

TEXTOX MENU #9 - INTERMITTENT FRESHWATER STREAM WITHIN 3 MILES OF A NARROW TIDAL RIVER

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

Table 1, 2014 Texas Surface Water Quality Standards (30 TAC 307) for Freshwater and Saltwater Aquatic Life

Table 2, 2014 Texas Surface Water Quality Standards for Human Health

"Procedures to Implement the Texas Surface Water Quality Standards," TCEQ, June 2010

PERMIT INFORMATION

Permittee Name:	Targa Resources, Mont Belvieu
TPDES Permit No:	TX0002887
Outfall No:	103
Prepared by:	Maria Okpala
Date:	May 18, 2015

DISCHARGE INFORMATION

<i>Intermittent Receiving Waterbody:</i>	Unnamed tributary of Cedar Bayou Tidal
Segment No. for Freshwater Ambient Data:	902
TSS (mg/L) (Intermittent):	3
pH (Standard Units) (Intermittent):	7.1
Hardness (mg/L as CaCO ₃) (Intermittent):	40
Chloride (mg/L) (Intermittent):	83
Effluent Flow for Aquatic Life (MGD):	0.411
% Effluent for Acute Aquatic Life (Intermittent):	100
<i>Saltwater Receiving Waterbody:</i>	Cedar Bayou Tidal
Segment No.:	901
TSS (mg/L) (Narrow Tidal River):	18
Critical Low Flow [7Q2] (cfs):	6.56
% Effluent for Chronic Aquatic Life (Narrow Tidal River):	8.837
% Effluent for Acute Aquatic Life (Narrow Tidal River):	30.000
Effluent Flow for Human Health (MGD):	0.411
Harmonic Mean Flow (cfs):	15.14
% Effluent for Human Health (Narrow Tidal River):	4.031

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

<i>Stream/River Metal</i>	<i>Intercept (b)</i>	<i>Slope (m)</i>	<i>Partition Coefficient (Kp)</i>	<i>Dissolved Fraction (Cd/Ct)</i>	<i>Water Effect Ratio (WER)</i>		
Aluminum	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Arsenic	5.68	-0.73	214635.47	0.61		1.00	Assumed
Cadmium	6.60	-1.13	1150410.88	0.22		1.00	Assumed
Chromium (Total)	6.52	-0.93	1192002.68	0.22		1.00	Assumed
Chromium (+3)	6.52	-0.93	1192002.68	0.22		1.00	Assumed
Chromium (+6)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Copper	6.02	-0.74	464440.70	0.42		1.00	Assumed
Lead	6.45	-0.80	1170315.61	0.22		1.00	Assumed

Mercury	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Nickel	5.69	-0.57	261842.95	0.56		1.00	Assumed
Selenium	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Silver	6.38	-1.03	773686.66	0.30		1.00	Assumed
Zinc	6.10	-0.70	583465.42	0.36		1.00	Assumed

<i>Estuarine Metal</i>	<i>Intercept (b)</i>	<i>Slope</i>	<i>(m)</i>	<i>Partition Coefficient (Kp)</i>	<i>Dissolved Fraction (Cd/Ct)</i>	<i>Water Effect Ratio (WER)</i>		
Aluminum	N/A	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Arsenic	N/A	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Cadmium	N/A	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Chromium (Total)	N/A	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Chromium (+3)	N/A	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Chromium (+6)	N/A	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	N/A	1.00	Assumed	1.00	Assumed
Nickel	N/A	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Selenium	N/A	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:

<i>Parameter</i>	<i>FW Acute Criterion (ug/L)</i>	<i>SW Acute Criterion (ug/L)</i>	<i>SW Chronic Criterion (ug/L)</i>	<i>FW WLAa</i>	<i>SW WLAa</i>	<i>SW WLAc</i>	<i>FW LTAa</i>	<i>SW LTAa</i>	<i>SW LTAc</i>	<i>Daily Avg. (ug/L)</i>	<i>Daily Max. (ug/L)</i>
Aldrin	3.0	1.3	N/A	3.000	4.333	N/A	1.719	2.483	N/A	2.527	5.346
Aluminum	991	N/A	N/A	991.000	N/A	N/A	567.843	N/A	N/A	834.729	1765.992
Arsenic	340	149	78	558.928	496.667	882.645	320.266	284.590	679.637	418.347	885.075
Cadmium	3.51835537	40.0	8.75	15.661	133.333	99.015	8.974	76.400	76.241	13.191	27.908
Carbaryl	2.0	613	N/A	2.000	2043.333	N/A	1.146	1170.830	N/A	1.685	3.564
Chlordane	2.4	0.09	0.004	2.400	0.300	0.045	1.375	0.172	0.035	0.051	0.108
Chlorpyrifos	0.083	0.011	0.006	0.083	0.037	0.068	0.048	0.021	0.052	0.031	0.065
Chromium (+3)	269.018246	N/A	N/A	1231.030	N/A	N/A	705.380	N/A	N/A	1036.909	2193.732
Chromium (+6)	15.7	1,090	49.6	15.700	3633.333	561.272	8.996	2081.900	432.179	13.224	27.978
Copper	5.98969341	13.5	3.6	14.335	52.156	47.216	8.214	29.886	36.356	12.075	25.546
Cyanide (free)	45.8	5.6	5.6	45.800	18.667	63.369	26.243	10.696	48.794	15.723	33.265
4,4'-DDT	1.1	0.13	0.001	1.100	0.433	0.011	0.630	0.248	0.009	0.013	0.027
Demeton	N/A	N/A	0.1	N/A	N/A	1.132	N/A	N/A	0.871	1.281	2.710
Diazinon	0.17	0.819	0.819	0.170	2.730	9.268	0.097	1.564	7.136	0.143	0.303
Dicofol	59.3	N/A	N/A	59.300	N/A	N/A	33.979	N/A	N/A	49.949	105.674
Diieldrin	0.24	0.71	0.002	0.240	2.367	0.023	0.138	1.356	0.017	0.026	0.054

Diuron	210	N/A	N/A	210.000	N/A	N/A	120.330	N/A	N/A	176.885	374.226
Endosulfan I (alpha)	0.22	0.034	0.009	0.220	0.113	0.102	0.126	0.065	0.078	0.095	0.202
Endosulfan II (beta)	0.22	0.034	0.009	0.220	0.113	0.102	0.126	0.065	0.078	0.095	0.202
Endosulfan sulfate	0.22	0.034	0.009	0.220	0.113	0.102	0.126	0.065	0.078	0.095	0.202
Endrin	0.086	0.037	0.002	0.086	0.123	0.023	0.049	0.071	0.017	0.026	0.054
Guthion	N/A	N/A	0.01	N/A	N/A	0.113	N/A	N/A	0.087	0.128	0.271
Heptachlor	0.52	0.053	0.004	0.520	0.177	0.045	0.298	0.101	0.035	0.051	0.108
Hexachlorocyclohexane (Lindane)	1.126	0.16	N/A	1.126	0.533	N/A	0.645	0.306	N/A	0.449	0.950
Lead	23.5107701	133	5.3	106.056	1228.607	166.207	60.770	703.992	127.980	89.332	188.995
Malathion	N/A	N/A	0.01	N/A	N/A	0.113	N/A	N/A	0.087	0.128	0.271
Mercury	2.4	2.1	1.1	2.400	7.000	12.448	1.375	4.011	9.585	2.022	4.277
Methoxychlor	N/A	N/A	0.03	N/A	N/A	0.339	N/A	N/A	0.261	0.384	0.813
Mirex	N/A	N/A	0.001	N/A	N/A	0.011	N/A	N/A	0.009	0.013	0.027
Nickel	215.678746	118	13.1	385.101	393.333	148.239	220.663	225.380	114.144	167.792	354.988
Nonylphenol	28	7	1.7	28.000	23.333	19.237	16.044	13.370	14.813	19.654	41.581
Parathion (ethyl)	0.065	N/A	N/A	0.065	N/A	N/A	0.037	N/A	N/A	0.055	0.116
Pentachlorophenol	9.64558	15.1	9.6	9.646	50.333	108.633	5.527	28.841	83.648	8.125	17.189
Phenanthrene	30	7.7	4.6	30.000	25.667	52.053	17.190	14.707	40.081	21.619	45.739
Polychlorinated Biphenyls (PCBs)	2.0	10	0.03	2.000	33.333	0.339	1.146	19.100	0.261	0.384	0.813
Selenium	20	564	136	20.000	1880.000	1538.970	11.460	1077.240	1185.007	16.846	35.641
Silver	0.8	2	N/A	18.534	16.906	N/A	10.620	9.687	N/A	14.240	30.127
Toxaphene	0.78	0.21	0.0002	0.780	0.700	0.0023	0.447	0.401	0.0017	0.0026	0.0054
Tributyltin (TBT)	0.13	0.24	0.0074	0.130	0.800	0.084	0.074	0.458	0.064	0.095	0.201
2,4,5 Trichlorophenol	136	259	12	136.000	863.333	135.792	77.928	494.690	104.559	114.554	242.356
Zinc	53.9113997	92.7	84.2	148.278	592.458	1826.850	84.963	339.479	1406.674	124.896	264.235

HUMAN HEALTH

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS:

Parameter	Fish Only			Daily Avg. (ug/L)	Daily Max. (ug/L)
	Criterion (ug/L)	WLAh	LTAh		
Acrylonitrile	3.8	94.27	87.67	128.88	272.66
Aldrin	0.0010	0.02	0.02	0.03	0.07
Anthracene	N/A	N/A	N/A	N/A	N/A
Antimony	1,071	26569.88	24709.99	36323.68	76848.07
Arsenic	N/A	N/A	N/A	N/A	N/A
Barium	N/A	N/A	N/A	N/A	N/A
Benzene	513	12726.75	11835.88	17398.74	36809.58
Benzidine	0.0020	0.05	0.05	0.07	0.14
Benzo(a)anthracene	3.28	81.37	75.68	111.24	235.35
Benzo(a)pyrene	0.33	8.19	7.61	11.19	23.68
Bis(chloromethyl)ether	0.44	10.92	10.15	14.92	31.57
Bis(2-chloroethyl)ether	10.06	249.57	232.10	341.19	721.84
Bis(2-ethylhexyl)phthalate	41	1017.15	945.95	1390.54	2941.90

Bromodichloromethane (Dichlorobromomethane)	322	7988.33	7429.15	10920.85	23104.65
Bromoform	2,175	53958.44	50181.35	73766.59	156064.00
Cadmium	N/A	N/A	N/A	N/A	N/A
Carbon Tetrachloride	30.5	756.66	703.69	1034.43	2188.48
Chlordane	0.0081	0.20	0.19	0.27	0.58
Chlorobenzene	5,201	129028.90	119996.88	176395.41	373190.28
Chlorodibromomethane (Dibromochloromethane)	239	5929.23	5514.18	8105.85	17149.10
Chloroform	7,143	177206.96	164802.48	242259.64	512535.70
Chromium (+6)	502	12453.86	11582.09	17025.67	36020.29
Chrysene	327	8112.37	7544.51	11090.42	23463.42
Cresols (Methylphenols)	9,301	230743.66	214591.61	315449.66	667379.89
Cyanide (free)	N/A	N/A	N/A	N/A	N/A
4,4'-DDD	0.0059	0.15	0.14	0.20	0.42
4,4'-DDE	0.0040	0.10	0.09	0.14	0.29
4,4'-DDT	0.0040	0.10	0.09	0.14	0.29
2,4'-D	N/A	N/A	N/A	N/A	N/A
Danitrol	473	11734.41	10913.00	16042.11	33939.44
1,2-Dibromoethane	4.24	105.19	97.82	143.80	304.24
m-Dichlorobenzene (1,3-Dichlorobenzene)	1,445	35848.25	33338.87	49008.15	103683.90
o-Dichlorobenzene (1,2-Dichlorobenzene)	4,336	107569.56	100039.69	147058.35	311123.45
p-Dichlorobenzene (1,4-Dichlorobenzene)	N/A	N/A	N/A	N/A	N/A
3,3'-Dichlorobenzidine	0.44	10.92	10.15	14.92	31.57
1,2-Dichloroethane	553	13719.09	12758.75	18755.37	39679.72
1,1-Dichloroethylene	23,916	593319.58	551787.21	811127.20	1716058.22
Dichloromethane (Methylene Chloride)	22,222	551294.02	512703.44	753674.05	1594507.68
1,2-Dichloropropane	226	5606.72	5214.25	7664.94	16216.31
1,3-Dichloropropene (1,3- Dichloropropylene)	211	5234.59	4868.17	7156.21	15140.00
Dicofol	0.30	7.44	6.92	10.17	21.53
Dieldrin	0.001	0.02	0.02	0.03	0.07
2,4-Dimethylphenol	571	14165.64	13174.05	19365.85	40971.28
Di-n-Butyl Phthalate	3,010	74673.52	69446.37	102086.17	215978.23
Dioxins/Furans (TCDD Equivalents)	7.97E-08	1.98E-06	1.84E-06	2.70E-06	5.72E-06
Endrin	0.20	4.96	4.61	6.78	14.35
Ethylbenzene	7,143	177206.96	164802.48	242259.64	512535.70
Fluoride	N/A	N/A	N/A	N/A	N/A
Heptachlor	0.0015	0.04	0.03	0.05	0.11
Heptachlor Epoxide	0.00075	0.02	0.02	0.03	0.05
Hexachlorobenzene	0.0045	0.11	0.10	0.15	0.32
Hexachlorobutadiene	274	6797.52	6321.70	9292.89	19660.48
Hexachlorocyclohexane (alpha)	0.093	2.31	2.15	3.15	6.67
Hexachlorocyclohexane (beta)	0.33	8.19	7.61	11.19	23.68
Hexachlorocyclohexane (gamma) (Lindane)	6.2	153.81	143.05	210.28	444.87
Hexachlorocyclopentadiene	N/A	N/A	N/A	N/A	N/A
Hexachloroethane	11.51	285.55	265.56	390.37	825.88

Hexachlorophene	2.90	71.94	66.91	98.36	208.09
Lead	3.83	263.32	244.89	359.98	761.60
Mercury	0.0250	0.62	0.58	0.85	1.79
Methoxychlor	1.61	39.94	37.15	54.60	115.52
Methyl Ethyl Ketone	992,000	24,610,011	22,887,310	33,644,346	71,179,535
Nickel	1,140	28281.67	26301.95	38663.87	81799.06
Nitrate-Nitrogen (as Total Nitrogen)	N/A	N/A	N/A	N/A	N/A
Nitrobenzene	1,853	45970.11	42752.20	62845.74	132959.35
N-Nitrosodiethylamine	2.1	52.10	48.45	71.22	150.68
N-Nitroso-di-n-Butylamine	4.2	104.20	96.90	142.45	301.36
Pentachlorobenzene	1.0	24.81	23.07	33.92	71.75
Pentachlorophenol	9.1	225.76	209.95	308.63	652.96
Polychlorinated Biphenyls (PCBs)	6.4E-04	0.02	0.01	0.02	0.05
Pyridine	947	23493.63	21849.08	32118.14	67950.62
Selenium	N/A	N/A	N/A	N/A	N/A
1,2,4,5-Tetrachlorobenzene	0.71	17.61	16.38	24.08	50.95
1,1,2,2-Tetrachloroethane	40	992.34	922.88	1356.63	2870.14
Tetrachloroethylene	525	13024.45	12112.74	17805.73	37670.62
Thallium	0.23	5.71	5.31	7.80	16.50
Toluene	N/A	N/A	N/A	N/A	N/A
Toxaphene	0.0053	0.13	0.12	0.18	0.38
2,4,5-TP (Silvex)	21	520.98	484.51	712.23	1506.82
1,1,1-Trichloroethane	956,663	23,733,354	22,072,019	32,445,868	68,643,979
1,1,2-Trichloroethane	295	7318.50	6806.21	10005.12	21167.30
Trichloroethylene	82	2034.30	1891.89	2781.09	5883.79
2,4,5-Trichlorophenol	2,435	60408.65	56180.04	82584.66	174719.93
TTHM (Sum of Total Trihalomethanes)	N/A	N/A	N/A	N/A	N/A
Vinyl Chloride	24	595.40	553.73	813.98	1722.09

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

Aquatic Life

<i>Parameter</i>	<i>70%</i>	<i>85%</i>	
Aldrin	1.769	2.148	
Aluminum	584	710	85.6
Arsenic	292.843	355.595	5.2
Cadmium	9.234	11.213	
Carbaryl	1.179	1.432	
Chlordane	0.036	0.044	
Chlorpyrifos	0.022	0.026	
Chromium (+3)	725.84	881.37	
Chromium (+6)	9.257	11.241	
Copper	8.452	10.264	
Cyanide (free)	11.006	13.365	

4,4'-DDT	0.009	0.011
Demeton	0.897	1.089
Diazinon	0.100	0.122
Dicofol	35.0	42.5
Dieldrin	0.018	0.022
Diuron	124	150
Endosulfan (alpha)	0.067	0.081
Endosulfan (beta)	0.067	0.081
Endosulfan sulfate	0.067	0.081
Endrin	0.018	0.022
Guthion	0.090	0.109
Heptachlor	0.036	0.044
Hexachlorocyclohexane (Lindane)	0.314	0.382
Lead	62.532	75.932
Malathion	0.090	0.109
Mercury	1.415	1.718
Methoxychlor	0.269	0.327
Mirex	0.009	0.011
Nickel	117.454	142.623
Nonylphenol	13.758	16.706
Parathion (ethyl)	0.038	0.047
Pentachlorophenol	5.687	6.906
Phenanthrene	15.134	18.376
Polychlorinated Biphenyls (PCBs)	0.269	0.327
Selenium	11.792	14.319
Silver	9.968	12.104
Toxaphene	0.0018	0.0022
Tributyltin (TBT)	0.066	0.081
2,4,5 Trichlorophenol	80.188	97.371
Zinc	87.427	106.161

2.7

1401

Human Health

<i>Parameter</i>	<i>70%</i>	<i>85%</i>
Acrylonitrile	90.216	109.548
Aldrin	0.024	0.029
Anthracene	N/A	N/A
Antimony	25426.579	30875.131
Arsenic	N/A	N/A
Barium	N/A	N/A
Benzene	12179.118	14788.929
Benzidine	0.047	0.058
Benzo(a)anthracene	77.870	94.557
Benzo(a)pyrene	7.835	9.513
Bis(chloromethyl)ether	10.446	12.684

Bis(2-chloroethyl)ether	238.834	290.013
Bis(2-ethylhexyl)phthalate	973.380	1181.961
Bromodichloromethane (Dichlorobromomethane)	7644.592	9282.719
Bromoform	51636.610	62701.598
Cadmium	N/A	N/A
Carbon Tetrachloride	724.100	879.264
Chlordane	0.192	0.234
Chlorobenzene	123476.785	149936.096
Chlorodibromomethane (Dibromochloromethane)	5674.092	6889.969
Chloroform	169581.749	205920.695
Chromium (+6)	11917.967	14471.817
Chrysene	7763.297	9426.861
Cresols (Methylphenols)	220814.76	268132.21
Cyanide (free)	N/A	N/A
4,4'-DDD	0.140	0.170
4,4'-DDE	0.095	0.115
4,4'-DDT	0.095	0.115
2,4'-D	N/A	N/A
Danitol	11229.479	13635.796
1,2-Dibromoethane	100.662	122.232
m-Dichlorobenzene (1,3-Dichlorobenzene)	34305.702	41656.923
o-Dichlorobenzene (1,2-Dichlorobenzene)	102940.846	124999.599
p-Dichlorobenzene (1,4-Dichlorobenzene)	N/A	N/A
3,3'-Dichlorobenzidine	10.446	12.684
1,2-Dichloroethane	13128.756	15942.061
1,1-Dichloroethylene	567789.038	689458.118
Dichloromethane (Methylene Chloride)	527571.835	640622.943
1,2-Dichloropropane	5365.459	6515.200
1,3-Dichloropropene (1,3- Dichloropropylene)	5009.345	6082.776
Dicofol	7.122	8.648
Dieldrin	0.024	0.029
2,4-Dimethylphenol	13556.094	16460.971
Di-n-Butyl Phthalate	71460.320	86773.245
Dioxins/Furans (TCDD Equivalents)	1.89E-06	2.30E-06
Endrin	4.748	5.766
Ethylbenzene	169581.749	205920.695
Fluoride	N/A	N/A
Heptachlor	0.036	0.043
Heptachlor Epoxide	0.018	0.022
Hexachlorobenzene	0.107	0.130
Hexachlorobutadiene	6505.026	7898.960
Hexachlorocyclohexane (alpha)	2.208	2.681
Hexachlorocyclohexane (beta)	7.835	9.513
Hexachlorocyclohexane (gamma) (Lindane)	147.194	178.736

Hexachlorocyclopentadiene	N/A	N/A
Hexachloroethane	273.259	331.814
Hexachlorophene	68.849	83.602
Lead	251.988	305.986
Mercury	0.594	0.721
Methoxychlor	38.223	46.414
Methyl Ethyl Ketone	23,551,042	28,597,694
Nickel	27064.706	32864.286
Nitrate-Nitrogen (as Total Nitrogen)	N/A	N/A
Nitrobenzene	43992.017	53418.878
N-Nitrosodiethylamine	49.856	60.539
N-Nitroso-di-n-Butylamine	99.712	121.079
Pentachlorobenzene	23.741	28.828
Pentachlorophenol	216.043	262.338
Polychlorinated Biphenyls (PCBs)	0.015	0.018
Pyridine	22482.70	27300.42
Selenium	N/A	N/A
1,2,4,5-Tetrachlorobenzene	16.856	20.468
1,1,2,2-Tetrachloroethane	949.639	1153.133
Tetrachloroethylene	12464.009	15134.868
Thallium	5.460	6.631
Toluene	N/A	N/A
Toxaphene	0.126	0.153
2,4,5-TP (Silvex)	498.560	605.395
1,1,1-Trichloroethane	22,712,108	27,578,988
1,1,2-Trichloroethane	7003.586	8504.355
Trichloroethylene	1946.760	2363.922
2,4,5-Trichlorophenol	57809.262	70196.961
TTHM (Sum of Total Trihalomethanes)	N/A	N/A
Vinyl Chloride	569.783	691.880