

TEXTTOX 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, 2018 Texas Surface Water Quality Standards for Human Health

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

PERMIT INFORMATION

Permittee Name:	American Midstream
TPDES Permit No.:	TX0000485
Outfall No.:	002
Prepared by:	Maria Okpala
Date:	6/12/2019

DISCHARGE INFORMATION

Intermittent Receiving Waterbody:	Unnamed Intermittent Freshwater Stream
Perennial Stream/River within 3 Miles:	Sabine River Above Toledo Bend Reservoir
Segment No.:	505
TSS (mg/L):	16
pH (Standard Units):	6.7
Hardness (mg/L as CaCO ₃):	42
Chloride (mg/L):	39
Effluent Flow for Aquatic Life (MGD):	0.01295
Critical Low Flow [7Q2] (cfs) for intermittent:	0
Critical Low Flow [7Q2] (cfs) for perennial:	47.27
% Effluent for Chronic Aquatic Life (Mixing Zone):	0.04
% Effluent for Acute Aquatic Life (ZID):	100
Effluent Flow for Human Health (MGD):	0.01295
Harmonic Mean Flow (cfs) for perennial:	146.01
% Effluent for Human Health:	0.014
Human Health Criterion (select: PWS, FISH, or INC)	PWS

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>Source</i>	<i>Water Effect Ratio (WER)</i>	<i>Source</i>
Aluminum	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Arsenic	5.68	-0.73	63240.08	0.497		1.00	Assumed
Cadmium	6.60	-1.13	173517.95	0.265		1.00	Assumed
Chromium (total)	6.52	-0.93	251286.07	0.199		1.00	Assumed
Chromium (trivalent)	6.52	-0.93	251286.07	0.199		1.00	Assumed
Chromium (hexavalent)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Copper	6.02	-0.74	134570.92	0.317		1.00	Assumed
Lead	6.45	-0.80	306693.11	0.169		1.00	Assumed
Mercury	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Nickel	5.69	-0.57	100844.36	0.383		1.00	Assumed
Selenium	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Silver	6.38	-1.03	137961.03	0.312		1.00	Assumed
Zinc	6.10	-0.70	180765.69	0.257		1.00	Assumed

AQUATIC LIFE

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS:

<i>Parameter</i>	<i>FW Acute Criterion (µg/L)</i>	<i>FW Chronic Criterion (µg/L)</i>	<i>WLAa (µg/L)</i>	<i>WLAc</i>	<i>(µg/L)</i>	<i>LTAa (µg/L)</i>	<i>LTAc</i>	<i>(µg/L)</i>	<i>Daily Avg. (µg/L)</i>	<i>Daily Max. (µg/L)</i>
Aldrin	3.0	N/A	3.0		N/A	1.72		N/A	2.53	5.35
Aluminum	991	N/A	991		N/A	568		N/A	835	1766
Arsenic	340	150	684		712250	392		548432	576	1219
Cadmium	3.7	0.135	13.9		1198.97	8.0		923.21	11.74	24.83
Carbaryl	2.0	N/A	2.0		N/A	1.15		N/A	1.68	3.56
Chlordane	2.4	0.004	2.4		9.4408	1.38		7.2694	2.0215	4.2769
Chlorpyrifos	0.083	0.041	0.083		96.768	0.048		74.511	0.070	0.148
Chromium (trivalent)	280	36	1406		431564	805		332305	1184	2505
Chromium (hexavalent)	15.7	10.6	15.7		25018.0	9.00		19263.9	13.2	28.0
Copper	6.3	4.5	19.8		33577.5	11.3		25854.7	16.7	35
Cyanide (free)	45.8	10.7	45.8		25254.1	26.2		19445.6	38.6	81.6
4,4'-DDT	1.1	0.001	1.1		2.3602	0.630		1.8173	0.9265	1.9602
Demeton	N/A	0.1	N/A		236.019	N/A		181.735	267.150	565.195
Diazinon	0.17	0.17	0.17		401.233	0.097		308.949	0.143	0.303
Dicofol [Kelthane]	59.3	19.8	59.3		46731.8	34.0		35983.5	49.9	105.7
Dieldrin	0.24	0.002	0.24		4.7204	0.138		3.6347	0.2022	0.4277
Diuron	210	70	210		165213	120		127214	177	374
Endosulfan I (<i>alpha</i>)	0.22	0.056	0.22		132.171	0.126		101.772	0.185	0.392
Endosulfan II (<i>beta</i>)	0.22	0.056	0.22		132.171	0.126		101.772	0.185	0.392
Endosulfan sulfate	0.22	0.056	0.22		132.171	0.126		101.772	0.185	0.392
Endrin	0.086	0.002	0.086		4.7204	0.049		3.6347	0.0724	0.1533
Guthion [Azinphos Methyl]	N/A	0.01	N/A		23.602	N/A		18.173	26.715	56.520
Heptachlor	0.52	0.004	0.52		9.4408	0.298		7.2694	0.4380	0.9267
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	1.126	0.08	1.126		188.815	0.645		145.388	0.948	2.007
Lead	25	0.97	147		13487.3	84		10385.2	123.5	261
Malathion	N/A	0.01	N/A		23.602	N/A		18.173	26.715	56.520
Mercury	2.4	1.3	2.4		3068.25	1.38		2362.55	2.02	4.28
Methoxychlor	N/A	0.03	N/A		70.806	N/A		54.520	80.145	169.559
Mirex	N/A	0.001	N/A		2.3602	N/A		1.8173	2.6715	5.6520
Nickel	225	25.0	587		153992	337		118574	495	1047
Nonylphenol	28	6.6	28		15577.3	16.0		11994.50	23.6	49.9
Parathion (ethyl)	0.065	0.013	0.065		30.683	0.037		23.626	0.055	0.116
Pentachlorophenol	6.5	5.0	6.5		11684.3	3.7		8996.9	5.4	11.5
Phenanthrene	30	30	30		70805.8	17.2		54520.5	25.3	53.5
Polychlorinated Biphenyls [PCBs]	2.0	0.014	2.0		33.043	1.15		25.443	1.685	3.564
Selenium	20	5	20		11800.96	11.5		9086.74	16.8	35.6
Silver	0.8	N/A	9.02		N/A	5.17		N/A	7.60	16.1
Toxaphene	0.78	0.0002	0.78		0.47204	0.447		0.36347	0.53430	1.13039
Tributyltin [TBT]	0.13	0.024	0.13		56.645	0.074		43.616	0.110	0.232
2,4,5 Trichlorophenol	136	64	136		151052	77.9		116310.3	115	242
Zinc	56	57	219		520380	125		400693	184	390

HUMAN HEALTH

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS:

<i>Parameter</i>	<i>Water and Fish Criterion (µg/L)</i>	<i>Fish Only Criterion (µg/L)</i>	<i>Incidental Fish Criterion (µg/L)</i>	<i>WLAh (µg/L)</i>	<i>LTAh (µg/L)</i>	<i>Daily Avg. (µg/L)</i>	<i>Daily Max. (µg/L)</i>
Acrylonitrile	1.0	115	1150	7288.20	6778.02	9963.69	21079.65
Aldrin	1.146E-05	1.147E-05	1.147E-04	8.35E-02	7.77E-02	1.14E-01	2.42E-01
Anthracene	1109	1317	13170	8082609	7516826	11049735	23377330
Antimony	6	1071	10710	43729.2	40668.1	59782.2	126477.9
Arsenic	10	N/A	N/A	146626.9	136363.0	200453.7	424089
Barium	2000	N/A	N/A	14576391	13556044	19927384	42159296
Benzene	5	581	5810	36441.0	33890.1	49818.5	105398.2
Benzidine	0.0015	0.107	1.07	10.9323	10.1670	14.9455	31.6195
Benzo(a)anthracene	0.024	0.025	0.25	174.917	162.673	239.129	505.912
Benzo(a)pyrene	0.0025	0.0025	0.025	18.2205	16.9451	24.909	52.699
Bis(chloromethyl)ether	0.0024	0.2745	2.745	17.4917	16.2673	23.913	50.591
Bis(2-chloroethyl)ether	0.60	42.83	428.3	4372.92	4066.81	5978.22	12647.79
Bis(2-ethylhexyl) phthalate [Di(2-ethylhexyl) phthalate]	6	7.55	75.5	43729.2	40668.1	59782.2	126477.9
Bromodichloromethane [Dichlorobromomethane]	10.2	275	2750	74339.6	69135.8	101629.7	215012
Bromoform [Tribromomethane]	66.9	1060	10600	487580	453450	666571	1410228
Cadmium	5	N/A	N/A	137611.6	127978.8	188128.8	398014
Carbon Tetrachloride	4.5	46	460	32796.9	30501.1	44836.6	94858.4
Chlordane	0.0025	0.0025	0.025	18.2205	16.9451	24.909	52.699
Chlorobenzene	100	2737	27370	728820	677802	996369	2107965
Chlorodibromomethane [Dibromochloromethane]	7.5	183	1830	54661.5	50835.2	74727.7	158097.4
Chloroform [Trichloromethane]	70	7697	76970	510174	474462	697458	1475575
Chromium (hexavalent)	62	502	5020	451868	420237	617749	1306938
Chrysene	2.45	2.52	25.2	17856.08	16606.15	24411.0	51645.1
Cresols [Methylphenols]	1041	9301	93010	7587012	7055921	10372204	21943914
Cyanide (free)	200	N/A	N/A	1457639	1355604	1992738	4215930
4,4'-DDD	0.002	0.002	0.02	14.5764	13.5560	19.9274	42.1593
4,4'-DDE	0.00013	0.00013	0.0013	0.94747	0.88114	1.29528	2.74035
4,4'-DDT	0.0004	0.0004	0.004	2.9153	2.7112	3.9855	8.4319
2,4'-D	70	N/A	N/A	510174	474462	697458	1475575
Danitol [Fenpropathrin]	262	473	4730	1909507	1775842	2610487	5522868
1,2-Dibromoethane [Ethylene Dibromide]	0.17	4.24	42.4	1238.993	1152.264	1693.828	3583.54
m-Dichlorobenzene [1,3-Dichlorobenzene]	322	595	5950	2346799	2182523	3208309	6787647
o-Dichlorobenzene [1,2-Dichlorobenzene]	600	3299	32990	4372917	4066813	5978215	12647789
p-Dichlorobenzene [1,4-Dichlorobenzene]	75	N/A	N/A	546615	508352	747277	1580974
3,3'-Dichlorobenzidine	0.79	2.24	22.4	5757.67	5354.64	7871.32	16652.92
1,2-Dichloroethane	5	364	3640	36441.0	33890.1	49818.5	105398.2
1,1-Dichloroethylene [1,1-Dichloroethene]	7	55114	551140	51017.4	47446.2	69745.8	147557.5
Dichloromethane [Methylene Chloride]	5	13333	133330	36441.0	33890.1	49818.5	105398.2
1,2-Dichloropropane	5	259	2590	36441.0	33890.1	49818.5	105398.2
1,3-Dichloropropene [1,3-Dichloropropylene]	2.8	119	1190	20406.95	18978.46	27898.3	59023.0
Dicofol [Kelthane]	0.30	0.30	3	2186.46	2033.407	2989.11	6323.89
Dieldrin	2.0E-05	2.0E-05	2.0E-04	0.145764	0.135560	0.199274	0.421593
2,4-Dimethylphenol	444	8436	84360	3235959	3009442	4423879	9359364
Di-n-Butyl Phthalate	88.9	92.4	924	647921	602566	885772	1873981
Dioxins/Furans [TCDD Equivalents]	7.80E-08	7.97E-08	7.97E-07	5.68E-04	5.29E-04	7.77E-04	1.64E-03
Endrin	0.02	0.02	0.2	145.764	135.560	199.274	421.593
Epichlorohydrin	53.5	2013	20130	389918	362624	533058	1127761
Ethylbenzene	700	1867	18670	5101737	4744615	6974585	14755754
Ethylene Glycol	46744	1.68E+07	1.68E+08	340679416	316831857	465742829	985347074

Fluoride	4000	N/A	N/A	29152782	27112088	39854769	84318593
Heptachlor	8.0E-05	0.0001	0.001	0.58306	0.54224	0.79710	1.68637
Heptachlor Epoxide	0.00029	0.00029	0.0029	2.1136	1.9656	2.8895	6.1131
Hexachlorobenzene	0.00068	0.00068	0.0068	4.9560	4.6091	6.7753	14.3342
Hexachlorobutadiene	0.21	0.22	2.2	1530.521	1423.385	2092.375	4426.726
Hexachlorocyclohexane (<i>alpha</i>)	0.0078	0.0084	0.084	56.848	52.869	77.717	164.421
Hexachlorocyclohexane (<i>beta</i>)	0.15	0.26	2.6	1093.229	1016.703	1494.554	3161.95
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	0.2	0.341	3.41	1457.639	1355.604	1992.738	4215.93
Hexachlorocyclopentadiene	10.7	11.6	116	77983.7	72524.8	106611.5	225552
Hexachloroethane	1.84	2.33	23.3	13410.28	12471.56	18333.19	38786.6
Hexachlorophene	2.05	2.90	29	14940.80	13894.94	20425.57	43213.3
4,4'-Isopropylidenediphenol [Bisphenol A]	1092	15982	159820	7958710	7401600	10880352	23018976
Lead	1.15	3.83	38.3	49509.8	46044.1	67684.9	143197.3
Mercury	0.0122	0.0122	0.122	88.916	82.692	121.557	257.172
Methoxychlor	2.92	3.0	30	21281.5	19791.82	29094.0	61552.6
Methyl Ethyl Ketone	13865	9.92E+05	9.92E+06	101050832	93977274	138146593	292269322
Methyl <i>tert</i> -butyl ether [MTBE]	15	10482	104820	109322.9	101670.3	149455.4	316195
Nickel	332	1140	11400	6323860	5881190	8645349	18290499
Nitrate-Nitrogen (as Total Nitrogen)	10000	N/A	N/A	72881956	67780219	99636922	210796482
Nitrobenzene	45.7	1873	18730	333071	309756	455341	963340
N-Nitrosodiethylamine	0.0037	2.1	21	26.966	25.079	36.866	77.995
N-Nitroso-di- <i>n</i> -Butylamine	0.119	4.2	42	867.295	806.585	1185.679	2508.48
Pentachlorobenzene	0.348	0.355	3.55	2536.29	2358.75	3467.36	7335.72
Pentachlorophenol	0.22	0.29	2.9	1603.403	1491.165	2192.01	4637.52
Polychlorinated Biphenyls [PCBs]	6.4E-04	6.4E-04	6.40E-03	4.6644	4.3379	6.3768	13.4910
Pyridine	23	947	9470	167628.5	155894.5	229165	484832
Selenium	50	N/A	N/A	364410	338901	498185	1053982
1,2,4,5-Tetrachlorobenzene	0.23	0.24	2.4	1676.285	1558.945	2291.65	4848.32
1,1,2,2-Tetrachloroethane	1.64	26.35	263.5	11952.64	11115.96	16340.46	34570.6
Tetrachloroethylene [Tetrachloroethylene]	5	280	2800	36441.0	33890.1	49818.5	105398.2
Thallium	0.12	0.23	2.3	874.583	813.363	1195.643	2529.56
Toluene	1000	N/A	N/A	7288196	6778022	9963692	21079648
Toxaphene	0.011	0.011	0.11	80.170	74.558	109.601	231.876
2,4,5-TP [Silvex]	50	369	3690	364410	338901	498185	1053982
1,1,1-Trichloroethane	200	784354	7843540	1457639	1355604	1992738	4215930
1,1,2-Trichloroethane	5	166	1660	36441.0	33890.1	49818.5	105398.2
Trichloroethylene [Trichloroethene]	5	71.9	719	36441.0	33890.1	49818.5	105398.2
2,4,5-Trichlorophenol	1039	1867	18670	7572435	7042365	10352276	21901754
TTHM [Sum of Total Trihalomethanes]	80	N/A	N/A	583056	542242	797095	1686372
Vinyl Chloride	0.23	16.5	165	1676.285	1558.945	2291.65	4848.32

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

Outfall 002

Aquatic Life Parameter	70% of Daily Avg. (µg/L)	85% of Daily Avg. (µg/L)
Aldrin	1.77	2.15
Aluminum	584	710
Arsenic	403	490
Cadmium	8.22	9.98
Carbaryl	1.18	1.43
Chlordane	1.4151	1.7183

182.43

4.2

Chlorpyrifos	0.049	0.059
Chromium (trivalent)	829	1006
Chromium (hexavalent)	9.26	11.2
Copper	11.7	14.2
Cyanide (free)	27.0	32.8
4,4'-DDT	0.6486	0.7876
Demeton	187.005	227.078
Diazinon	0.100	0.122
Dicofol [Kelthane]	35.0	42.5
Dieldrin	0.1415	0.1718
Diuron	124	150
Endosulfan I (<i>alpha</i>)	0.130	0.158
Endosulfan II (<i>beta</i>)	0.130	0.158
Endosulfan sulfate	0.130	0.158
Endrin	0.0507	0.0616
Guthion [Azinphos Methyl]	18.701	22.708
Heptachlor	0.3066	0.3723
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	0.664	0.806
Lead	86.5	105.0
Malathion	18.701	22.708
Mercury	1.42	1.72
Methoxychlor	56.102	68.123
Mirex	1.8701	2.2708
Nickel	346	421
Nonylphenol	16.51	20.0
Parathion (ethyl)	0.038	0.047
Pentachlorophenol	3.8	4.6
Phenanthrene	17.7	21.5
Polychlorinated Biphenyls [PCBs]	1.179	1.432
Selenium	11.79	14.32
Silver	5.32	6.46
Toxaphene	0.37401	0.45416
Tributyltin [TBT]	0.077	0.093
2,4,5 Trichlorophenol	80.2	97.4
Zinc	129	157

3.25

1.325

20.4

	70% of	85% of
Human Health	Daily Avg.	Daily Avg.
Parameter	(µg/L)	(µg/L)
Acrylonitrile	6974.58	8469.14
Aldrin	0.079929	0.097056
Anthracene	7734814	9392274
Antimony	41847.5	50814.8
Arsenic	140317.6	170385.6
Barium	13949169	16938277
Benzene	34872.9	42345.7
Benzidine	10.4619	12.7037
Benzo(a)anthracene	167.390	203.259
Benzo(a)pyrene	17.4365	21.1728
Bis(chloromethyl)ether	16.7390	20.3259
Bis(2-chloroethyl)ether	4184.75	5081.48
Bis(2-ethylhexyl) phthalate [Di(2-ethylhexyl) phthalate]	41847.5	50814.8
Bromodichloromethane [Dichlorobromomethane]	71140.8	86385.2

Bromoform [Tribromomethane]	466600	566585
Cadmium	131690.2	159909.5
Carbon Tetrachloride	31385.6	38111.1
Chlordane	17.4365	21.1728
Chlorobenzene	697458	846914
Chlorodibromomethane [Dibromochloromethane]	52309.4	63518.5
Chloroform [Trichloromethane]	488221	592840
Chromium (hexavalent)	432424	525087
Chrysene	17087.73	20749.39
Cresols [Methylphenols]	7260543	8816373
Cyanide (free)	1394917	1693828
4,4'-DDD	13.9492	16.9383
4,4'-DDE	0.90670	1.10099
4,4'-DDT	2.7898	3.3877
2,4'-D	488221	592840
Danitol [Fenpropathrin]	1827341	2218914
1,2-Dibromoethane [Ethylene Dibromide]	1185.679	1439.754
<i>m</i> -Dichlorobenzene [1,3-Dichlorobenzene]	2245816	2727063
<i>o</i> -Dichlorobenzene [1,2-Dichlorobenzene]	4184751	5081483
<i>p</i> -Dichlorobenzene [1,4-Dichlorobenzene]	523094	635185
3,3'-Dichlorobenzidine	5509.92	6690.62
1,2-Dichloroethane	34872.9	42345.7
1,1-Dichloroethylene [1,1-Dichloroethene]	48822.1	59284.0
Dichloromethane [Methylene Chloride]	34872.9	42345.7
1,2-Dichloropropane	34872.9	42345.7
1,3-Dichloropropene [1,3-Dichloropropylene]	19528.84	23713.6
Dicofol [Kelthane]	2092.375	2540.74
Dieldrin	0.139492	0.169383
2,4-Dimethylphenol	3096716	3760297
Di- <i>n</i> -Butyl Phthalate	620041	752906
Dioxins/Furans [TCDD Equivalents]	5.44E-04	6.61E-04
Endrin	139.492	169.383
Epichlorohydrin	373140	453099
Ethylbenzene	4882209	5928397
Ethylene Glycol	326019981	395881405
Fluoride	27898338	33876554
Heptachlor	0.55797	0.67753
Heptachlor Epoxide	2.0226	2.4561
Hexachlorobenzene	4.7427	5.7590
Hexachlorobutadiene	1464.663	1778.519
Hexachlorocyclohexane (<i>alpha</i>)	54.402	66.059
Hexachlorocyclohexane (<i>beta</i>)	1046.188	1270.371
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	1394.917	1693.828
Hexachlorocyclopentadiene	74628.1	90619.8
Hexachloroethane	12833.24	15583.21
Hexachlorophene	14297.90	17361.73
4,4'-Isopropylidenediphenol [Bisphenol A]	7616246	9248299
Lead	47379.4	57532.2
Mercury	85.090	103.323
Methoxychlor	20365.79	24729.9
Methyl Ethyl Ketone	96702615	117424604
Methyl <i>tert</i> -butyl ether [MTBE]	104618.8	127037.1
Nickel	6051744	7348546

Nitrate-Nitrogen (as Total Nitrogen)	69745846	84691384
Nitrobenzene	318739	387040
N-Nitrosodiethylamine	25.806	31.336
N-Nitroso-di- <i>n</i> -Butylamine	829.976	1007.827
Pentachlorobenzene	2427.16	2947.26
Pentachlorophenol	1534.409	1863.210
Polychlorinated Biphenyls [PCBs]	4.4637	5.4202
Pyridine	160415.4	194790.2
Selenium	348729	423457
1,2,4,5-Tetrachlorobenzene	1604.154	1947.902
1,1,2,2-Tetrachloroethane	11438.32	13889.39
Tetrachloroethylene [Tetrachloroethylene]	34872.9	42345.7
Thallium	836.950	1016.297
Toluene	6974585	8469138
Toxaphene	76.720	93.161
2,4,5-TP [Silvex]	348729	423457
1,1,1-Trichloroethane	1394917	1693828
1,1,2-Trichloroethane	34872.9	42345.7
Trichloroethylene [Trichloroethene]	34872.9	42345.7
2,4,5-Trichlorophenol	7246593	8799435
TTHM [Sum of Total Trihalomethanes]	557967	677531
Vinyl Chloride	1604.154	1947.902