Dicofol	N/A	N/A	
Dieldrin	0.051	0.062	
Diuron	N/A	N/A	
Endosulfan (alpha)	0.229	0.278	
Endosulfan (beta)	0.229	0.278	
Endosulfan sulfate	0.229	0.278	
Endrin	0.051	0.062	
Guthion	0.254	0.308	
Heptachlor	0.102	0.123	
Hexachlorocyclohexane (Lindane)	1.476	1.793	
Lead	373.001	452.930	
Malathion	0.254	0.308	
Mercury	19.377	23.529	
Methoxychlor	0.762	0.925	
Mirex	0.025	0.031	
Nickel	332.677	403.965	
Parathion (ethyl)	N/A	N/A	
Pentachlrophenol	139.330	169.187	
Phenanthrene	71.049	86.274	
Polychlorinated Biphenyls (PCBs)	0.762	0.925	
Selenium	3453.746	4193.835	
Silver, (free ion)	521.097	632.760	
Toxaphene	0.005	0.006	
Tributlytin (TBT)	1.092	1.326	
2,4,5 Trichlorophenol	304.742	370.044	
Zinc	1640.017	1991.449	12.6
Human Health			
Acrylonitrile	277.218	336.621	
Aldrin	0.106	0.129	
Arsenic	N/A	N/A	
Barium	N/A	N/A	
Benzene	2688.630	3264.765	
Benzidine	0.088	0.107	
Benzo(a)anthracene	20.507	24.901	
Benzo(a)pyrene	20.507	24.901	
Bis(chloromethyl)ether	0.490	0.595	
Cadmium	N/A	N/A	
Carbon Tetrachloride	212.660	258.230	
Chlordane	0.809	0.982	
Chlorobenzene	34937.000	42423.500	
Chloroform	32696.475	39702.863	
Chromium	84152.600	102185.300	
Chrysene	205.065	249.008	
Cresols	332053.40	403207.70	
Cyanide	N/A	N/A	
4,4'-DDD	0.266	0.323	
4,4'-DDE	0.190	0.231	
4,4'-DDT	0.190	0.231	
2,4'-D	N/A	N/A	
Danitol	18.266	22.180	
Dibromochloromethane	1811.408	2199.566	
1,2-Dibromoethane	8.468	10.283	
1,3-Dichloropropene (1,3- Dichloropropylene)	4063.325	4934.038	
Dieldrin	0.038	0.046	

p-Dichlorobenzene	N/A	N/A
1,2-Dichloroethane	1872.168	2273.346
1,1-Dichloroethylene	148.103	179.839
Dicofol	5.468	6.640
Dioxins/Furans (TCDD Equivalents)	3.54E-06	4.30E-06
Endrin	33.912	41.178
Fluoride	N/A	N/A
Heptachlor	0.067	0.082
Heptachlor Epoxide	27.456	33.339
Hexachlrobenzene	0.501	0.609
Hexachlorobutadiene	91.140	110.670
Hexachlorocyclohexane (alpha)	10.443	12.681
Hexachlorocyclohexane (beta)	36.608	44.452
Hexachlorocyclohexane (gamma) (Lindane)	50.887	61.791
Hexachloroethane	7025.375	8530.813
Hexachlorophene	1.367	1.660
Lead	1778.555	2159.674
Mercury	0.949	1.153
Methoxyclor	56.203	68.247
Methyl Ethyl Ketone	2.52E+08	3.06E+08
Nitrate-Nitrogen (as Total Nitrogen)	N/A	N/A
Nitrobenzene	5924.100	7193.550
N-Nitrosodiethylamine	194.432	236.096
N-Nitroso-di-n-Butylamine	341.016	414.090
PCB's (Polychlorinated Biphenyls)	0.034	0.041
Pentachlorobenzene	168.989	205.201
Pentachlorophenol	3417.750	4150.125
Pyridine	337559.775	409894.013
Selenium	N/A	N/A
1,2,4,5-Tetrachlorobenzene	6.152	7.470
Tetrachloroethylene	8164.625	9914.188
Toxaphene	0.342	0.415
2,4,5-TP (Silvex)	1275.960	1549.380
2,4,5-Trichlorophenol	27038.200	32832.100
Trichloroethylene	15493.800	18813.900
1,1,1-Trichloroethane	318648.225	386929.988
TTHM (Sum of Total Trihalomethanes)	N/A	N/A
Vinyl Chloride	10519.075	12773.163