SECTION 5

CLEAN AIR ACT
APPLICABILITY DETERMINATION

SECTION 5

AIR QUALITY

The following information will assist in understanding the table on volatile organic compound (VOC) emissions expected form construction of the tentatively selected plan:

1. The table was developed from information contained in the cost estimate for lock construction.

2. The table shows emissions from equipment that would be used for multiple construction contracts. The total lock construction period would span 3 years. To obtain an average annual amount of emissions, the total number of hours each type of equipment would be on site is divided by 3. The total hours on site is the number of work hours, which would be 8 to 10 hours for most types of equipment per work day.

5. The table is subdivided by equipment horsepower (hp). Diesel powered equipment with <600hp have a different emission factor than those with >600 hp.

6. The multiplying factor for time is necessary to compensate for equipment non-use during worker breaks, lunch time, equipment maintenance time, and non-use time. The 0.83 time factor is simply the assumption that, on average, equipment would be used about 50 minutes out of each work day hour.

7. The multiplying factor for horsepower (hp) is necessary because the equipment would be used at only a percentage of its rated horsepower. Emissions would be less than for equipment run at their full throttle rating.

8. Annual horsepower hours are obtained by multiplying the hours on site, times the hp, times the time factor, times the hp factor. The annual horsepower hours are multiplied by the emission factors to obtain tons of VOC emissions.

Table 5-1
Bayou Sorrel Lock / VOC Emissions

Task	Equipment Item (Equipment <600hp)	Total Hours On Site 3-years	Hours/ Year On Site	Fuel Type	hp	Multiplying Factor Time	Multiplying Factor % hp	Annual hp hours
General	Chipspreader, 10' Wide	9	3	D	148	0.83	0.70	258
	Air Compressor, 375 CFM, 100 PSI	685	228	D	115	0.83	0.65	14,166
	Air Compressor, 750 CFM, 100 PSI	60	20	D	240	0.83	0.65	2,590
	Air Compressor, 1600 CFM, 100 PSI	6,146	2,049	D	435	0.83	0.65	480,786
	Concrete Pump, 117cy/hr, 75' Boom	4	1	D	210	0.83	0.30	70
	Concrete Pump, 117cy/hr, 92' Boom	60	20	D	210	0.83	0.30	1,046
	Crane, Hydraulic, 60 Ton, 115' Boom	9,442	3,147	D	300	0.83	0.50	391,843
	Crane, Drag/Clam, 4.5 cy, 95' Boom	381	127	D	311	0.83	0.50	16,391
	Crane, Lifting, 85 Ton, 160' Boom	6,191	2,064	D	213	0.83	0.50	182,418
	Motor Grader, Artic, Cat 12-G	9	3	D	140	0.83	0.70	244
	Hydraulic Excavator, Crawler, 1.5 cy	60	20	D	128	0.83	0.70	1,487
	Hydraulic Excavator, Crawler, 1.25 cy	4,014	1,338	D	128	0.83	0.70	99,504
	Hydraulic Excavator, Crawler, 2.0 cy	3,305	1,102	D	222	0.83	0.70	142,095
	Hydraulic Excavator, Crawler, 1.5 cy	32	11	D	128	0.83	0.70	793
	Loader, Crawler, 1.5 cy	129	43	D	90	0.83	0.70	2,248
	Loader, Crawler, 3.75 cy	149	50	D	210	0.83	0.70	6,060
	Pile Extractor, 40 Ton Line Pull	60	20	D	300	0.83	0.70	3,486
	Pile Hammer, Vib, 40 Ton	120	40	D	175	0.83	0.65	3,777
	Pile Hammer, Vib, 116 Ton	45	15	D	325	0.83	0.65	2,630
	Dozer, Crawler, D-5H	8,027	2,676	D	90	0.83	0.70	139,911
	Dozer, Crawler, D-6H	180	60	D	185	0.83	0.70	6,449
	Dozer, Crawler, D-8L	130	43	D	305	0.83	0.70	7,679
	Dozer, Crawler, D-8N	60	20	D	305	0.83	0.70	3,544
	Dozer, Crawler, D-9N	225	75	D	405	0.83	0.70	17,648
	Truck, Highway, 43,000GVW	27,269	9,090	D	210	0.83	0.70	1,109,030
	Truck, Highway, 54,000GVW	120	40	D	275	0.83	0.70	6,391
	Truck, Highway, 30,000GVW	60	20	D	200	0.83	0.70	2,324
	Truck, Water, Off-Hwy	9	3	D	300	0.83	0.30	224
	Welder, 400 Amp, w/Trailer	120	40	D	44	0.83	0.70	1,023
Lock	Hydraulic Excavator, Crawler, 1.25 cy	10	3	D	128	0.83	0.70	248
	Dozer, Crawler, D-5H	20	7	D	90	0.83	0.70	349
	Air Compressor, 1600 CFM, 100 PSI	3,497	1,166	D	435	0.83	0.65	273,562
	Crane, Lifting, 85 Ton, 160' Boom	3,497	1,166	D	213	0.83	0.50	103,039
	Crane, Lifting, 85 Ton, 160' Boom	222	74	D	213	0.83	0.50	6,541
	Pile Hammer, Vib, 116 Ton	222	74	D	325	0.83	0.65	12,975
	Crane, Hydraulic, 60 Ton, 115' Boom	1,050	350	D	300	0.83	0.50	43,575
	Crane, Hydraulic, 60 Ton, 115' Boom	1,803	601	D	300	0.83	0.50	74,825
	Air Compressor, 375 CFM, 100 PSI	846	282	D	115	0.83	0.60	16,150
	Crane, Hydraulic, 60 Ton, 115' Boom	3,252	1,084	D	300	0.83	0.50	134,958
	Concrete Pump, 117cy/hr, 75' Boom	10	3	D	210	0.83	0.30	174
	Crane, Hydraulic, 60 Ton, 115' Boom	47	16	D	300	0.83	0.50	1,951
	Chipspreader, 10' Wide	15	5	D	148	0.83	0.70	430
	Motor Grader, Artic, Cat 12-G	15	5	D	140	0.83	0.70	407
	Loader, Crawler, 1.5 cy	15	5	D	90	0.83	0.70	261
	Dozer, Crawler, D-8N	15	5	D	305	0.83	0.70	886
	Truck, Highway, 43,000GVW	35	12	D	210	0.83	0.30	610
	Truck, Water, Off-Hwy	15	5	D	300	0.83	0.30	374
Dredging	Dozer D-5	8,270	2,757	D	90	0.83	0.70	144,146
	Backhoe, Cat 330L	8,040	2,680	D	222	0.83	0.70	345,672
	Truck, Dump, 13 cy, Cat D25	27,960	9,320	D	260	0.83	0.30	603,377
	Dozer D-4	4,020	1,340	D	80	0.83	0.70	62,283
	Water Pump, 8"	8,040	2,680	D	85	0.83	0.50	94,537
	Dozer, D-5	7,447	2,482	D	90	0.83	0.70	129,801
	Survey Boat	1,417	472	D	600	0.83	0.50	117,611
	Tugboat	1,417	472	D	600	0.83	0.70	164,655
	Tender	2,834	945	D	300	0.83	0.70	164,655
	Derrick	1,417	472	D	175	0.83	0.50	34,303
	Manitowoc 3900 Dragline	1,417	472	D	335	0.83	0.50	65,666
	Skidder, Cat 515	1,417	472	D	140	0.83	0.70	38,420

Table 5-1 (continued)
Bayou Sorrel Lock / VOC Emissions

General	Truck, Highway, 8,800GVW, 4X4 Pickup	181	60	G	250	0.83	0.30	3,756
	Chainsaw, 31" bar	346	115	G	5	0.83	1.00	479
	Compactor, Rammer, 9"X13.8" Shoe	120	40	G	3	0.83	1.00	100
	Compactor, Vibroplate, 23"X17" Plate	120	40	G	5	0.83	1.00	166
	Concrete Saw, 5" Depth, Hand Held	60	20	G	2	0.83	1.00	33
	Generator, 5.5 KW, 120/240V	4,537	1,512	G	11	0.83	1.00	13,808
Lock	Generator, 5.5 KW, 120/240V	1,803	601	G	11	0.83	1.00	5,487
	Generator, 5.5 KW, 120/240V	3,252	1,084	G	11	0.83	1.00	9,897
	Generator, 5.5 KW, 120/240V	10	3	G	11	0.83	1.00	30
	Generator, 5.5 KW, 120/240V	47	16	G	11	0.83	1.00	143
	TOTAL GASOLINE (hp hours)							33,898
	TOTAL DIESEL (hp hours)							5,282,556

Emission Factors	Gas	Diesel		
Exhaust	0.015	0.00247		
Evaporation	0.000661	0	Emissions	
Crankcase	0.00485	0.0000441	Tons (gas)	0.4
Refueling	0.00108	0	Tons (diesel)	6.6
Total	0.021591	0.0025141	**Emission Subtotal (Tons)**	**7.0**

	Equipment Item **(Equipment >600hp)**	Total Hours On Site 3-years	Hours/ Year On Site	Fuel Type	hp	Multiplying Factor Time	Multiplying Factor % hp	Annual hp hours
Dredging	Hydraulic Dredge & Plant	1,417	472	D	6,345	0.83	0.70	1,741,231
	Manitowoc 4600 Dragline	2,240	747	D	680	0.83	0.50	210,709
	Tug Boat, 800 hp	3,881	1,294	D	800	0.83	0.70	601,296
	TOTAL DIESEL (hp hours)							2,553,236
					Emission Factor from Table 3.4-2			0.000728
					Emission Subtotal (Tons)			**0.9**
						Total (Tons)		**7.9**