TEXTOX MENU #2 - INTERMITTENT STREAM WITHIN 3 MILES OF A FRESHWATER PERENNIAL STREAM/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 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:	Mont Belvieu NGL
TPDES Permit No.:	TX0140091
Outfall No.:	002
Prepared by:	Nichole Young
Date:	5/24/2018

DISCHARGE INFORMATION

Intermittent Receiving Waterbody:	unnamed ditch - Stream Gulley (perennial)
Perennial Stream/River within 3 Miles:	Cedar Bayou Tidal
Segment No.:	0901
TSS (mg/L):	18
pH (Standard Units):	7.4
Hardness (mg/L as $CaCO_3$):	930
Chloride (mg/L):	2875
Effluent Flow for Aquatic Life (MGD):	0.24
Critical Low Flow [7Q2] (cfs) for intermittent:	
Critical Low Flow [7Q2] (cfs) for perennial:	0.13
% Effluent for Chronic Aquatic Life (Mixing Zone):	74.07
% Effluent for Acute Aquatic Life (ZID):	91.93
Effluent Flow for Human Health (MGD):	0.24
Harmonic Mean Flow (cfs) for perennial:	0.59
% Effluent for Human Health:	38.627
Public Water Supply Use?	**no**

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

Stream/River Metal	*Intercept (b)*	*Slope (m)*	*Partition Coefficient (Kp)*	*Dissolved Fraction (Cd/Ct)*		*Water Effect Ratio (WER)*	
Aluminum	N/A	N/A	N/A	1.00	Assumed	1	Assumed
Arsenic	5.68	-0.73	58029.80	0.49		1	Assumed
Cadmium	6.60	-1.13	151894.51	0.27		1	Assumed
Chromium (Total)	6.52	-0.93	225214.62	0.20		1	Assumed
Chromium (+3)	6.52	-0.93	225214.62	0.20		1	Assumed
Chromium (+6)	N/A	N/A	N/A	1.00	Assumed	1	Assumed
Copper	6.02	-0.74	123338.41	0.31		1	Assumed
Lead	6.45	-0.80	279114.24	0.17		1	Assumed
Mercury	N/A	N/A	N/A	1.00	Assumed	1	Assumed
Nickel	5.69	-0.57	94296.30	0.37		1	Assumed
Selenium	N/A	N/A	N/A	1.00	Assumed	1	Assumed
Silver	6.38	-1.03	122199.47	0.31		1	Assumed
Zinc	6.10	-0.70	166459.75	0.25		1	Assumed

AQUATIC LIFE

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS:

Parameter	*FW Acute Criterion (ug/L)*	*FW Chronic Criterion (ug/L)*	*WLAa*	*WLAc*	*LTAa*	*LTAc*	*Daily Avg. (ug/L)*	*Daily Max. (ug/L)*
Aldrin	3.0	N/A	3.26	N/A	1.87	N/A	2.75	5.82
Aluminum	991	N/A	1078	N/A	618	N/A	908	1921
Arsenic	340	150	756.165	414.046	433.282	318.816	468.659	991.516
Cadmium	74.638	1.152	303.173	5.808	173.718	4.472	6.574	13.907
Carbaryl	2.0	N/A	2.18	N/A	1.25	N/A	1.83	3.88
Chlordane	2.4	0.004	2.61	0.005	1.50	0.004	0.006	0.013
Chlorpyrifos	0.083	0.041	0.090	0.055	0.052	0.043	0.063	0.133
Chromium (+3)	3539.013	460.353	19455.767	3141.066	11148.154	2418.621	3555.372	7521.910
Chromium (+6)	15.7	10.6	17.1	14.311	9.79	11.019	14.385	30.434
Copper	116.104	63.659	406.686	276.753	233.031	213.100	313.256	662.740

Cyanide (free)	45.8	10.7	49.8	14.446	28.5	11.123	16.351	34.594
4,4'-DDT	1.1	0.001	1.20	0.001	0.686	0.001	0.002	0.003
Demeton	N/A	0.1	N/A	0.135	N/A	0.104	0.153	0.323
Diazinon	0.17	0.17	0.185	0.230	0.106	0.177	0.156	0.330
Dicofol	59.3	19.8	64.5	26.732	37.0	20.583	30.258	64.015
Dieldrin	0.24	0.002	0.261	0.003	0.150	0.002	0.003	0.006
Diuron	210	70	228	94.506	131	72.770	106.972	226.314
Endosulfan I (alpha)	0.22	0.056	0.239	0.076	0.137	0.058	0.086	0.181
Endosulfan II (beta)	0.22	0.056	0.239	0.076	0.137	0.058	0.086	0.181
Endosulfan sulfate	0.22	0.056	0.239	0.076	0.137	0.058	0.086	0.181
Endrin	0.086	0.002	0.094	0.003	0.054	0.002	0.003	0.006
Guthion	N/A	0.01	N/A	0.014	N/A	0.010	0.015	0.032
Heptachlor	0.52	0.004	0.566	0.005	0.324	0.004	0.006	0.013
Hexachlorocyclohexane (Lindane)	1.126	0.08	1.22	0.108	0.702	0.083	0.122	0.259
Lead	650.507	25.349	4262.692	206.167	2442.522	158.748	233.360	493.707
Malathion	N/A	0.01	N/A	0.014	N/A	0.010	0.015	0.032
Mercury	2.4	1.3	2.61	1.755	1.50	1.351	1.987	4.203
Methoxychlor	N/A	0.03	N/A	0.041	N/A	0.031	0.046	0.097
Mirex	N/A	0.001	N/A	0.001	N/A	0.001	0.002	0.003
Nickel	3088.881	343.079	9063.137	1249.372	5193.178	962.017	1414.165	2991.872
Nonylphenol	28	6.6	30.5	8.911	17.5	6.861	10.086	21.338
Parathion (ethyl)	0.065	0.013	0.071	0.018	0.041	0.014	0.020	0.042
Pentachlorophenol	13.040	10.004	14.184	13.507	8.128	10.400	11.948	25.277
Phenanthrene	30	30	32.6	40.503	18.7	31.187	27.488	58.154
Polychlorinated Biphenyls (PCBs)	2.0	0.014	2.18	0.019	1.25	0.015	0.021	0.045
Selenium	20	5	21.8	6.750	12.5	5.198	7.641	16.165
Silver	0.8	N/A	31.0034102	N/A	17.765	N/A	26.114	55.249
Toxaphene	0.78	0.0002	0.848	0.000	0.486	0.000	0.000	0.001
Tributyltin (TBT)	0.13	0.024	0.141	0.032	0.081	0.025	0.037	0.078
2,4,5 Trichlorophenol	136	64	148	86.406	84.8	66.532	97.803	206.916
Zinc	775.266	781.608	3370.148	4217.033	1931.095	3247.115	2838.709	6005.704

HUMAN HEALTH

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS:

Parameter	*Water and Fish Criterion (ug/L)*	*Fish Only Criterion (ug/L)*	*WLAh*	*LTAh*	*Daily Avg. (ug/L)*	*Daily Max. (ug/L)*
Acrylonitrile	0.80	3.8	9.838	9.149	13.449	28.454
Aldrin	0.00094	0.0010	0.003	0.002	0.004	0.007
Anthracene	5,569	N/A	N/A	N/A	N/A	N/A
Antimony	6	1,071	2772.680	2578.592	3790.531	8019.422
Arsenic	10	N/A	N/A	N/A	N/A	N/A
Barium	2,000	N/A	N/A	N/A	N/A	N/A
Benzene	5	513	1328.090	1235.124	1815.632	3841.236
Benzidine	0.00086	0.0020	0.005	0.005	0.007	0.015
Benzo(a)anthracene	0.68	3.28	8.491	7.897	11.609	24.560
Benzo(a)pyrene	0.068	0.33	0.854	0.795	1.168	2.471
Bis(chloromethyl)ether	0.0024	0.44	1.139	1.059	1.557	3.295
Bis(2-chloroethyl)ether	0.57	10.06	26.044	24.221	35.605	75.327
Bis(2-ethylhexyl)phthalate	6	41	106.144	98.714	145.109	306.999
Bromodichloromethane (Dichlorobromomethane)	10.2	322	833.616	775.263	1139.637	2411.068
Bromoform	69.1	2,175	5630.792	5236.637	7697.856	16285.940
Cadmium	5	N/A	N/A	N/A	N/A	N/A
Carbon Tetrachloride	4.3	30.5	78.961	73.433	107.947	228.378
Chlordane	0.0080	0.0081	0.021	0.020	0.029	0.061
Chlorobenzene	100	5,201	13464.713	12522.183	18407.609	38943.989
Chlorodibromomethane (Dibromochloromethane)	7.6	239	618.740	575.428	845.879	1789.581
Chloroform	70	7,143	18492.298	17197.838	25280.821	53485.275
Chromium (+6)	62	502	1299.613	1208.640	1776.701	3758.870
Chrysene	68.13	327	846.560	787.301	1157.333	2448.507
Cresols (Methylphenols)	1,041	9,301	24079.080	22393.544	32918.510	69643.923
Cyanide (free)	200	N/A	N/A	N/A	N/A	N/A
4,4'-DDD	0.0059	0.0059	0.015	0.014	0.021	0.044
4,4'-DDE	0.0040	0.0040	0.010	0.010	0.014	0.030

4,4'-DDT	0.0040	0.0040	0.010	0.010	0.014	0.030
2,4'-D	70	N/A	N/A	N/A	N/A	N/A
Danitol	262	473	1224.536	1138.818	1674.062	3541.724
1,2-Dibromoethane	0.17	4.24	10.977	10.208	15.006	31.748
m-Dichlorobenzene (1,3-Dichlorobenzene)	473	1,445	3740.917	3479.053	5114.208	10819.855
o-Dichlorobenzene (1,2-Dichlorobenzene)	600	4,336	11225.340	10439.566	15346.163	32467.052
p-Dichlorobenzene (1,4-Dichlorobenzene)	75	N/A	N/A	N/A	N/A	N/A
3,3'-Dichlorobenzidine	0.32	0.44	1.139	1.059	1.557	3.295
1,2-Dichloroethane	5	553	1431.645	1331.430	1957.202	4140.747
1,1-Dichloroethylene	7	23,916	61915.415	57581.336	84644.564	179077.955
Dichloromethane (Methylene Chloride)	5	22,222	57529.869	53502.778	78649.084	166393.641
1,2-Dichloropropane	5	226	585.085	544.129	799.869	1692.240
1,3-Dichloropropene (1,3- Dichloropropylene)	3.4	211	546.252	508.014	746.781	1579.923
Dicofol	0.30	0.30	0.777	0.722	1.062	2.246
Dieldrin	0.001	0.001	0.003	0.002	0.004	0.007
2,4-Dimethylphenol	257	571	1478.245	1374.768	2020.908	4275.527
Di-n-Butyl Phthalate	1,318	3,010	7792.499	7247.024	10653.125	22538.244
Dioxins/Furans (TCDD Equivalents)	7.80E-08	7.97E-08	0.000	1.92E-07	2.82E-07	5.97E-07
Endrin	0.20	0.20	0.518	0.482	0.708	1.498
Ethylbenzene	700	7,143	18492.298	17197.838	25280.821	53485.275
Fluoride	4,000	N/A	N/A	N/A	N/A	N/A
Heptachlor	0.0015	0.0015	0.004	0.004	0.005	0.011
Heptachlor Epoxide	0.00074	0.00075	0.002	0.002	0.003	0.006
Hexachlorobenzene	0.0044	0.0045	0.012	0.011	0.016	0.034
Hexachlorobutadiene	6.5	274	709.350	659.696	969.753	2051.654
Hexachlorocyclohexane (alpha)	0.050	0.093	0.241	0.224	0.329	0.696
Hexachlorocyclohexane (beta)	0.17	0.33	0.854	0.795	1.168	2.471
Hexachlorocyclohexane (gamma) (Lindane)	0.2	6.2	16.051	14.927	21.943	46.424
Hexachlorocyclopentadiene	50	N/A	N/A	N/A	N/A	N/A
Hexachloroethane	4.97	11.51	29.798	27.712	40.737	86.184
Hexachlorophene	2.05	2.90	7.508	6.982	10.264	21.715
Lead	1.15	3.83	59.731	55.550	81.658	172.759
Mercury	0.0122	0.0122	0.032	0.029	0.043	0.091
Methoxychlor	1.59	1.61	4.168	3.876	5.698	12.055
Methyl Ethyl Ketone	13,865	992,000	2568159	2388388	3510930	7427886
Nickel	332	1,140	7960.672	7403.425	10883.035	23024.652
Nitrate-Nitrogen (as Total Nitrogen)	10,000	N/A	N/A	N/A	N/A	N/A
Nitrobenzene	45	1,853	4797.176	4461.374	6558.219	13874.872
N-Nitrosodiethylamine	0.0037	2.1	5.437	5.056	7.432	15.724
N-Nitroso-di-n-Butylamine	0.119	4.2	10.873	10.112	14.865	31.449
Pentachlorobenzene	1.0	1.0	2.589	2.408	3.539	7.488
Pentachlorophenol	0.80	9.1	23.559	21.910	32.207	68.139
Polychlorinated Biphenyls (PCBs)	6.4E-04	6.4E-04	1.66E-03	1.54E-03	2.27E-03	4.79E-03
Pyridine	23	947	2451.660	2280.044	3351.664	7090.936
Selenium	50	N/A	N/A	N/A	N/A	N/A
1,2,4,5-Tetrachlorobenzene	0.65	0.71	1.838	1.709	2.513	5.316
1,1,2,2-Tetrachloroethane	1.7	40	103.555	96.306	141.570	299.512
Tetrachloroethylene	5	525	1359.157	1264.016	1858.103	3931.089
Thallium	0.12	0.23	0.595	0.554	0.814	1.722
Toluene	1,000	N/A	N/A	N/A	N/A	N/A
Toxaphene	0.0053	0.0053	0.014	0.013	0.019	0.040
2,4,5-TP (Silvex)	19	21	54.366	50.561	74.324	157.244
1,1,1-Trichloroethane	200	956,663	2476676	2303309	3385864	7163290
1,1,2-Trichloroethane	5	295	763.717	710.256	1044.077	2208.898
Trichloroethylene	5	82	212.287	197.427	290.218	613.999
2,4,5-Trichlorophenol	1,194	2,435	6303.898	5862.626	8618.060	18232.765
TTHM (Sum of Total Trihalomethanes)	80	N/A	N/A	N/A	N/A	N/A
Vinyl Chloride	0.25	24	62.133	57.784	84.942	179.707

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

Aquatic Life

Parameter	***70%***	***85%***
Aldrin	1.92	2.34

Aluminum	636	772
Arsenic	328.061	398.360
Cadmium	4.602	5.588
Carbaryl	1.28	1.56
Chlordane	0.004	0.005
Chlorpyrifos	0.044	0.053
Chromium (+3)	2488.761	3022.067
Chromium (+6)	10.070	12.227
Copper	219.279	266.268
Cyanide (free)	11.446	13.899
4,4'-DDT	0.001	0.001
Demeton	0.107	0.130
Diazinon	0.109	0.132
Dicofol	21.180	25.719
Dieldrin	0.002	0.003
Diuron	74.880	90.926
Endosulfan (alpha)	0.060	0.073
Endosulfan (beta)	0.060	0.073
Endosulfan sulfate	0.060	0.073
Endrin	0.002	0.003
Guthion	0.011	0.013
Heptachlor	0.004	0.005
Hexachlorocyclohexane (Lindane)	0.086	0.104
Lead	163.352	198.356
Malathion	0.011	0.013
Mercury	1.391	1.689
Methoxychlor	0.032	0.039
Mirex	0.001	0.001
Nickel	989.915	1202.040
Nonylphenol	7.060	8.573
Parathion (ethyl)	0.014	0.017
Pentachlorophenol	8.363	10.156
Phenanthrene	19.241	23.364
Polychlorinated Biphenyls (PCBs)	0.015	0.018
Selenium	5.349	6.495
Silver	18.280	22.197
Toxaphene	0.000	0.000
Tributyltin (TBT)	0.026	0.031
2,4,5 Trichlorophenol	68.462	83.132
Zinc	1987.096	2412.903

Human Health

Parameter	***70%***	***85%***
Acrylonitrile	9.414	11.432
Aldrin	0.002	0.003
Anthracene	N/A	N/A
Antimony	2653.371	3221.951
Arsenic	N/A	N/A
Barium	N/A	N/A
Benzene	1270.943	1543.287
Benzidine	0.005	0.006
Benzo(a)anthracene	8.126	9.867
Benzo(a)pyrene	0.818	0.993
Bis(chloromethyl)ether	1.090	1.324
Bis(2-chloroethyl)ether	24.923	30.264
Bis(2-ethylhexyl)phthalate	101.576	123.343
Bromodichloromethane (Dichlorobromomethane)	797.746	968.691
Bromoform	5388.499	6543.178
Cadmium	N/A	N/A
Carbon Tetrachloride	75.563	91.755
Chlordane	0.020	0.024
Chlorobenzene	12885.326	15646.468
Chlorodibromomethane (Dibromochloromethane)	592.116	718.997
Chloroform	17696.575	21488.698

Chromium (+6)	1243.690	1510.195
Chrysene	810.133	983.733
Cresols (Methylphenols)	23042.957	27980.734
Cyanide (free)	N/A	N/A
4,4'-DDD	0.015	0.018
4,4'-DDE	0.010	0.012
4,4'-DDT	0.010	0.012
2,4'-D	N/A	N/A
Danitol	1171.844	1422.953
1,2-Dibromoethane	10.504	12.755
m-Dichlorobenzene (1,3-Dichlorobenzene)	3579.945	4347.077
o-Dichlorobenzene (1,2-Dichlorobenzene)	10742.314	13044.238
p-Dichlorobenzene (1,4-Dichlorobenzene)	N/A	N/A
3,3'-Dichlorobenzidine	1.090	1.324
1,2-Dichloroethane	1370.041	1663.622
1,1-Dichloroethylene	59251.195	71947.879
Dichloromethane (Methylene Chloride)	55054.359	66851.721
1,2-Dichloropropane	559.908	679.889
1,3-Dichloropropene (1,3- Dichloropropylene)	522.746	634.763
Dicofol	0.743	0.903
Dieldrin	0.002	0.003
2,4-Dimethylphenol	1414.636	1717.772
Di-n-Butyl Phthalate	7457.187	9055.156
Dioxins/Furans (TCDD Equivalents)	1.97E-07	2.40E-07
Endrin	0.495	0.602
Ethylbenzene	17696.575	21488.698
Fluoride	N/A	N/A
Heptachlor	0.004	0.005
Heptachlor Epoxide	0.002	0.002
Hexachlorobenzene	0.011	0.014
Hexachlorobutadiene	678.827	824.290
Hexachlorocyclohexane (alpha)	0.230	0.280
Hexachlorocyclohexane (beta)	0.818	0.993
Hexachlorocyclohexane (gamma) (Lindane)	15.360	18.652
Hexachlorocyclopentadiene	N/A	N/A
Hexachloroethane	28.516	34.626
Hexachlorophene	7.185	8.724
Lead	57.161	69.409
Mercury	0.030	0.037
Methoxychlor	3.989	4.843
Methyl Ethyl Ketone	2457651	2984291
Nickel	7618.124	9250.580
Nitrate-Nitrogen (as Total Nitrogen)	N/A	N/A
Nitrobenzene	4590.754	5574.487
N-Nitrosodiethylamine	5.203	6.318
N-Nitroso-di-n-Butylamine	10.405	12.635
Pentachlorobenzene	2.477	3.008
Pentachlorophenol	22.545	27.376
Polychlorinated Biphenyls (PCBs)	1.59E-03	1.93E-03
Pyridine	2346.165	2848.915
Selenium	N/A	N/A
1,2,4,5-Tetrachlorobenzene	1.759	2.136
1,1,2,2-Tetrachloroethane	99.099	120.334
Tetrachloroethylene	1300.672	1579.388
Thallium	0.570	0.692
Toluene	N/A	N/A
Toxaphene	0.013	0.016
2,4,5-TP (Silvex)	52.027	63.176
1,1,1-Trichloroethane	2370105	2877984
1,1,2-Trichloroethane	730.854	887.465
Trichloroethylene	203.153	246.685
2,4,5-Trichlorophenol	6032.642	7325.351
TTHM (Sum of Total Trihalomethanes)	N/A	N/A
Vinyl Chloride	59.459	72.201