

APPENDIX B

AIR EMISSION CALCULATIONS AND HEALTH RISK ASSESSMENT

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TESORO LOS ANGELES REFINERY
INTEGRATION AND COMPLIANCE PROJECT
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APPENDIX B-1

PEAK CONSTRUCTION EMISSION CALCULATIONS

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APPENDIX B-1

UNMITIGATED EMISSION CALCULATIONS

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Appendix B-1
Tesoro Integration and Compliance Project
Total Project Component
Construction Emission Summary

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Emission from Trips - Onsite/Offsite	Year 1												Year 2												Year 3											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
VOC (lb/day)	0.00	0.00	0.00	0.00	0.00	8.71	6.99	6.68	6.98	6.04	6.05	6.05	7.51	7.55	7.35	7.56	7.50	7.79	5.41	5.52	5.30	4.03	4.03	3.84	3.22	3.13	3.02	2.76	2.76	2.27	1.09	1.01	1.01	0.73	0.73	0.55
CO (lb/day)	0.00	0.00	0.00	0.00	0.00	87.48	75.43	73.19	82.98	82.79	86.29	86.28	100.64	102.99	96.61	98.69	96.54	106.00	89.37	92.73	85.78	66.46	66.46	60.39	58.93	58.32	54.18	52.35	52.35	33.31	24.91	21.91	21.91	19.93	19.93	13.12
NOx (lb/day)	0.00	0.00	0.00	0.00	0.00	198.09	154.88	146.85	148.39	119.43	117.02	117.02	150.55	149.73	148.66	153.71	153.35	154.81	94.92	95.45	94.36	70.70	70.70	69.74	51.36	49.52	48.80	43.29	43.29	40.24	14.97	14.48	14.48	8.51	8.51	7.41
SOx (lb/day)	0.00	0.00	0.00	0.00	0.00	0.54	0.44	0.42	0.45	0.40	0.40	0.40	0.49	0.50	0.48	0.49	0.49	0.51	0.37	0.38	0.37	0.28	0.28	0.26	0.30	0.30	0.28	0.26	0.26	0.19	0.11	0.10	0.10	0.08	0.08	0.06
PM10 (lb/day)	0.00	0.00	0.00	0.00	0.00	38.13	30.32	28.87	29.84	25.19	25.06	25.06	31.48	31.53	30.89	31.85	31.64	32.57	21.76	22.09	21.41	16.20	16.20	15.60	16.38	15.95	15.39	14.08	14.08	11.53	5.56	5.15	5.15	3.74	3.74	2.83
Exhaust PM (lb/day)	0.00	0.00	0.00	0.00	0.00	6.99	5.67	5.42	5.74	5.08	5.12	5.12	6.29	6.34	6.13	6.31	6.24	6.54	4.71	4.81	4.59	3.50	3.50	3.31	3.48	3.41	3.23	3.04	3.04	2.21	1.32	1.19	1.19	0.98	0.98	0.69
Fugitive PM (lb/day)	0.00	0.00	0.00	0.00	0.00	31.13	24.65	23.45	24.10	20.11	19.94	19.94	25.19	25.19	24.76	25.55	25.40	26.03	17.06	17.28	16.82	12.69	12.69	12.29	12.91	12.54	12.16	11.05	11.05	9.32	4.23	3.96	3.96	2.76	2.76	2.14
PM2.5 (lb/day) ⁽¹⁾	0.00	0.00	0.00	0.00	0.00	12.29	9.86	9.41	9.84	8.50	8.51	8.51	10.58	10.62	10.34	10.65	10.55	10.96	7.61	7.75	7.45	5.66	5.66	5.40	5.67	5.55	5.30	4.92	4.92	3.80	2.04	1.87	1.87	1.45	1.45	1.05
Exhaust PM (lb/day)	0.00	0.00	0.00	0.00	0.00	6.99	5.67	5.42	5.74	5.08	5.12	5.12	6.29	6.34	6.13	6.31	6.24	6.54	4.71	4.81	4.59	3.50	3.50	3.31	3.48	3.41	3.23	3.04	3.04	2.21	1.32	1.19	1.19	0.98	0.98	0.69
Fugitive PM (lb/day)	0.00	0.00	0.00	0.00	0.00	5.29	4.19	3.99	4.10	3.42	3.39	3.39	4.28	4.28	4.21	4.34	4.32	4.43	2.90	2.94	2.86	2.16	2.16	2.09	2.19	2.13	2.07	1.88	1.88	1.58	0.72	0.67	0.67	0.47	0.47	0.36
CO ₂ (lb/day)	0.00	0.00	0.00	0.00	0.00	56272.19	45722.49	43763.26	46437.31	41302.11	41737.29	41735.48	51150.03	51583.12	49829.37	51225.35	50634.54	53213.56	38609.58	39528.02	37630.55	28732.88	28732.88	27075.40	30956.66	30355.29	28797.68	26993.57	26993.57	19907.29	11638.43	10521.38	10521.38	8566.92	8566.92	6028.85
CO ₂ (tonnes/yr)													3234.98											5184.06												2243.75

	Year 1												Year 2												Year 3											
Fugitive Earthmoving PM - Peak	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
PM10 (lb/day) ⁽²⁾	0.00	0.00	0.00	0.00	0.00	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	0.00	0.00	0.00	0.00	0.00	0.00	
PM2.5 (lb/day) ⁽¹⁾⁽²⁾	0.00	0.00	0.00	0.00	0.00	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.00	0.00	0.00	0.00	0.00	0.00	

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(1) https://www.aqmd.gov/ceqa/handbook/PM2_5/pm2_5ratio.xls

(2) Mitigated PM.

Appendix B-1
Tesoro Integration and Compliance Project
Total Project Component
Construction Emission Summary

Emissions from Equipment	Year 4												Year 5												Year 6												
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	
VOC (lb/day)	3.91	3.91	3.91	3.91	3.91	3.91	3.34	2.25	1.72	1.41	2.29	2.60	3.25	3.74	3.78	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	2.96	2.01	1.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
CO (lb/day)	43.53	43.53	43.53	43.53	40.35	40.35	35.34	25.41	21.77	20.93	25.22	30.60	40.62	44.17	45.53	44.35	44.35	44.35	44.35	44.35	44.35	44.35	41.21	41.21	35.76	26.12	22.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
NOx (lb/day)	41.11	41.11	41.11	41.11	35.32	35.32	31.64	23.29	20.40	20.87	23.45	28.39	36.31	39.12	39.86	38.97	38.97	38.97	38.97	38.97	38.97	38.97	33.68	33.68	28.22	20.80	18.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
SOx (lb/day)	0.10	0.10	0.10	0.10	0.09	0.09	0.08	0.06	0.05	0.06	0.05	0.08	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.08	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PM10 (lb/day)	6.83	6.83	6.83	6.83	6.56	6.56	6.30	5.72	5.48	5.37	5.78	5.95	6.44	6.67	6.68	6.61	6.61	6.61	6.61	6.61	6.61	6.37	6.37	5.96	5.49	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PM2.5 (lb/day) ⁽¹⁾	3.46	3.46	3.46	3.46	3.20	3.20	2.94	2.37	2.13	2.02	2.43	2.59	3.08	3.30	3.32	3.25	3.25	3.25	3.25	3.25	3.25	3.01	3.01	2.61	2.14	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
CO ₂ (MT/day)	2.43	2.43	2.43	2.43	2.15	2.15	1.91	1.36	1.21	1.45	1.32	1.88	2.29	2.44	2.53	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.20	2.20	1.96	1.41	1.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
CO ₂ (tonnes/yr)	521.11																								652.83												104.36
Emission from Trips - Onsite/Offsite	Year 4												Year 5												Year 6												
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	
VOC (lb/day)	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.52	0.52	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
CO (lb/day)	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	13.46	13.46	13.46	13.46	13.46	13.46	13.46	13.46	13.46	13.46	13.46	13.29	13.29	13.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
NOx (lb/day)	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19	9.76	9.76	9.76	9.76	9.76	9.76	9.76	9.76	9.76	9.76	9.13	9.13	9.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
SOx (lb/day)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PM10 (lb/day)	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.68	1.68	1.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Exhaust PM (lb/day)	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.55	0.55	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Fugitive PM (lb/day)	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PM2.5 (lb/day) ⁽¹⁾	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.74	0.74	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Exhaust PM (lb/day)	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.55	0.55	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Fugitive PM (lb/day)	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO ₂ (lb/day)	3386.59	3386.59	3386.59	3386.59	3386.59	3386.59	3386.59	3386.59	3386.59	3386.59	3386.59	3386.59	3373.83	3373.83	3373.83	3373.83	3373.83	3373.83	3373.83	3373.83	3373.83	3373.83	3373.83	3289.89	3289.89	3289.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
CO ₂ (tonnes/yr)	414.76																								413.20												100.73
Fugitive Earthmoving PM - Peak	Year 4												Year 5												Year 6												
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	
PM10 (lb/day) ⁽²⁾	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PM2.5 (lb/day) ⁽¹⁾⁽²⁾	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Offroad Fugitive PM - Peak	Year 4												Year 5												Year 6												
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	
PM10 (lb/day) ⁽²⁾	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PM2.5 (lb/day) ⁽¹⁾⁽²⁾	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Paint	Year 4												Year 5												Year 6												
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	
VOC (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	62.25	62.25	62.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.25	62.25	62.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total Emissions	Thresholds	Year 4												Year 5												Year 6											
		37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61											

Appendix B-1 Tesoro Integration and Compliance Project

Construction Equipment Emission Rates

Equipment Type	Hp	2016 Emission Factors lb/hr ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.07023	0.4263	0.97905	0.00147	0.04659	0.03534
>40T Cranes	500	0.07815	0.4431	1.20587	0.00213	0.04978	0.05136
Pile/Drill Rig	Composite	0.04246	0.5016	0.72299	0.00244	0.02698	0.05882
Tractors	Composite	0.03268	0.3689	0.38566	0.00080	0.02590	0.01922
Welders	50	0.03684	0.2483	0.19141	0.00039	0.01712	0.00938
Light Plants	50	0.03684	0.3134	0.19141	0.00039	0.01712	0.00938
Generators	120	0.04342	0.4767	0.47247	0.00074	0.03702	0.01795
Hydro Vacs/Pumps	120	0.04342	0.4842	0.47247	0.00074	0.03702	0.01795
Fork Lifts	Composite	0.02152	0.4549	0.33240	0.00089	0.01769	0.02146
Loader/Backhoe	Composite	0.03268	0.3689	0.38566	0.00080	0.02590	0.01922
Air Compressors	50	0.03684	0.2281	0.19141	0.00039	0.01712	0.00938
Manlifts	Composite	0.00659	0.1592	0.12905	0.00044	0.00466	0.01066

Equipment Type	Hp	2017 Emission Factors lb/hr ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.06537	0.4152	0.90923	0.00147	0.04291	0.03535
>40T Cranes	500	0.07236	0.4243	1.11689	0.00213	0.04535	0.05139
Pile/Drill Rig	Composite	0.04029	0.5013	0.67483	0.00244	0.02483	0.05882
Tractors	Composite	0.03046	0.3666	0.35832	0.00080	0.02366	0.0192
Welders	50	0.03579	0.2408	0.18867	0.00039	0.01662	0.00938
Light Plants	50	0.03579	0.3047	0.18867	0.00039	0.01662	0.00938
Generators	120	0.04173	0.4728	0.45336	0.00074	0.03547	0.01794
Hydro Vacs/Pumps	120	0.04173	0.4802	0.45336	0.00074	0.03547	0.01794
Fork Lifts	Composite	0.01948	0.4522	0.29726	0.00089	0.01519	0.02146
Loader/Backhoe	Composite	0.03046	0.3666	0.35832	0.00080	0.02366	0.0192
Air Compressors	50	0.03579	0.2209	0.18867	0.00039	0.01662	0.00938
Manlifts	Composite	0.00586	0.1548	0.11635	0.00044	0.00353	0.01066

Equipment Type	Hp	2018 Emission Factors lb/hr ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.05782	0.4060	0.80171	0.00147	0.03738	0.03536
>40T Cranes	500	0.06523	0.4085	0.98933	0.00213	0.03992	0.05142
Pile/Drill Rig	Composite	0.03501	0.5011	0.56864	0.00243	0.02055	0.05865
Tractors	Composite	0.02557	0.3647	0.30639	0.00080	0.01923	0.01917
Welders	50	0.03361	0.2339	0.18349	0.00039	0.01563	0.00938
Light Plants	50	0.03361	0.2966	0.18349	0.00039	0.01563	0.00938
Generators	120	0.03690	0.4694	0.40643	0.00075	0.03112	0.01796
Hydro Vacs/Pumps	120	0.03690	0.4767	0.40643	0.00075	0.03112	0.01796
Fork Lifts	Composite	0.01616	0.2173	0.24736	0.00089	0.01150	0.02146
Loader/Backhoe	Composite	0.02557	0.3647	0.30639	0.00080	0.01923	0.01917
Air Compressors	50	0.03361	0.2142	0.18349	0.00039	0.01563	0.00938
Manlifts	Composite	0.00499	0.1740	0.10274	0.00044	0.00238	0.01066

Equipment Type	Hp	2019 Emission Factors lb/hr ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.05255	0.3982	0.72435	0.00147	0.03337	0.03536
>40T Cranes	500	0.06159	0.3951	0.91722	0.00213	0.03694	0.05143
Pile/Drill Rig	Composite	0.03316	0.5009	0.51942	0.00243	0.01889	0.05862
Tractors	Composite	0.02277	0.3630	0.27390	0.00080	0.01634	0.01916
Welders	50	0.03313	0.2271	0.18111	0.00039	0.01522	0.00937
Light Plants	50	0.03313	0.2890	0.18111	0.00039	0.01522	0.00937
Generators	120	0.03398	0.4663	0.37708	0.00075	0.02830	0.01796
Hydro Vacs/Pumps	120	0.03398	0.4736	0.37708	0.00075	0.02830	0.01796
Fork Lifts	Composite	0.01468	0.2166	0.22583	0.00089	0.00988	0.02146
Loader/Backhoe	Composite	0.02277	0.3630	0.27390	0.00080	0.01634	0.01916
Air Compressors	50	0.03313	0.2078	0.18111	0.00039	0.01522	0.00937
Manlifts	Composite	0.00475	0.1715	0.09788	0.00044	0.00194	0.01066

(1) Off-Road 2011. CO emissions from SCAQMD, 2006 : http://www.aqmd.gov/ceqa/handbook/offroad/offroadEF07_25.xls

(2) Carbon Dioxide Equivalents (CO₂e) are based on default emission factors for diesel. Metric tons per hour.

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
<40 T Cranes	7	0	0	0	0	0	7	7	7	8	9	11	11
>40T Cranes	5	0	0	0	0	0	5	4	5	5	5	8	8
Pile/Drill Rig	8	0	0	0	0	0	11	1	1	1	1	1	2
Tractors	5	0	0	0	0	0	2	2	2	3	3	4	4
Welders	8	0	0	0	0	0	33	33	33	36	40	48	48
Light Plants	3	0	0	0	0	0	8	12	12	13	14	14	14
Generators	3	0	0	0	0	0	6	6	6	7	7	8	6
Hydro Vacs/Pumps	5	0	0	0	0	0	1	1	1	2	2	3	2
Fork Lifts	4	0	0	0	0	0	5	5	5	5	6	8	8
Loader/Backhoe	5	0	0	0	0	0	2	2	2	2	3	3	3
Air Compressors	4	0	0	0	0	0	5	5	5	7	7	7	7
Manlifts	8	0	0	0	0	0	12	12	12	17	23	30	30

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
VOC													
<40 T Cranes	0.070	0.00	0.00	0.00	0.00	0.00	3.44	3.44	3.44	3.93	4.42	5.41	5.41
>40T Cranes	0.078	0.00	0.00	0.00	0.00	0.00	1.95	1.56	1.95	1.95	1.95	3.13	3.13
Pile/Drill Rig	0.042	0.00	0.00	0.00	0.00	0.00	3.74	0.34	0.34	0.34	0.34	0.34	0.68
Tractors	0.033	0.00	0.00	0.00	0.00	0.00	0.33	0.33	0.33	0.49	0.49	0.65	0.65
Welders	0.037	0.00	0.00	0.00	0.00	0.00	9.73	9.73	9.73	10.61	11.79	14.15	14.15
Light Plants	0.037	0.00	0.00	0.00	0.00	0.00	0.88	1.33	1.33	1.44	1.55	1.55	1.55
Generators	0.043	0.00	0.00	0.00	0.00	0.00	0.78	0.78	0.78	0.91	0.91	1.04	0.78
Hydro Vacs/Pumps	0.043	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.22	0.43	0.43	0.65	0.43
Fork Lifts	0.022	0.00	0.00	0.00	0.00	0.00	0.43	0.43	0.43	0.43	0.52	0.69	0.69
Loader/Backhoe	0.033	0.00	0.00	0.00	0.00	0.00	0.33	0.33	0.33	0.33	0.49	0.49	0.49
Air Compressors	0.037	0.00	0.00	0.00	0.00	0.00	0.74	0.74	0.74	1.03	1.03	1.03	1.03
Manlifts	0.007	0.00	0.00	0.00	0.00	0.00	0.63	0.63	0.63	0.90	1.21	1.58	1.58
Total		0.00	0.00	0.00	0.00	0.00	23.19	19.85	20.24	22.79	25.14	30.71	30.57

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
CO	2016												
<40 T Cranes	0.426	0.00	0.00	0.00	0.00	0.00	20.89	20.89	20.89	23.87	26.86	32.83	32.83
>40T Cranes	0.443	0.00	0.00	0.00	0.00	0.00	11.08	8.86	11.08	11.08	11.08	17.72	17.72
Pile/Drill Rig	0.502	0.00	0.00	0.00	0.00	0.00	44.14	4.01	4.01	4.01	4.01	4.01	8.03
Tractors	0.369	0.00	0.00	0.00	0.00	0.00	3.69	3.69	3.69	5.53	5.53	7.38	7.38
Welders	0.248	0.00	0.00	0.00	0.00	0.00	65.55	65.55	65.55	71.51	79.46	95.35	95.35
Light Plants	0.313	0.00	0.00	0.00	0.00	0.00	7.52	11.28	11.28	12.22	13.16	13.16	13.16
Generators	0.477	0.00	0.00	0.00	0.00	0.00	8.58	8.58	8.58	10.01	10.01	11.44	8.58
Hydro Vacs/Pumps	0.484	0.00	0.00	0.00	0.00	0.00	2.42	2.42	2.42	4.84	4.84	7.26	4.84
Fork Lifts	0.455	0.00	0.00	0.00	0.00	0.00	9.10	9.10	9.10	9.10	10.92	14.56	14.56
Loader/Backhoe	0.369	0.00	0.00	0.00	0.00	0.00	3.69	3.69	3.69	3.69	5.53	5.53	5.53
Air Compressors	0.228	0.00	0.00	0.00	0.00	0.00	4.56	4.56	4.56	6.39	6.39	6.39	6.39
Manlifts	0.159	0.00	0.00	0.00	0.00	0.00	15.28	15.28	15.28	21.65	29.29	38.21	38.21
Total		0.00	0.00	0.00	0.00	0.00	196.51	157.92	160.14	183.91	207.09	253.84	252.58

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
NOX	2016												
<40 T Cranes	0.979	0.00	0.00	0.00	0.00	0.00	47.97	47.97	47.97	54.83	61.68	75.39	75.39
>40T Cranes	1.206	0.00	0.00	0.00	0.00	0.00	30.15	24.12	30.15	30.15	30.15	48.23	48.23
Pile/Drill Rig	0.723	0.00	0.00	0.00	0.00	0.00	63.62	5.78	5.78	5.78	5.78	5.78	11.57
Tractors	0.386	0.00	0.00	0.00	0.00	0.00	3.86	3.86	3.86	5.78	5.78	7.71	7.71
Welders	0.191	0.00	0.00	0.00	0.00	0.00	50.53	50.53	50.53	55.13	61.25	73.50	73.50
Light Plants	0.191	0.00	0.00	0.00	0.00	0.00	4.59	6.89	6.89	7.46	8.04	8.04	8.04
Generators	0.472	0.00	0.00	0.00	0.00	0.00	8.50	8.50	8.50	9.92	9.92	11.34	8.50
Hydro Vacs/Pumps	0.472	0.00	0.00	0.00	0.00	0.00	2.36	2.36	2.36	4.72	4.72	7.09	4.72
Fork Lifts	0.332	0.00	0.00	0.00	0.00	0.00	6.65	6.65	6.65	6.65	7.98	10.64	10.64
Loader/Backhoe	0.386	0.00	0.00	0.00	0.00	0.00	3.86	3.86	3.86	3.86	5.78	5.78	5.78
Air Compressors	0.191	0.00	0.00	0.00	0.00	0.00	3.83	3.83	3.83	5.36	5.36	5.36	5.36
Manlifts	0.129	0.00	0.00	0.00	0.00	0.00	12.39	12.39	12.39	17.55	23.74	30.97	30.97
Total		0.00	0.00	0.00	0.00	0.00	238.31	176.74	182.77	207.19	230.20	289.84	290.42

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
<40 T Cranes	0.001	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.07	0.08	0.09	0.11	0.11
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.05	0.04	0.05	0.05	0.05	0.09	0.09
Pile/Drill Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.21	0.02	0.02	0.02	0.02	0.02	0.04
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02
Welders	0.000	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.11	0.12	0.15	0.15
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Fork Lifts	0.001	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.03	0.03
Loader/Backhoe	0.001	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Air Compressors	0.000	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Manlifts	0.000	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.06	0.08	0.11	0.11
Total		0.00	0.00	0.00	0.00	0.00	0.55	0.35	0.36	0.41	0.47	0.59	0.60

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
PM10													
<40 T Cranes	0.047	0.00	0.00	0.00	0.00	0.00	2.28	2.28	2.28	2.61	2.94	3.59	3.59
>40T Cranes	0.050	0.00	0.00	0.00	0.00	0.00	1.24	1.00	1.24	1.24	1.24	1.99	1.99
Pile/Drill Rig	0.027	0.00	0.00	0.00	0.00	0.00	2.37	0.22	0.22	0.22	0.22	0.22	0.43
Tractors	0.026	0.00	0.00	0.00	0.00	0.00	0.26	0.26	0.26	0.39	0.39	0.52	0.52
Welders	0.017	0.00	0.00	0.00	0.00	0.00	4.52	4.52	4.52	4.93	5.48	6.58	6.58
Light Plants	0.017	0.00	0.00	0.00	0.00	0.00	0.41	0.62	0.62	0.67	0.72	0.72	0.72
Generators	0.037	0.00	0.00	0.00	0.00	0.00	0.67	0.67	0.67	0.78	0.78	0.89	0.67
Hydro Vacs/Pumps	0.037	0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.19	0.37	0.37	0.56	0.37
Fork Lifts	0.018	0.00	0.00	0.00	0.00	0.00	0.35	0.35	0.35	0.35	0.42	0.57	0.57
Loader/Backhoe	0.026	0.00	0.00	0.00	0.00	0.00	0.26	0.26	0.26	0.26	0.39	0.39	0.39
Air Compressors	0.017	0.00	0.00	0.00	0.00	0.00	0.34	0.34	0.34	0.48	0.48	0.48	0.48
Manlifts	0.005	0.00	0.00	0.00	0.00	0.00	0.45	0.45	0.45	0.63	0.86	1.12	1.12
Total		0.00	0.00	0.00	0.00	0.00	13.35	11.15	11.39	12.93	14.28	17.60	17.41

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

CO2EQ	Emission Rate (MT/yr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
<40 T Cranes	0.035	0.00	0.00	0.00	0.00	0.00	1.73	1.73	1.73	1.98	2.23	2.72	2.72
>40T Cranes	0.051	0.00	0.00	0.00	0.00	0.00	1.28	1.03	1.28	1.28	1.28	2.05	2.05
Pile/Drill Rig	0.059	0.00	0.00	0.00	0.00	0.00	5.18	0.47	0.47	0.47	0.47	0.47	0.94
Tractors	0.019	0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.19	0.29	0.29	0.38	0.38
Welders	0.009	0.00	0.00	0.00	0.00	0.00	2.48	2.48	2.48	2.70	3.00	3.60	3.60
Light Plants	0.009	0.00	0.00	0.00	0.00	0.00	0.23	0.34	0.34	0.37	0.39	0.39	0.39
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.32	0.38	0.38	0.43	0.32
Hydro Vacs/Pumps	0.018	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.09	0.18	0.18	0.27	0.18
Fork Lifts	0.021	0.00	0.00	0.00	0.00	0.00	0.43	0.43	0.43	0.43	0.52	0.69	0.69
Loader/Backhoe	0.019	0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.19	0.19	0.29	0.29	0.29
Air Compressors	0.009	0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.19	0.26	0.26	0.26	0.26
Manlifts	0.011	0.00	0.00	0.00	0.00	0.00	1.02	1.02	1.02	1.45	1.96	2.56	2.56
Total		0.00	0.00	0.00	0.00	0.00	13.33	8.48	8.74	9.98	11.25	14.12	14.40

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	7	11	12	10	10	10	16	16	16	14	11	11	10
>40T Cranes	5	8	9	8	8	8	10	9	9	7	5	5	4
Pile/Drill Rig	8	1	1	1	2	1	2	2	2	2	1	1	1
Tractors	5	4	4	4	6	6	7	7	7	7	6	6	5
Welders	8	48	53	34	54	51	71	72	72	69	61	61	56
Light Plants	3	14	13	7	9	7	11	15	15	14	10	10	9
Generators	3	6	6	6	6	6	10	9	9	8	4	4	4
Hydro Vacs/Pumps	5	2	3	2	2	1	1	2	1	1	1	1	1
Fork Lifts	4	8	9	8	9	9	13	13	13	12	10	10	9
Loader/Backhoe	5	3	3	3	3	3	5	5	5	5	4	4	4
Air Compressors	4	7	7	7	7	7	8	7	7	7	3	3	2
Manlifts	8	30	33	29	23	24	34	32	32	29	27	27	23

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
VOC													
<40 T Cranes	0.065	5.03	5.49	4.58	4.58	4.58	7.32	7.32	7.32	6.41	5.03	5.03	4.58
>40T Cranes	0.072	2.89	3.26	2.89	2.89	2.89	3.62	3.26	3.26	2.53	1.81	1.81	1.45
Pile/Drill Rig	0.040	0.32	0.32	0.32	0.64	0.32	0.64	0.64	0.64	0.64	0.32	0.32	0.32
Tractors	0.030	0.61	0.61	0.61	0.91	0.91	1.07	1.07	1.07	1.07	0.91	0.91	0.76
Welders	0.036	13.74	15.17	9.73	15.46	14.60	20.33	20.61	20.61	19.76	17.47	17.47	16.03
Light Plants	0.036	1.50	1.40	0.75	0.97	0.75	1.18	1.61	1.61	1.50	1.07	1.07	0.97
Generators	0.042	0.75	0.75	0.75	0.75	0.75	1.25	1.13	1.13	1.00	0.50	0.50	0.50
Hydro Vacs/Pumps	0.042	0.42	0.63	0.42	0.42	0.21	0.21	0.42	0.21	0.21	0.21	0.21	0.21
Fork Lifts	0.019	0.62	0.70	0.62	0.70	0.70	1.01	1.01	1.01	0.94	0.78	0.78	0.70
Loader/Backhoe	0.030	0.46	0.46	0.46	0.46	0.46	0.76	0.76	0.76	0.76	0.61	0.61	0.61
Air Compressors	0.036	1.00	1.00	1.00	1.00	1.00	1.15	1.00	1.00	1.00	0.43	0.43	0.29
Manlifts	0.006	1.41	1.55	1.36	1.08	1.12	1.59	1.50	1.50	1.36	1.27	1.27	1.08
Total		28.76	31.33	23.50	29.86	28.30	40.13	40.33	40.12	37.18	30.41	30.41	27.49

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
CO	2017												
<40 T Cranes	0.415	31.97	34.88	29.07	29.07	29.07	46.51	46.51	46.51	40.69	31.97	31.97	29.07
>40T Cranes	0.424	16.97	19.09	16.97	16.97	16.97	21.21	19.09	19.09	14.85	10.61	10.61	8.49
Pile/Drill Rig	0.501	4.01	4.01	4.01	8.02	4.01	8.02	8.02	8.02	8.02	4.01	4.01	4.01
Tractors	0.367	7.33	7.33	7.33	11.00	11.00	12.83	12.83	12.83	12.83	11.00	11.00	9.17
Welders	0.241	92.48	102.12	65.51	104.04	98.26	136.80	138.73	138.73	132.95	117.53	117.53	107.90
Light Plants	0.305	12.80	11.88	6.40	8.23	6.40	10.06	13.71	13.71	12.80	9.14	9.14	8.23
Generators	0.473	8.51	8.51	8.51	8.51	8.51	14.19	12.77	12.77	11.35	5.67	5.67	5.67
Hydro Vacs/Pumps	0.480	4.80	7.20	4.80	4.80	2.40	2.40	4.80	2.40	2.40	2.40	2.40	2.40
Fork Lifts	0.452	14.47	16.28	14.47	16.28	16.28	23.52	23.52	23.52	21.71	18.09	18.09	16.28
Loader/Backhoe	0.367	5.50	5.50	5.50	5.50	5.50	9.17	9.17	9.17	9.17	7.33	7.33	7.33
Air Compressors	0.221	6.19	6.19	6.19	6.19	6.19	7.07	6.19	6.19	6.19	2.65	2.65	1.77
Manlifts	0.155	37.14	40.85	35.90	28.47	29.71	42.09	39.62	39.62	35.90	33.43	33.43	28.47
Total		242.18	263.85	204.66	247.08	234.30	333.86	334.94	332.54	308.85	253.84	253.84	228.78

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
NOX													
<40 T Cranes	0.909	70.01	76.38	63.65	63.65	63.65	101.83	101.83	101.83	89.10	70.01	70.01	63.65
>40T Cranes	1.117	44.68	50.26	44.68	44.68	44.68	55.84	50.26	50.26	39.09	27.92	27.92	22.34
Pile/Drill Rig	0.675	5.40	5.40	5.40	10.80	5.40	10.80	10.80	10.80	10.80	5.40	5.40	5.40
Tractors	0.358	7.17	7.17	7.17	10.75	10.75	12.54	12.54	12.54	12.54	10.75	10.75	8.96
Welders	0.189	72.45	80.00	51.32	81.51	76.98	107.17	108.68	108.68	104.15	92.07	92.07	84.53
Light Plants	0.189	7.92	7.36	3.96	5.09	3.96	6.23	8.49	8.49	7.92	5.66	5.66	5.09
Generators	0.453	8.16	8.16	8.16	8.16	8.16	13.60	12.24	12.24	10.88	5.44	5.44	5.44
Hydro Vacs/Pumps	0.453	4.53	6.80	4.53	4.53	2.27	2.27	4.53	2.27	2.27	2.27	2.27	2.27
Fork Lifts	0.297	9.51	10.70	9.51	10.70	10.70	15.46	15.46	15.46	14.27	11.89	11.89	10.70
Loader/Backhoe	0.358	5.37	5.37	5.37	5.37	5.37	8.96	8.96	8.96	8.96	7.17	7.17	7.17
Air Compressors	0.189	5.28	5.28	5.28	5.28	5.28	6.04	5.28	5.28	5.28	2.26	2.26	1.51
Manlifts	0.116	27.92	30.72	26.99	21.41	22.34	31.65	29.79	29.79	26.99	25.13	25.13	21.41
Total		268.41	293.59	236.03	271.93	259.54	372.38	368.86	366.59	332.26	265.97	265.97	238.45

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	0.001	0.11	0.12	0.10	0.10	0.10	0.10	0.16	0.16	0.14	0.11	0.11	0.10
>40T Cranes	0.002	0.09	0.10	0.09	0.09	0.09	0.09	0.11	0.10	0.07	0.05	0.05	0.04
Pile/Drill Rig	0.002	0.02	0.02	0.02	0.04	0.02	0.04	0.04	0.04	0.04	0.02	0.02	0.02
Tractors	0.001	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.02	0.02	0.02
Welders	0.000	0.15	0.17	0.11	0.17	0.16	0.22	0.22	0.22	0.21	0.19	0.19	0.17
Light Plants	0.000	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01
Generators	0.001	0.01	0.01	0.01	0.01	0.01	0.00	0.02	0.02	0.00	0.01	0.01	0.01
Hydro Vacs/Pumps	0.001	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.03	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.04	0.04	0.04	0.03
Loader/Backhoe	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
Air Compressors	0.000	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
Manlifts	0.000	0.11	0.12	0.10	0.08	0.08	0.08	0.12	0.11	0.10	0.10	0.10	0.08
Total		0.58	0.63	0.51	0.59	0.56	0.80	0.79	0.78	0.71	0.58	0.58	0.51

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
PM10													
<40 T Cranes	0.043	3.30	3.60	3.00	3.00	3.00	4.81	4.81	4.81	4.20	3.30	3.30	3.00
>40T Cranes	0.045	1.81	2.04	1.81	1.81	1.81	2.27	2.04	2.04	1.59	1.13	1.13	0.91
Pile/Drill Rig	0.025	0.20	0.20	0.20	0.40	0.20	0.40	0.40	0.40	0.40	0.20	0.20	0.20
Tractors	0.024	0.47	0.47	0.47	0.71	0.71	0.83	0.83	0.83	0.83	0.71	0.71	0.59
Welders	0.017	6.38	7.05	4.52	7.18	6.78	9.44	9.57	9.57	9.17	8.11	8.11	7.44
Light Plants	0.017	0.70	0.65	0.35	0.45	0.35	0.55	0.75	0.75	0.70	0.50	0.50	0.45
Generators	0.035	0.64	0.64	0.64	0.64	0.64	1.06	0.96	0.96	0.85	0.43	0.43	0.43
Hydro Vacs/Pumps	0.035	0.35	0.53	0.35	0.35	0.18	0.18	0.35	0.18	0.18	0.18	0.18	0.18
Fork Lifts	0.015	0.49	0.55	0.49	0.55	0.55	0.79	0.79	0.79	0.73	0.61	0.61	0.55
Loader/Backhoe	0.024	0.35	0.35	0.35	0.35	0.35	0.59	0.59	0.59	0.59	0.47	0.47	0.47
Air Compressors	0.017	0.47	0.47	0.47	0.47	0.47	0.53	0.47	0.47	0.47	0.20	0.20	0.13
Manlifts	0.004	0.85	0.93	0.82	0.65	0.68	0.96	0.90	0.90	0.82	0.76	0.76	0.65
Total		16.02	17.48	13.48	16.56	15.72	22.40	22.45	22.28	20.52	16.60	16.60	15.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (MT/hr)	Month												
		2017	13	14	15	16	17	18	19	20	21	22	23	24
CO2EQ														
<40 T Cranes	0.035	2.72	2.97	2.47	2.47	2.47	2.47	3.96	3.96	3.46	2.72	2.72	2.47	2.47
>40T Cranes	0.051	2.06	2.31	2.06	2.06	2.06	2.06	2.57	2.31	1.80	1.28	1.28	1.03	1.03
Pile/Drill Rig	0.059	0.47	0.47	0.47	0.94	0.94	0.94	0.94	0.94	0.94	0.47	0.47	0.47	0.47
Tractors	0.019	0.38	0.38	0.38	0.38	0.58	0.58	0.67	0.67	0.67	0.58	0.58	0.48	0.48
Welders	0.009	3.60	3.98	2.55	4.05	3.83	3.83	5.33	5.40	5.18	4.58	4.58	4.20	4.20
Light Plants	0.009	0.39	0.37	0.20	0.25	0.20	0.20	0.31	0.42	0.39	0.28	0.28	0.25	0.25
Generators	0.018	0.32	0.32	0.32	0.32	0.32	0.32	0.54	0.48	0.48	0.22	0.22	0.22	0.22
Hydro Vacs/Pumps	0.018	0.18	0.27	0.18	0.18	0.18	0.09	0.09	0.18	0.09	0.09	0.09	0.09	0.09
Fork Lifts	0.021	0.69	0.77	0.69	0.77	0.77	0.77	1.12	1.12	1.12	0.86	0.86	0.77	0.77
Loader/Backhoe	0.019	0.29	0.29	0.29	0.29	0.29	0.29	0.48	0.48	0.48	0.38	0.38	0.38	0.38
Air Compressors	0.009	0.26	0.26	0.26	0.26	0.26	0.26	0.30	0.26	0.26	0.11	0.11	0.08	0.08
Manlifts	0.011	2.56	2.81	2.47	1.96	2.05	2.05	2.90	2.73	2.47	2.30	2.30	1.96	1.96
Total		13.92	15.21	12.34	14.14	13.38	13.38	19.20	18.96	17.21	13.87	13.87	12.41	12.41

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	7	13	13	12	12	12	4	4	3	3	3	3	1
>40T Cranes	5	5	5	4	4	4	1	1	1	2	1	1	0
Pile/Drill Rig	8	7	1	1	1	1	1	1	1	1	1	1	0
Tractors	5	8	8	8	8	8	4	4	3	3	3	3	2
Welders	8	68	68	60	60	60	16	16	12	12	12	12	4
Light Plants	3	10	10	9	9	9	6	6	5	5	5	5	4
Generators	3	4	4	4	4	4	0	0	0	0	0	0	0
Hydro Vacs/Pumps	5	1	1	1	1	1	1	0	0	0	0	0	0
Fork Lifts	4	11	11	10	10	10	3	3	2	2	2	2	1
Loader/Backhoe	5	5	5	5	5	5	2	2	1	1	1	1	1
Air Compressors	4	7	7	6	6	6	5	5	5	5	5	5	4
Manlifts	8	31	31	27	27	27	13	13	8	8	8	8	1

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
VOC													
<40 T Cranes	0.058	5.26	5.26	4.86	4.86	4.86	1.62	1.62	1.21	1.21	1.21	1.21	0.40
>40T Cranes	0.065	1.63	1.63	1.30	1.30	1.30	0.33	0.33	0.33	0.65	0.33	0.33	0.00
Pile/Drill Rig	0.035	1.96	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.00
Tractors	0.026	1.02	1.02	1.02	1.02	1.02	0.51	0.51	0.38	0.38	0.38	0.38	0.26
Welders	0.034	18.29	18.29	16.13	16.13	16.13	4.30	4.30	3.23	3.23	3.23	3.23	1.08
Light Plants	0.034	1.01	1.01	0.91	0.91	0.91	0.61	0.61	0.50	0.50	0.50	0.50	0.40
Generators	0.037	0.44	0.44	0.44	0.44	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.037	0.18	0.18	0.18	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.016	0.71	0.71	0.65	0.65	0.65	0.19	0.19	0.13	0.13	0.13	0.13	0.06
Loader/Backhoe	0.026	0.64	0.64	0.64	0.64	0.64	0.26	0.26	0.13	0.13	0.13	0.13	0.13
Air Compressors	0.034	0.94	0.94	0.81	0.81	0.81	0.67	0.67	0.67	0.67	0.67	0.67	0.54
Manlifts	0.005	1.24	1.24	1.08	1.08	1.08	0.52	0.52	0.32	0.32	0.32	0.32	0.04
Total		33.33	31.65	28.31	28.31	28.31	9.47	9.29	7.18	7.51	7.18	7.18	2.91

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
CO	2018												
<40 T Cranes	0.406	36.94	36.94	34.10	34.10	34.10	11.37	11.37	8.52	8.52	8.52	8.52	2.84
>40T Cranes	0.409	10.21	10.21	8.17	8.17	8.17	2.04	2.04	2.04	4.09	2.04	2.04	0.00
Pile/Drill Rig	0.501	28.06	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	0.00
Tractors	0.365	14.59	14.59	14.59	14.59	14.59	7.29	7.29	5.47	5.47	5.47	5.47	3.65
Welders	0.234	127.21	127.21	112.25	112.25	112.25	29.93	29.93	22.45	22.45	22.45	22.45	7.48
Light Plants	0.297	8.90	8.90	8.01	8.01	8.01	5.34	5.34	4.45	4.45	4.45	4.45	3.56
Generators	0.469	5.63	5.63	5.63	5.63	5.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.477	2.38	2.38	2.38	2.38	2.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.217	9.56	9.56	8.69	8.69	8.69	2.61	2.61	1.74	1.74	1.74	1.74	0.87
Loader/Backhoe	0.365	9.12	9.12	9.12	9.12	9.12	3.65	3.65	1.82	1.82	1.82	1.82	1.82
Air Compressors	0.214	6.00	6.00	5.14	5.14	5.14	4.28	4.28	4.28	4.28	4.28	4.28	3.43
Manlifts	0.174	43.16	43.16	37.59	37.59	37.59	18.10	18.10	11.14	11.14	11.14	11.14	1.39
Total		301.76	277.71	249.68	249.68	249.68	91.00	88.62	65.93	67.97	65.93	65.93	25.04

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
NOX													
<40 T Cranes	0.802	72.96	72.96	67.34	67.34	67.34	22.45	22.45	16.84	16.84	16.84	16.84	5.61
>40T Cranes	0.989	24.73	24.73	19.79	19.79	19.79	4.95	4.95	4.95	9.89	4.95	4.95	0.00
Pile/Drill Rig	0.569	31.84	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	0.00
Tractors	0.306	12.26	12.26	12.26	12.26	12.26	6.13	6.13	4.60	4.60	4.60	4.60	3.06
Welders	0.183	99.82	99.82	88.07	88.07	88.07	23.49	23.49	17.61	17.61	17.61	17.61	5.87
Light Plants	0.183	5.50	5.50	4.95	4.95	4.95	3.30	3.30	2.75	2.75	2.75	2.75	2.20
Generators	0.406	4.88	4.88	4.88	4.88	4.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.406	2.03	2.03	2.03	2.03	2.03	2.03	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.247	10.88	10.88	9.89	9.89	9.89	2.97	2.97	1.98	1.98	1.98	1.98	0.99
Loader/Backhoe	0.306	7.66	7.66	7.66	7.66	7.66	3.06	3.06	1.53	1.53	1.53	1.53	1.53
Air Compressors	0.183	5.14	5.14	4.40	4.40	4.40	3.67	3.67	3.67	3.67	3.67	3.67	2.94
Manlifts	0.103	25.48	25.48	22.19	22.19	22.19	10.68	10.68	6.58	6.58	6.58	6.58	0.82
Total		303.18	275.88	248.02	248.02	248.02	87.28	85.25	65.05	70.00	65.05	65.05	23.03

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	0.001	0.13	0.13	0.12	0.12	0.12	0.12	0.04	0.03	0.03	0.03	0.03	0.01
>40T Cranes	0.002	0.05	0.05	0.04	0.04	0.04	0.04	0.01	0.01	0.02	0.01	0.01	0.00
Pile/Drill Rig	0.002	0.14	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00
Tractors	0.001	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.01	0.01	0.01	0.01	0.01
Welders	0.000	0.21	0.21	0.19	0.19	0.19	0.19	0.05	0.04	0.04	0.04	0.04	0.01
Light Plants	0.000	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Generators	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.01	0.01	0.01	0.01	0.00
Loader/Backhoe	0.001	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Air Compressors	0.000	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Manlifts	0.000	0.11	0.11	0.10	0.10	0.10	0.10	0.05	0.03	0.03	0.03	0.03	0.00
Total		0.77	0.65	0.59	0.59	0.59	0.59	0.22	0.16	0.17	0.16	0.16	0.05

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
PM10													
<40 T Cranes	0.037	3.40	3.40	3.14	3.14	3.14	1.05	1.05	0.79	0.79	0.79	0.79	0.26
>40T Cranes	0.040	1.00	1.00	0.80	0.80	0.80	0.20	0.20	0.20	0.40	0.20	0.20	0.00
Pile/Drill Rig	0.021	1.15	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.00
Tractors	0.019	0.77	0.77	0.77	0.77	0.77	0.38	0.38	0.29	0.29	0.29	0.29	0.19
Welders	0.016	8.51	8.51	7.50	7.50	7.50	2.00	2.00	1.50	1.50	1.50	1.50	0.50
Light Plants	0.016	0.47	0.47	0.42	0.42	0.42	0.28	0.28	0.23	0.23	0.23	0.23	0.19
Generators	0.031	0.37	0.37	0.37	0.37	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.031	0.16	0.16	0.16	0.16	0.16	0.16	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.012	0.51	0.51	0.46	0.46	0.46	0.14	0.14	0.09	0.09	0.09	0.09	0.05
Loader/Backhoe	0.019	0.48	0.48	0.48	0.48	0.48	0.19	0.19	0.10	0.10	0.10	0.10	0.10
Air Compressors	0.016	0.44	0.44	0.38	0.38	0.38	0.31	0.31	0.31	0.31	0.31	0.31	0.25
Manlifts	0.002	0.59	0.59	0.52	0.52	0.52	0.25	0.25	0.15	0.15	0.15	0.15	0.02
Total		17.84	16.85	15.16	15.16	15.16	5.12	4.97	3.83	4.03	3.83	3.83	1.55

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

CO2EQ	Emission Rate (MT/yr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	0.035	3.22	3.22	2.97	2.97	2.97	0.99	0.99	0.74	0.74	0.74	0.74	0.25
>40T Cranes	0.051	1.29	1.29	1.03	1.03	1.03	0.26	0.26	0.26	0.51	0.26	0.26	0.00
Pile/Drill Rig	0.059	3.28	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.00
Tractors	0.019	0.77	0.77	0.77	0.77	0.77	0.38	0.38	0.29	0.29	0.29	0.29	0.19
Welders	0.009	5.10	5.10	4.50	4.50	4.50	1.20	1.20	0.90	0.90	0.90	0.90	0.30
Light Plants	0.009	0.28	0.28	0.25	0.25	0.25	0.17	0.17	0.14	0.14	0.14	0.14	0.11
Generators	0.018	0.22	0.22	0.22	0.22	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.018	0.09	0.09	0.09	0.09	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.021	0.94	0.94	0.86	0.86	0.86	0.26	0.26	0.17	0.17	0.17	0.17	0.09
Loader/Backhoe	0.019	0.48	0.48	0.48	0.48	0.48	0.19	0.19	0.10	0.10	0.10	0.10	0.10
Air Compressors	0.009	0.26	0.26	0.23	0.23	0.23	0.19	0.19	0.19	0.19	0.19	0.19	0.15
Manlifts	0.011	2.64	2.64	2.30	2.30	2.30	1.11	1.11	0.68	0.68	0.68	0.68	0.09
Total		18.57	15.75	14.16	14.16	14.16	5.30	5.21	3.93	4.19	3.93	3.93	1.27

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	7	0	0	0	0	0	0	0	0	0	0	0	0
>40T Cranes	5	0	0	0	0	0	0	0	0	0	0	0	0
Pile/Drill Rig	8	0	0	0	0	0	0	0	0	0	0	0	0
Tractors	5	0	0	0	0	0	0	0	0	0	0	0	0
Welders	8	0	0	0	0	0	0	0	0	0	0	0	0
Light Plants	3	0	0	0	0	0	0	0	0	0	0	0	0
Generators	3	0	0	0	0	0	0	0	0	0	0	0	0
Hydro Vacs/Pumps	5	0	0	0	0	0	0	0	0	0	0	0	0
Fork Lifts	4	0	0	0	0	0	0	0	0	0	0	0	0
Loader/Backhoe	5	0	0	0	0	0	0	0	0	0	0	0	0
Air Compressors	4	0	0	0	0	0	0	0	0	0	0	0	0
Manlifts	8	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
VOC													
<40 T Cranes	0.053	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.062	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
CO	2019												
<40 T Cranes	0.398	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.395	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.363	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.466	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.363	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.208	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.172	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
NOX	2019												
<40 T Cranes	0.724	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.917	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.519	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.226	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.098	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
PM10													
<40 T Cranes	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (MT/yr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
CO2EQ	2019												
<40 T Cranes	0.035	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.059	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
<40 T Cranes	7	0	0	0	0	0	0	0	0	0	1	0	1
>40T Cranes	5	0	0	0	0	0	0	0	0	0	1	0	1
Pile Rig	8	0	0	0	0	0	0	0	0	0	1	0	1
Tractors	5	0	0	0	0	0	0	0	0	0	1	0	1
Welders	8	0	0	0	0	0	0	0	0	0	1	0	2
Light Plants	12	0	0	0	0	0	0	0	0	0	1	0	1
Generators	12	0	0	0	0	0	0	0	0	0	0	0	0
Hydro Vacs	5	0	0	0	0	0	0	0	0	0	1	0	1
Fork Lifts	4	0	0	0	0	0	0	0	0	0	1	0	1
Loader/Backhoe	5	0	0	0	0	0	0	0	0	0	1	0	1
Air Compressors	4	0	0	0	0	0	0	0	0	0	1	0	1
Manlifts	8	0	0	0	0	0	0	0	0	0	2	0	3

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
VOC													
<40 T Cranes	0.070	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.49
>40T Cranes	0.078	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.39
Pile Rig	0.042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.34
Tractors	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.16
Welders	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.59
Light Plants	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.44
Generators	0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.22
Fork Lifts	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09
Loader/Backhoe	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.16
Air Compressors	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Manlifts	0.007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.16
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.84	0.00	3.19

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
CO	2016												
<40 T Cranes	0.426	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.98	0.00	2.98
>40T Cranes	0.443	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.22	0.00	2.22
Pile Rig	0.502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.01	0.00	4.01
Tractors	0.369	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	0.00	1.84
Welders	0.248	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99	0.00	3.97
Light Plants	0.313	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.76	0.00	3.76
Generators	0.477	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.484	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.00	2.42
Fork Lifts	0.455	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.82	0.00	1.82
Loader/Backhoe	0.369	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	0.00	1.84
Air Compressors	0.228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91	0.00	0.91
Manlifts	0.159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.00	3.82
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.35	0.00	29.61

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
NOX	2016												
<40 T Cranes	0.979	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.85	0.00	6.85
>40T Cranes	1.206	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.03	0.00	6.03
Pile Rig	0.723	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.78	0.00	5.78
Tractors	0.386	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93	0.00	1.93
Welders	0.191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53	0.00	3.06
Light Plants	0.191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30	0.00	2.30
Generators	0.472	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.472	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.36	0.00	2.36
Fork Lifts	0.332	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	0.00	1.33
Loader/Backhoe	0.386	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93	0.00	1.93
Air Compressors	0.191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.77
Manlifts	0.129	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.06	0.00	3.10
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.87	0.00	35.44

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
<40 T Cranes	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Pile Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.08

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
PM10	2016												
<40 T Cranes	0.047	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.33
>40T Cranes	0.050	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25
Pile Rig	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.22
Tractors	0.026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.13
Welders	0.017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.27
Light Plants	0.017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.21
Generators	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.19
Fork Lifts	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07
Loader/Backhoe	0.026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.13
Air Compressors	0.017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07
Manlifts	0.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.11
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.79	0.00	1.97

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (MT/yr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
CO2EQ	2016												
<40 T Cranes	0.035	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25
>40T Cranes	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.26
Pile Rig	0.059	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.47
Tractors	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
Welders	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.15
Light Plants	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.11
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09
Fork Lifts	0.021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09
Loader/Backhoe	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
Air Compressors	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04
Manlifts	0.011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.26
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74	0.00	1.90

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	7	1	1	1	1	0	0	0	2	0	1	1	0
>40T Cranes	5	1	1	1	1	0	0	0	2	0	1	1	0
Pile Rig	8	1	1	1	1	0	0	0	1	0	1	1	0
Tractors	5	1	1	1	1	0	0	0	1	0	1	1	0
Welders	8	5	2	2	5	0	0	0	3	0	5	5	0
Light Plants	12	2	1	1	2	0	0	0	1	0	1	1	0
Generators	12	0	0	0	0	0	0	0	1	0	0	0	0
Hydro Vacs	5	1	1	1	1	0	0	0	1	0	1	1	0
Fork Lifts	4	1	1	1	1	0	0	0	1	0	1	1	0
Loader/Backhoe	5	1	1	1	1	0	0	0	1	0	1	1	0
Air Compressors	4	1	1	1	1	0	0	0	1	0	1	1	0
Manlifts	8	4	3	3	4	0	0	0	3	0	4	4	0

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
VOC													
<40 T Cranes	0.065	0.46	0.46	0.46	0.46	0.00	0.00	0.00	0.92	0.00	0.46	0.46	0.00
>40T Cranes	0.072	0.36	0.36	0.36	0.36	0.00	0.00	0.00	0.72	0.00	0.36	0.36	0.00
Pile Rig	0.040	0.32	0.32	0.32	0.32	0.00	0.00	0.00	0.32	0.00	0.32	0.32	0.00
Tractors	0.030	0.15	0.15	0.15	0.15	0.00	0.00	0.00	0.15	0.00	0.15	0.15	0.00
Welders	0.036	1.43	0.57	0.57	1.43	0.00	0.00	0.00	0.86	0.00	1.43	1.43	0.00
Light Plants	0.036	0.86	0.43	0.43	0.86	0.00	0.00	0.00	0.43	0.00	0.43	0.43	0.00
Generators	0.042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00
Hydro Vacs	0.042	0.21	0.21	0.21	0.21	0.00	0.00	0.00	0.21	0.00	0.21	0.21	0.00
Fork Lifts	0.019	0.08	0.08	0.08	0.08	0.00	0.00	0.00	0.08	0.00	0.08	0.08	0.00
Loader/Backhoe	0.030	0.15	0.15	0.15	0.15	0.00	0.00	0.00	0.15	0.00	0.15	0.15	0.00
Air Compressors	0.036	0.14	0.14	0.14	0.14	0.00	0.00	0.00	0.14	0.00	0.14	0.14	0.00
Manlifts	0.006	0.19	0.14	0.14	0.19	0.00	0.00	0.00	0.14	0.00	0.19	0.19	0.00
Total		4.35	3.02	3.02	4.35	0.00	0.00	0.00	4.63	0.00	3.92	3.92	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
CO	2017												
<40 T Cranes	0.415	2.91	2.91	2.91	2.91	0.00	0.00	0.00	5.81	0.00	2.91	2.91	0.00
>40T Cranes	0.424	2.12	2.12	2.12	2.12	0.00	0.00	0.00	4.24	0.00	2.12	2.12	0.00
Pile Rig	0.501	4.01	4.01	4.01	4.01	0.00	0.00	0.00	4.01	0.00	4.01	4.01	0.00
Tractors	0.367	1.83	1.83	1.83	1.83	0.00	0.00	0.00	1.83	0.00	1.83	1.83	0.00
Welders	0.241	9.63	3.85	3.85	9.63	0.00	0.00	0.00	5.78	0.00	9.63	9.63	0.00
Light Plants	0.305	7.31	3.66	3.66	7.31	0.00	0.00	0.00	3.66	0.00	3.66	3.66	0.00
Generators	0.473	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.67	0.00	0.00	0.00	0.00
Hydro Vacs	0.480	2.40	2.40	2.40	2.40	0.00	0.00	0.00	2.40	0.00	2.40	2.40	0.00
Fork Lifts	0.452	1.81	1.81	1.81	1.81	0.00	0.00	0.00	1.81	0.00	1.81	1.81	0.00
Loader/Backhoe	0.367	1.83	1.83	1.83	1.83	0.00	0.00	0.00	1.83	0.00	1.83	1.83	0.00
Air Compressors	0.221	0.88	0.88	0.88	0.88	0.00	0.00	0.00	0.88	0.00	0.88	0.88	0.00
Manlifts	0.155	4.95	3.71	3.71	4.95	0.00	0.00	0.00	3.71	0.00	4.95	4.95	0.00
Total		39.70	29.02	29.02	39.70	0.00	0.00	0.00	41.65	0.00	36.04	36.04	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
NOX													
<40 T Cranes	0.909	6.36	6.36	6.36	6.36	0.00	0.00	0.00	12.73	0.00	6.36	6.36	0.00
>40T Cranes	1.117	5.58	5.58	5.58	5.58	0.00	0.00	0.00	11.17	0.00	5.58	5.58	0.00
Pile Rig	0.675	5.40	5.40	5.40	5.40	0.00	0.00	0.00	5.40	0.00	5.40	5.40	0.00
Tractors	0.358	1.79	1.79	1.79	1.79	0.00	0.00	0.00	1.79	0.00	1.79	1.79	0.00
Welders	0.189	7.55	3.02	3.02	7.55	0.00	0.00	0.00	4.53	0.00	7.55	7.55	0.00
Light Plants	0.189	4.53	2.26	2.26	4.53	0.00	0.00	0.00	2.26	0.00	2.26	2.26	0.00
Generators	0.453	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.44	0.00	0.00	0.00	0.00
Hydro Vacs	0.453	2.27	2.27	2.27	2.27	0.00	0.00	0.00	2.27	0.00	2.27	2.27	0.00
Fork Lifts	0.297	1.19	1.19	1.19	1.19	0.00	0.00	0.00	1.19	0.00	1.19	1.19	0.00
Loader/Backhoe	0.358	1.79	1.79	1.79	1.79	0.00	0.00	0.00	1.79	0.00	1.79	1.79	0.00
Air Compressors	0.189	0.75	0.75	0.75	0.75	0.00	0.00	0.00	0.75	0.00	0.75	0.75	0.00
Manlifts	0.116	3.72	2.79	2.79	3.72	0.00	0.00	0.00	2.79	0.00	3.72	3.72	0.00
Total		40.94	33.22	33.22	40.94	0.00	0.00	0.00	52.12	0.00	38.68	38.68	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	0.001	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.02	0.00	0.01	0.01	0.00
>40T Cranes	0.002	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.02	0.00	0.01	0.01	0.00
Pile Rig	0.002	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.02	0.00	0.02	0.02	0.00
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.02	0.01	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.02	0.02	0.00
Light Plants	0.000	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Hydro Vacs	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.000	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00
Total		0.10	0.08	0.08	0.10	0.00	0.00	0.00	0.11	0.00	0.09	0.09	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
PM10													
<40 T Cranes	0.043	0.30	0.30	0.30	0.30	0.00	0.00	0.00	0.60	0.00	0.30	0.30	0.00
>40T Cranes	0.045	0.23	0.23	0.23	0.23	0.00	0.00	0.00	0.45	0.00	0.23	0.23	0.00
Pile Rig	0.020	0.20	0.20	0.20	0.20	0.00	0.00	0.00	0.20	0.00	0.20	0.20	0.00
Tractors	0.024	0.12	0.12	0.12	0.12	0.00	0.00	0.00	0.12	0.00	0.12	0.12	0.00
Welders	0.017	0.66	0.27	0.27	0.66	0.00	0.00	0.00	0.40	0.00	0.66	0.66	0.00
Light Plants	0.017	0.40	0.20	0.20	0.40	0.00	0.00	0.00	0.20	0.00	0.20	0.20	0.00
Generators	0.035	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00
Hydro Vacs	0.035	0.18	0.18	0.18	0.18	0.00	0.00	0.00	0.18	0.00	0.18	0.18	0.00
Fork Lifts	0.015	0.06	0.06	0.06	0.06	0.00	0.00	0.00	0.06	0.00	0.06	0.06	0.00
Loader/Backhoe	0.024	0.12	0.12	0.12	0.12	0.00	0.00	0.00	0.12	0.00	0.12	0.12	0.00
Air Compressors	0.017	0.07	0.07	0.07	0.07	0.00	0.00	0.00	0.07	0.00	0.07	0.07	0.00
Manlifts	0.004	0.11	0.08	0.08	0.11	0.00	0.00	0.00	0.08	0.00	0.11	0.11	0.00
Total		2.44	1.82	1.82	2.44	0.00	0.00	0.00	2.90	0.00	2.24	2.24	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

CO2EQ	Emission Rate (MT/yr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	0.035	0.25	0.25	0.25	0.25	0.00	0.00	0.00	0.49	0.00	0.25	0.25	0.00
>40T Cranes	0.051	0.26	0.26	0.26	0.26	0.00	0.00	0.00	0.51	0.00	0.26	0.26	0.00
Pile Rig	0.059	0.47	0.47	0.47	0.47	0.00	0.00	0.00	0.47	0.00	0.47	0.47	0.00
Tractors	0.019	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.10	0.00	0.10	0.10	0.00
Welders	0.009	0.38	0.15	0.15	0.38	0.00	0.00	0.00	0.23	0.00	0.38	0.38	0.00
Light Plants	0.009	0.23	0.11	0.11	0.23	0.00	0.00	0.00	0.11	0.00	0.11	0.11	0.00
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00
Hydro Vacs	0.018	0.09	0.09	0.09	0.09	0.00	0.00	0.00	0.09	0.00	0.09	0.09	0.00
Fork Lifts	0.021	0.09	0.09	0.09	0.09	0.00	0.00	0.00	0.09	0.00	0.09	0.09	0.00
Loader/Backhoe	0.019	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.10	0.00	0.10	0.10	0.00
Air Compressors	0.009	0.04	0.04	0.04	0.04	0.00	0.00	0.00	0.04	0.00	0.04	0.04	0.00
Manlifts	0.011	0.34	0.26	0.26	0.34	0.00	0.00	0.00	0.26	0.00	0.34	0.34	0.00
Total		2.32	1.90	1.90	2.32	0.00	0.00	0.00	2.69	0.00	2.21	2.21	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	7	1	1	0	0	0	0	0	0	0	0	0	0
>40T Cranes	5	1	1	0	0	0	0	0	0	0	0	0	0
Pile Rig	8	1	1	0	0	0	0	0	0	0	0	0	0
Tractors	5	1	1	0	0	0	0	0	0	0	0	0	0
Welders	8	8	8	0	0	0	0	0	0	0	0	0	0
Light Plants	12	1	1	0	0	0	0	0	0	0	0	0	0
Generators	12	0	0	0	0	0	0	0	0	0	0	0	0
Hydro Vacs	5	1	1	0	0	0	0	0	0	0	0	0	0
Fork Lifts	4	1	1	0	0	0	0	0	0	0	0	0	0
Loader/Backhoe	5	1	1	0	0	0	0	0	0	0	0	0	0
Air Compressors	4	1	1	0	0	0	0	0	0	0	0	0	0
Manlifts	8	4	4	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
VOC	2018												
<40 T Cranes	0.058	0.40	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.065	0.33	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.035	0.28	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.026	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.034	2.15	2.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.034	0.40	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.037	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.016	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.026	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.034	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.005	0.16	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		4.36	4.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
CO	2018												
<40 T Cranes	0.406	2.84	2.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.409	2.04	2.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.501	4.01	4.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.365	1.82	1.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.234	14.97	14.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.297	3.56	3.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.469	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.477	2.38	2.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.217	0.87	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.365	1.82	1.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.214	0.86	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.174	5.57	5.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		40.74	40.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
NOX													
<40 T Cranes	0.802	5.61	5.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.989	4.95	4.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.569	4.55	4.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.306	1.53	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.183	11.74	11.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.183	2.20	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.406	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.406	2.03	2.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.247	0.99	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.306	1.53	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.183	0.73	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.103	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		39.16	39.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	0.001	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.002	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.002	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.000	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
PM10													
<40 T Cranes	0.037	0.26	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.040	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.021	0.16	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.019	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.016	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.016	0.19	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.031	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.031	0.16	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.012	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.019	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.016	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.002	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.35	2.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

CO2EQ	Emission Rate (MT/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	0.035	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.051	0.26	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.059	0.47	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.019	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.009	0.60	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.009	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.018	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.021	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.019	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.009	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.011	0.34	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.43	2.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	7	0	0	0	0	0	0	0	0	0	0	0	0
>40T Cranes	5	0	0	0	0	0	0	0	0	0	0	0	0
Pile Rig	8	0	0	0	0	0	0	0	0	0	0	0	0
Tractors	5	0	0	0	0	0	0	0	0	0	0	0	0
Welders	8	0	0	0	0	0	0	0	0	0	0	0	0
Light Plants	12	0	0	0	0	0	0	0	0	0	0	0	0
Generators	12	0	0	0	0	0	0	0	0	0	0	0	0
Hydro Vacs	5	0	0	0	0	0	0	0	0	0	0	0	0
Fork Lifts	4	0	0	0	0	0	0	0	0	0	0	0	0
Loader/Backhoe	5	0	0	0	0	0	0	0	0	0	0	0	0
Air Compressors	4	0	0	0	0	0	0	0	0	0	0	0	0
Manlifts	8	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
VOC													
<40 T Cranes	0.053	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.062	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

CO	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	0.398	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.395	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.363	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.466	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.363	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.208	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.172	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
NOX	2019												
<40 T Cranes	0.724	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.917	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.519	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.226	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.274	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.098	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
PM10													
<40 T Cranes	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Construction Equipment Emissions

CO2EQ	Emission Rate (MT/yr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	0.035	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.059	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project

Onsite Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		1	2	3	4	5	6	7	8	9	10	11	12
Cars	2	0	0	0	0	0	0	0	0	0	0	0	0
Pickup Trucks	2	0	0	0	0	0	76	76	76	102	117	123	122
Total Light Vehicle Miles		0	0	0	0	0	152	152	152	204	234	246	244
Water Truck	2	0	0	0	0	0	15	15	15	15	15	15	15
Delivery Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	2	0	0	0	0	0	7	7	7	10	12	13	13
Misc. MD Truck	5	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		0	0	0	0	0	44	44	44	50	54	56	56
Truck, Dump Ford LT8000	2	0	0	0	0	0	0	0	0	0	0	0	0
Concrete Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Semi-Tractor, Diesel 20 Ton	2	0	0	0	0	0	0	0	0	0	0	0	0
Misc. HD Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Total Heavy Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0

VOC	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		1	2	3	4	5	6	7	8	9	10	11	12
Light Duty	0.0001035	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.03	0.03
Medium Duty	0.0003717	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Heavy Duty	0.0006131	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.04	0.04	0.05	0.05

CO	2016	1	2	3	4	5	6	7	8	9	10	11	12
		0.00	0.00	0.00	0.00	0.00	0.51	0.51	0.51	0.68	0.78	0.82	0.81
Light Duty	0.0033327	0.00	0.00	0.00	0.00	0.00	0.13	0.13	0.13	0.15	0.16	0.17	0.17
Medium Duty	0.0030301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0043046	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.64	0.64	0.64	0.83	0.94	0.99	0.98

NOx	2016	1	2	3	4	5	6	7	8	9	10	11	12
		0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.08	0.10	0.12	0.12	0.12
Light Duty	0.0005080	0.00	0.00	0.00	0.00	0.00	0.36	0.36	0.36	0.41	0.44	0.46	0.46
Medium Duty	0.0082326	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0154328	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.44	0.44	0.44	0.52	0.56	0.59	0.58

SOx	2016	1	2	3	4	5	6	7	8	9	10	11	12
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.0000090	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000359	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PM10	2016	1	2	3	4	5	6	7	8	9	10	11	12
		0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.03	0.03
Light Duty Exhaust	0.0001064	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.03	0.03	0.03
Medium Duty Exhaust	0.0004787	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0004727	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Exhaust PM		0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.05	0.05	0.05	0.05
Light Duty Fugitive ⁽²⁾	0.000221	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.05	0.05	0.05	0.05
Medium Duty Fugitive ⁽²⁾	0.000467	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.03	0.03	0.03
Heavy Duty Fugitive ⁽²⁾	0.002314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM		0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.07	0.08	0.08	0.08
Total		0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.09	0.11	0.13	0.13	0.13

CO _{2EQ}	2016	1	2	3	4	5	6	7	8	9	10	11	12
		0.907	0.00	0.00	0.00	0.00	137.87	137.87	137.87	185.03	212.24	223.13	221.31
Light Duty	0.907	0.00	0.00	0.00	0.00	0.00	99.49	99.49	99.49	113.05	122.10	126.62	126.62
Medium Duty	2.261	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	3.768	0.00	0.00	0.00	0.00	0.00	237.35	237.35	237.35	298.09	334.34	349.75	347.93
Total		0.00	0.00	0.00	0.00	0.00	237.35	237.35	237.35	298.09	334.34	349.75	347.93

(1) Emlac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m2)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO_{2e}) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emlac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Chemical	2016		
	Light	Medium	Heavy
CO ₂ (lb/mi)	0.8956	2.2575	3.7642
CH ₄ (g/mi)	0.0148	0.0051	0.0051
N ₂ O (g/mi)	0.0157	0.0048	0.0048
CO _{2e} (lb/mi)	0.907	2.261	3.768

Appendix B-1
Tesoro Integration and Compliance Project

Onsite Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		13	14	15	16	17	18	19	20	21	22	23	24
Cars	2	0	0	0	0	0	0	0	0	0	0	0	0
Pickup Trucks	2	127	135	124	126	114	122	118	122	110	73	73	61
Total Light Vehicle Miles		254	270	248	252	228	244	236	244	220	146	146	122
Water Truck	2	15	15	10	10	10	10	10	10	10	10	10	10
Delivery Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	2	14	14	13	13	11	12	11	12	10	8	8	6
Misc. MD Truck	5	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		58	58	46	46	42	44	42	44	40	36	36	32
Truck, Dump Ford LT8000	2	0	0	0	0	0	0	0	0	0	0	0	0
Concrete Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Semi-Tractor, Diesel 20 Ton	2	0	0	0	0	0	0	0	0	0	0	0	0
Misc. HD Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Total Heavy Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0

	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
VOC	2017	13	14	15	16	17	18	19	20	21	22	23	24
Light Duty	0.0001035	0.03	0.03	0.03	0.03	0.02	0.03	0.02	0.03	0.02	0.02	0.02	0.01
Medium Duty	0.0003717	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01
Heavy Duty	0.0006131	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03

CO	2017	13	14	15	16	17	18	19	20	21	22	23	24
Light Duty	0.0033327	0.85	0.90	0.83	0.84	0.76	0.81	0.79	0.81	0.73	0.49	0.49	0.41
Medium Duty	0.0030301	0.18	0.18	0.14	0.14	0.13	0.13	0.13	0.13	0.12	0.11	0.11	0.10
Heavy Duty	0.0043046	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		1.02	1.08	0.97	0.98	0.89	0.95	0.91	0.95	0.85	0.60	0.60	0.50

NOx	2017	13	14	15	16	17	18	19	20	21	22	23	24
Light Duty	0.0005080	0.13	0.14	0.13	0.13	0.12	0.12	0.12	0.12	0.11	0.07	0.07	0.06
Medium Duty	0.0082326	0.48	0.48	0.38	0.38	0.35	0.36	0.35	0.36	0.33	0.30	0.30	0.26
Heavy Duty	0.0154328	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.61	0.61	0.50	0.51	0.46	0.49	0.47	0.49	0.44	0.37	0.37	0.33

SOx	2017	13	14	15	16	17	18	19	20	21	22	23	24
Light Duty	0.0000090	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000359	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PM10	2017	13	14	15	16	17	18	19	20	21	22	23	24
Light Duty Exhaust	0.0001064	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.01
Medium Duty Exhaust	0.0004787	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Heavy Duty Exhaust	0.0004727	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Exhaust PM		0.05	0.06	0.05	0.05	0.04	0.05	0.05	0.05	0.04	0.03	0.03	0.03
Light Duty Fugitive ⁽²⁾	0.000221	0.06	0.06	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.03
Medium Duty Fugitive ⁽²⁾	0.000467	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
Heavy Duty Fugitive ⁽²⁾	0.002314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM		0.08	0.09	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.05	0.05	0.04
Total		0.14	0.14	0.12	0.13	0.11	0.12	0.12	0.12	0.11	0.08	0.08	0.07

CO _{2EQ}	2017	13	14	15	16	17	18	19	20	21	22	23	24
Light Duty	0.907	230.38	244.90	224.94	228.57	206.80	221.31	214.06	221.31	199.55	132.43	132.43	110.66
Medium Duty	2.261	131.14	131.14	104.01	104.01	94.96	99.49	94.96	99.49	90.44	81.40	81.40	72.35
Heavy Duty	3.768	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		361.53	376.04	328.95	332.58	301.77	320.80	309.02	320.80	289.99	213.82	213.82	183.01

(1) Emlac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m2)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO_{2e}) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emlac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Chemical	2017		
	Light	Medium	Heavy
CO ₂ (lb/mi)	0.8956	2.2575	3.7642
CH ₄ (g/mi)	0.0148	0.0051	0.0051
N ₂ O (g/mi)	0.0157	0.0048	0.0048
CO _{2e} (lb/mi)	0.907	2.261	3.768

Appendix B-1
Tesoro Integration and Compliance Project

Onsite Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		25	26	27	28	29	30	31	32	33	34	35	36
Cars	2	0	0	0	0	0	0	0	0	0	0	0	0
Pickup Trucks	2	93	93	88	88	88	59	59	49	49	49	49	38
Total Light Vehicle Miles		186	186	176	176	176	118	118	98	98	98	98	76
Water Truck	2	12	12	7	7	7	7	7	7	7	7	7	7
Delivery Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	2	10	10	9	9	9	6	6	5	5	5	5	3
Misc. MD Truck	5	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		44	44	32	32	32	26	26	24	24	24	24	20
Truck, Dump Ford LT8000	2	0	0	0	0	0	0	0	0	0	0	0	0
Concrete Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Semi-Tractor, Diesel 20 Ton	2	0	0	0	0	0	0	0	0	0	0	0	0
Misc. HD Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Total Heavy Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0

VOC	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		25	26	27	28	29	30	31	32	33	34	35	36
Light Duty	0.0000636	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Medium Duty	0.0002639	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty	0.0005354	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01

CO	2018	25	26	27	28	29	30	31	32	33	34	35	36
		0.45	0.45	0.43	0.43	0.43	0.29	0.29	0.24	0.24	0.24	0.24	0.19
Light Duty	0.0024424	0.09	0.09	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.04
Medium Duty	0.0019739	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0038177	0.54	0.54	0.49	0.49	0.49	0.34	0.34	0.29	0.29	0.29	0.29	0.23
Total													

NOx	2018	25	26	27	28	29	30	31	32	33	34	35	36
		0.07	0.07	0.07	0.07	0.07	0.05	0.05	0.04	0.04	0.04	0.04	0.03
Light Duty	0.0003881	0.23	0.23	0.17	0.17	0.17	0.14	0.14	0.13	0.13	0.13	0.13	0.11
Medium Duty	0.0053355	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0114857	0.31	0.31	0.24	0.24	0.24	0.18	0.18	0.17	0.17	0.17	0.17	0.14
Total													

SOx	2018	25	26	27	28	29	30	31	32	33	34	35	36
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.0000090	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000359	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PM10	2018	25	26	27	28	29	30	31	32	33	34	35	36
		0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Light Duty Exhaust	0.0001058	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Medium Duty Exhaust	0.0004105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0004029	0.04	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Total Exhaust PM		0.04	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Light Duty Fugitive ⁽²⁾	0.000221	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02
Medium Duty Fugitive ⁽²⁾	0.000467	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty Fugitive ⁽²⁾	0.002314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM		0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03	0.03	0.03
Total		0.10	0.10	0.09	0.09	0.09	0.06	0.06	0.05	0.05	0.05	0.05	0.04

CO _{2EQ}	2018	25	26	27	28	29	30	31	32	33	34	35	36
		168.87	168.87	159.79	159.79	159.79	107.13	107.13	88.97	88.97	88.97	88.97	69.00
Light Duty	0.908	99.25	99.25	72.18	72.18	72.18	58.65	58.65	54.14	54.14	54.14	54.14	45.11
Medium Duty	2.256	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	3.759	268.12	268.12	231.97	231.97	231.97	165.78	165.78	143.11	143.11	143.11	143.11	114.11
Total													

(1) Emlac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m2)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO_{2e}) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emlac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Chemical	2018		
	Light	Medium	Heavy
CO ₂ (lb/mi)	0.8965	2.2522	3.7551
CH ₄ (g/mi)	0.0148	0.0051	0.0051
N ₂ O (g/mi)	0.0157	0.0048	0.0048
CO _{2e} (lb/mi)	0.908	2.256	3.759

Appendix B-1
Tesoro Integration and Compliance Project

Onsite Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		37	38	39	40	41	42	43	44	45	46	47	48
Cars	2	0	0	0	0	0	0	0	0	0	0	0	0
Pickup Trucks	2	12	12	12	12	12	12	12	12	12	12	12	12
Total Light Vehicle Miles		24	24	24	24	24	24	24	24	24	24	24	24
Water Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Delivery Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	2	1	1	1	1	1	1	1	1	1	1	1	1
Misc. MD Truck	5	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		2	2	2	2	2	2	2	2	2	2	2	2
Truck, Dump Ford LT8000	2	0	0	0	0	0	0	0	0	0	0	0	0
Concrete Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Semi-Tractor, Diesel 20 Ton	2	0	0	0	0	0	0	0	0	0	0	0	0
Misc. HD Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Total Heavy Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0

VOC	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		37	38	39	40	41	42	43	44	45	46	47	48
Light Duty	0.0000548	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0002379	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0005283	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CO	2019	37	38	39	40	41	42	43	44	45	46	47	48
		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Light Duty	0.0022305	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Medium Duty	0.0017339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0037678	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06

NOx	2019	37	38	39	40	41	42	43	44	45	46	47	48
		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Light Duty	0.0003585	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Medium Duty	0.0046291	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty	0.0107049	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02

SOx	2019	37	38	39	40	41	42	43	44	45	46	47	48
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.0000090	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000357	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PM10	2019	37	38	39	40	41	42	43	44	45	46	47	48
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty Exhaust	0.0001057	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty Exhaust	0.0003940	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0004031	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Exhaust PM		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty Fugitive ⁽²⁾	0.0002221	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Medium Duty Fugitive ⁽²⁾	0.000467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Fugitive ⁽²⁾	0.002314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

CO _{2EQ}	2019	37	38	39	40	41	42	43	44	45	46	47	48
		21.75	21.75	21.75	21.75	21.75	21.75	21.75	21.75	21.75	21.75	21.75	21.75
Light Duty	0.906	21.75	21.75	21.75	21.75	21.75	21.75	21.75	21.75	21.75	21.75	21.75	21.75
Medium Duty	2.247	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49
Heavy Duty	3.745	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		26.24	26.24	26.24	26.24	26.24	26.24	26.24	26.24	26.24	26.24	26.24	26.24

(1) Emlac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m2)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO_{2e}) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emlac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Chemical	2019		
	Light	Medium	Heavy
CO ₂ (lb/mi)	0.8949	2.2430	3.7418
CH ₄ (g/mi)	0.0148	0.0051	0.0051
N ₂ O (g/mi)	0.0157	0.0048	0.0048
CO _{2e} (lb/mi)	0.906	2.247	3.745

Appendix B-1
Tesoro Integration and Compliance Project

Onsite Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		49	50	51	52	53	54	55	56	57	58	59	60
Cars	2												
Pickup Trucks	2	12	12	12	12	12	12	12	12	12	12	12	12
Total Light Vehicle Miles		24	24	24	24	24	24	24	24	24	24	24	24
Water Truck	2	1	1	1	1	1	1	1	1	1	1	1	1
Delivery Truck	2												
1 Ton Truck	2	1	1	1	1	1	1	1	1	1	1	1	1
Misc. MD Truck	5												
Total Medium Truck Miles		4	4	4	4	4	4	4	4	4	4	4	4
Truck, Dump Ford LT8000	2												
Concrete Truck	2												
Semi-Tractor, Diesel 20 Ton	2												
Misc. HD Truck	2												
Total Heavy Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0

VOC	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		49	50	51	52	53	54	55	56	57	58	59	60
Light Duty	0.0001152	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0002072	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0010485	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CO	2020	49	50	51	52	53	54	55	56	57	58	59	60
		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Light Duty	0.0007041	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Medium Duty	0.0018984	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty	0.0566489	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02

NOx	2020	49	50	51	52	53	54	55	56	57	58	59	60
		0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Light Duty	0.0026401	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Medium Duty	0.0032831	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty	0.0097261	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08

SOx	2020	49	50	51	52	53	54	55	56	57	58	59	60
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.0000082	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000202	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PM10	2020	49	50	51	52	53	54	55	56	57	58	59	60
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty Exhaust	0.0001814	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty Exhaust	0.0003283	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0001312	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Exhaust PM		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Light Duty Fugitive ⁽²⁾	0.0002221	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Medium Duty Fugitive ⁽²⁾	0.000467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Fugitive ⁽²⁾	0.002314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

CO _{2EQ}	2020	49	50	51	52	53	54	55	56	57	58	59	60
		20.92	20.92	20.92	20.92	20.92	20.92	20.92	20.92	20.92	20.92	20.92	20.92
Light Duty	0.872	20.92	20.92	20.92	20.92	20.92	20.92	20.92	20.92	20.92	20.92	20.92	20.92
Medium Duty	2.104	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42	8.42
Heavy Duty	3.742	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		29.34	29.34	29.34	29.34	29.34	29.34	29.34	29.34	29.34	29.34	29.34	29.34

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMt for PM10, sL = road silt loading (gms/m2)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO_{2e}) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Chemical	2020		
	Light	Medium	Heavy
CO ₂ (lb/mi)	0.8604	2.1003	3.7388
CH ₄ (g/mi)	0.0148	0.0051	0.0051
N ₂ O (g/mi)	0.0157	0.0048	0.0048
CO _{2e} (lb/mi)	0.872	2.104	3.742

Appendix B-1
Tesoro Integration and Compliance Project

Onsite Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		61	62	63	64	65	66	67	68	69	70	71	72
Cars	2												
Pickup Trucks	2	12	12	12									
Total Light Vehicle Miles		24	24	24	0	0	0	0	0	0	0	0	0
Water Truck	2	1	1	1									
Delivery Truck	2												
1 Ton Truck	2	1	1	1									
Misc. MD Truck	5												
Total Medium Truck Miles		4	4	4	0	0	0	0	0	0	0	0	0
Truck, Dump Ford LT8000	2												
Concrete Truck	2												
Semi-Tractor, Diesel 20 Ton	2												
Misc. HD Truck	2												
Total Heavy Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0

VOC	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		61	62	63	64	65	66	67	68	69	70	71	72
Light Duty	0.0001103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0001878	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0010069	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CO	2021	61	62	63	64	65	66	67	68	69	70	71	72
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.0006885	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0016798	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0563965	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NOx	2021	61	62	63	64	65	66	67	68	69	70	71	72
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.0024874	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0024226	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0094888	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.07	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

SOx	2021	61	62	63	64	65	66	67	68	69	70	71	72
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.0000082	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000202	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PM10	2021	61	62	63	64	65	66	67	68	69	70	71	72
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty Exhaust	0.0001798	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty Exhaust	0.0003061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0001308	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Exhaust PM		0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty Fugitive ⁽²⁾	0.000230	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty Fugitive ⁽²⁾	0.000515	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Fugitive ⁽²⁾	0.002314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM		0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CO _{2EQ}	2021	61	62	63	64	65	66	67	68	69	70	71	72
		0.872	20.93	20.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.872	20.93	20.93	20.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	2.095	8.38	8.38	8.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	3.741	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		29.31	29.31	29.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m2)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO_{2e}) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Chemical	2021		
	Light	Medium	Heavy
CO ₂ (lb/mi)	0.8606	2.0915	3.7375
CH ₄ (g/mi)	0.0148	0.0051	0.0051
N ₂ O (g/mi)	0.0157	0.0048	0.0048
CO _{2e} (lb/mi)	0.872	2.095	3.741

Appendix B-1
Tesoro Integration and Compliance Project
Offsite Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		1	2	3	4	5	6	7	8	9	10	11	12
Tradesmen	29.4	0	0	0	0	0	298	298	298	396	479	523	523
Construction Staff	29.4	0	0	0	0	0	40	40	40	40	40	40	40
Total Light Vehicle Miles		0	0	0	0	0	9937.2	9937.2	9937.2	15258.6	16552.2	16552.2	16552.2
Water Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Delivery Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Misc. MD Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0
Truck, Dump Ford L18000	40	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Dump Trucks	400	0	0	0	0	0	21	15	15	15	6	6	6
Non-Haz Dump Trucks	200	0	0	0	0	0	11	13	12	12	18	18	18
Misc. HD Truck	40	0	0	0	0	0	47	27	13	15	30	25	25
Total Heavy Truck Miles		0	0	0	0	0	12480	9680	9160	9160	7200	7000	7000

Emission Rate (lb/mi) ¹	Month (lb/day)											
	1	2	3	4	5	6	7	8	9	10	11	12
VOC												
Light Duty	0.0001095	0.00	0.00	0.00	0.00	0.00	1.03	1.03	1.03	1.33	1.58	1.71
Medium Duty	0.0003717	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0006131	0.00	0.00	0.00	0.00	0.00	7.85	5.93	5.62	5.62	4.41	4.29
Total		0.00	0.00	0.00	0.00	0.00	8.88	6.96	6.64	6.94	5.99	6.00
CO												
Light Duty	0.003327	0.00	0.00	0.00	0.00	0.00	33.12	33.12	33.12	42.72	50.85	55.16
Medium Duty	0.0030301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0043046	0.00	0.00	0.00	0.00	0.00	53.72	41.67	39.43	39.43	30.13	30.13
Total		0.00	0.00	0.00	0.00	0.00	86.84	74.79	72.55	82.15	81.85	85.30
NOx												
Light Duty	0.0005080	0.00	0.00	0.00	0.00	0.00	5.05	5.05	5.05	6.51	7.75	8.41
Medium Duty	0.0062326	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0154328	0.00	0.00	0.00	0.00	0.00	192.60	149.39	141.36	141.36	111.12	108.03
Total		0.00	0.00	0.00	0.00	0.00	197.65	154.44	146.41	147.88	118.87	116.44
SOx												
Light Duty	0.0000900	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.09	0.12	0.14	0.15
Medium Duty	0.0000217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000359	0.00	0.00	0.00	0.00	0.00	0.45	0.35	0.33	0.33	0.26	0.25
Total		0.00	0.00	0.00	0.00	0.00	0.54	0.44	0.42	0.44	0.40	0.40
PM10												
Light Duty Exhaust	0.0001064	0.00	0.00	0.00	0.00	0.00	1.06	1.06	1.06	1.36	1.62	1.76
Medium Duty Exhaust	0.0004787	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0004727	0.00	0.00	0.00	0.00	0.00	5.90	4.58	4.33	4.33	3.40	3.31
Total Exhaust PM		0.00	0.00	0.00	0.00	0.00	6.96	5.63	5.39	5.69	5.03	5.07
Light Duty Fugitive ²	0.000221	0.00	0.00	0.00	0.00	0.00	2.20	2.20	2.20	2.83	3.37	3.66
Medium Duty Fugitive ²	0.000467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Fugitive ²	0.002314	0.00	0.00	0.00	0.00	0.00	28.88	22.40	21.20	21.20	16.66	16.20
Total Fugitive PM		0.00	0.00	0.00	0.00	0.00	31.08	24.60	23.40	24.03	20.04	19.86
Total		0.00	0.00	0.00	0.00	0.00	38.04	30.23	28.78	29.73	25.06	24.93
CO2eq												
Light Duty	0.907	0.00	0.00	0.00	0.00	0.00	9013.31	9013.31	9013.31	11626.64	13839.97	15013.30
Medium Duty	2.261	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	3.768	0.00	0.00	0.00	0.00	0.00	47021.52	36471.82	34512.59	27127.80	26374.25	26374.25
Total		0.00	0.00	0.00	0.00	0.00	56034.83	45485.13	43525.90	46139.23	40967.77	41387.55

(1) Emfac2011 emission factors for the South Coast Air District.
(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011.

$E = K \times V^{0.75} \times W^{1.10}$
Where: $k = 0.0022$ lb/VMT for PM10, $sl =$ road silt loading (gms/m²)
(0.03 for major collector roads), $W =$ weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO₂e) = CO₂ + CH₄ × 21 + N₂O × 210

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Chemical	2015		
	Light	Medium	Heavy
CO ₂ (lb/mi)	0.8956	2.2575	3.7642
CH ₄ (gpm)	0.0148	0.0051	0.0051
N ₂ O (gpm)	0.0157	0.0048	0.0048
CO ₂ e (lb/mi)	0.907	2.261	3.768

Appendix B-1
Tesoro Integration and Compliance Project
Offsite Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)												23	24
		13	14	15	16	17	18	19	20	21	22	23	24		
Tradesmen	29.4	576	603	539	546	525	621	622	656	586	453	453	392	40	40
Construction Staff	29.4	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Total Light Vehicle Miles		18110.4	18904.2	17022.6	17228.4	16611	19433.4	19462.8	20462.4	18404.4	14494.2	14494.2	12700.8		
Water Truck	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delivery Truck	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Misc. MD Truck	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Truck, Dump Ford L18000	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Dump Trucks	400	9	9	9	9	9	9	9	4	4	4	4	1	1	1
Non-Haz Dump Trucks	200	20	20	20	20	20	20	20	10	10	10	6	6	6	6
Misc. HD Truck	40	38	38	38	44	44	44	44	47	47	47	62	62	62	62
Total Heavy Truck Miles		9120	9040	9040	9360	9360	9360	5460	5480	5480	4080	4080	4080		

Emission Rate (lb/mi) ¹¹	Month (lb/day)												23	24
	13	14	15	16	17	18	19	20	21	22	23	24		
VOC														
Light Duty	0.0001095	1.87	1.96	1.76	1.78	1.72	2.01	2.01	2.12	1.90	1.50	1.50	1.31	
Medium Duty	0.0003717	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Heavy Duty	0.0006131	5.59	5.54	5.74	5.74	5.74	3.36	3.36	3.36	3.36	2.50	2.50	2.50	
Total		7.46	7.50	7.30	7.52	7.46	7.75	5.37	5.48	5.26	4.00	4.00	3.82	
CO														
Light Duty	0.003327	60.36	63.00	56.73	57.42	55.36	64.77	64.86	68.19	61.24	48.30	48.30	42.33	
Medium Duty	0.003031	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Heavy Duty	0.0043046	39.26	38.91	38.91	40.29	40.29	23.59	23.59	23.59	23.59	17.56	17.56	17.56	
Total		99.61	101.92	95.65	97.71	95.65	105.06	88.45	91.78	84.93	65.87	65.87	59.89	
NOx														
Light Duty	0.0005080	9.20	9.60	8.65	8.75	8.44	9.87	9.89	10.40	9.35	7.36	7.36	6.45	
Medium Duty	0.0062326	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Heavy Duty	0.0154328	140.75	139.51	139.51	144.45	144.45	84.57	84.57	84.57	84.57	62.97	62.97	62.97	
Total		149.95	149.12	148.16	153.20	152.89	154.32	94.46	94.97	93.92	70.33	70.33	69.42	
SOx														
Light Duty	0.0000900	0.16	0.17	0.15	0.15	0.15	0.17	0.17	0.18	0.17	0.13	0.13	0.11	
Medium Duty	0.0000217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Heavy Duty	0.0000359	0.33	0.32	0.32	0.34	0.34	0.34	0.20	0.20	0.20	0.15	0.15	0.15	
Total		0.49	0.49	0.46	0.49	0.49	0.51	0.37	0.38	0.36	0.28	0.28	0.26	
PM10														
Light Duty Exhaust	0.0001064	1.93	2.01	1.81	1.83	1.77	2.07	2.07	2.18	1.96	1.54	1.54	1.35	
Medium Duty Exhaust	0.0004787	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Heavy Duty Exhaust	0.0004727	4.31	4.27	4.27	4.42	4.42	2.59	2.59	2.59	2.59	1.93	1.93	1.93	
Total Exhaust PM		6.24	6.28	6.08	6.26	6.19	4.69	4.66	4.77	4.55	3.47	3.47	3.28	
Light Duty Fugitive ²¹	0.000221	4.00	4.18	3.76	3.81	3.67	4.30	4.30	4.52	4.07	3.20	3.20	2.81	
Medium Duty Fugitive ²¹	0.000467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Heavy Duty Fugitive ²¹	0.002314	21.11	20.92	20.92	21.66	21.66	12.68	12.68	12.68	12.68	9.44	9.44	9.44	
Total Fugitive PM		25.11	25.10	24.68	25.47	25.33	16.98	16.98	17.20	16.75	12.65	12.65	12.25	
Total		31.35	31.38	30.77	31.73	31.52	32.45	21.64	21.97	21.30	16.12	16.12	15.53	
CO2eq														
Light Duty	0.907	16426.63	17146.62	15439.96	15626.63	15066.63	17626.62	17653.29	18559.95	16993.29	13146.63	13146.63	11519.97	
Medium Duty	2.261	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Heavy Duty	3.768	34361.88	34060.46	35266.14	35266.14	35266.14	20647.27	20647.27	20647.27	20647.27	15372.42	15372.42	15372.42	
Total		50788.51	51207.08	49500.42	50892.77	50332.77	52992.76	52992.76	52992.76	52992.76	38300.56	38300.56	32692.39	

(1) Emfac2011 emission factors for the South Coast Air District.
(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011.
E = K₁ V^{0.75} X W^{1.02}

Where: k = 0.0022 lb/VMT for PM10, sl = road silt loading (gms/m²)
(0.03 for major collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO₂) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Chemical	2017		
	Light	Medium	Heavy
CO ₂ (lb/mi)	0.8956	2.2575	3.7642
CH ₄ (gpm)	0.0148	0.0051	0.0051
N ₂ O (gpm)	0.0157	0.0048	0.0048
CO ₂ e (lb/mi)	0.907	2.261	3.768

Appendix B-1
Tesoro Integration and Compliance Project
Offsite Construction Vehicle Trip Emissions

		Month (Vehicles per day)											
Vehicle	Miles per Day	25	26	27	28	29	30	31	32	33	34	35	36
Tradesmen	29.4	569	569	512	512	512	249	249	208	208	208	208	114
Construction Staff	29.4	40	40	40	40	40	40	40	40	40	40	40	40
Total Light Vehicle Miles		17904.6	17904.6	16228.8	16228.8	16228.8	8496.6	8496.6	7291.2	7291.2	7291.2	7291.2	4527.6
Water Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Delivery Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Misc. MD Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0
Truck, Dump Ford LT8000	40	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Dump Trucks	400	1	1	1	2	2	2	1	1	1	0	0	0
Non-Haz Dump Trucks	200	4	4	4	1	1	1	1	1	1	1	1	1
Misc. HD Truck	40	66	62	62	55	55	55	10	10	10	7	7	7
Total Heavy Truck Miles		3840	3680	3680	3200	3200	3200	1000	1000	1000	480	480	480

Emission Rate (lb/mi) ⁽¹⁾		Month (lb/day)											
VOC	2018	25	26	27	28	29	30	31	32	33	34	35	36
Light Duty	0.0000636	1.14	1.14	1.03	1.03	1.03	0.54	0.54	0.46	0.46	0.46	0.46	0.29
Medium Duty	0.0002639	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0005354	2.06	1.97	1.97	1.71	1.71	1.71	0.54	0.54	0.54	0.26	0.26	0.26
Total		3.19	3.11	3.00	2.74	2.74	2.25	1.08	1.00	1.00	0.72	0.72	0.54

CO	2018	25	26	27	28	29	30	31	32	33	34	35	36
Light Duty	0.0024424	43.73	43.73	39.64	39.64	39.64	20.75	20.75	17.81	17.81	17.81	17.81	11.06
Medium Duty	0.0019739	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0038177	14.66	14.05	14.05	12.22	12.22	12.22	3.82	3.82	3.82	1.83	1.83	1.83
Total		58.39	57.78	53.69	51.85	51.85	32.97	24.57	21.63	21.63	19.64	19.64	12.89

NOx	2018	25	26	27	28	29	30	31	32	33	34	35	36
Light Duty	0.0003881	6.95	6.95	6.30	6.30	6.30	3.30	3.30	2.83	2.83	2.83	2.83	1.76
Medium Duty	0.0053355	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0114857	44.11	42.27	42.27	36.75	36.75	36.75	11.49	11.49	11.49	5.51	5.51	5.51
Total		51.05	49.22	48.57	43.05	43.05	40.05	14.78	14.32	14.32	8.34	8.34	7.27

SOx	2018	25	26	27	28	29	30	31	32	33	34	35	36
Light Duty	0.0000090	0.16	0.16	0.15	0.15	0.15	0.08	0.08	0.07	0.07	0.07	0.07	0.04
Medium Duty	0.0000216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000359	0.14	0.13	0.13	0.11	0.11	0.11	0.04	0.04	0.04	0.02	0.02	0.02
Total		0.30	0.29	0.28	0.26	0.26	0.19	0.11	0.10	0.10	0.08	0.08	0.06

PM10	2018	25	26	27	28	29	30	31	32	33	34	35	36
Light Duty Exhaust	0.0001058	1.89	1.89	1.72	1.72	1.72	0.90	0.90	0.77	0.77	0.77	0.77	0.48
Medium Duty Exhaust	0.0004105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0004029	1.55	1.48	1.48	1.29	1.29	1.29	0.40	0.40	0.40	0.19	0.19	0.19
Total Exhaust PM		3.44	3.38	3.20	3.01	3.01	2.19	1.30	1.17	1.17	0.96	0.96	0.67
Light Duty Fugitive ⁽²⁾	0.000221	3.96	3.96	3.59	3.59	3.59	1.88	1.88	1.61	1.61	1.61	1.61	1.00
Medium Duty Fugitive ⁽²⁾	0.000467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Fugitive ⁽²⁾	0.002314	8.89	8.52	8.52	7.41	7.41	7.41	2.31	2.31	2.31	1.11	1.11	1.11
Total Fugitive PM		12.84	12.47	12.10	10.99	10.99	9.28	4.19	3.93	3.93	2.72	2.72	2.11
Total		16.29	15.85	15.30	14.00	14.00	11.47	5.49	5.10	5.10	3.69	3.69	2.78

CO _{2eq}	2018	25	26	27	28	29	30	31	32	33	34	35	36
Light Duty	0.908	16255.63	16255.63	14734.16	14734.16	14734.16	7714.08	7714.08	6619.70	6619.70	6619.70	6619.70	4110.62
Medium Duty	2.256	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	3.759	14432.92	13831.55	13831.55	12027.43	12027.43	12027.43	3758.57	3758.57	3758.57	1804.11	1804.11	1804.11
Total		30688.54	30087.17	28565.71	26761.59	26761.59	19741.51	11472.65	10378.27	10378.27	8423.81	8423.81	5914.73

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.75} \times (W)^{1.02}$$

Where: $k = 0.0022 \text{ lb/VMT for PM}_{10}$, $sL = \text{road silt loading (gms/m}^2)$

(0.03 for major/collector roads), $W = \text{weight of vehicles (2.5 tons for light; 5.5 for medium trucks,$

and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CQ) = $\text{CO}_2 + \text{CH}_4 \times 21 + \text{N}_2\text{O} \times 310$

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Chemical	2018		
	Light	Medium	Heavy
CO ₂ (lb/mi)	0.8965	2.2522	3.7551
CH ₄ (g/mi)	0.0148	0.0051	0.0051
N ₂ O (g/mi)	0.0157	0.0048	0.0048
CO _{2e} (lb/mi)	0.908	2.256	3.759

Appendix B-1
Tesoro Integration and Compliance Project
Offsite Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		37	38	39	40	41	42	43	44	45	46	47	48
Tradesmen	29.4	58	58	58	58	58	58	58	58	58	58	58	58
Construction Staff	29.4	40	40	40	40	40	40	40	40	40	40	40	40
Total Light Vehicle Miles		2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2
Water Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Delivery Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Misc. MD Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0
Truck, Dump Ford LT8000	40	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Dump Trucks	400	0	0	0	0	0	0	0	0	0	0	0	0
Non-Haz Dump Trucks	200	0	0	0	0	0	0	0	0	0	0	0	0
Misc. HD Truck	40	5	5	5	5	5	5	5	5	5	5	5	5
Total Heavy Truck Miles		200	200	200	200	200	200	200	200	200	200	200	200

	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		37	38	39	40	41	42	43	44	45	46	47	48
VOC	2019												
Light Duty	0.0000548	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Medium Duty	0.0002379	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0005283	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Total		0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26

	2019	37	38	39	40	41	42	43	44	45	46	47	48
CO													
Light Duty	0.0022305	6.43	6.43	6.43	6.43	6.43	6.43	6.43	6.43	6.43	6.43	6.43	6.43
Medium Duty	0.0017339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0037678	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Total		7.18	7.18	7.18	7.18	7.18	7.18	7.18	7.18	7.18	7.18	7.18	7.18

	2019	37	38	39	40	41	42	43	44	45	46	47	48
NOx													
Light Duty	0.0003585	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Medium Duty	0.0046291	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0107049	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14
Total		3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17	3.17

	2019	37	38	39	40	41	42	43	44	45	46	47	48
SOx													
Light Duty	0.0000090	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Medium Duty	0.0000215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000357	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

	2019	37	38	39	40	41	42	43	44	45	46	47	48
PM10													
Light Duty Exhaust	0.0001057	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Medium Duty Exhaust	0.0003940	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0004031	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Total Exhaust PM		0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Light Duty Fugitive ⁽²⁾	0.000230	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
Medium Duty Fugitive ⁽²⁾	0.000515	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Fugitive ⁽²⁾	0.002314	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Total Fugitive PM		1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
Total		1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51

	2019	37	38	39	40	41	42	43	44	45	46	47	48
CO _{2eq}													
Light Duty	0.906	2611.29	2611.29	2611.29	2611.29	2611.29	2611.29	2611.29	2611.29	2611.29	2611.29	2611.29	2611.29
Medium Duty	2.247	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	3.745	749.05	749.05	749.05	749.05	749.05	749.05	749.05	749.05	749.05	749.05	749.05	749.05
Total		3360.34	3360.34	3360.34	3360.34	3360.34	3360.34	3360.34	3360.34	3360.34	3360.34	3360.34	3360.34

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.75} \times (W)^{1.02}$$

Where: $k = 0.0022$ lb/VMT for PM10, sL = road silt loading (gms/m²)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CQ) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Chemical	2019		
	Light	Medium	Heavy
CO ₂ (lb/mi)	0.8949	2.2430	3.7418
CH ₄ (g/mi)	0.0148	0.0051	0.0051
N ₂ O (g/mi)	0.0157	0.0048	0.0048
CO _{2e} (lb/mi)	0.906	2.247	3.745

Appendix B-1
Tesoro Integration and Compliance Project
Offsite Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		49	50	51	52	53	54	55	56	57	58	59	60
Tradesmen	29.4	58	58	58	58	58	58	58	58	58	58	58	58
Construction Staff	29.4	40	40	40	40	40	40	40	40	40	40	40	40
Total Light Vehicle Miles		2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2
Water Truck	40	1	1	1	1	1	1	1	1	1	1	1	1
Delivery Truck	40												
1 Ton Truck	40												
Misc. MD Truck	40												
Total Medium Truck Miles		40	40	40	40	40	40	40	40	40	40	40	40
Truck, Dump Ford LT8000	40												
Hazardous Dump Trucks	400												
Non-Haz Dump Trucks	200												
Misc. HD Truck	40	5	5	5	5	5	5	5	5	5	5	5	5
Total Heavy Truck Miles		200	200	200	200	200	200	200	200	200	200	200	200

	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		49	50	51	52	53	54	55	56	57	58	59	60
VOC	2020												
Light Duty	0.0001152	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Medium Duty	0.0002072	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty	0.0010485	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Total		0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55

	2020	49	50	51	52	53	54	55	56	57	58	59	60
CO													
Light Duty	0.0007041	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03	2.03
Medium Duty	0.0018984	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Heavy Duty	0.0566489	11.33	11.33	11.33	11.33	11.33	11.33	11.33	11.33	11.33	11.33	11.33	11.33
Total		13.43	13.43	13.43	13.43	13.43	13.43	13.43	13.43	13.43	13.43	13.43	13.43

	2020	49	50	51	52	53	54	55	56	57	58	59	60
NOx													
Light Duty	0.0026401	7.61	7.61	7.61	7.61	7.61	7.61	7.61	7.61	7.61	7.61	7.61	7.61
Medium Duty	0.0032831	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Heavy Duty	0.0097261	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95
Total		9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68	9.68

	2020	49	50	51	52	53	54	55	56	57	58	59	60
SOx													
Light Duty	0.0000082	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Medium Duty	0.0000202	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

	2020	49	50	51	52	53	54	55	56	57	58	59	60
PM10													
Light Duty Exhaust	0.0001814	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Medium Duty Exhaust	0.0003283	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty Exhaust	0.0001312	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Total Exhaust PM		0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Light Duty Fugitive ⁽²⁾	0.000221	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Medium Duty Fugitive ⁽²⁾	0.000467	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Heavy Duty Fugitive ⁽²⁾	0.002314	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Total Fugitive PM		1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
Total		1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68

	2020	49	50	51	52	53	54	55	56	57	58	59	60
CO _{2eq}													
Light Duty	0.872	2511.87	2511.87	2511.87	2511.87	2511.87	2511.87	2511.87	2511.87	2511.87	2511.87	2511.87	2511.87
Medium Duty	2.104	84.15	84.15	84.15	84.15	84.15	84.15	84.15	84.15	84.15	84.15	84.15	84.15
Heavy Duty	3.742	748.46	748.46	748.46	748.46	748.46	748.46	748.46	748.46	748.46	748.46	748.46	748.46
Total		3344.49	3344.49	3344.49	3344.49	3344.49	3344.49	3344.49	3344.49	3344.49	3344.49	3344.49	3344.49

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.75} \times (W)^{1.02}$$

Where: $k = 0.0022 \text{ lb/VMT for PM}_{10}$, $sL = \text{road silt loading (gms/m}^2\text{)}$

(0.03 for major/collector roads), $W = \text{weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)}$

(3) Carbon Dioxide Equivalence (CQ) = $\text{CO}_2 + \text{CH}_4 \times 21 + \text{N}_2\text{O} \times 310$

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Chemical	2019		
	Light	Medium	Heavy
CO ₂ (lb/mi)	0.8604	2.1003	3.7388
CH ₄ (g/mi)	0.0148	0.0051	0.0051
N ₂ O (g/mi)	0.0157	0.0048	0.0048
CO _{2e} (lb/mi)	0.872	2.104	3.742

Appendix B-1
Tesoro Integration and Compliance Project
Offsite Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		61	62	63	64	65	66	67	68	69	70	71	72
Tradesmen	29.4	58	58	58									
Construction Staff	29.4	40	40	40									
Total Light Vehicle Miles		2881.2	2881.2	2881.2	0	0	0	0	0	0	0	0	0
Water Truck	40	0	0	0									
Delivery Truck	40	0	0	0									
1 Ton Truck	40	0	0	0									
Misc. MD Truck	40	0	0	0									
Total Medium Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0
Truck, Dump Ford LT8000	40	0	0	0									
Hazardous Dump Trucks	400	0	0	0									
Non-Haz Dump Trucks	200	0	0	0									
Misc. HD Truck	40	5	5	5									
Total Heavy Truck Miles		200	200	200	0	0	0	0	0	0	0	0	0

	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		61	62	63	64	65	66	67	68	69	70	71	72
VOC	2021												
Light Duty	0.0001103	0.32	0.32	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0001878	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0010069	0.20	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.52	0.52	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	2021	61	62	63	64	65	66	67	68	69	70	71	72
CO													
Light Duty	0.0006885	1.98	1.98	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0016798	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0563965	11.28	11.28	11.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		13.26	13.26	13.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	2021	61	62	63	64	65	66	67	68	69	70	71	72
NOx													
Light Duty	0.0024874	7.17	7.17	7.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0024226	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0094888	1.90	1.90	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		9.06	9.06	9.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	2021	61	62	63	64	65	66	67	68	69	70	71	72
SOx													
Light Duty	0.0000082	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000202	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	2021	61	62	63	64	65	66	67	68	69	70	71	72
PM10													
Light Duty Exhaust	0.0001798	0.52	0.52	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty Exhaust	0.0003061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0001308	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Exhaust PM		0.54	0.54	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty Fugitive ⁽²⁾	0.000230	0.66	0.66	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty Fugitive ⁽²⁾	0.000515	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Fugitive ⁽²⁾	0.002314	0.46	0.46	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM		1.13	1.13	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		1.67	1.67	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	2021	61	62	63	64	65	66	67	68	69	70	71	72
CO _{2eq}													
Light Duty	0.872	2512.37	2512.37	2512.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	2.095	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	3.741	748.21	748.21	748.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		3260.58	3260.58	3260.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.75} \times (W)^{1.02}$$

Where: $k = 0.0022 \text{ lb/VMT for PM}_{10}$, $sL = \text{road silt loading (gms/m}^2\text{)}$

(0.03 for major/collector roads), $W = \text{weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)}$

(3) Carbon Dioxide Equivalence (CQ) = $\text{CO}_2 + \text{CH}_4 \times 21 + \text{N}_2\text{O} \times 310$

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Chemical	2021		
	Light	Medium	Heavy
CO ₂ (lb/mi)	0.8606	2.0915	3.7375
CH ₄ (g/mi)	0.0148	0.0051	0.0051
N ₂ O (g/mi)	0.0157	0.0048	0.0048
CO _{2e} (lb/mi)	0.872	2.095	3.741

Appendix B-1 Tesoro Integration and Compliance Project

Offroad Construction Vehicle Dust Emissions

Vehicle	Miles/Trip	Trips/Day
Light Vehicles	0.05	10
Total Light Vehicle Miles		0.5
Delivey Trucks	0.05	0
Water Trucks	0.1	10
Total Medium Truck Miles		1
Concrete Truck	0.05	0
Dump Trucks	0.05	40
Total Heavy Truck Miles		2
Tractors	0.05	13
Fork Lifts	0.05	10
Loader/Backhoe	0.05	6
Total Heavy-Heavy Duty Miles		1.45

PM10	Emission Rate (lb/mi) ⁽¹⁾	Emissions (lb/day)
Light Duty	0.9021196	0.45
Medium Duty	1.2863357	1.29
Heavy Duty	2.1931267	4.39
Heavy Heavy Duty	2.4962390	3.62
Uncontrolled Total		9.74
Controlled Total ⁽²⁾		3.80

(1) Based on Section 13.2.2 of EPA's Compilation of Air Pollutant Emission Factors (AP-42).

$$\text{Emission Rate} = 1.5((s/12)^{.9})*((W/3)^{.45})$$

s = silt content = 8.5%

W = Vehicle Weight (ton) =2.5 for light, 5.5 for medium, 15 for heavy,
and 24 for heavy heavy (EMFAC2007).

(2) Controlled Emissions assume that watering 3 times per day reduces emissions by
61 percent (Uncontrolled Emissions x 0.39)

Appendix B-1 Tesoro Integration and Compliance Project

Paint Emissions

Month	6	7	8	9	10	11	12	13	14	25	26	27	43	44	45
Volume paint applied per day (gal)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	75.0	75.0	75.0	75.0	75.0	75.0
VOC content (lb/gal) ⁽¹⁾	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
VOC Emissions (lb/day)	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	62.3	62.3	62.3	62.3	62.3	62.3

(1) Based on SCAQMD Rule 1113 VOC limit of 100g/L for industrial maintenance coatings.

Appendix B-1
Tesoro Integration and Compliance Project
Peak Monthly Fugitive PM Construction Emissions

	Average Pieces of Equipment Operating	Peak Pieces of Equipment Operating	Hours of Operation	PM10 Emission Factor (lb/hour)	Water Control Factor ⁽⁵⁾	Controlled Emissions		Uncontrolled Emissions		SCAQMD Emission Factor Source
						Average PM10 Emissions (lbs/day)	Peak PM10 Emissions (lbs/day)	Average PM10 Emissions (lbs/day)	Peak PM10 Emissions (lbs/day)	
Grading Operations	2	2	8	0.348	0.39	2.17	2.17	5.56218435	5.56218435	Table A9-9-F
Construction Activities ⁽¹⁾										
	Average Tons of Materials Handled Per Day	Peak Tons of Materials Handled Per Day	PM10 Emission Factor (lb/ton)	Water Control Factor ⁽⁵⁾	Controlled Emissions		Uncontrolled Emissions		SCAQMD Emission Factor Source	
					Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day		
Stockpiles	1200	1200	0.00005	0.39	0.02411771	0.02411771	0.06184029	0.06184029	Table A9-9-G	
Construction Activities ⁽²⁾										
Assumptions: 1cubic yard trench spoils = 1 ton										
WIND EROSION Disturbed Area and Temporary Stockpiles	Days of Construction	Average Acreage Disturbed Per Day	Peak Acreage Disturbed Per Day	PM10 Emission Factor (lb/day/acre)	Controlled Emissions		Uncontrolled Emissions		SCAQMD Emission Factor Source	
					Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	Average PM10 Emissions Tons/Year	Peak PM10 Emissions Tons/Year		
Construction Activities ⁽³⁾	20	1	1	0.120	0.120	0.120	0.001	0.001	Table A9-9-E	
Construction Activities ⁽³⁾										
	Estimated Materials Handled Per Day (tons)	Peak Tons of Materials Handled Per Day	PM10 Emission Factor (lb/ton)	Water Control Factor ⁽⁵⁾	Controlled Emissions		Uncontrolled Emissions		SCAQMD Emission Factor Source	
					Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day		
Filling and Dumping	1200.0	1200.0	5.15E-05	0.39	0.02411771	0.02411771	0.06184029	0.06184029	Table A9-9	
Truck Filling ⁽⁴⁾	1200.0	1200.0	5.15E-05	0.39	0.02411771	0.02411771	0.06184029	0.06184029	Table A9-9	
Truck Dumping										

Assumptions: 1 cubic yard trench spoils = 1 ton

TOTAL PM10 Pounds/day		Average	Peak
(Controlled Emissions)		2.3613	2.36133
(Uncontrolled Emissions)		5.749	5.749

- (1) Emissions (lbs/hr) = $0.75 \times (G^{-1.5}) / (H^{1.4}) \times J$
where G = silt content (7.5%), H = moisture content (15.0%) and J = hrs of operation (EPA AP-42 Table 11.9-1 for bulldozing overburden).
- (2) Emissions (lbs/ton) = $0.00112 \times [(G/5)^{1.3} / (H/2)^{1.4}] \times I/J$
where G=mean wind speed (4.1 mph), H=moisture content of surface material (15%); I=lbs of dirt handled per day; and J=2,000 lbs/ton. Wind speed data acquired from Long Beach 2005-2007 SCAQMD meteorological file.
- (3) Emissions (lbs/day/acre) = $1.7 \times [(G/1.5) / (365-H/235)] \times I/15 \times J$
where G = silt content (7.5%); H = days with >0.01 inch of rain (34); I = percentage of time wind speed exceeds 12 mph (0.3%) and J= fraction of TSP (0.5). Wind speed data acquired from Long Beach 2005-2007 SCAQMD meteorological file.
- (4) Used SCAQMD Table 9-9 Default emission factors.
- (5) Mitigated Emissions assume that watering 3 times per day controls emissions by 61 percent (Uncontrolled Emissions x 0.39). www.AQMD.gov/CEQA/handbook/mitigation/fugitive/ Table XI-A.doc

Appendix B-1
Tesoro Integration and Compliance Project
Total Project Component
Crude Tank Construction Emission Summary

Emissions from Equipment	Year 1												Year 2												Year 3											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
VOC (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.44	6.38	6.78	7.40	4.51	4.56	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46	3.48	2.34	1.81	1.51	2.40	2.72	3.58	4.11	4.15	4.06	4.06	4.06
CO (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.08	57.06	62.34	72.79	48.58	49.82	48.61	48.61	48.61	48.61	48.61	48.61	48.61	45.29	45.29	35.96	25.85	22.11	21.14	25.65	31.05	40.40	44.14	45.53	44.34	44.34	44.34
NOx (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.71	80.23	87.05	93.56	48.75	49.68	48.54	48.54	48.54	48.54	48.54	48.54	48.54	41.27	41.27	33.72	24.89	21.95	22.74	25.08	30.45	41.15	44.09	44.91	43.89	43.89	43.89
SOx (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.15	0.17	0.19	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.08	0.06	0.05	0.06	0.05	0.08	0.09	0.10	0.10	0.10	0.10	0.10
PM10 (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.92	4.34	4.59	5.16	3.26	3.28	3.20	3.20	3.20	3.20	3.20	3.20	3.20	2.85	2.85	2.25	1.63	1.38	1.27	1.69	1.87	2.63	2.88	2.90	2.82	2.82	2.82
PM2.5 (lb/day) ⁽¹⁾	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	4.30	4.55	5.10	3.22	3.25	3.16	3.16	3.16	3.16	3.16	3.16	3.16	2.82	2.82	2.23	1.61	1.36	1.26	1.67	1.85	2.60	2.85	2.87	2.79	2.79	2.79
CO ₂ (MT/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.70	3.57	4.13	4.49	2.39	2.48	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.15	2.15	1.91	1.36	1.21	1.45	1.32	1.88	2.24	2.39	2.48	2.43	2.43	2.43

	Year 1												Year 2												Year 3											
Offroad Fugitive PM - Peak	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
PM10 (lb/day) ⁽²⁾										4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22
PM2.5 (lb/day) ⁽¹⁾⁽²⁾						0.00	0.00	0.00	0.00	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89

	Year 1												Year 2												Year 3											
Paint	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
VOC (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		Year 1												Year 2												Year 3												
Total Emissions	Thresholds	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
VOC (lb/day)	75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.44	6.38	6.78	7.40	4.51	4.56	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46	3.48	2.34	1.81	1.51	2.40	2.72	3.58	4.11	4.15	4.06	4.06	4.06	
CO (lb/day)	550	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.08	57.06	62.34	72.79	48.58	49.82	48.61	48.61	48.61	48.61	48.61	48.61	48.61	45.29	45.29	35.96	25.85	22.11	21.14	25.65	31.05	40.40	44.14	45.53	44.34	44.34	44.34	
NOx (lb/day)	100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.71	80.23	87.05	93.56	48.75	49.68	48.54	48.54	48.54	48.54	48.54	48.54	41.27	41.27	33.72	24.89	21.95	22.74	25.08	30.45	41.15	44.09	44.91	43.89	43.89	43.89		
SOx (lb/day)	150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.15	0.17	0.19	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.08	0.06	0.05	0.06	0.05	0.08	0.09	0.10	0.10	0.10	0.10	0.10	
PM10 (lb/day) ⁽²⁾	150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.14	8.56	8.82	9.38	7.48	7.51	7.42	7.42	7.42	7.42	7.42	7.42	7.42	7.08	7.08	6.47	5.85	5.60	5.50	5.91	6.09	6.85	7.10	7.12	7.04	7.04	7.04	7.04
PM2.5 (lb/day) ⁽¹⁾⁽²⁾	55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.76	5.18	5.43	5.99	4.11	4.14	4.05	4.05	4.05	4.05	4.05	4.05	3.71	3.71	3.11	2.50	2.25	2.15	2.56	2.74	3.49	3.73	3.75	3.68	3.68	3.68	3.68	
CO ₂ (tonnes/day)	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.70	3.57	4.13	4.49	2.39	2.48	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.15	2.15	1.91	1.36	1.21	1.45	1.32	1.88	2.24	2.39	2.48	2.43	2.43	2.43	
CO ₂ (tonnes/yr)	NA	256.40												690.49												529.81												

	Year 4													Year 5												Year 6											
Emissions from Equipment	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	
VOC (lb/day)	3.91	3.91	3.91	3.91	3.91	3.91	3.91	3.34	2.25	1.72	1.41	2.29	2.60	3.25	3.74	3.78	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	2.96	2.01	1.55										
CO (lb/day)	43.53	43.53	43.53	43.53	40.35	40.35	35.34	25.41	21.77	20.93	25.22	30.60	40.62	44.17	45.53	44.35	44.35	44.35	44.35	44.35	44.35	44.35	44.35	41.21	41.21	35.76	26.12	22.66									
NOx (lb/day)	41.11	41.11	41.11	41.11	35.32	35.32	31.64	23.29	20.40	20.87	23.45	28.39	36.31	39.12	39.86	38.97	38.97	38.97	38.97	38.97	38.97	38.97	33.68	33.68	28.22	20.80	18.07										
SOx (lb/day)	0.10	0.10	0.10	0.10	0.09	0.09	0.08	0.06	0.05	0.06	0.05	0.08	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.08	0.06	0.05										
PM10 (lb/day)	2.60	2.60	2.60	2.60	2.33	2.33	2.08	1.50	1.26	1.15	1.56	1.72	2.22	2.44	2.45	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.15	2.15	1.74	1.27	1.05										
PM2.5 (lb/day) ⁽¹⁾	2.58	2.58	2.58	2.58	2.31	2.31	2.05	1.49	1.24	1.14	1.54	1.71	2.19	2.42	2.43	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.12	2.12	1.72	1.25	1.04										
CO ₂ (MT/day)	2.43	2.43	2.43	2.43	2.15	2.15	1.91	1.36	1.21	1.45	1.32	1.88	2.29	2.44	2.53	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.20	2.20	1.96	1.41	1.26										

	Year 4												Year 5												Year 6											
Offroad Fugitive PM - Peak	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
PM10 (lb/day) ⁽²⁾	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22									
PM2.5 (lb/day) ⁽¹⁾⁽²⁾	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89									

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Appendix B-1
Tesoro Integration and Compliance Project

Crude Tank Construction Equipment Emission Rates

Equipment Type	Hp	2016 Emission Factors lb/h ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.07023	0.4263	0.97905	0.00147	0.04659	0.03534
>40T Cranes	500	0.07815	0.4431	1.20987	0.00213	0.04978	0.05136
Pile/Drill Rig	Composite	0.04246	0.5016	0.72299	0.00244	0.02988	0.05882
Tractors	Composite	0.03268	0.3689	0.38566	0.00080	0.02590	0.01922
Welders	50	0.03684	0.2483	0.19141	0.00039	0.01712	0.00938
Light Plants	50	0.03684	0.3134	0.19141	0.00039	0.01712	0.00938
Generators	120	0.04342	0.4767	0.47247	0.00074	0.03702	0.01795
Hydro Vacs/Pumps	120	0.04342	0.4842	0.47247	0.00074	0.03702	0.01795
Fork Lifts	Composite	0.02152	0.4549	0.32340	0.00089	0.01769	0.02146
Loader/Backhoe	Composite	0.03268	0.3689	0.38566	0.00080	0.02590	0.01922
Air Compressors	50	0.03684	0.2281	0.19141	0.00039	0.01712	0.00938
Manlifts	Composite	0.00659	0.1592	0.12905	0.00044	0.00466	0.01066
Crawler Tractors	Composite	0.08267	0.5549	1.17033	0.00201	0.05691	0.04842
Scrapers	Composite	0.14749	0.9053	2.23679	0.00390	0.09265	0.094
Rubber Tired Loaders	Composite	0.08226	0.4557	0.83577	0.00161	0.03834	0.03869
Graders	Composite	0.07501	0.5883	1.05709	0.00170	0.04714	0.04104
Rollers	Composite	0.03401	0.3944	0.33113	0.00068	0.02159	0.01636
Excavators	Composite	0.03425	0.5213	0.47432	0.00133	0.02074	0.03212

Equipment Type	Hp	2017 Emission Factors lb/h ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.06537	0.4152	0.86923	0.00147	0.04291	0.03535
>40T Cranes	500	0.07236	0.4243	1.11889	0.00213	0.04536	0.05139
Pile/Drill Rig	Composite	0.04029	0.5013	0.67483	0.00244	0.02483	0.05882
Tractors	Composite	0.03046	0.3666	0.35832	0.00080	0.02366	0.0192
Welders	50	0.03579	0.2408	0.18867	0.00039	0.01662	0.00938
Light Plants	50	0.03579	0.3047	0.18867	0.00039	0.01662	0.00938
Generators	120	0.04173	0.4728	0.45336	0.00074	0.03547	0.01794
Hydro Vacs/Pumps	120	0.04173	0.4802	0.45336	0.00074	0.03547	0.01794
Fork Lifts	Composite	0.01948	0.4522	0.29726	0.00089	0.01519	0.02146
Loader/Backhoe	Composite	0.03046	0.3666	0.35832	0.00080	0.02366	0.0192
Air Compressors	50	0.03579	0.2209	0.18867	0.00039	0.01662	0.00938
Manlifts	Composite	0.00586	0.1548	0.11635	0.00044	0.00353	0.01066
Crawler Tractors	Composite	0.08013	0.5464	1.2114	0.00201	0.05470	0.04843
Scrapers	Composite	0.13882	0.8713	2.07961	0.00390	0.08569	0.094
Rubber Tired Loaders	Composite	0.08859	0.4510	0.77443	0.00161	0.03545	0.03869
Graders	Composite	0.07261	0.5844	1.01224	0.00170	0.04497	0.04101
Rollers	Composite	0.03177	0.3913	0.30830	0.00068	0.01994	0.01635
Excavators	Composite	0.03202	0.5184	0.42996	0.00133	0.01874	0.03212

Equipment Type	Hp	2018 Emission Factors lb/h ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.05782	0.4060	0.80171	0.00147	0.03738	0.03536
>40T Cranes	500	0.06523	0.4085	0.98933	0.00213	0.03992	0.05142
Pile/Drill Rig	Composite	0.03501	0.5011	0.56864	0.00243	0.02055	0.05865
Tractors	Composite	0.02557	0.3647	0.30639	0.00080	0.01923	0.01917
Welders	50	0.03361	0.2339	0.18349	0.00039	0.01563	0.00938
Light Plants	50	0.03361	0.2966	0.18349	0.00039	0.01563	0.00938
Generators	120	0.03690	0.4694	0.40643	0.00075	0.03112	0.01796
Hydro Vacs/Pumps	120	0.03690	0.4767	0.40643	0.00075	0.03112	0.01796
Fork Lifts	Composite	0.01616	0.2173	0.24736	0.00089	0.01150	0.02146
Loader/Backhoe	Composite	0.02557	0.3647	0.30639	0.00080	0.01923	0.01917
Air Compressors	50	0.03361	0.2142	0.18349	0.00039	0.01563	0.00938
Manlifts	Composite	0.00499	0.1740	0.10274	0.00044	0.00238	0.01066
Crawler Tractors	Composite	0.07346	0.5387	1.00899	0.00201	0.04950	0.04837
Scrapers	Composite	0.12245	0.8418	1.80997	0.00390	0.07335	0.09401
Rubber Tired Loaders	Composite	0.05178	0.4470	0.67139	0.00161	0.03036	0.03868
Graders	Composite	0.06730	0.5812	0.92988	0.00170	0.04074	0.04096
Rollers	Composite	0.02717	0.3885	0.26566	0.00068	0.01663	0.01636
Excavators	Composite	0.02715	0.5160	0.35232	0.00133	0.01498	0.03212

Equipment Type	Hp	2019 Emission Factors lb/h ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.05255	0.3982	0.72435	0.00147	0.03337	0.03536
>40T Cranes	500	0.06159	0.3951	0.91722	0.00213	0.03694	0.05143
Pile/Drill Rig	Composite	0.03316	0.5009	0.51942	0.00243	0.01889	0.05862
Tractors	Composite	0.02277	0.3630	0.27390	0.00080	0.01634	0.01916
Welders	50	0.03313	0.2271	0.18111	0.00039	0.01522	0.00937
Light Plants	50	0.03313	0.2890	0.18111	0.00039	0.01522	0.00937
Generators	120	0.03398	0.4663	0.37708	0.00075	0.02830	0.01796
Hydro Vacs/Pumps	120	0.03398	0.4736	0.37708	0.00075	0.02830	0.01796
Fork Lifts	Composite	0.01468	0.2166	0.22583	0.00089	0.00988	0.02146
Loader/Backhoe	Composite	0.02277	0.3630	0.27390	0.00080	0.01634	0.01916
Air Compressors	50	0.03313	0.2078	0.18111	0.00039	0.01522	0.00937
Manlifts	Composite	0.00475	0.1715	0.09788	0.00044	0.00194	0.01066
Crawler Tractors	Composite	0.08860	0.5319	0.92566	0.00201	0.04558	0.04837
Scrapers	Composite	0.11433	0.8161	1.65588	0.00390	0.06690	0.09398
Rubber Tired Loaders	Composite	0.04734	0.4436	0.60035	0.00161	0.02688	0.0387
Graders	Composite	0.06321	0.5787	0.86117	0.00170	0.03744	0.0409
Rollers	Composite	0.02435	0.3859	0.23986	0.00068	0.01451	0.01636
Excavators	Composite	0.02485	0.5140	0.31031	0.00133	0.01294	0.03212

Equipment Type	Hp	2020 Emission Factors lb/h ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.04866	0.3917	0.66105	0.00147	0.03031	0.03535
>40T Cranes	500	0.06566	0.3839	0.82455	0.00213	0.03305	0.05142
Pile/Drill Rig	Composite	0.07483	0.5008	0.93803	0.00277	0.03763	0.0668
Tractors	Composite	0.03349	0.6517	0.33335	0.00120	0.01797	0.029
Welders	50	0.03084	0.2219	0.17530	0.00039	0.01410	0.00937
Light Plants	50	0.03084	0.2833	0.17530	0.00039	0.01410	0.00937
Generators	120	0.03204	0.4641	0.35638	0.00075	0.02642	0.01798
Hydro Vacs/Pumps	120	0.03204	0.4713	0.35638	0.00075	0.02642	0.01798
Fork Lifts	Composite	0.01383	0.2160	0.21047	0.00089	0.00873	0.02147
Loader/Backhoe	Composite	0.02060	0.3616	0.24635	0.00080	0.01403	0.01915
Air Compressors	50	0.03084	0.2030	0.17530	0.00039	0.01410	0.00937
Manlifts	Composite	0.00463	0.1696	0.09324	0.00044	0.00161	0.01066
Crawler Tractors	Composite	0.06477	0.5260	0.86009	0.00201	0.04230	0.04838
Scrapers	Composite	0.10693	0.7938	1.51072	0.00390	0.06101	0.09396
Rubber Tired Loaders	Composite	0.04449	0.4406	0.55197	0.00161	0.02448	0.03871
Graders	Composite	0.06068	0.5765	0.81642	0.00170	0.03517	0.04087
Rollers	Composite	0.02288	0.3837	0.22494	0.00068	0.01333	0.01636
Excavators	Composite	0.02341	0.5124	0.28128	0.00133	0.01158	0.03211

Equipment Type	Hp	2021 Emission Factors lb/h ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.04494	0.3865	0.59772	0.00147	0.02738	0.03535
>40T Cranes	500	0.05211	0.3747	0.73491	0.00213	0.02957	0.05141
Pile/Drill Rig	Composite	0.07076	0.5007	0.84125	0.00277	0.03403	0.06676
Tractors	Composite	0.03012	0.6413	0.29307	0.00120	0.01547	0.029
Welders	50	0.02904	0.2163	0.17063	0.00039	0.01328	0.00936
Light Plants	50	0.02904	0.2789	0.17063	0.00039	0.01328	0.00936
Generators	120	0.02973	0.4617	0.33282	0.00075	0.02416	0.01798
Hydro Vacs/Pumps	120	0.02973	0.4687	0.33282	0.00075	0.02416	0.01798
Fork Lifts	Composite	0.01279	0.2148	0.19482	0.00089	0.00757	0.02147
Loader/Backhoe	Composite	0.01858	0.3606	0.22118	0.00080	0.01191	0.01916
Air Compressors	50	0.02904	0.1979	0.17063	0.00039	0.01328	0.00936
Manlifts	Composite	0.00446	0.1677	0.08926	0.00044	0.00132	0.01066
Crawler Tractors	Composite	0.06067	0.5208	0.78831	0.00201	0.03885	0.04834
Scrapers	Composite	0.09948	0.7745	1.37187	0.00390	0.05517	0.094
Rubber Tired Loaders	Composite	0.04079	0.4381	0.48855	0.00161	0.02150	0.03874
Graders	Composite	0.05664	0.5747	0.75163	0.00170	0.03199	0.04084
Rollers	Composite	0.02085	0.3816	0.20626	0.00068	0.01180	0.01636
Excavators	Composite	0.02185	0.5113	0.24844	0.00133	0.01017	0.03209

(1) Off-Road 2011. CO emissions from SCAQMD, 2006. http://www.aqmd.gov/ceqa/handbook/offroad/offroad_F25.xls

(2) Carbon Dioxide Equivalents (CO_{2e}) are based on default emission factors for diesel. Metric tons per hour.

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
<40 T Cranes	8	0	0	0	0	0	0	0	0	0	1	1	1
>40T Cranes	0	0	0	0	0	0	0	0	0	0	0	0	0
Pile/Drill Rig	8	0	0	0	0	0	0	0	0	0	1	0	1
Tractors	5	0	0	0	0	0	0	0	0	0	1	1	1
Welders	8	0	0	0	0	0	0	0	0	0	1	4	4
Light Plants	3	0	0	0	0	0	0	0	0	0	2	2	2
Generators	8	0	0	0	0	0	0	0	0	0	1	1	1
Hydro Vacs/Pumps	5	0	0	0	0	0	0	0	0	0	0	0.5	0.5
Fork Lifts	8	0	0	0	0	0	0	0	0	0	1	1	1
Loader/Backhoe	8	0	0	0	0	0	0	0	0	0	1	1	1
Air Compressors	8	0	0	0	0	0	0	0	0	0	0	1	1
Manlifts	8	0	0	0	0	0	0	0	0	0	0	0	1
Crawler Tractors	8	0	0	0	0	0	0	0	0	0	1	1	1
Scrapers	8	0	0	0	0	0	0	0	0	0	1	1	1
Rubber Tired Loaders	8	0	0	0	0	0	0	0	0	0	1	1	1
Graders	10	0	0	0	0	0	0	0	0	0	1	1	1
Rollers	8	0	0	0	0	0	0	0	0	0	1	1	1
Excavators	8	0	0	0	0	0	0	0	0	0	1	1	1

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
VOC	2016												
<40 T Cranes	0.070	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.56	0.56
>40T Cranes	0.078	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.34
Tractors	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.16	0.16
Welders	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	1.18	1.18
Light Plants	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.22
Generators	0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.35	0.35
Hydro Vacs/Pumps	0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.11
Fork Lifts	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.17
Loader/Backhoe	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.26	0.26
Air Compressors	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.29
Manlifts	0.007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05
Crawler Tractors	0.083	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.66	0.66
Scrapers	0.147	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	1.18	1.18
Rubber Tired Loaders	0.062	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.50
Graders	0.075	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.75	0.75
Rollers	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.27	0.27
Excavators	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.27	0.27
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.44	6.38	6.78

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
CO	2016												
<40 T Cranes	0.426	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.41	3.41	3.41
>40T Cranes	0.443	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.01	0.00	4.01
Tractors	0.369	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	1.84	1.84
Welders	0.248	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99	7.95	7.95
Light Plants	0.313	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88	1.88	1.88
Generators	0.477	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.81	3.81	3.81
Hydro Vacs/Pumps	0.484	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21	1.21
Fork Lifts	0.455	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.64	3.64	3.64
Loader/Backhoe	0.369	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.95	2.95	2.95
Air Compressors	0.228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.82	1.82	1.82
Manlifts	0.159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27
Crawler Tractors	0.555	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.44	4.44	4.44
Scrapers	0.905	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.24	7.24	7.24
Rubber Tired Loaders	0.456	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.65	3.65	3.65
Graders	0.588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.88	5.88	5.88
Rollers	0.394	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.16	3.16	3.16
Excavators	0.521	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.17	4.17	4.17
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.08	57.06	62.34

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
NOX	2016												
<40 T Cranes	0.979	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.83	7.83	7.83
>40T Cranes	1.206	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.723	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.78	0.00	5.78
Tractors	0.386	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93	1.93	1.93
Welders	0.191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53	6.13	6.13
Light Plants	0.191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	1.15	1.15
Generators	0.472	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.78	3.78	3.78
Hydro Vacs/Pumps	0.472	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	1.18
Fork Lifts	0.332	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.66	2.66	2.66
Loader/Backhoe	0.386	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.09	3.09	3.09
Air Compressors	0.191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53	1.53	1.53
Manlifts	0.129	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
Crawler Tractors	1.170	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.36	9.36	9.36
Scrapers	2.237	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.89	17.89	17.89
Rubber Tired Loaders	0.837	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.69	6.69	6.69
Graders	1.057	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.57	10.57	10.57
Rollers	0.331	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.65	2.65	2.65
Excavators	0.474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.79	3.79	3.79
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.71	80.23	87.05

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
<40 T Cranes	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Loader/Backhoe	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Air Compressors	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02
Scrapers	0.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03
Rubber Tired Loaders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Graders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02
Rollers	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Excavators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.15	0.17

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
PM10	2016												
<40 T Cranes	0.047	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.37	0.37
>40T Cranes	0.050	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.22
Tractors	0.026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.13	0.13
Welders	0.017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.55	0.55
Light Plants	0.017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10
Generators	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.30	0.30
Hydro Vacs/Pumps	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09
Fork Lifts	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14	0.14
Loader/Backhoe	0.026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.21	0.21
Air Compressors	0.017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14
Manlifts	0.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
Crawler Tractors	0.057	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.46	0.46	0.46
Scrapers	0.093	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.74	0.74
Rubber Tired Loaders	0.038	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.31	0.31
Graders	0.047	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.47	0.47
Rollers	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.17
Excavators	0.021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.17
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.92	4.34	4.59

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (MT/yr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
CO2EQ	2016												
<40 T Cranes	0.035	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.28	0.28
>40T Cranes	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.059	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.47
Tractors	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10
Welders	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.30	0.30
Light Plants	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.06
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14	0.14
Hydro Vacs/Pumps	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04
Fork Lifts	0.021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17	0.17
Loader/Backhoe	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.15	0.15
Air Compressors	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08
Manlifts	0.011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
Crawler Tractors	0.048	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.39	0.39
Scrapers	0.094	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.75	0.75
Rubber Tired Loaders	0.039	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.31	0.31
Graders	0.041	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.41	0.41
Rollers	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.13	0.13
Excavators	0.032	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.26	0.26
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.70	3.57	4.13

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	8	2	2	2	2	2	2	2	2	2	2	1	1
>40T Cranes	0	0	0	0	0	0	0	0	0	0	0	0	0
Pile/Drill Rig	8	0	0	0	0	0	0	0	0	0	0	0	0
Tractors	5	1	1	1	1	1	1	1	1	1	1	1	1
Welders	8	6	8	8	8	8	8	8	8	8	8	8	8
Light Plants	3	2	2	2	2	2	2	2	2	2	2	2	2
Generators	8	1	1	1	1	1	1	1	1	1	1	1	1
Hydro Vacs/Pumps	5	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0
Fork Lifts	8	2	2	2	2	2	2	2	2	2	2	2	2
Loader/Backhoe	8	2	2	2	2	2	2	2	2	2	2	2	2
Air Compressors	8	2	2	2	2	2	2	2	2	2	2	2	2
Manlifts	8	1	1	2	2	2	2	2	2	2	2	2	2
Crawler Tractors	8	1	0	0	0	0	0	0	0	0	0	0	0
Scrapers	8	1	0	0	0	0	0	0	0	0	0	0	0
Rubber Tired Loaders	8	1	0	0	0	0	0	0	0	0	0	0	0
Graders	10	1	0	0	0	0	0	0	0	0	0	0	0
Rollers	8	1	0	0	0	0	0	0	0	0	0	0	0
Excavators	8	1	0	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
VOC													
<40 T Cranes	0.065	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	0.52	0.52
>40T Cranes	0.072	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.040	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.030	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Welders	0.036	1.72	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29
Light Plants	0.036	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Generators	0.042	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Hydro Vacs/Pumps	0.042	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.019	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Loader/Backhoe	0.030	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Air Compressors	0.036	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
Manlifts	0.006	0.05	0.05	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Crawler Tractors	0.080	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.139	1.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.059	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.073	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.032	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.032	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		7.40	4.51	4.56	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46	4.46

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
CO	2017												
<40 T Cranes	0.415	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	3.32	3.32
>40T Cranes	0.424	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.367	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
Welders	0.241	11.56	15.41	15.41	15.41	15.41	15.41	15.41	15.41	15.41	15.41	15.41	15.41
Light Plants	0.305	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
Generators	0.473	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78	3.78
Hydro Vacs/Pumps	0.480	1.20	1.20	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.452	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24
Loader/Backhoe	0.367	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87
Air Compressors	0.221	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53	3.53
Manlifts	0.155	1.24	1.24	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48
Crawler Tractors	0.546	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.871	6.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.451	3.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.584	5.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.391	3.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.518	4.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		72.79	48.58	49.82	48.61	48.61	48.61	48.61	48.61	48.61	48.61	45.29	45.29

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
NOX													
<40 T Cranes	0.909	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	14.55	7.27
>40T Cranes	1.117	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.675	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.358	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79
Welders	0.189	9.06	12.08	12.08	12.08	12.08	12.08	12.08	12.08	12.08	12.08	12.08	12.08
Light Plants	0.189	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
Generators	0.453	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63
Hydro Vacs/Pumps	0.453	1.13	1.13	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.297	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76
Loader/Backhoe	0.358	5.73	5.73	5.73	5.73	5.73	5.73	5.73	5.73	5.73	5.73	5.73	5.73
Air Compressors	0.189	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02
Manlifts	0.116	0.93	0.93	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86
Crawler Tractors	1.121	8.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	2.080	16.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.774	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	1.012	10.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.308	2.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.430	3.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		93.56	48.75	49.68	48.54	48.54	48.54	48.54	48.54	48.54	48.54	41.27	41.27

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	0.001	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Loader/Backhoe	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Air Compressors	0.000	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Manlifts	0.000	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Crawler Tractors	0.002	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.004	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.002	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.002	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.001	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.001	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.19	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.09

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
PM10	2017												
<40 T Cranes	0.043	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.34	0.34
>40T Cranes	0.045	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.024	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Welders	0.017	0.80	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Light Plants	0.017	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Generators	0.035	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Hydro Vacs/Pumps	0.035	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Fork Lifts	0.015	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Loader/Backhoe	0.024	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Air Compressors	0.017	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Manlifts	0.004	0.03	0.03	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Crawler Tractors	0.055	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.086	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.035	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.045	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.020	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.019	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		5.16	3.26	3.28	3.20	3.20	3.20	3.20	3.20	3.20	3.20	2.85	2.85

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (MT/yr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
CO2EQ													
<40 T Cranes	0.035	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.28
>40T Cranes	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.059	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.019	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Welders	0.009	0.45	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Light Plants	0.009	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Generators	0.018	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Hydro Vacs/Pumps	0.018	0.04	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.021	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Loader/Backhoe	0.019	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Air Compressors	0.009	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Manlifts	0.011	0.09	0.09	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Crawler Tractors	0.048	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.094	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.039	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.041	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.016	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.032	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		4.49	2.39	2.48	2.43	2.43	2.43	2.43	2.43	2.43	2.43	2.15	2.15

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	8	1	1	1	1	1	1	2	2	2	2	2	2
>40T Cranes	0	0	0	0	0	0	0	0	0	0	0	0	0
Pile/Drill Rig	8	0	0	0	1	0	1	0	0	0	0	0	0
Tractors	5	1	1	1	1	1	1	1	1	1	1	1	1
Welders	8	6	4	2	1	4	4	6	8	8	8	8	8
Light Plants	3	2	2	2	2	2	2	2	2	2	2	2	2
Generators	8	1	1	1	1	1	1	1	1	1	1	1	1
Hydro Vacs/Pumps	5	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0	0	0
Fork Lifts	8	2	1	1	1	1	1	2	2	2	2	2	2
Loader/Backhoe	8	2	1	1	1	1	1	2	2	2	2	2	2
Air Compressors	8	2	1	1	0	1	1	2	2	2	2	2	2
Manlifts	8	1	1	1	0	0	1	1	1	2	2	2	2
Crawler Tractors	8	0	0	0	0	0	0	0	0	0	0	0	0
Scrapers	8	0	0	0	0	0	0	0	0	0	0	0	0
Rubber Tired Loaders	8	0	0	0	0	0	0	0	0	0	0	0	0
Graders	10	0	0	0	0	0	0	0	0	0	0	0	0
Rollers	8	0	0	0	0	0	0	0	0	0	0	0	0
Excavators	8	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
VOC	2018												
<40 T Cranes	0.058	0.46	0.46	0.46	0.46	0.46	0.46	0.93	0.93	0.93	0.93	0.93	0.93
>40T Cranes	0.065	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.035	0.00	0.00	0.00	0.28	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.026	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Welders	0.034	1.61	1.08	0.54	0.27	1.08	1.08	1.61	2.15	2.15	2.15	2.15	2.15
Light Plants	0.034	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Generators	0.037	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Hydro Vacs/Pumps	0.037	0.00	0.00	0.00	0.00	0.09	0.09	0.09	0.09	0.09	0.00	0.00	0.00
Fork Lifts	0.016	0.26	0.13	0.13	0.13	0.13	0.13	0.26	0.26	0.26	0.26	0.26	0.26
Loader/Backhoe	0.026	0.41	0.20	0.20	0.20	0.20	0.20	0.41	0.41	0.41	0.41	0.41	0.41
Air Compressors	0.034	0.54	0.27	0.27	0.00	0.27	0.27	0.54	0.54	0.54	0.54	0.54	0.54
Manlifts	0.005	0.04	0.04	0.04	0.00	0.00	0.04	0.04	0.04	0.08	0.08	0.08	0.08
Crawler Tractors	0.073	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.052	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.067	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		3.48	2.34	1.81	1.51	2.40	2.72	3.58	4.11	4.15	4.06	4.06	4.06

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
CO	2018												
<40 T Cranes	0.406	3.25	3.25	3.25	3.25	3.25	3.25	6.50	6.50	6.50	6.50	6.50	6.50
>40T Cranes	0.409	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.501	0.00	0.00	0.00	4.01	0.00	4.01	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.365	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82
Welders	0.234	11.22	7.48	3.74	1.87	7.48	7.48	11.22	14.97	14.97	14.97	14.97	14.97
Light Plants	0.297	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78
Generators	0.469	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76	3.76
Hydro Vacs/Pumps	0.477	0.00	0.00	0.00	0.00	1.19	1.19	1.19	1.19	1.19	0.00	0.00	0.00
Fork Lifts	0.217	3.48	1.74	1.74	1.74	1.74	1.74	3.48	3.48	3.48	3.48	3.48	3.48
Loader/Backhoe	0.365	5.83	2.92	2.92	2.92	2.92	2.92	5.83	5.83	5.83	5.83	5.83	5.83
Air Compressors	0.214	3.43	1.71	1.71	0.00	1.71	1.71	3.43	3.43	3.43	3.43	3.43	3.43
Manlifts	0.174	1.39	1.39	1.39	0.00	0.00	1.39	1.39	1.39	2.78	2.78	2.78	2.78
Crawler Tractors	0.539	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.842	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.447	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.581	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.388	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.516	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		35.96	25.85	22.11	21.14	25.65	31.05	40.40	44.14	45.53	44.34	44.34	44.34

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
NOX													
<40 T Cranes	0.802	6.41	6.41	6.41	6.41	6.41	6.41	12.83	12.83	12.83	12.83	12.83	12.83
>40T Cranes	0.989	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.589	0.00	0.00	0.00	4.55	0.00	4.55	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.306	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53
Welders	0.183	8.81	5.87	2.94	1.47	5.87	5.87	8.81	11.74	11.74	11.74	11.74	11.74
Light Plants	0.183	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Generators	0.406	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
Hydro Vacs/Pumps	0.406	0.00	0.00	0.00	0.00	1.02	1.02	1.02	1.02	1.02	0.00	0.00	0.00
Fork Lifts	0.247	3.96	1.98	1.98	1.98	1.98	1.98	3.96	3.96	3.96	3.96	3.96	3.96
Loader/Backhoe	0.306	4.90	2.45	2.45	2.45	2.45	2.45	4.90	4.90	4.90	4.90	4.90	4.90
Air Compressors	0.183	2.94	1.47	1.47	0.00	1.47	1.47	2.94	2.94	2.94	2.94	2.94	2.94
Manlifts	0.103	0.82	0.82	0.82	0.00	0.00	0.82	0.82	0.82	1.64	1.64	1.64	1.64
Crawler Tractors	1.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	1.810	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.671	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.930	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.266	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.352	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		33.72	24.89	21.95	22.74	25.08	30.45	41.15	44.09	44.91	43.89	43.89	43.89

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.02	0.01	0.01	0.00	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Loader/Backhoe	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Air Compressors	0.000	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Manlifts	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Crawler Tractors	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.08	0.06	0.05	0.06	0.05	0.08	0.09	0.10	0.10	0.10	0.10	0.10

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
PM10	2018												
<40 T Cranes	0.037	0.30	0.30	0.30	0.30	0.30	0.30	0.60	0.60	0.60	0.60	0.60	0.60
>40T Cranes	0.040	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.021	0.00	0.00	0.00	0.16	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.019	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Welders	0.016	0.75	0.50	0.25	0.13	0.50	0.50	0.75	1.00	1.00	1.00	1.00	1.00
Light Plants	0.016	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Generators	0.031	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Hydro Vacs/Pumps	0.031	0.00	0.00	0.00	0.00	0.08	0.08	0.08	0.08	0.08	0.00	0.00	0.00
Fork Lifts	0.012	0.18	0.09	0.09	0.09	0.09	0.09	0.18	0.18	0.18	0.18	0.18	0.18
Loader/Backhoe	0.019	0.31	0.15	0.15	0.15	0.15	0.15	0.31	0.31	0.31	0.31	0.31	0.31
Air Compressors	0.016	0.25	0.13	0.13	0.00	0.13	0.13	0.25	0.25	0.25	0.25	0.25	0.25
Manlifts	0.002	0.02	0.02	0.02	0.00	0.00	0.02	0.02	0.02	0.04	0.04	0.04	0.04
Crawler Tractors	0.049	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.073	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.030	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.041	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.25	1.63	1.38	1.27	1.69	1.87	2.63	2.88	2.90	2.82	2.82	2.82

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (MT/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
CO2EQ	2018												
<40 T Cranes	0.035	0.28	0.28	0.28	0.28	0.28	0.28	0.57	0.57	0.57	0.57	0.57	0.57
>40T Cranes	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.059	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.019	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Welders	0.009	0.45	0.30	0.15	0.08	0.30	0.30	0.45	0.60	0.60	0.60	0.60	0.60
Light Plants	0.009	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Generators	0.018	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Hydro Vacs/Pumps	0.018	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.04	0.00	0.00	0.00
Fork Lifts	0.021	0.34	0.17	0.17	0.17	0.17	0.17	0.34	0.34	0.34	0.34	0.34	0.34
Loader/Backhoe	0.019	0.31	0.15	0.15	0.15	0.15	0.15	0.31	0.31	0.31	0.31	0.31	0.31
Air Compressors	0.009	0.15	0.08	0.08	0.08	0.08	0.08	0.15	0.15	0.15	0.15	0.15	0.15
Manlifts	0.011	0.09	0.09	0.09	0.00	0.00	0.09	0.09	0.09	0.17	0.17	0.17	0.17
Crawler Tractors	0.048	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.094	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.039	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.041	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.032	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		1.91	1.36	1.21	1.45	1.32	1.88	2.24	2.39	2.48	2.43	2.43	2.43

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	8	2	2	2	2	1	1	1	1	1	1	1	1
>40T Cranes	0	0	0	0	0	0	0	0	0	0	0	0	0
Pile/Drill Rig	8	0	0	0	0	0	0	0	0	0	1	0	1
Tractors	5	1	1	1	1	1	1	1	1	1	1	1	1
Welders	8	8	8	8	8	8	8	6	4	2	1	4	4
Light Plants	3	2	2	2	2	2	2	2	2	2	2	2	2
Generators	8	1	1	1	1	1	1	1	1	1	1	1	1
Hydro Vacs/Pumps	5	0	0	0	0	0	0	0	0	0	0	0.5	0.5
Fork Lifts	8	2	2	2	2	2	2	2	1	1	1	1	1
Loader/Backhoe	8	2	2	2	2	2	2	2	1	1	1	1	1
Air Compressors	8	2	2	2	2	2	2	2	1	1	0	1	1
Manlifts	8	2	2	2	2	2	2	1	1	1	0	0	1
Crawler Tractors	8	0	0	0	0	0	0	0	0	0	0	0	0
Scrapers	8	0	0	0	0	0	0	0	0	0	0	0	0
Rubber Tired Loaders	8	0	0	0	0	0	0	0	0	0	0	0	0
Graders	10	0	0	0	0	0	0	0	0	0	0	0	0
Rollers	8	0	0	0	0	0	0	0	0	0	0	0	0
Excavators	8	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
VOC	2019												
<40 T Cranes	0.053	0.84	0.84	0.84	0.84	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
>40T Cranes	0.062	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27
Tractors	0.023	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Welders	0.033	2.12	2.12	2.12	2.12	2.12	2.12	1.59	1.06	0.53	0.27	1.06	1.06
Light Plants	0.033	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Generators	0.034	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Hydro Vacs/Pumps	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
Fork Lifts	0.015	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.12	0.12	0.12	0.12	0.12
Loader/Backhoe	0.023	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.18	0.18	0.18	0.18	0.18
Air Compressors	0.033	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.27	0.27	0.00	0.27	0.27
Manlifts	0.005	0.08	0.08	0.08	0.08	0.08	0.08	0.04	0.04	0.04	0.00	0.00	0.04
Crawler Tractors	0.069	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.114	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.047	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.063	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		3.91	3.91	3.91	3.91	3.91	3.91	3.34	2.25	1.72	1.41	2.29	2.60

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
CO	2019												
<40 T Cranes	0.398	6.37	6.37	6.37	6.37	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19
>40T Cranes	0.395	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.01	0.00	4.01
Tractors	0.363	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82
Welders	0.227	14.54	14.54	14.54	14.54	14.54	14.54	10.90	7.27	3.63	1.82	7.27	7.27
Light Plants	0.289	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73
Generators	0.466	3.73	3.73	3.73	3.73	3.73	3.73	3.73	3.73	3.73	3.73	3.73	3.73
Hydro Vacs/Pumps	0.474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	1.18
Fork Lifts	0.217	3.47	3.47	3.47	3.47	3.47	3.47	3.47	1.73	1.73	1.73	1.73	1.73
Loader/Backhoe	0.363	5.81	5.81	5.81	5.81	5.81	5.81	5.81	2.90	2.90	2.90	2.90	2.90
Air Compressors	0.208	3.33	3.33	3.33	3.33	3.33	3.33	3.33	1.66	1.66	0.00	1.66	1.66
Manlifts	0.172	2.74	2.74	2.74	2.74	2.74	2.74	1.37	1.37	1.37	0.00	0.00	1.37
Crawler Tractors	0.532	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.816	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.444	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.579	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.386	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.514	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		43.53	43.53	43.53	43.53	40.35	40.35	35.34	25.41	21.77	20.93	25.22	30.60

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
NOX													
<40 T Cranes	0.724	11.59	11.59	11.59	11.59	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79
>40T Cranes	0.917	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.519	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.16	0.00	4.16
Tractors	0.274	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
Welders	0.181	11.59	11.59	11.59	11.59	11.59	11.59	8.69	5.80	2.90	1.45	5.80	5.80
Light Plants	0.181	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Generators	0.377	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02
Hydro Vacs/Pumps	0.377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94	0.94
Fork Lifts	0.226	3.61	3.61	3.61	3.61	3.61	3.61	3.61	1.81	1.81	1.81	1.81	1.81
Loader/Backhoe	0.274	4.38	4.38	4.38	4.38	4.38	4.38	4.38	2.19	2.19	2.19	2.19	2.19
Air Compressors	0.181	2.90	2.90	2.90	2.90	2.90	2.90	2.90	1.45	1.45	0.00	1.45	1.45
Manlifts	0.098	1.57	1.57	1.57	1.57	1.57	1.57	0.78	0.78	0.78	0.00	0.00	0.78
Crawler Tractors	0.926	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	1.656	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.861	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.240	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.310	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		41.11	41.11	41.11	41.11	35.32	35.32	31.64	23.29	20.40	20.87	23.45	28.39

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	0.001	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.00	0.01	0.01
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Loader/Backhoe	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Air Compressors	0.000	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Manlifts	0.000	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.10	0.10	0.10	0.10	0.09	0.09	0.08	0.06	0.05	0.06	0.05	0.08

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
PM10													
<40 T Cranes	0.033	0.53	0.53	0.53	0.53	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
>40T Cranes	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Tractors	0.016	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Welders	0.015	0.97	0.97	0.97	0.97	0.97	0.97	0.73	0.49	0.24	0.12	0.49	0.49
Light Plants	0.015	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Generators	0.028	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Hydro Vacs/Pumps	0.028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07
Fork Lifts	0.010	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.08	0.08	0.08	0.08	0.08
Loader/Backhoe	0.016	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.13	0.13	0.13	0.13	0.13
Air Compressors	0.015	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.12	0.12	0.00	0.12	0.12
Manlifts	0.002	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.00	0.00	0.02
Crawler Tractors	0.046	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.067	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.60	2.60	2.60	2.60	2.33	2.33	2.08	1.50	1.26	1.15	1.56	1.72

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (MT/yr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
CO2EQ													
<40 T Cranes	0.035	0.57	0.57	0.57	0.57	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
>40T Cranes	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.059	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47
Tractors	0.019	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Welders	0.009	0.60	0.60	0.60	0.60	0.60	0.60	0.45	0.30	0.15	0.07	0.30	0.30
Light Plants	0.009	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Generators	0.018	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Hydro Vacs/Pumps	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04
Fork Lifts	0.021	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.17	0.17	0.17	0.17	0.17
Loader/Backhoe	0.019	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.15	0.15	0.15	0.15	0.15
Air Compressors	0.009	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.07	0.07	0.00	0.07	0.07
Manlifts	0.011	0.17	0.17	0.17	0.17	0.17	0.17	0.09	0.09	0.09	0.00	0.00	0.09
Crawler Tractors	0.048	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.094	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.039	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.041	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.032	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.43	2.43	2.43	2.43	2.15	2.15	1.91	1.36	1.21	1.45	1.32	1.88

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		49	50	51	52	53	54	55	56	57	58	59	60
<40 T Cranes	8	2	2	2	2	2	2	2	2	2	2	1	1
>40T Cranes	0	0	0	0	0	0	0	0	0	0	0	0	0
Pile/Drill Rig	8	0	0	0	0	0	0	0	0	0	0	0	0
Tractors	5	1	1	1	1	1	1	1	1	1	1	1	1
Welders	8	6	8	8	8	8	8	8	8	8	8	8	8
Light Plants	3	2	2	2	2	2	2	2	2	2	2	2	2
Generators	8	1	1	1	1	1	1	1	1	1	1	1	1
Hydro Vacs/Pumps	5	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0
Fork Lifts	8	2	2	2	2	2	2	2	2	2	2	2	2
Loader/Backhoe	8	2	2	2	2	2	2	2	2	2	2	2	2
Air Compressors	8	2	2	2	2	2	2	2	2	2	2	2	2
Manlifts	8	1	1	2	2	2	2	2	2	2	2	2	2
Crawler Tractors	8	0	0	0	0	0	0	0	0	0	0	0	0
Scrapers	8	0	0	0	0	0	0	0	0	0	0	0	0
Rubber Tired Loaders	8	0	0	0	0	0	0	0	0	0	0	0	0
Graders	10	0	0	0	0	0	0	0	0	0	0	0	0
Rollers	8	0	0	0	0	0	0	0	0	0	0	0	0
Excavators	8	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		49	50	51	52	53	54	55	56	57	58	59	60
VOC	2020												
<40 T Cranes	0.049	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.39	0.39
>40T Cranes	0.057	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.075	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.033	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Welders	0.031	1.48	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97
Light Plants	0.031	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Generators	0.032	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Hydro Vacs/Pumps	0.032	0.08	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.014	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Loader/Backhoe	0.021	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Air Compressors	0.031	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Manlifts	0.005	0.04	0.04	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Crawler Tractors	0.065	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.107	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.044	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		3.25	3.74	3.78	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70	3.70

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		49	50	51	52	53	54	55	56	57	58	59	60
CO	2020												
<40 T Cranes	0.392	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	3.13	3.13
>40T Cranes	0.364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.652	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26
Welders	0.222	10.65	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20	14.20
Light Plants	0.283	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Generators	0.464	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71
Hydro Vacs/Pumps	0.471	1.18	1.18	1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.216	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46
Loader/Backhoe	0.362	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79
Air Compressors	0.203	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
Manlifts	0.170	1.36	1.36	2.71	2.71	2.71	2.71	2.71	2.71	2.71	2.71	2.71	2.71
Crawler Tractors	0.526	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.794	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.441	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.577	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.384	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.512	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		40.62	44.17	45.53	44.35	44.35	44.35	44.35	44.35	44.35	44.35	41.21	41.21

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		49	50	51	52	53	54	55	56	57	58	59	60
NOX	2020												
<40 T Cranes	0.661	10.58	10.58	10.58	10.58	10.58	10.58	10.58	10.58	10.58	10.58	5.29	5.29
>40T Cranes	0.825	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.938	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.333	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67
Welders	0.175	8.41	11.22	11.22	11.22	11.22	11.22	11.22	11.22	11.22	11.22	11.22	11.22
Light Plants	0.175	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Generators	0.356	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85
Hydro Vacs/Pumps	0.356	0.89	0.89	0.89	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.210	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37	3.37
Loader/Backhoe	0.246	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94	3.94
Air Compressors	0.175	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80
Manlifts	0.093	0.75	0.75	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49
Crawler Tractors	0.860	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	1.511	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.552	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.816	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.281	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		36.31	39.12	39.86	38.97	38.97	38.97	38.97	38.97	38.97	38.97	33.68	33.68

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		49	50	51	52	53	54	55	56	57	58	59	60
<40 T Cranes	0.001	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Welders	0.000	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Loader/Backhoe	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Air Compressors	0.000	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Manlifts	0.000	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Crawler Tractors	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.09

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		49	50	51	52	53	54	55	56	57	58	59	60
PM10													
<40 T Cranes	0.030	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.24	0.24
>40T Cranes	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.038	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.018	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Welders	0.014	0.68	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Light Plants	0.014	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Generators	0.026	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Hydro Vacs/Pumps	0.026	0.07	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.009	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Loader/Backhoe	0.014	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Air Compressors	0.014	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Manlifts	0.002	0.01	0.01	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Crawler Tractors	0.042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.035	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.22	2.44	2.45	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.15	2.15

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

CO2EQ	Emission Rate (MT/yr)	Month											
		49	50	51	52	53	54	55	56	57	58	59	60
<40 T Cranes	0.035	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.28	0.28
>40T Cranes	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.067	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.029	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Welders	0.009	0.45	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Light Plants	0.009	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Generators	0.018	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Hydro Vacs/Pumps	0.018	0.04	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.021	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
Loader/Backhoe	0.019	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Air Compressors	0.009	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Manlifts	0.011	0.09	0.09	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Crawler Tractors	0.048	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.094	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.039	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.041	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.032	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.29	2.44	2.53	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.20	2.20

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		61	62	63	64	65	66	67	68	69	70	71	72
<40 T Cranes	8	1	1	1	0	0	0	0	0	0	0	0	0
>40T Cranes	0	0	0	0	0	0	0	0	0	0	0	0	0
Pile/Drill Rig	8	0	0	0	0	0	0	0	0	0	0	0	0
Tractors	5	1	1	1	0	0	0	0	0	0	0	0	0
Welders	8	6	4	2	0	0	0	0	0	0	0	0	0
Light Plants	3	2	2	2	0	0	0	0	0	0	0	0	0
Generators	8	1	1	1	0	0	0	0	0	0	0	0	0
Hydro Vacs/Pumps	5	0	0	0	0	0	0	0	0	0	0	0	0
Fork Lifts	8	2	1	1	0	0	0	0	0	0	0	0	0
Loader/Backhoe	8	2	1	1	0	0	0	0	0	0	0	0	0
Air Compressors	8	2	1	1	0	0	0	0	0	0	0	0	0
Manlifts	8	1	1	1	0	0	0	0	0	0	0	0	0
Crawler Tractors	8	0	0	0	0	0	0	0	0	0	0	0	0
Scrapers	8	0	0	0	0	0	0	0	0	0	0	0	0
Rubber Tired Loaders	8	0	0	0	0	0	0	0	0	0	0	0	0
Graders	10	0	0	0	0	0	0	0	0	0	0	0	0
Rollers	8	0	0	0	0	0	0	0	0	0	0	0	0
Excavators	8	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		61	62	63	64	65	66	67	68	69	70	71	72
VOC	2021												
<40 T Cranes	0.045	0.36	0.36	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.052	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.071	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.030	0.15	0.15	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.029	1.39	0.93	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.029	0.17	0.17	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.030	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.030	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.013	0.20	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.019	0.30	0.15	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.029	0.46	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.004	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.099	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.041	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.057	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.96	2.01	1.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		61	62	63	64	65	66	67	68	69	70	71	72
CO	2021												
<40 T Cranes	0.387	3.09	3.09	3.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.375	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.641	3.21	3.21	3.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.216	10.38	6.92	3.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.279	1.67	1.67	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.462	3.69	3.69	3.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.469	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.215	3.44	1.72	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.361	5.77	2.88	2.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.198	3.17	1.58	1.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.168	1.34	1.34	1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.521	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.775	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.438	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.575	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.382	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.511	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		35.76	26.12	22.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		61	62	63	64	65	66	67	68	69	70	71	72
NOX	2021												
<40 T Cranes	0.598	4.78	4.78	4.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.735	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.841	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.293	1.47	1.47	1.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.171	8.19	5.46	2.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.171	1.02	1.02	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.333	2.66	2.66	2.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.333	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.195	3.12	1.56	1.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.221	3.54	1.77	1.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.171	2.73	1.37	1.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.089	0.71	0.71	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.788	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	1.372	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.489	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.752	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.206	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.248	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		28.22	20.80	18.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		61	62	63	64	65	66	67	68	69	70	71	72
<40 T Cranes	0.001	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.001	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.001	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.000	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.08	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		61	62	63	64	65	66	67	68	69	70	71	72
PM10	2021												
<40 T Cranes	0.027	0.22	0.22	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.030	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.015	0.08	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.013	0.64	0.42	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.013	0.08	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.024	0.19	0.19	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.008	0.12	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.012	0.19	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.013	0.21	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.001	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.039	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.055	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.032	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		1.74	1.27	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Crude Tank Construction Equipment Emissions

	Emission Rate (MT/yr)	Month											
		61	62	63	64	65	66	67	68	69	70	71	72
CO2EQ	2021												
<40 T Cranes	0.035	0.28	0.28	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.067	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.029	0.14	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.009	0.45	0.30	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.009	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.018	0.14	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.021	0.34	0.17	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.019	0.31	0.15	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.009	0.15	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.011	0.09	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.048	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.094	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.039	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.041	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.032	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		1.96	1.41	1.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1 Tesoro Integration and Compliance Project

Crude Tank Offroad Construction Vehicle Dust Emissions

Vehicle	Miles/Trip	Trips/Day
Light Vehicles	0.1	2
Total Light Vehicle Miles		0.2
Delivey Trucks	0.1	0
Water Trucks	0.1	1
Total Medium Truck Miles		0.1
Concrete Truck	0.1	0
Dump Trucks	0.1	40
Total Heavy Truck Miles		4
Tractors	0.1	3
Fork Lifts	0.1	2
Loader/Backhoe	0.1	2
Total Heavy-Heavy Duty Miles		0.7

PM10	Emission Rate (lb/mi) ⁽¹⁾	Emissions (lb/day)
Light Duty	0.9021196	0.18
Medium Duty	1.2863357	0.13
Heavy Duty	2.1931267	8.77
Heavy Heavy Duty	2.4962390	1.75
Uncontrolled Total		10.83
Controlled Total ⁽²⁾		4.22

(1) Based on Section 13.2.2 of EPA's Compilation of Air Pollutant Emission Factors (AP-42).

$$\text{Emission Rate} = 1.5((s/12)^{.9})*((W/3)^{.45})$$

s = silt content = 8.5%

W = Vehicle Weight (ton) =2.5 for light, 5.5 for medium, 15 for heavy,
and 24 for heavy heavy (EMFAC2007).

(2) Controlled Emissions assume that watering 3 times per day reduces emissions by
61 percent (Uncontrolled Emissions x 0.39)

APPENDIX B-1

MITIGATED EMISSION CALCULATIONS

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Appendix B-1
Tesoro Integration and Compliance Project
Total Project Component
Mitigated Construction Emission Summary

Emissions from Equipment		Year 1												Year 2												Year 3											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
VOC (lb/day)		0.00	0.00	0.00	0.00	0.00	20.25	16.90	17.29	18.82	28.21	28.26	32.33	32.09	28.31	21.68	23.30	18.46	24.42	24.12	28.75	21.89	19.05	19.05	13.78	22.31	19.90	14.56	14.68	14.39	8.24	8.37	7.34	7.97	7.51	7.51	5.52
CO (lb/day)		0.00	0.00	0.00	0.00	0.00	176.64	138.06	140.27	157.18	245.03	246.74	283.23	289.58	260.40	207.31	218.27	173.97	234.11	230.87	272.52	212.08	193.10	189.78	139.21	234.98	206.27	156.10	158.71	155.90	85.80	87.31	72.10	75.53	72.30	72.30	47.24
NOx (lb/day)		0.00	0.00	0.00	0.00	0.00	155.40	119.54	123.38	137.16	214.41	220.92	252.30	247.16	222.02	178.53	185.88	151.16	204.68	199.91	235.48	179.65	161.11	156.88	114.48	183.83	164.20	123.67	125.66	123.45	63.66	66.17	55.71	59.82	55.92	55.92	35.31
SOx (lb/day)		0.00	0.00	0.00	0.00	0.00	0.52	0.32	0.33	0.37	0.62	0.63	0.75	0.76	0.69	0.59	0.61	0.50	0.68	0.66	0.77	0.60	0.55	0.54	0.41	0.73	0.59	0.46	0.47	0.45	0.25	0.26	0.22	0.24	0.22	0.22	0.14
PM10 (lb/day)		0.00	0.00	0.00	0.00	0.00	7.21	5.81	5.98	6.63	14.45	14.70	16.09	15.83	14.68	12.52	12.94	11.30	13.76	13.57	15.32	12.67	11.69	11.49	9.56	12.39	11.58	9.75	9.84	9.78	7.07	7.20	6.78	6.94	6.75	6.75	5.94
PM2.5 (lb/day) ⁽¹⁾		0.00	0.00	0.00	0.00	0.00	7.14	5.76	5.92	6.56	11.01	11.26	12.63	12.38	11.24	9.10	9.52	7.90	10.33	10.14	11.88	9.25	8.28	8.08	6.17	8.97	8.17	6.36	6.45	6.39	3.70	3.83	3.42	3.58	3.39	3.39	2.59
CO ₂ (MT/day)		0.00	0.00	0.00	0.00	0.00	12.58	7.73	7.99	8.97	15.06	15.28	18.12	18.42	16.73	14.25	14.81	12.04	16.32	15.92	18.61	14.45	13.32	13.03	9.77	17.55	14.29	11.06	11.26	10.95	5.99	6.25	5.27	5.71	5.39	5.39	3.36

Emission from Trips - Onsite/Offsite		Year 1												Year 2												Year 3											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
VOC (lb/day)		0.00	0.00	0.00	0.00	0.00	7.01	5.58	5.31	5.49	4.64	4.62	4.62	5.83	5.84	5.72	5.89	5.85	6.03	4.03	4.10	3.97	3.00	3.00	2.89	2.59	2.51	2.44	2.21	2.21	1.89	0.84	0.79	0.79	0.54	0.54	0.42
CO (lb/day)		0.00	0.00	0.00	0.00	0.00	71.92	60.74	58.67	65.08	62.65	64.70	64.70	76.46	77.92	73.72	75.44	74.02	80.27	65.00	67.22	62.63	48.35	48.35	44.34	46.10	45.51	42.52	40.76	40.76	26.99	18.92	16.75	16.75	14.85	14.85	9.92
NOx (lb/day)		0.00	0.00	0.00	0.00	0.00	125.41	98.03	92.95	93.90	75.54	74.01	74.01	95.44	94.92	94.25	97.45	97.23	98.14	60.13	60.46	59.78	44.78	44.78	44.19	34.88	33.63	33.15	29.39	29.39	27.36	10.14	9.82	9.82	5.75	5.75	5.02
SOx (lb/day)		0.00	0.00	0.00	0.00	0.00	0.53	0.43	0.42	0.44	0.40	0.40	0.40	0.49	0.49	0.48	0.49	0.48	0.51	0.37	0.38	0.36	0.28	0.28	0.26	0.30	0.29	0.28	0.26	0.26	0.19	0.11	0.10	0.10	0.08	0.08	0.06
PM10 (lb/day)		0.00	0.00	0.00	0.00	0.00	35.61	28.25	26.88	27.70	23.23	23.07	23.07	29.09	29.10	28.57	29.47	29.29	30.07	19.87	20.15	19.58	14.79	14.79	14.29	14.99	14.57	14.10	12.85	12.85	10.70	4.99	4.65	4.65	3.30	3.30	2.53
Exhaust PM (lb/day)		0.00	0.00	0.00	0.00	0.00	4.48	3.60	3.43	3.60	3.12	3.13	3.13	3.90	3.92	3.81	3.92	3.89	4.04	2.82	2.87	2.76	2.10	2.10	2.00	2.08	2.03	1.94	1.80	1.80	1.38	0.76	0.69	0.69	0.54	0.54	0.39
Fugitive PM (lb/day)		0.00	0.00	0.00	0.00	0.00	31.13	24.65	23.45	24.10	20.11	19.94	19.94	25.19	25.19	24.76	25.55	25.40	26.03	17.06	17.28	16.82	12.69	12.69	12.29	12.91	12.54	12.16	11.05	11.05	9.32	4.23	3.96	3.96	2.76	2.76	2.14
PM2.5 (lb/day) ⁽¹⁾		0.00	0.00	0.00	0.00	0.00	9.77	7.79	7.42	7.69	6.54	6.52	6.52	8.18	8.20	8.02	8.26	8.20	8.47	5.72	5.81	5.62	4.26	4.26	4.09	4.27	4.17	4.01	3.68	3.68	2.96	1.48	1.36	1.36	1.01	1.01	0.75
Exhaust PM (lb/day)		0.00	0.00	0.00	0.00	0.00	4.48	3.60	3.43	3.60	3.12	3.13	3.13	3.90	3.92	3.81	3.92	3.89	4.04	2.82	2.87	2.76	2.10	2.10	2.00	2.08	2.03	1.94	1.80	1.80	1.38	0.76	0.69	0.69	0.54	0.54	0.39
Fugitive PM (lb/day)		0.00	0.00	0.00	0.00	0.00	5.29	4.19	3.99	4.10	3.42	3.39	3.39	4.28	4.28	4.21	4.34	4.32	4.43	2.90	2.94	2.86	2.16	2.16	2.09	2.19	2.13	2.07	1.88	1.88	1.58	0.72	0.67	0.67	0.47	0.47	0.36
CO ₂ (lb/day)		0.00	0.00	0.00	0.00	0.00	55665.69	45238.68	43302.24	45959.01	40895.13	41331.39	41329.59	50686.49	51118.42	49374.97	50757.02	50169.68	52733.43	38284.42	39197.44	37311.18	28490.91	28490.91	26843.22	30734.49	30138.38	28589.73	26801.39	26801.39	19756.41	11559.86	10449.31	10449.31	8511.94	8511.94	5988.63

Fugitive Earthmoving PM - Peak		Year 1												Year 2												Year 3											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
PM10 (lb/day) ⁽²⁾		0.00	0.00	0.00	0.00	0.00	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	
PM2.5 (lb/day) ⁽¹⁾⁽²⁾		0.00	0.00	0.00	0.00	0.00	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	

Offroad Fugitive PM - Peak		Year 1												Year 2												Year 3											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
PM10 (lb/day) ⁽²⁾		0.00	0.00	0.00	0.00	0.00	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	
PM2.5 (lb/day) ⁽¹⁾⁽²⁾		0.00	0.00	0.00	0.00	0.00	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	

Paint		Year 1												Year 2												Year 3											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
VOC (lb/day)		0.00	0.00	0.00	0.00	0.00	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.25	62.25	62.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Operational Mitigation Reductions ⁽³⁾		Year 1												Year 2												Year 3											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
NOx (lb/day)		0.00	0.00	0.00	0.00	0.00	(27.00)	(27.00)	(27.00)	(27.00)	(27.00)	(27.00)	(27.00)	(27.00)	(27.00)	(27.00)	(54.00)	(54.00)	(54.00)	(109.00)	(109.00)	(109.00)	(109.00)	(109.00)	(109.00)	(109.00)	(109.00)	(109.00)	(109.00)	(109.00)	(109.00)	(109.00)	(109.00)	(109.00)	(109.00)	(109.00)	

Total Emissions	Thresholds	Year 1												Year 2												Year 3											
VOC (lb/day)	75	0.00	0.00	0.00	0.00	0.00	28.91	24.14	24.26	25.97	34.51	34.54	38.61	39.57	35.81	27.39	29.19	24.31	30.44	28.16	32.84	25.86	22.05	22.05	16.67	87.15	84.66	79.25	28.89	16.60	10.13	9.21	8.13	8.76	8.05	8.05	5.94
CO (lb/day)	550	0.00	0.00	0.00	0.00	0.00	248.57	198.80	198.94	222.25	307.68	311.45	347.93	366.04	338.32	281.03	293.71	248.00	314.38	295.87	339.74	274.71	241.45	238.13	183.55	281.08	251.78	198.62	199.47	196.66	112.78	106.23	88.85	92.29	87.15	87.15	57.16
NOx (lb/day)	100	0.00	0.00	0.00	0.00	0.00	253.81	189.58	189.33	204.06	262.95	267.92	299.30	315.60	289.94	245.78																					

Appendix B-1
Tesoro Integration and Compliance Project
Total Project Component
Mitigated Construction Emission Summary

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(1) https://www.aqmd.gov/ceqa/handbook/PM2_5/pm2_5ratio.xls

(2) Mitigated PM.

Appendix B-1 Tesoro Integration and Compliance Project

Mitigated Construction Equipment Emission Rates

Percent Mitigated 50%

Equipment Type	Hp	2016 Emission Factors lb/hr ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.0702	0.4263	0.5637	0.0015	0.0270	0.0353
>40T Cranes	500	0.0782	0.4431	0.7670	0.0021	0.0331	0.0514
Pile/Drill Rig	Composite	0.0425	0.5016	0.4290	0.0024	0.0169	0.0588
Tractors	Composite	0.0327	0.3689	0.2250	0.0008	0.0146	0.0192
Welders	50	0.0368	0.2483	0.1914	0.0004	0.0098	0.0094
Light Plants	50	0.0368	0.3134	0.1914	0.0004	0.0098	0.0094
Generators	120	0.0434	0.4767	0.2756	0.0007	0.0205	0.0179
Hydro Vacs/Pumps	120	0.0434	0.4842	0.2756	0.0007	0.0205	0.0179
Fork Lifts	Composite	0.0215	0.4549	0.1992	0.0009	0.0105	0.0215
Loader/Backhoe	Composite	0.0327	0.3689	0.2250	0.0008	0.0146	0.0192
Air Compressors	50	0.0368	0.2281	0.1914	0.0004	0.0098	0.0094
Manlifts	Composite	0.0066	0.1592	0.1290	0.0004	0.0039	0.0107

Equipment Type	Hp	2017 Emission Factors lb/hr ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.0654	0.4152	0.5288	0.0015	0.0252	0.0354
>40T Cranes	500	0.0724	0.4243	0.7225	0.0021	0.0309	0.0514
Pile/Drill Rig	Composite	0.0403	0.5013	0.4050	0.0024	0.0158	0.0588
Tractors	Composite	0.0305	0.3666	0.2113	0.0008	0.0134	0.0192
Welders	50	0.0358	0.2408	0.1887	0.0004	0.0095	0.0094
Light Plants	50	0.0358	0.3047	0.1887	0.0004	0.0095	0.0094
Generators	120	0.0417	0.4728	0.2661	0.0007	0.0197	0.0179
Hydro Vacs/Pumps	120	0.0417	0.4802	0.2661	0.0007	0.0197	0.0179
Fork Lifts	Composite	0.0195	0.4522	0.1816	0.0009	0.0092	0.0215
Loader/Backhoe	Composite	0.0305	0.3666	0.2113	0.0008	0.0134	0.0192
Air Compressors	50	0.0358	0.2209	0.1887	0.0004	0.0095	0.0094
Manlifts	Composite	0.0059	0.1548	0.1163	0.0004	0.0033	0.0107

Equipment Type	Hp	2018 Emission Factors lb/hr ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.0578	0.4060	0.4751	0.0015	0.0224	0.0354
>40T Cranes	500	0.0652	0.4085	0.6587	0.0021	0.0282	0.0514
Pile/Drill Rig	Composite	0.0350	0.5011	0.3519	0.0024	0.0137	0.0587
Tractors	Composite	0.0256	0.3647	0.1853	0.0008	0.0112	0.0192
Welders	50	0.0336	0.2339	0.1835	0.0004	0.0090	0.0094
Light Plants	50	0.0336	0.2966	0.1835	0.0004	0.0090	0.0094
Generators	120	0.0369	0.4694	0.2426	0.0007	0.0175	0.0180
Hydro Vacs/Pumps	120	0.0369	0.4767	0.2426	0.0007	0.0175	0.0180
Fork Lifts	Composite	0.0162	0.2173	0.1566	0.0009	0.0074	0.0215
Loader/Backhoe	Composite	0.0256	0.3647	0.1853	0.0008	0.0112	0.0192
Air Compressors	50	0.0336	0.2142	0.1835	0.0004	0.0090	0.0094
Manlifts	Composite	0.0050	0.1740	0.1027	0.0004	0.0024	0.0107

Equipment Type	Hp	2019 Emission Factors lb/hr ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.0526	0.3982	0.4364	0.0015	0.0204	0.0354
>40T Cranes	500	0.0616	0.3951	0.6227	0.0021	0.0267	0.0514
Pile/Drill Rig	Composite	0.0332	0.5009	0.3272	0.0024	0.0128	0.0586
Tractors	Composite	0.0228	0.3630	0.1691	0.0008	0.0098	0.0192
Welders	50	0.0331	0.2271	0.1811	0.0004	0.0088	0.0094
Light Plants	50	0.0331	0.2890	0.1811	0.0004	0.0088	0.0094
Generators	120	0.0340	0.4663	0.2279	0.0007	0.0161	0.0180
Hydro Vacs/Pumps	120	0.0340	0.4736	0.2279	0.0007	0.0161	0.0180
Fork Lifts	Composite	0.0147	0.2166	0.1459	0.0009	0.0066	0.0215
Loader/Backhoe	Composite	0.0228	0.3630	0.1691	0.0008	0.0098	0.0192
Air Compressors	50	0.0331	0.2078	0.1811	0.0004	0.0088	0.0094
Manlifts	Composite	0.0047	0.1715	0.0979	0.0004	0.0019	0.0107

(1) Off-Road 2011. CO emissions from SCAQMD, 2006 : http://www.aqmd.gov/ceqa/handbook/offroad/offroadEF07_25.xls

(2) Carbon Dioxide Equivalents (CO_{2e}) are based on default emission factors for diesel. Metric tons per hour.

Appendix B-1 Tesoro Integration and Compliance Project

Unmitigated Construction Equipment Emission Rates

Equipment Type	Hp	2016 Emission Factors lb/hr ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.07023	0.4263	0.97905	0.00147	0.04659	0.03534
>40T Cranes	500	0.07815	0.4431	1.20587	0.00213	0.04978	0.05136
Pile/Drill Rig	Composite	0.04246	0.5016	0.72299	0.00244	0.02698	0.05882
Tractors	Composite	0.03268	0.3689	0.38566	0.00080	0.02590	0.01922
Welders	50	0.03684	0.2483	0.19141	0.00039	0.01712	0.00938
Light Plants	50	0.03684	0.3134	0.19141	0.00039	0.01712	0.00938
Generators	120	0.04342	0.4767	0.47247	0.00074	0.03702	0.01795
Hydro Vacs/Pumps	120	0.04342	0.4842	0.47247	0.00074	0.03702	0.01795
Fork Lifts	Composite	0.02152	0.4549	0.33240	0.00089	0.01769	0.02146
Loader/Backhoe	Composite	0.03268	0.3689	0.38566	0.00080	0.02590	0.01922
Air Compressors	50	0.03684	0.2281	0.19141	0.00039	0.01712	0.00938
Manlifts	Composite	0.00659	0.1592	0.12905	0.00044	0.00466	0.01066

Equipment Type	Hp	2017 Emission Factors lb/hr ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.06537	0.4152	0.90923	0.00147	0.04291	0.03535
>40T Cranes	500	0.07236	0.4243	1.11689	0.00213	0.04535	0.05139
Pile/Drill Rig	Composite	0.04029	0.5013	0.67483	0.00244	0.02483	0.05882
Tractors	Composite	0.03046	0.3666	0.35832	0.00080	0.02366	0.0192
Welders	50	0.03579	0.2408	0.18867	0.00039	0.01662	0.00938
Light Plants	50	0.03579	0.3047	0.18867	0.00039	0.01662	0.00938
Generators	120	0.04173	0.4728	0.45336	0.00074	0.03547	0.01794
Hydro Vacs/Pumps	120	0.04173	0.4802	0.45336	0.00074	0.03547	0.01794
Fork Lifts	Composite	0.01948	0.4522	0.29726	0.00089	0.01519	0.02146
Loader/Backhoe	Composite	0.03046	0.3666	0.35832	0.00080	0.02366	0.0192
Air Compressors	50	0.03579	0.2209	0.18867	0.00039	0.01662	0.00938
Manlifts	Composite	0.00586	0.1548	0.11635	0.00044	0.00353	0.01066

Equipment Type	Hp	2018 Emission Factors lb/hr ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.05782	0.4060	0.80171	0.00147	0.03738	0.03536
>40T Cranes	500	0.06523	0.4085	0.98933	0.00213	0.03992	0.05142
Pile/Drill Rig	Composite	0.03501	0.5011	0.56864	0.00243	0.02055	0.05865
Tractors	Composite	0.02557	0.3647	0.30639	0.00080	0.01923	0.01917
Welders	50	0.03361	0.2339	0.18349	0.00039	0.01563	0.00938
Light Plants	50	0.03361	0.2966	0.18349	0.00039	0.01563	0.00938
Generators	120	0.03690	0.4694	0.40643	0.00075	0.03112	0.01796
Hydro Vacs/Pumps	120	0.03690	0.4767	0.40643	0.00075	0.03112	0.01796
Fork Lifts	Composite	0.01616	0.2173	0.24736	0.00089	0.01150	0.02146
Loader/Backhoe	Composite	0.02557	0.3647	0.30639	0.00080	0.01923	0.01917
Air Compressors	50	0.03361	0.2142	0.18349	0.00039	0.01563	0.00938
Manlifts	Composite	0.00499	0.1740	0.10274	0.00044	0.00238	0.01066

Equipment Type	Hp	2019 Emission Factors lb/hr ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.05255	0.3982	0.72435	0.00147	0.03337	0.03536
>40T Cranes	500	0.06159	0.3951	0.91722	0.00213	0.03694	0.05143
Pile/Drill Rig	Composite	0.03316	0.5009	0.51942	0.00243	0.01889	0.05862
Tractors	Composite	0.02277	0.3630	0.27390	0.00080	0.01634	0.01916
Welders	50	0.03313	0.2271	0.18111	0.00039	0.01522	0.00937
Light Plants	50	0.03313	0.2890	0.18111	0.00039	0.01522	0.00937
Generators	120	0.03398	0.4663	0.37708	0.00075	0.02830	0.01796
Hydro Vacs/Pumps	120	0.03398	0.4736	0.37708	0.00075	0.02830	0.01796
Fork Lifts	Composite	0.01468	0.2166	0.22583	0.00089	0.00988	0.02146
Loader/Backhoe	Composite	0.02277	0.3630	0.27390	0.00080	0.01634	0.01916
Air Compressors	50	0.03313	0.2078	0.18111	0.00039	0.01522	0.00937
Manlifts	Composite	0.00475	0.1715	0.09788	0.00044	0.00194	0.01066

(1) Off-Road 2011. CO emissions from SCAQMD, 2006 : http://www.aqmd.gov/ceqa/handbook/offroad/offroadEF07_25.xls

(2) Carbon Dioxide Equivalents (CO₂e) are based on default emission factors for diesel. Metric tons per hour.

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	7	0	0	0	0	0	7	7	7	8	9	11	11
>40T Cranes	5	0	0	0	0	0	5	4	5	5	5	8	8
Pile/Drill Rig	8	0	0	0	0	0	11	1	1	1	1	1	2
Tractors	5	0	0	0	0	0	2	2	2	3	3	4	4
Welders	8	0	0	0	0	0	23	23	23	23	23	23	23
Light Plants	3	0	0	0	0	0	8	12	12	13	14	14	14
Generators	3	0	0	0	0	0	6	6	6	7	7	8	8
Hydro Vacs/Pumps	5	0	0	0	0	0	1	1	1	2	2	3	2
Fork Lifts	4	0	0	0	0	0	5	5	5	5	6	8	8
Loader/Backhoe	5	0	0	0	0	0	2	2	2	2	3	3	3
Air Compressors	4	0	0	0	0	0	5	5	5	6	6	6	6
Manlifts	8	0	0	0	0	0	12	12	12	17	23	30	30

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
VOC	2016												
<40 T Cranes	0.070	0.00	0.00	0.00	0.00	0.00	3.44	3.44	3.44	3.93	4.42	5.41	5.41
>40T Cranes	0.078	0.00	0.00	0.00	0.00	0.00	1.95	1.56	1.95	1.95	1.95	3.13	3.13
Pile/Drill Rig	0.042	0.00	0.00	0.00	0.00	0.00	3.74	0.34	0.34	0.34	0.34	0.34	0.68
Tractors	0.033	0.00	0.00	0.00	0.00	0.00	0.33	0.33	0.33	0.49	0.49	0.65	0.65
Welders	0.037	0.00	0.00	0.00	0.00	0.00	6.78	6.78	6.78	6.78	6.78	6.78	6.78
Light Plants	0.037	0.00	0.00	0.00	0.00	0.00	0.88	1.33	1.33	1.44	1.55	1.55	1.55
Generators	0.043	0.00	0.00	0.00	0.00	0.00	0.78	0.78	0.78	0.91	0.91	1.04	1.04
Hydro Vacs/Pumps	0.043	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.22	0.43	0.43	0.65	0.43
Fork Lifts	0.022	0.00	0.00	0.00	0.00	0.00	0.43	0.43	0.43	0.43	0.52	0.69	0.69
Loader/Backhoe	0.033	0.00	0.00	0.00	0.00	0.00	0.33	0.33	0.33	0.33	0.49	0.49	0.49
Air Compressors	0.037	0.00	0.00	0.00	0.00	0.00	0.74	0.74	0.74	0.88	0.88	0.88	0.88
Manlifts	0.007	0.00	0.00	0.00	0.00	0.00	0.63	0.63	0.63	0.90	1.21	1.58	1.58
Total		0.00	0.00	0.00	0.00	0.00	20.25	16.90	17.29	18.82	19.98	23.19	23.31

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
CO	2016												
<40 T Cranes	0.426	0.00	0.00	0.00	0.00	0.00	20.89	20.89	20.89	23.87	26.86	32.83	32.83
>40T Cranes	0.443	0.00	0.00	0.00	0.00	0.00	11.08	8.86	11.08	11.08	11.08	17.72	17.72
Pile/Drill Rig	0.502	0.00	0.00	0.00	0.00	0.00	44.14	4.01	4.01	4.01	4.01	4.01	8.03
Tractors	0.369	0.00	0.00	0.00	0.00	0.00	3.69	3.69	3.69	5.53	5.53	7.38	7.38
Welders	0.248	0.00	0.00	0.00	0.00	0.00	45.69	45.69	45.69	45.69	45.69	45.69	45.69
Light Plants	0.313	0.00	0.00	0.00	0.00	0.00	7.52	11.28	11.28	12.22	13.16	13.16	13.16
Generators	0.477	0.00	0.00	0.00	0.00	0.00	8.58	8.58	8.58	10.01	10.01	11.44	11.44
Hydro Vacs/Pumps	0.484	0.00	0.00	0.00	0.00	0.00	2.42	2.42	2.42	4.84	4.84	7.26	4.84
Fork Lifts	0.455	0.00	0.00	0.00	0.00	0.00	9.10	9.10	9.10	9.10	10.92	14.56	14.56
Loader/Backhoe	0.369	0.00	0.00	0.00	0.00	0.00	3.69	3.69	3.69	3.69	5.53	5.53	5.53
Air Compressors	0.228	0.00	0.00	0.00	0.00	0.00	4.56	4.56	4.56	5.47	5.47	5.47	5.47
Manlifts	0.159	0.00	0.00	0.00	0.00	0.00	15.28	15.28	15.28	21.65	29.29	38.21	38.21
Total		0.00	0.00	0.00	0.00	0.00	176.64	138.06	140.27	157.18	172.41	203.27	204.86

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
NOX	2016												
<40 T Cranes	0.564	0.00	0.00	0.00	0.00	0.00	27.62	27.62	27.62	31.57	35.52	43.41	43.41
>40T Cranes	0.767	0.00	0.00	0.00	0.00	0.00	19.17	15.34	19.17	19.17	19.17	30.68	30.68
Pile/Drill Rig	0.429	0.00	0.00	0.00	0.00	0.00	37.75	3.43	3.43	3.43	3.43	3.43	6.86
Tractors	0.225	0.00	0.00	0.00	0.00	0.00	2.25	2.25	2.25	3.37	3.37	4.50	4.50
Welders	0.191	0.00	0.00	0.00	0.00	0.00	35.22	35.22	35.22	35.22	35.22	35.22	35.22
Light Plants	0.191	0.00	0.00	0.00	0.00	0.00	4.59	6.89	6.89	7.46	8.04	8.04	8.04
Generators	0.276	0.00	0.00	0.00	0.00	0.00	4.96	4.96	4.96	5.79	5.79	6.61	6.61
Hydro Vacs/Pumps	0.276	0.00	0.00	0.00	0.00	0.00	1.38	1.38	1.38	2.76	2.76	4.13	2.76
Fork Lifts	0.199	0.00	0.00	0.00	0.00	0.00	3.98	3.98	3.98	3.98	4.78	6.37	6.37
Loader/Backhoe	0.225	0.00	0.00	0.00	0.00	0.00	2.25	2.25	2.25	2.25	3.37	3.37	3.37
Air Compressors	0.191	0.00	0.00	0.00	0.00	0.00	3.83	3.83	3.83	4.59	4.59	4.59	4.59
Manlifts	0.129	0.00	0.00	0.00	0.00	0.00	12.39	12.39	12.39	17.55	23.74	30.97	30.97
Total		0.00	0.00	0.00	0.00	0.00	155.40	119.54	123.38	137.16	149.79	181.34	183.39

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
<40 T Cranes	0.001	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.07	0.08	0.09	0.11	0.11
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.05	0.04	0.05	0.05	0.05	0.09	0.09
Pile/Drill Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.21	0.02	0.02	0.02	0.02	0.02	0.04
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02
Welders	0.000	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
Fork Lifts	0.001	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02	0.03	0.03
Loader/Backhoe	0.001	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Air Compressors	0.000	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Manlifts	0.000	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.06	0.08	0.11	0.11
Total		0.00	0.00	0.00	0.00	0.00	0.52	0.32	0.33	0.37	0.41	0.51	0.52

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
PM10													
<40 T Cranes	0.027	0.00	0.00	0.00	0.00	0.00	1.32	1.32	1.32	1.51	1.70	2.08	2.08
>40T Cranes	0.033	0.00	0.00	0.00	0.00	0.00	0.83	0.66	0.83	0.83	0.83	1.32	1.32
Pile/Drill Rig	0.017	0.00	0.00	0.00	0.00	0.00	1.48	0.13	0.13	0.13	0.13	0.13	0.27
Tractors	0.015	0.00	0.00	0.00	0.00	0.00	0.15	0.15	0.15	0.22	0.22	0.29	0.29
Welders	0.010	0.00	0.00	0.00	0.00	0.00	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Light Plants	0.010	0.00	0.00	0.00	0.00	0.00	0.24	0.35	0.35	0.38	0.41	0.41	0.41
Generators	0.020	0.00	0.00	0.00	0.00	0.00	0.37	0.37	0.37	0.43	0.43	0.49	0.49
Hydro Vacs/Pumps	0.020	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10	0.20	0.20	0.31	0.20
Fork Lifts	0.010	0.00	0.00	0.00	0.00	0.00	0.21	0.21	0.21	0.21	0.25	0.34	0.34
Loader/Backhoe	0.015	0.00	0.00	0.00	0.00	0.00	0.15	0.15	0.15	0.15	0.22	0.22	0.22
Air Compressors	0.010	0.00	0.00	0.00	0.00	0.00	0.20	0.20	0.20	0.24	0.24	0.24	0.24
Manlifts	0.004	0.00	0.00	0.00	0.00	0.00	0.37	0.37	0.37	0.53	0.71	0.93	0.93
Total		0.00	0.00	0.00	0.00	0.00	7.21	5.81	5.98	6.63	7.15	8.56	8.59

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (MT/yr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
CO2EQ	2016												
<40 T Cranes	0.035	0.00	0.00	0.00	0.00	0.00	1.73	1.73	1.73	1.98	2.23	2.72	2.72
>40T Cranes	0.051	0.00	0.00	0.00	0.00	0.00	1.28	1.03	1.28	1.28	1.28	2.05	2.05
Pile/Drill Rig	0.059	0.00	0.00	0.00	0.00	0.00	5.18	0.47	0.47	0.47	0.47	0.47	0.94
Tractors	0.019	0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.19	0.29	0.29	0.38	0.38
Welders	0.009	0.00	0.00	0.00	0.00	0.00	1.73	1.73	1.73	1.73	1.73	1.73	1.73
Light Plants	0.009	0.00	0.00	0.00	0.00	0.00	0.23	0.34	0.34	0.37	0.39	0.39	0.39
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.32	0.38	0.38	0.43	0.43
Hydro Vacs/Pumps	0.018	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.09	0.18	0.18	0.27	0.18
Fork Lifts	0.021	0.00	0.00	0.00	0.00	0.00	0.43	0.43	0.43	0.43	0.52	0.69	0.69
Loader/Backhoe	0.019	0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.19	0.19	0.29	0.29	0.29
Air Compressors	0.009	0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.19	0.23	0.23	0.23	0.23
Manlifts	0.011	0.00	0.00	0.00	0.00	0.00	1.02	1.02	1.02	1.45	1.96	2.56	2.56
Total		0.00	0.00	0.00	0.00	0.00	12.58	7.73	7.99	8.97	9.94	12.21	12.59

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	7	11	12	10	10	10	16	16	16	14	11	11	10
>40T Cranes	5	8	9	8	8	8	10	9	9	7	5	5	4
Pile/Drill Rig	8	1	1	1	2	1	2	2	2	2	1	1	1
Tractors	5	4	4	4	6	6	7	7	7	7	6	6	5
Welders	8	23	23	8	8	8	8	8	8	8	0	0	0
Light Plants	3	14	13	7	9	7	11	15	15	14	10	10	9
Generators	3	8	8	6	6	6	10	9	9	8	4	4	4
Hydro Vacs/Pumps	5	2	3	2	1	1	1	1	1	1	1	1	1
Fork Lifts	4	8	9	8	9	9	13	13	13	12	10	10	9
Loader/Backhoe	5	3	3	3	3	3	5	5	5	5	4	4	4
Air Compressors	4	6	6	6	6	6	6	5	5	4	0	0	0
Manlifts	8	30	31	27	21	22	32	30	30	27	25	25	21

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
VOC													
<40 T Cranes	0.065	5.03	5.49	4.58	4.58	4.58	7.32	7.32	7.32	6.41	5.03	5.03	4.58
>40T Cranes	0.072	2.89	3.26	2.89	2.89	2.89	3.62	3.26	3.26	2.53	1.81	1.81	1.45
Pile/Drill Rig	0.040	0.32	0.32	0.32	0.64	0.32	0.64	0.64	0.64	0.64	0.32	0.32	0.32
Tractors	0.030	0.61	0.61	0.61	0.91	0.91	1.07	1.07	1.07	1.07	0.91	0.91	0.76
Welders	0.036	6.59	6.59	2.29	2.29	2.29	2.29	2.29	2.29	2.29	0.00	0.00	0.00
Light Plants	0.036	1.50	1.40	0.75	0.97	0.75	1.18	1.61	1.61	1.50	1.07	1.07	0.97
Generators	0.042	1.00	1.00	0.75	0.75	0.75	1.25	1.13	1.13	1.00	0.50	0.50	0.50
Hydro Vacs/Pumps	0.042	0.42	0.63	0.42	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Fork Lifts	0.019	0.62	0.70	0.62	0.70	0.70	1.01	1.01	1.01	0.94	0.78	0.78	0.70
Loader/Backhoe	0.030	0.46	0.46	0.46	0.46	0.46	0.76	0.76	0.76	0.76	0.61	0.61	0.61
Air Compressors	0.036	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.72	0.57	0.00	0.00	0.00
Manlifts	0.006	1.41	1.45	1.27	0.98	1.03	1.50	1.41	1.41	1.27	1.17	1.17	0.98
Total		21.71	22.76	15.82	16.25	15.76	21.71	21.42	21.42	19.19	12.42	12.42	11.08

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
CO	2017												
<40 T Cranes	0.415	31.97	34.88	29.07	29.07	29.07	46.51	46.51	46.51	40.69	31.97	31.97	29.07
>40T Cranes	0.424	16.97	19.09	16.97	16.97	16.97	21.21	19.09	19.09	14.85	10.61	10.61	8.49
Pile/Drill Rig	0.501	4.01	4.01	4.01	8.02	4.01	8.02	8.02	8.02	8.02	4.01	4.01	4.01
Tractors	0.367	7.33	7.33	7.33	11.00	11.00	12.83	12.83	12.83	12.83	11.00	11.00	9.17
Welders	0.241	44.32	44.32	15.41	15.41	15.41	15.41	15.41	15.41	15.41	0.00	0.00	0.00
Light Plants	0.305	12.80	11.88	6.40	8.23	6.40	10.06	13.71	13.71	12.80	9.14	9.14	8.23
Generators	0.473	11.35	11.35	8.51	8.51	8.51	14.19	12.77	12.77	11.35	5.67	5.67	5.67
Hydro Vacs/Pumps	0.480	4.80	7.20	4.80	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40
Fork Lifts	0.452	14.47	16.28	14.47	16.28	16.28	23.52	23.52	23.52	21.71	18.09	18.09	16.28
Loader/Backhoe	0.367	5.50	5.50	5.50	5.50	5.50	9.17	9.17	9.17	9.17	7.33	7.33	7.33
Air Compressors	0.221	5.30	5.30	5.30	5.30	5.30	5.30	4.42	4.42	3.53	0.00	0.00	0.00
Manlifts	0.155	37.14	38.38	33.43	26.00	27.24	39.62	37.14	37.14	33.43	30.95	30.95	26.00
Total		195.97	205.53	151.21	152.69	148.09	208.23	204.99	204.99	186.19	131.18	131.18	116.64

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
NOX													
<40 T Cranes	0.529	40.72	44.42	37.02	37.02	37.02	59.23	59.23	59.23	51.83	40.72	40.72	37.02
>40T Cranes	0.723	28.90	32.51	28.90	28.90	28.90	36.13	32.51	32.51	25.29	18.06	18.06	14.45
Pile/Drill Rig	0.405	3.24	3.24	3.24	6.48	3.24	6.48	6.48	6.48	6.48	3.24	3.24	3.24
Tractors	0.211	4.23	4.23	4.23	6.34	6.34	7.40	7.40	7.40	7.40	6.34	6.34	5.28
Welders	0.189	34.72	34.72	12.08	12.08	12.08	12.08	12.08	12.08	12.08	0.00	0.00	0.00
Light Plants	0.189	7.92	7.36	3.96	5.09	3.96	6.23	8.49	8.49	7.92	5.66	5.66	5.09
Generators	0.266	6.39	6.39	4.79	4.79	4.79	7.98	7.18	7.18	6.39	3.19	3.19	3.19
Hydro Vacs/Pumps	0.266	2.66	3.99	2.66	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
Fork Lifts	0.182	5.81	6.54	5.81	6.54	6.54	9.44	9.44	9.44	8.72	7.26	7.26	6.54
Loader/Backhoe	0.211	3.17	3.17	3.17	3.17	3.17	5.28	5.28	5.28	5.28	4.23	4.23	4.23
Air Compressors	0.189	4.53	4.53	4.53	4.53	4.53	4.53	3.77	3.77	3.02	0.00	0.00	0.00
Manlifts	0.116	27.92	28.85	25.13	19.55	20.48	29.79	27.92	27.92	25.13	23.27	23.27	19.55
Total		170.20	179.94	135.51	135.81	132.37	185.88	181.12	181.12	160.85	113.30	113.30	99.92

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	0.001	0.11	0.12	0.10	0.10	0.10	0.10	0.16	0.16	0.14	0.11	0.11	0.10
>40T Cranes	0.002	0.09	0.10	0.09	0.09	0.09	0.09	0.11	0.10	0.07	0.05	0.05	0.04
Pile/Drill Rig	0.002	0.02	0.02	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.02
Tractors	0.001	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.02	0.02	0.02
Welders	0.000	0.07	0.07	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00
Light Plants	0.000	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01
Generators	0.001	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01
Hydro Vacs/Pumps	0.001	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.03	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.04	0.04	0.04	0.03
Loader/Backhoe	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
Air Compressors	0.000	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
Manlifts	0.000	0.11	0.11	0.10	0.07	0.08	0.11	0.11	0.11	0.10	0.09	0.09	0.07
Total		0.50	0.53	0.42	0.43	0.41	0.59	0.57	0.57	0.51	0.37	0.37	0.33

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
PM10													
<40 T Cranes	0.025	1.94	2.11	1.76	1.76	1.76	2.82	2.82	2.82	2.47	1.94	1.94	1.76
>40T Cranes	0.031	1.24	1.39	1.24	1.24	1.24	1.54	1.39	1.39	1.08	0.77	0.77	0.62
Pile/Drill Rig	0.016	0.13	0.13	0.13	0.25	0.13	0.25	0.25	0.25	0.25	0.13	0.13	0.13
Tractors	0.013	0.27	0.27	0.27	0.40	0.40	0.47	0.47	0.47	0.47	0.40	0.40	0.34
Welders	0.010	1.76	1.76	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.00	0.00	0.00
Light Plants	0.010	0.40	0.37	0.20	0.26	0.20	0.31	0.43	0.43	0.40	0.29	0.29	0.26
Generators	0.020	0.47	0.47	0.35	0.35	0.35	0.59	0.53	0.53	0.47	0.24	0.24	0.24
Hydro Vacs/Pumps	0.020	0.20	0.30	0.20	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Fork Lifts	0.009	0.30	0.33	0.30	0.33	0.33	0.48	0.48	0.48	0.44	0.37	0.37	0.33
Loader/Backhoe	0.013	0.20	0.20	0.20	0.20	0.20	0.34	0.34	0.34	0.34	0.27	0.27	0.27
Air Compressors	0.010	0.23	0.23	0.23	0.23	0.23	0.23	0.19	0.19	0.15	0.00	0.00	0.00
Manlifts	0.003	0.80	0.82	0.72	0.56	0.58	0.85	0.80	0.80	0.72	0.66	0.66	0.56
Total		7.91	8.38	6.20	6.29	6.14	8.59	8.40	8.40	7.50	5.16	5.16	4.59

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

CO2EQ	Emission Rate (MT/yr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	0.035	2.72	2.97	2.47	2.47	2.47	3.96	3.96	3.96	3.46	2.72	2.72	2.47
>40T Cranes	0.051	2.06	2.31	2.06	2.06	2.06	2.57	2.31	2.31	1.80	1.28	1.28	1.03
Pile/Drill Rig	0.059	0.47	0.47	0.47	0.94	0.47	0.94	0.94	0.94	0.94	0.47	0.47	0.47
Tractors	0.019	0.38	0.38	0.38	0.58	0.58	0.67	0.67	0.67	0.67	0.58	0.58	0.48
Welders	0.009	1.73	1.73	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.00	0.00	0.00
Light Plants	0.009	0.39	0.37	0.20	0.25	0.20	0.31	0.42	0.42	0.39	0.28	0.28	0.25
Generators	0.018	0.43	0.43	0.32	0.32	0.32	0.54	0.48	0.48	0.43	0.22	0.22	0.22
Hydro Vacs/Pumps	0.018	0.18	0.27	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Fork Lifts	0.021	0.69	0.77	0.69	0.77	0.77	1.12	1.12	1.12	1.03	0.86	0.86	0.77
Loader/Backhoe	0.019	0.29	0.29	0.29	0.29	0.29	0.48	0.48	0.48	0.48	0.38	0.38	0.38
Air Compressors	0.009	0.23	0.23	0.23	0.23	0.23	0.23	0.19	0.19	0.15	0.00	0.00	0.00
Manlifts	0.011	2.56	2.64	2.30	1.79	1.88	2.73	2.56	2.56	2.30	2.13	2.13	1.79
Total		12.12	12.86	10.19	10.39	9.95	14.23	13.82	13.82	12.35	9.01	9.01	7.96

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	7	13	13	12	12	12	4	4	3	3	3	3	1
>40T Cranes	5	5	5	4	4	4	1	1	1	2	1	1	0
Pile/Drill Rig	8	7	1	1	1	1	1	1	1	1	1	1	0
Tractors	5	8	8	8	8	8	4	4	3	3	3	3	2
Welders	8	4	4	4	4	4	4	4	4	4	4	4	4
Light Plants	3	10	10	9	9	9	6	6	5	5	5	5	4
Generators	3	4	4	4	4	4	0	0	0	0	0	0	0
Hydro Vacs/Pumps	5	1	1	1	1	1	1	0	0	0	0	0	0
Fork Lifts	4	11	11	10	10	10	3	3	2	2	2	2	1
Loader/Backhoe	5	5	5	5	5	5	2	2	1	1	1	1	1
Air Compressors	4	4	4	4	4	4	4	4	4	4	4	4	4
Manlifts	8	29	29	27	27	27	13	13	8	8	8	8	1

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
VOC	2018												
<40 T Cranes	0.058	5.26	5.26	4.86	4.86	4.86	1.62	1.62	1.21	1.21	1.21	1.21	0.40
>40T Cranes	0.065	1.63	1.63	1.30	1.30	1.30	0.33	0.33	0.33	0.65	0.33	0.33	0.00
Pile/Drill Rig	0.035	1.96	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.00
Tractors	0.026	1.02	1.02	1.02	1.02	1.02	0.51	0.51	0.38	0.38	0.38	0.38	0.26
Welders	0.034	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
Light Plants	0.034	1.01	1.01	0.91	0.91	0.91	0.61	0.61	0.50	0.50	0.50	0.50	0.40
Generators	0.037	0.44	0.44	0.44	0.44	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.037	0.18	0.18	0.18	0.18	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.016	0.71	0.71	0.65	0.65	0.65	0.19	0.19	0.13	0.13	0.13	0.13	0.06
Loader/Backhoe	0.026	0.64	0.64	0.64	0.64	0.64	0.26	0.26	0.13	0.13	0.13	0.13	0.13
Air Compressors	0.034	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Manlifts	0.005	1.16	1.16	1.08	1.08	1.08	0.52	0.52	0.32	0.32	0.32	0.32	0.04
Total		15.63	13.95	12.98	12.98	12.98	6.11	5.92	4.90	5.22	4.90	4.90	2.91

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
CO													
<40 T Cranes	0.406	36.94	36.94	34.10	34.10	34.10	11.37	11.37	8.52	8.52	8.52	8.52	2.84
>40T Cranes	0.409	10.21	10.21	8.17	8.17	8.17	2.04	2.04	2.04	4.09	2.04	2.04	0.00
Pile/Drill Rig	0.501	28.06	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	4.01	0.00
Tractors	0.365	14.59	14.59	14.59	14.59	14.59	7.29	7.29	5.47	5.47	5.47	5.47	3.65
Welders	0.234	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48	7.48
Light Plants	0.297	8.90	8.90	8.01	8.01	8.01	5.34	5.34	4.45	4.45	4.45	4.45	3.56
Generators	0.469	5.63	5.63	5.63	5.63	5.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.477	2.38	2.38	2.38	2.38	2.38	2.38	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.217	9.56	9.56	8.69	8.69	8.69	2.61	2.61	1.74	1.74	1.74	1.74	0.87
Loader/Backhoe	0.365	9.12	9.12	9.12	9.12	9.12	3.65	3.65	1.82	1.82	1.82	1.82	1.82
Air Compressors	0.214	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43	3.43
Manlifts		40.37	40.37	37.59	37.59	37.59	18.10	18.10	11.14	11.14	11.14	11.14	1.39
Total		176.68	152.63	143.20	143.20	143.20	67.70	65.31	50.10	52.15	50.10	50.10	25.04

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
NOX													
<40 T Cranes	0.475	43.23	43.23	39.91	39.91	39.91	13.30	13.30	9.98	9.98	9.98	9.98	3.33
>40T Cranes	0.659	16.47	16.47	13.17	13.17	13.17	3.29	3.29	3.29	6.59	3.29	3.29	0.00
Pile/Drill Rig	0.352	19.70	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	0.00
Tractors	0.185	7.41	7.41	7.41	7.41	7.41	3.71	3.71	2.78	2.78	2.78	2.78	1.85
Welders	0.183	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87
Light Plants	0.183	5.50	5.50	4.95	4.95	4.95	3.30	3.30	2.75	2.75	2.75	2.75	2.20
Generators	0.243	2.91	2.91	2.91	2.91	2.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.243	1.21	1.21	1.21	1.21	1.21	1.21	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.157	6.89	6.89	6.27	6.27	6.27	1.88	1.88	1.25	1.25	1.25	1.25	0.63
Loader/Backhoe	0.185	4.63	4.63	4.63	4.63	4.63	1.85	1.85	0.93	0.93	0.93	0.93	0.93
Air Compressors	0.183	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94	2.94
Manlifts	0.103	23.84	23.84	22.19	22.19	22.19	10.68	10.68	6.58	6.58	6.58	6.58	0.82
Total		140.61	123.72	114.28	114.28	114.28	50.86	49.64	39.18	42.47	39.18	39.18	18.56

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	0.001	0.13	0.13	0.12	0.12	0.12	0.12	0.04	0.03	0.03	0.03	0.03	0.01
>40T Cranes	0.002	0.05	0.05	0.04	0.04	0.04	0.04	0.01	0.01	0.02	0.01	0.01	0.00
Pile/Drill Rig	0.002	0.14	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00
Tractors	0.001	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.01	0.01	0.01	0.01	0.01
Welders	0.000	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Light Plants	0.000	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Generators	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.01	0.01	0.01	0.01	0.00
Loader/Backhoe	0.001	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.00	0.00
Air Compressors	0.000	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Manlifts	0.000	0.10	0.10	0.10	0.10	0.10	0.10	0.05	0.03	0.03	0.03	0.03	0.00
Total		0.56	0.44	0.41	0.41	0.41	0.41	0.18	0.14	0.15	0.14	0.14	0.05

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
PM10													
<40 T Cranes	0.022	2.04	2.04	1.88	1.88	1.88	0.63	0.63	0.47	0.47	0.47	0.47	0.16
>40T Cranes	0.028	0.70	0.70	0.56	0.56	0.56	0.14	0.14	0.14	0.28	0.14	0.14	0.00
Pile/Drill Rig	0.014	0.76	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.00
Tractors	0.011	0.45	0.45	0.45	0.45	0.45	0.22	0.22	0.17	0.17	0.17	0.17	0.11
Welders	0.009	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Light Plants	0.009	0.27	0.27	0.24	0.24	0.24	0.16	0.16	0.14	0.14	0.14	0.14	0.11
Generators	0.018	0.21	0.21	0.21	0.21	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.018	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.007	0.33	0.33	0.30	0.30	0.30	0.09	0.09	0.06	0.06	0.06	0.06	0.03
Loader/Backhoe	0.011	0.28	0.28	0.28	0.28	0.28	0.11	0.11	0.06	0.06	0.06	0.06	0.06
Air Compressors	0.009	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Manlifts	0.002	0.55	0.55	0.52	0.52	0.52	0.25	0.25	0.15	0.15	0.15	0.15	0.02
Total		6.12	5.46	5.07	5.07	5.07	2.24	2.15	1.73	1.87	1.73	1.73	0.92

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

CO2EQ	Emission Rate (MT/yr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	0.035	3.22	3.22	2.97	2.97	2.97	0.99	0.99	0.74	0.74	0.74	0.74	0.25
>40T Cranes	0.051	1.29	1.29	1.03	1.03	1.03	0.26	0.26	0.26	0.51	0.26	0.26	0.00
Pile/Drill Rig	0.059	3.28	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.00
Tractors	0.019	0.77	0.77	0.77	0.77	0.77	0.38	0.38	0.29	0.29	0.29	0.29	0.19
Welders	0.009	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Light Plants	0.009	0.28	0.28	0.25	0.25	0.25	0.17	0.17	0.14	0.14	0.14	0.14	0.11
Generators	0.018	0.22	0.22	0.22	0.22	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.018	0.09	0.09	0.09	0.09	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.021	0.94	0.94	0.86	0.86	0.86	0.26	0.26	0.17	0.17	0.17	0.17	0.09
Loader/Backhoe	0.019	0.48	0.48	0.48	0.48	0.48	0.19	0.19	0.10	0.10	0.10	0.10	0.10
Air Compressors	0.009	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Manlifts	0.011	2.47	2.47	2.30	2.30	2.30	1.11	1.11	0.68	0.68	0.68	0.68	0.09
Total		13.49	10.67	9.88	9.88	9.88	4.37	4.28	3.30	3.55	3.30	3.30	1.27

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	7	0	0	0	0	0	0	0	0	0	0	0	0
>40T Cranes	5	0	0	0	0	0	0	0	0	0	0	0	0
Pile/Drill Rig	8	0	0	0	0	0	0	0	0	0	0	0	0
Tractors	5	0	0	0	0	0	0	0	0	0	0	0	0
Welders	8	0	0	0	0	0	0	0	0	0	0	0	0
Light Plants	3	0	0	0	0	0	0	0	0	0	0	0	0
Generators	3	0	0	0	0	0	0	0	0	0	0	0	0
Hydro Vacs/Pumps	5	0	0	0	0	0	0	0	0	0	0	0	0
Fork Lifts	4	0	0	0	0	0	0	0	0	0	0	0	0
Loader/Backhoe	5	0	0	0	0	0	0	0	0	0	0	0	0
Air Compressors	4	0	0	0	0	0	0	0	0	0	0	0	0
Manlifts	8	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
VOC													
<40 T Cranes	0.053	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.062	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
CO	2019												
<40 T Cranes	0.398	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.395	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.363	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.466	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.363	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.208	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.172	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
NOX	2019												
<40 T Cranes	0.436	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.623	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.327	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.146	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.098	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
PM10													
<40 T Cranes	0.020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (MT/yr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
CO2EQ													
<40 T Cranes	0.035	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.059	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
<40 T Cranes	7	0	0	0	0	0	0	0	0	0	1	0	1
>40T Cranes	5	0	0	0	0	0	0	0	0	0	1	0	1
Pile Rig	8	0	0	0	0	0	0	0	0	0	1	0	1
Tractors	5	0	0	0	0	0	0	0	0	0	1	0	1
Welders	8	0	0	0	0	0	0	0	0	0	1	0	2
Light Plants	12	0	0	0	0	0	0	0	0	0	1	0	1
Generators	12	0	0	0	0	0	0	0	0	0	0	0	0
Hydro Vacs	5	0	0	0	0	0	0	0	0	0	1	0	1
Fork Lifts	4	0	0	0	0	0	0	0	0	0	1	0	1
Loader/Backhoe	5	0	0	0	0	0	0	0	0	0	1	0	1
Air Compressors	4	0	0	0	0	0	0	0	0	0	1	0	1
Manlifts	8	0	0	0	0	0	0	0	0	0	2	0	3

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
VOC	2016												
<40 T Cranes	0.070	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.49
>40T Cranes	0.078	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.39
Pile Rig	0.042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.34
Tractors	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.16
Welders	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.59
Light Plants	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.44
Generators	0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.22
Fork Lifts	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09
Loader/Backhoe	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.16
Air Compressors	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.15
Manlifts	0.007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.16
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.84	0.00	3.19

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

CO	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
	2016												
<40 T Cranes	0.426	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.98	0.00	2.98
>40T Cranes	0.443	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.22	0.00	2.22
Pile Rig	0.502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.01	0.00	4.01
Tractors	0.369	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	0.00	1.84
Welders	0.248	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99	0.00	3.97
Light Plants	0.313	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.76	0.00	3.76
Generators	0.477	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.484	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.42	0.00	2.42
Fork Lifts	0.455	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.82	0.00	1.82
Loader/Backhoe	0.369	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	0.00	1.84
Air Compressors	0.228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.91	0.00	0.91
Manlifts	0.159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.00	3.82
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.35	0.00	29.61

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
NOX	2016												
<40 T Cranes	0.564	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.95	0.00	3.95
>40T Cranes	0.767	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.83	0.00	3.83
Pile Rig	0.429	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.43	0.00	3.43
Tractors	0.225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	0.00	1.12
Welders	0.191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53	0.00	3.06
Light Plants	0.191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30	0.00	2.30
Generators	0.276	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.276	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38	0.00	1.38
Fork Lifts	0.199	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.80
Loader/Backhoe	0.225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	0.00	1.12
Air Compressors	0.191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.77
Manlifts	0.129	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.06	0.00	3.10
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.30	0.00	24.86

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
<40 T Cranes	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Pile Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.08

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
PM10	2016												
<40 T Cranes	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.19
>40T Cranes	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.17
Pile Rig	0.017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.13
Tractors	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07
Welders	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.16
Light Plants	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.12
Generators	0.020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
Fork Lifts	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04
Loader/Backhoe	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07
Air Compressors	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04
Manlifts	0.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.09
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	0.00	1.19

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (MT/yr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
CO2EQ	2016												
<40 T Cranes	0.035	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25
>40T Cranes	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.26
Pile Rig	0.059	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.47
Tractors	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
Welders	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.15
Light Plants	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.11
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09
Fork Lifts	0.021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09
Loader/Backhoe	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
Air Compressors	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04
Manlifts	0.011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.26
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.74	0.00	1.90

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	7	1	1	1	1	0	0	0	2	0	1	1	0
>40T Cranes	5	1	1	1	1	0	0	0	2	0	1	1	0
Pile Rig	8	1	1	1	1	0	0	0	1	0	1	1	0
Tractors	5	1	1	1	1	0	0	0	1	0	1	1	0
Welders	8	5	2	2	5	0	0	0	3	0	5	5	0
Light Plants	12	2	1	1	2	0	0	0	1	0	1	1	0
Generators	12	0	0	0	0	0	0	0	1	0	0	0	0
Hydro Vacs	5	1	1	1	1	0	0	0	1	0	1	1	0
Fork Lifts	4	1	1	1	1	0	0	0	1	0	1	1	0
Loader/Backhoe	5	1	1	1	1	0	0	0	1	0	1	1	0
Air Compressors	4	1	1	1	1	0	0	0	1	0	1	1	0
Manlifts	8	4	3	3	4	0	0	0	3	0	4	4	0

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
VOC													
<40 T Cranes	0.065	0.46	0.46	0.46	0.46	0.00	0.00	0.00	0.92	0.00	0.46	0.46	0.00
>40T Cranes	0.072	0.36	0.36	0.36	0.36	0.00	0.00	0.00	0.72	0.00	0.36	0.36	0.00
Pile Rig	0.040	0.32	0.32	0.32	0.32	0.00	0.00	0.00	0.32	0.00	0.32	0.32	0.00
Tractors	0.030	0.15	0.15	0.15	0.15	0.00	0.00	0.00	0.15	0.00	0.15	0.15	0.00
Welders	0.036	1.43	0.57	0.57	1.43	0.00	0.00	0.00	0.86	0.00	1.43	1.43	0.00
Light Plants	0.036	0.86	0.43	0.43	0.86	0.00	0.00	0.00	0.43	0.00	0.43	0.43	0.00
Generators	0.042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00
Hydro Vacs	0.042	0.21	0.21	0.21	0.21	0.00	0.00	0.00	0.21	0.00	0.21	0.21	0.00
Fork Lifts	0.019	0.08	0.08	0.08	0.08	0.00	0.00	0.00	0.08	0.00	0.08	0.08	0.00
Loader/Backhoe	0.030	0.15	0.15	0.15	0.15	0.00	0.00	0.00	0.15	0.00	0.15	0.15	0.00
Air Compressors	0.036	0.14	0.14	0.14	0.14	0.00	0.00	0.00	0.14	0.00	0.14	0.14	0.00
Manlifts	0.006	0.19	0.14	0.14	0.19	0.00	0.00	0.00	0.14	0.00	0.19	0.19	0.00
Total		4.35	3.02	3.02	4.35	0.00	0.00	0.00	4.63	0.00	3.92	3.92	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

CO	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	0.415	2.91	2.91	2.91	2.91	0.00	0.00	0.00	5.81	0.00	2.91	2.91	0.00
>40T Cranes	0.424	2.12	2.12	2.12	2.12	0.00	0.00	0.00	4.24	0.00	2.12	2.12	0.00
Pile Rig	0.501	4.01	4.01	4.01	4.01	0.00	0.00	0.00	4.01	0.00	4.01	4.01	0.00
Tractors	0.367	1.83	1.83	1.83	1.83	0.00	0.00	0.00	1.83	0.00	1.83	1.83	0.00
Welders	0.241	9.63	3.85	3.85	9.63	0.00	0.00	0.00	5.78	0.00	9.63	9.63	0.00
Light Plants	0.305	7.31	3.66	3.66	7.31	0.00	0.00	0.00	3.66	0.00	3.66	3.66	0.00
Generators	0.473	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.67	0.00	0.00	0.00	0.00
Hydro Vacs	0.480	2.40	2.40	2.40	2.40	0.00	0.00	0.00	2.40	0.00	2.40	2.40	0.00
Fork Lifts	0.452	1.81	1.81	1.81	1.81	0.00	0.00	0.00	1.81	0.00	1.81	1.81	0.00
Loader/Backhoe	0.367	1.83	1.83	1.83	1.83	0.00	0.00	0.00	1.83	0.00	1.83	1.83	0.00
Air Compressors	0.221	0.88	0.88	0.88	0.88	0.00	0.00	0.00	0.88	0.00	0.88	0.88	0.00
Manlifts	0.155	4.95	3.71	3.71	4.95	0.00	0.00	0.00	3.71	0.00	4.95	4.95	0.00
Total		39.70	29.02	29.02	39.70	0.00	0.00	0.00	41.65	0.00	36.04	36.04	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
NOX													
<40 T Cranes	0.529	3.70	3.70	3.70	3.70	0.00	0.00	0.00	7.40	0.00	3.70	3.70	0.00
>40T Cranes	0.723	3.61	3.61	3.61	3.61	0.00	0.00	0.00	7.23	0.00	3.61	3.61	0.00
Pile Rig	0.405	3.24	3.24	3.24	3.24	0.00	0.00	0.00	3.24	0.00	3.24	3.24	0.00
Tractors	0.211	1.06	1.06	1.06	1.06	0.00	0.00	0.00	1.06	0.00	1.06	1.06	0.00
Welders	0.189	7.55	3.02	3.02	7.55	0.00	0.00	0.00	4.53	0.00	7.55	7.55	0.00
Light Plants	0.189	4.53	2.26	2.26	4.53	0.00	0.00	0.00	2.26	0.00	2.26	2.26	0.00
Generators	0.266	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.19	0.00	0.00	0.00	0.00
Hydro Vacs	0.266	1.33	1.33	1.33	1.33	0.00	0.00	0.00	1.33	0.00	1.33	1.33	0.00
Fork Lifts	0.182	0.73	0.73	0.73	0.73	0.00	0.00	0.00	0.73	0.00	0.73	0.73	0.00
Loader/Backhoe	0.211	1.06	1.06	1.06	1.06	0.00	0.00	0.00	1.06	0.00	1.06	1.06	0.00
Air Compressors	0.189	0.75	0.75	0.75	0.75	0.00	0.00	0.00	0.75	0.00	0.75	0.75	0.00
Manlifts	0.116	3.72	2.79	2.79	3.72	0.00	0.00	0.00	2.79	0.00	3.72	3.72	0.00
Total		31.28	23.55	23.55	31.28	0.00	0.00	0.00	35.57	0.00	29.01	29.01	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	0.001	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.02	0.00	0.01	0.01	0.00
>40T Cranes	0.002	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.02	0.00	0.01	0.01	0.00
Pile Rig	0.002	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.02	0.00	0.02	0.02	0.00
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.02	0.01	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.02	0.02	0.00
Light Plants	0.000	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
Hydro Vacs	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.000	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00
Total		0.10	0.08	0.08	0.10	0.00	0.00	0.00	0.11	0.00	0.09	0.09	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
PM10													
<40 T Cranes	0.025	0.18	0.18	0.18	0.18	0.00	0.00	0.00	0.35	0.00	0.18	0.18	0.00
>40T Cranes	0.031	0.15	0.15	0.15	0.15	0.00	0.00	0.00	0.31	0.00	0.15	0.15	0.00
Pile Rig	0.016	0.13	0.13	0.13	0.13	0.00	0.00	0.00	0.13	0.00	0.13	0.13	0.00
Tractors	0.013	0.07	0.07	0.07	0.07	0.00	0.00	0.00	0.07	0.00	0.07	0.07	0.00
Welders	0.010	0.38	0.15	0.15	0.38	0.00	0.00	0.00	0.23	0.00	0.38	0.38	0.00
Light Plants	0.010	0.23	0.11	0.11	0.23	0.00	0.00	0.00	0.11	0.00	0.11	0.11	0.00
Generators	0.020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
Hydro Vacs	0.020	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.10	0.00	0.10	0.10	0.00
Fork Lifts	0.009	0.04	0.04	0.04	0.04	0.00	0.00	0.00	0.04	0.00	0.04	0.04	0.00
Loader/Backhoe	0.013	0.07	0.07	0.07	0.07	0.00	0.00	0.00	0.07	0.00	0.07	0.07	0.00
Air Compressors	0.010	0.04	0.04	0.04	0.04	0.00	0.00	0.00	0.04	0.00	0.04	0.04	0.00
Manlifts	0.003	0.11	0.08	0.08	0.11	0.00	0.00	0.00	0.08	0.00	0.11	0.11	0.00
Total		1.48	1.11	1.11	1.48	0.00	0.00	0.00	1.75	0.00	1.37	1.37	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

CO2EQ	Emission Rate (MT/hr) 2017	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	0.035	0.25	0.25	0.25	0.25	0.00	0.00	0.00	0.49	0.00	0.25	0.25	0.00
>40T Cranes	0.051	0.26	0.26	0.26	0.26	0.00	0.00	0.00	0.51	0.00	0.26	0.26	0.00
Pile Rig	0.059	0.47	0.47	0.47	0.47	0.00	0.00	0.00	0.47	0.00	0.47	0.47	0.00
Tractors	0.019	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.10	0.00	0.10	0.10	0.00
Welders	0.009	0.38	0.15	0.15	0.38	0.00	0.00	0.00	0.23	0.00	0.38	0.38	0.00
Light Plants	0.009	0.23	0.11	0.11	0.23	0.00	0.00	0.00	0.11	0.00	0.11	0.11	0.00
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00
Hydro Vacs	0.018	0.09	0.09	0.09	0.09	0.00	0.00	0.00	0.09	0.00	0.09	0.09	0.00
Fork Lifts	0.021	0.09	0.09	0.09	0.09	0.00	0.00	0.00	0.09	0.00	0.09	0.09	0.00
Loader/Backhoe	0.019	0.10	0.10	0.10	0.10	0.00	0.00	0.00	0.10	0.00	0.10	0.10	0.00
Air Compressors	0.009	0.04	0.04	0.04	0.04	0.00	0.00	0.00	0.04	0.00	0.04	0.04	0.00
Manlifts	0.011	0.34	0.26	0.26	0.34	0.00	0.00	0.00	0.26	0.00	0.34	0.34	0.00
Total		2.32	1.90	1.90	2.32	0.00	0.00	0.00	2.69	0.00	2.21	2.21	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	7	1	1	0	0	0	0	0	0	0	0	0	0
>40T Cranes	5	1	1	0	0	0	0	0	0	0	0	0	0
Pile Rig	8	1	1	0	0	0	0	0	0	0	0	0	0
Tractors	5	1	1	0	0	0	0	0	0	0	0	0	0
Welders	8	8	8	0	0	0	0	0	0	0	0	0	0
Light Plants	12	1	1	0	0	0	0	0	0	0	0	0	0
Generators	12	0	0	0	0	0	0	0	0	0	0	0	0
Hydro Vacs	5	1	1	0	0	0	0	0	0	0	0	0	0
Fork Lifts	4	1	1	0	0	0	0	0	0	0	0	0	0
Loader/Backhoe	5	1	1	0	0	0	0	0	0	0	0	0	0
Air Compressors	4	1	1	0	0	0	0	0	0	0	0	0	0
Manlifts	8	4	4	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
VOC	2018												
<40 T Cranes	0.058	0.40	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.065	0.33	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.035	0.28	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.026	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.034	2.15	2.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.034	0.40	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.037	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.016	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.026	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.034	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.005	0.16	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		4.36	4.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

CO	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	0.406	2.84	2.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.409	2.04	2.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.501	4.01	4.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.365	1.82	1.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.234	14.97	14.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.297	3.56	3.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.469	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.477	2.38	2.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.217	0.87	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.365	1.82	1.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.214	0.86	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.174	5.57	5.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		40.74	40.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
NOX													
<40 T Cranes	0.475	3.33	3.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.659	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.352	2.81	2.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.185	0.93	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.183	11.74	11.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.183	2.20	2.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.243	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.243	1.21	1.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.157	0.63	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.185	0.93	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.183	0.73	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.103	3.29	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		31.09	31.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	0.001	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.002	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.002	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.000	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
PM10													
<40 T Cranes	0.022	0.16	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.028	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.014	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.011	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.009	0.58	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.009	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.018	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.007	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.011	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.009	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.002	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		1.44	1.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (MT/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
CO2EQ													
<40 T Cranes	0.035	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.051	0.26	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.059	0.47	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.019	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.009	0.60	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.009	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.018	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.021	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.019	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.009	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.011	0.34	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.43	2.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

Equipment	Hours (hr/day)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	7	0	0	0	0	0	0	0	0	0	0	0	0
>40T Cranes	5	0	0	0	0	0	0	0	0	0	0	0	0
Pile Rig	8	0	0	0	0	0	0	0	0	0	0	0	0
Tractors	5	0	0	0	0	0	0	0	0	0	0	0	0
Welders	8	0	0	0	0	0	0	0	0	0	0	0	0
Light Plants	12	0	0	0	0	0	0	0	0	0	0	0	0
Generators	12	0	0	0	0	0	0	0	0	0	0	0	0
Hydro Vacs	5	0	0	0	0	0	0	0	0	0	0	0	0
Fork Lifts	4	0	0	0	0	0	0	0	0	0	0	0	0
Loader/Backhoe	5	0	0	0	0	0	0	0	0	0	0	0	0
Air Compressors	4	0	0	0	0	0	0	0	0	0	0	0	0
Manlifts	8	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
VOC	2019												
<40 T Cranes	0.053	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.062	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

CO	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	0.398	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.395	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.363	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.289	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.466	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.217	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.363	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.208	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.172	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
NOX	2019												
<40 T Cranes	0.436	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.623	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.327	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.146	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.098	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
PM10													
<40 T Cranes	0.020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction Equipment Emissions

	Emission Rate (MT/yr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
CO2EQ													
<40 T Cranes	0.035	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile Rig	0.059	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.011	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project

Percent Mitigated 50%

Mitigated Onroad Emission Rates

	Unmitigated Default Fleet Emission Rate (lb/mi) ⁽¹⁾						Modern (2010+) Fleet Emission Rate (lb/mi) ⁽¹⁾						Mitigated Fleet Emission Rate (lb/mi) ⁽¹⁾					
	2016	2017	2018	2019	2020	2021	2016	2017	2018	2019	2020	2021	2016	2017	2018	2019	2020	2021
VOC																		
Light Duty	0.0001035	0.0001035	0.0000636	0.0000548	0.0001152	0.0001103	1.88E-05	1.93E-05	1.98E-05	2.01E-05	2.05E-05	2.09E-05	6.11E-05	6.1E-05	4.2E-05	3.7E-05	6.8E-05	6.6E-05
Medium Duty	0.0003717	0.0003717	0.0002639	0.0002379	0.0002072	0.0001878	0.000143	0.000145	0.000146	0.000146	0.000147	0.00015	0.000258	0.00026	0.0002	0.00019	0.00018	0.00017
Heavy Duty	0.0006131	0.0006131	0.0005354	0.0005283	0.0010485	0.0010069	0.000409	0.000414	0.000416	0.000412	0.000412	0.000414	0.000511	0.00051	0.00048	0.00047	0.00073	0.00071
CO																		
Light Duty	0.0033327	0.0033327	0.0024424	0.0022305	0.0007041	0.0006885	0.001031	0.001064	0.001092	0.001113	0.001134	0.001156	0.002182	0.0022	0.00177	0.00167	0.00092	0.00092
Medium Duty	0.0030301	0.0030301	0.0019739	0.0017339	0.0018984	0.0016798	0.000678	0.000684	0.000686	0.00069	0.000697	0.000707	0.001854	0.00186	0.00133	0.00121	0.0013	0.00119
Heavy Duty	0.0043046	0.0043046	0.0038177	0.0037678	0.0566489	0.0563965	0.00368	0.003586	0.003513	0.003446	0.003375	0.003313	0.003993	0.00395	0.00367	0.00361	0.03001	0.02985
NOx																		
Light Duty	0.0005080	0.0005080	0.0003881	0.0003585	0.0026401	0.0024874	0.000123	0.000126	0.000128	0.000131	0.000133	0.000135	0.000315	0.00032	0.00026	0.00024	0.00139	0.00131
Medium Duty	0.0082326	0.0082326	0.0053355	0.0046291	0.0032831	0.0024226	0.001597	0.001607	0.00161	0.001613	0.001642	0.001683	0.004915	0.00492	0.00347	0.00312	0.00246	0.00205
Heavy Duty	0.0154328	0.0154328	0.0114857	0.0107049	0.0097261	0.0094888	0.00412	0.004159	0.004169	0.004156	0.004163	0.004184	0.009776	0.0098	0.00783	0.00743	0.00694	0.00684
SOx																		
Light Duty	0.0000090	0.0000090	0.0000090	0.0000090	0.0000082	0.0000082	8.83E-06	8.84E-06	8.85E-06	8.85E-06	8.85E-06	8.89E-06	8.91E-06	8.9E-06	8.9E-06	8.9E-06	8.5E-06	8.6E-06
Medium Duty	0.0000217	0.0000217	0.0000216	0.0000215	0.0000202	0.0000202	2.15E-05	2.16E-05	2.16E-05	2.15E-05	2.15E-05	2.16E-05	2.16E-05	2.2E-05	2.2E-05	2.2E-05	2.1E-05	2.1E-05
Heavy Duty	0.0000359	0.0000359	0.0000359	0.0000357	0.0000165	0.0000165	3.51E-05	3.52E-05	3.52E-05	3.52E-05	3.52E-05	3.53E-05	3.55E-05	3.6E-05	3.6E-05	3.5E-05	2.6E-05	2.6E-05
PM10																		
Light Duty Exhaust	0.0001064	0.0001064	0.0001058	0.0001057	0.0001814	0.0001798	2.86E-06	3.22E-06	3.52E-06	3.74E-06	3.94E-06	4.12E-06	5.46E-05	5.5E-05	5.5E-05	5.5E-05	9.3E-05	9.2E-05
Medium Duty Exhaust	0.0004787	0.0004787	0.0004105	0.0003940	0.0003283	0.0003061	6.38E-05	6.48E-05	6.52E-05	6.61E-05	6.72E-05	6.86E-05	0.000271	0.00027	0.00024	0.00023	0.0002	0.00019
Heavy Duty Exhaust	0.0004727	0.0004727	0.0004029	0.0004031	0.0001312	0.0001308	0.000154	0.000158	0.00016	0.000162	0.000162	0.000163	0.000313	0.00032	0.00028	0.00028	0.00015	0.00015
Light Duty Fugitive ⁽²⁾	0.000221	0.000221	0.000221	0.000221	0.000221	0.000230	0.000221	0.000221	0.000221	0.000221	0.000221	0.000221	0.000230	0.000221	0.00022	0.00022	0.00022	0.00023
Medium Duty Fugitive ⁽²⁾	0.000467	0.000467	0.000467	0.000467	0.000467	0.000515	0.000467	0.000467	0.000467	0.000467	0.000467	0.000467	0.000515	0.000467	0.00047	0.00047	0.00047	0.00051
Heavy Duty Fugitive ⁽²⁾	0.002314	0.002314	0.002314	0.002314	0.002314	0.002314	0.002314	0.002314	0.002314	0.002314	0.002314	0.002314	0.002314	0.002314	0.00231	0.00231	0.00231	0.00231
CO2e⁽³⁾																		
Light Duty	0.907027	0.907027	0.907902	0.906320	0.871815	0.871989	0.895264	0.896271	0.897304	0.896459	0.897277	0.900453	0.901145	0.90165	0.9026	0.90139	0.88455	0.88622
Medium Duty	2.261047	2.261047	2.255679	2.246504	2.103853	2.095047	2.248014	2.251782	2.251657	2.245243	2.249754	2.258657	2.25453	2.25641	2.25367	2.24587	2.1768	2.17685
Heavy Duty	3.767750	3.767750	3.758572	3.745268	3.742311	3.741032	3.680111	3.687814	3.692833	3.685259	3.690409	3.698658	3.72393	3.72778	3.7257	3.71526	3.71636	3.71984
CO2																		
Light Duty	0.896	0.895612	0.896487	0.894905	0.860400	0.860574	0.883849	0.884856	0.885889	0.885044	0.885863	0.889038	0.889731	0.89023	0.89119	0.88997	0.87313	0.87481
Medium Duty	2.258	2.257530	2.252163	2.242988	2.100337	2.091531	2.244498	2.248265	2.248141	2.241726	2.246238	2.255141	2.251014	2.2529	2.25015	2.24236	2.17329	2.17334
Heavy Duty	3.764	3.764233	3.755056	3.741752	3.738794	3.737515	3.676594	3.684297	3.689317	3.681742	3.686892	3.695141	3.720414	3.72427	3.72219	3.71175	3.71284	3.71633
Total																		

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m2)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light, 5.5 for medium trucks, and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CQ) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Chemical	2016		
	Light	Medium	Heavy
CH4 (g/mi)	0.0148	0.0051	0.0051
N2O (g/mi)	0.0157	0.0048	0.0048

Appendix B-1
Tesoro Integration and Compliance Project

Onsite Mitigated Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		1	2	3	4	5	6	7	8	9	10	11	12
Cars	2	0	0	0	0	0	0	0	0	0	0	0	0
Pickup Trucks	2	0	0	0	0	0	76	76	76	102	117	123	122
Total Light Vehicle Miles		0	0	0	0	0	152	152	152	204	234	246	244
Water Truck	2	0	0	0	0	0	15	15	15	15	15	15	15
Delivery Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	2	0	0	0	0	0	7	7	7	10	12	13	13
Misc. MD Truck	5	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		0	0	0	0	0	44	44	44	50	54	56	56
Truck, Dump Ford LT8000	2	0	0	0	0	0	0	0	0	0	0	0	0
Concrete Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Semi-Tractor, Diesel 20 Ton	2	0	0	0	0	0	0	0	0	0	0	0	0
Misc. HD Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Total Heavy Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0

VOC	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		1	2	3	4	5	6	7	8	9	10	11	12
Light Duty	0.0000611	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.01
Medium Duty	0.0002576	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty	0.0005111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.03	0.03	0.03	0.03

CO	2016	1	2	3	4	5	6	7	8	9	10	11	12
Light Duty	0.0021819	0.00	0.00	0.00	0.00	0.00	0.33	0.33	0.33	0.45	0.51	0.54	0.53
Medium Duty	0.0018541	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.08	0.09	0.10	0.10	0.10
Heavy Duty	0.0039926	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.41	0.41	0.41	0.54	0.61	0.64	0.64

NOx	2016	1	2	3	4	5	6	7	8	9	10	11	12
Light Duty	0.0003153	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.06	0.07	0.08	0.08
Medium Duty	0.0049148	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.22	0.25	0.27	0.28	0.28
Heavy Duty	0.0097764	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.26	0.26	0.26	0.31	0.34	0.35	0.35

SOx	2016	1	2	3	4	5	6	7	8	9	10	11	12
Light Duty	0.0000089	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000355	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PM10	2016	1	2	3	4	5	6	7	8	9	10	11	12
Light Duty Exhaust	0.0000546	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Medium Duty Exhaust	0.0002713	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02
Heavy Duty Exhaust	0.0003135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Exhaust PM		0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.03	0.03	0.03
Light Duty Fugitive ⁽²⁾	0.0002221	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.05	0.05	0.05	0.05
Medium Duty Fugitive ⁽²⁾	0.000467	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.03	0.03	0.03
Heavy Duty Fugitive ⁽²⁾	0.002314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM		0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.07	0.08	0.08	0.08
Total		0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.07	0.09	0.10	0.11	0.11

CO _{2EQ}	2016	1	2	3	4	5	6	7	8	9	10	11	12
Light Duty	0.901	0.00	0.00	0.00	0.00	0.00	136.97	136.97	136.97	183.83	210.87	221.68	219.88
Medium Duty	2.255	0.00	0.00	0.00	0.00	0.00	99.20	99.20	99.20	112.73	121.74	126.25	126.25
Heavy Duty	3.724	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	236.17	236.17	236.17	296.56	332.61	347.94	346.13

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m2)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO_{2e}) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Appendix B-1
Tesoro Integration and Compliance Project

Onsite Mitigated Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		13	14	15	16	17	18	19	20	21	22	23	24
Cars	2	0	0	0	0	0	0	0	0	0	0	0	0
Pickup Trucks	2	127	135	124	126	114	122	118	122	110	73	73	61
Total Light Vehicle Miles		254	270	248	252	228	244	236	244	220	146	146	122
Water Truck	2	15	15	10	10	10	10	10	10	10	10	10	10
Delivery Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	2	14	14	13	13	11	12	11	12	10	8	8	6
Misc. MD Truck	5	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		58	58	46	46	42	44	42	44	40	36	36	32
Truck, Dump Ford LT8000	2	0	0	0	0	0	0	0	0	0	0	0	0
Concrete Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Semi-Tractor, Diesel 20 Ton	2	0	0	0	0	0	0	0	0	0	0	0	0
Misc. HD Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Total Heavy Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0

VOC	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		13	14	15	16	17	18	19	20	21	22	23	24
Light Duty	0.0000614	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Medium Duty	0.0002584	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty	0.0005136	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.02

CO	2017	13	14	15	16	17	18	19	20	21	22	23	24
		0.56	0.59	0.55	0.55	0.50	0.54	0.52	0.54	0.48	0.32	0.32	0.27
Light Duty	0.0021982	0.11	0.11	0.09	0.09	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.06
Medium Duty	0.0018571	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0039454	0.67	0.70	0.63	0.64	0.58	0.62	0.60	0.62	0.56	0.39	0.39	0.33
Total													

NOx	2017	13	14	15	16	17	18	19	20	21	22	23	24
		0.08	0.09	0.08	0.08	0.07	0.08	0.07	0.08	0.07	0.05	0.05	0.04
Light Duty	0.0003168	0.29	0.29	0.23	0.23	0.21	0.22	0.21	0.22	0.20	0.18	0.18	0.16
Medium Duty	0.0049198	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0097959	0.37	0.37	0.30	0.31	0.28	0.29	0.28	0.29	0.27	0.22	0.22	0.20
Total													

SOx	2017	13	14	15	16	17	18	19	20	21	22	23	24
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.0000089	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000356	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PM10	2017	13	14	15	16	17	18	19	20	21	22	23	24
		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Light Duty Exhaust	0.0000548	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Medium Duty Exhaust	0.0002718	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0003153	0.03	0.03	0.03	0.03	0.02	0.03	0.02	0.03	0.02	0.02	0.02	0.02
Total Exhaust PM		0.06	0.06	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.03
Light Duty Fugitive ⁽²⁾	0.000221	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
Medium Duty Fugitive ⁽²⁾	0.000467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Fugitive ⁽²⁾	0.002314	0.08	0.09	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.05	0.05	0.04
Total Fugitive PM		0.11	0.12	0.10	0.10	0.09	0.10	0.10	0.10	0.09	0.07	0.07	0.06
Total													

CO _{2EQ}	2017	13	14	15	16	17	18	19	20	21	22	23	24
		229.02	243.45	223.61	227.22	205.58	220.00	212.79	220.00	198.36	131.64	131.64	110.00
Light Duty	0.902	130.87	130.87	103.80	103.80	94.77	99.28	94.77	99.28	90.26	81.23	81.23	72.21
Medium Duty	2.256	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	3.728	359.89	374.32	327.40	331.01	300.35	319.28	307.56	319.28	288.62	212.87	212.87	182.21
Total													

(1) Emlac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m2)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks,

and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO_{2e}) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emlac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Appendix B-1
Tesoro Integration and Compliance Project

Onsite Mitigated Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		25	26	27	28	29	30	31	32	33	34	35	36
Cars	2	0	0	0	0	0	0	0	0	0	0	0	0
Pickup Trucks	2	93	93	88	88	88	59	59	49	49	49	49	38
Total Light Vehicle Miles		186	186	176	176	176	118	118	98	98	98	98	76
Water Truck	2	12	12	7	7	7	7	7	7	7	7	7	7
Delivery Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	2	10	10	9	9	9	6	6	5	5	5	5	3
Misc. MD Truck	5	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		44	44	32	32	32	26	26	24	24	24	24	20
Truck, Dump Ford LT8000	2	0	0	0	0	0	0	0	0	0	0	0	0
Concrete Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Semi-Tractor, Diesel 20 Ton	2	0	0	0	0	0	0	0	0	0	0	0	0
Misc. HD Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Total Heavy Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0

VOC	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		25	26	27	28	29	30	31	32	33	34	35	36
Light Duty	0.0000417	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0002047	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0004755	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

CO	2018	25	26	27	28	29	30	31	32	33	34	35	36
		0.33	0.33	0.31	0.31	0.31	0.21	0.21	0.17	0.17	0.17	0.17	0.13
Light Duty	0.0017671	0.33	0.33	0.31	0.31	0.31	0.21	0.21	0.17	0.17	0.17	0.17	0.13
Medium Duty	0.0013302	0.06	0.06	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Heavy Duty	0.0036653	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.39	0.39	0.35	0.35	0.35	0.24	0.24	0.21	0.21	0.21	0.21	0.16

NOx	2018	25	26	27	28	29	30	31	32	33	34	35	36
		0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.02
Light Duty	0.0002582	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.02
Medium Duty	0.0034725	0.15	0.15	0.11	0.11	0.11	0.09	0.09	0.08	0.08	0.08	0.08	0.07
Heavy Duty	0.0078275	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.20	0.20	0.16	0.16	0.16	0.12	0.12	0.11	0.11	0.11	0.11	0.09

SOx	2018	25	26	27	28	29	30	31	32	33	34	35	36
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.0000089	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000355	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PM10	2018	25	26	27	28	29	30	31	32	33	34	35	36
		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Light Duty Exhaust	0.0000546	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Medium Duty Exhaust	0.0002379	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Heavy Duty Exhaust	0.0002813	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Exhaust PM		0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Light Duty Fugitive ⁽²⁾	0.0002221	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02
Medium Duty Fugitive ⁽²⁾	0.000467	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty Fugitive ⁽²⁾	0.002314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM		0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03	0.03	0.03
Total		0.08	0.08	0.07	0.07	0.07	0.05	0.05	0.04	0.04	0.04	0.04	0.04

CO _{2EQ}	2018	25	26	27	28	29	30	31	32	33	34	35	36
		167.88	167.88	158.86	158.86	158.86	106.51	106.51	88.46	88.46	88.46	88.46	68.60
Light Duty	0.903	167.88	167.88	158.86	158.86	158.86	106.51	106.51	88.46	88.46	88.46	88.46	68.60
Medium Duty	2.254	99.16	99.16	72.12	72.12	72.12	58.60	58.60	54.09	54.09	54.09	54.09	45.07
Heavy Duty	3.726	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		267.05	267.05	230.98	230.98	230.98	165.10	165.10	142.54	142.54	142.54	142.54	113.67

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m2)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks,

and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO_{2e}) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Appendix B-1
Tesoro Integration and Compliance Project

Onsite Mitigated Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		37	38	39	40	41	42	43	44	45	46	47	48
Cars	2	0	0	0	0	0	0	0	0	0	0	0	0
Pickup Trucks	2	12	12	12	12	12	12	12	12	12	12	12	12
Total Light Vehicle Miles		24	24	24	24	24	24	24	24	24	24	24	24
Water Truck	2	2	0	0	0	0	0	0	0	0	0	0	0
Delivery Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	2	1	1	1	1	1	1	1	1	1	1	1	1
Misc. MD Truck	5	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		6	2	2	2	2	2	2	2	2	2	2	2
Truck, Dump Ford LT8000	2	0	0	0	0	0	0	0	0	0	0	0	0
Concrete Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Semi-Tractor, Diesel 20 Ton	2	0	0	0	0	0	0	0	0	0	0	0	0
Misc. HD Truck	2	0	0	0	0	0	0	0	0	0	0	0	0
Total Heavy Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0

VOC	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		37	38	39	40	41	42	43	44	45	46	47	48
Light Duty	0.0000374	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0001917	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0004702	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CO	2019	37	38	39	40	41	42	43	44	45	46	47	48
		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Light Duty	0.0016716	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Medium Duty	0.0012121	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0036071	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04

NOx	2019	37	38	39	40	41	42	43	44	45	46	47	48
		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Light Duty	0.0002446	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Medium Duty	0.0031210	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty	0.0074303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

SOx	2019	37	38	39	40	41	42	43	44	45	46	47	48
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.0000089	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000354	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PM10	2019	37	38	39	40	41	42	43	44	45	46	47	48
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty Exhaust	0.0000547	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty Exhaust	0.0002301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0002824	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Exhaust PM		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty Fugitive ⁽²⁾	0.0002221	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Medium Duty Fugitive ⁽²⁾	0.000467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Fugitive ⁽²⁾	0.002314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

CO _{2EQ}	2019	37	38	39	40	41	42	43	44	45	46	47	48
		21.63	21.63	21.63	21.63	21.63	21.63	21.63	21.63	21.63	21.63	21.63	21.63
Light Duty	0.9013893	21.63	21.63	21.63	21.63	21.63	21.63	21.63	21.63	21.63	21.63	21.63	21.63
Medium Duty	2.246	13.48	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49	4.49
Heavy Duty	3.715	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		35.11	26.13	26.13	26.13	26.13	26.13	26.13	26.13	26.13	26.13	26.13	26.13

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m2)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks,

and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO_{2e}) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Appendix B-1
Tesoro Integration and Compliance Project

Onsite Mitigated Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		49	50	51	52	53	54	55	56	57	58	59	60
Cars	2												
Pickup Trucks	2	12	12	12	12	12	12	12	12	12	12	12	12
Total Light Vehicle Miles		24	24	24	24	24	24	24	24	24	24	24	24
Water Truck	2	1	1	1	1	1	1	1	1	1	1	1	1
Delivery Truck	2												
1 Ton Truck	2	1	1	1	1	1	1	1	1	1	1	1	1
Misc. MD Truck	5												
Total Medium Truck Miles		4	4	4	4	4	4	4	4	4	4	4	4
Truck, Dump Ford LT8000	2												
Concrete Truck	2												
Semi-Tractor, Diesel 20 Ton	2												
Misc. HD Truck	2												
Total Heavy Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0

VOC	Emission Rate (lb/mi) ⁽¹⁾ 2020	Month (lb/day)											
		49	50	51	52	53	54	55	56	57	58	59	60
Light Duty	0.0000678	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0001773	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0007303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CO	2020	49	50	51	52	53	54	55	56	57	58	59	60
Light Duty	0.0009190	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Medium Duty	0.0012979	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty	0.0300122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

NOx	2020	49	50	51	52	53	54	55	56	57	58	59	60
Light Duty	0.0013865	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Medium Duty	0.0024624	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty	0.0069447	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04

SOx	2020	49	50	51	52	53	54	55	56	57	58	59	60
Light Duty	0.0000085	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000209	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000259	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PM10	2020	49	50	51	52	53	54	55	56	57	58	59	60
Light Duty Exhaust	0.0000927	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty Exhaust	0.0001978	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0001468	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Exhaust PM		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty Fugitive ⁽²⁾	0.0002221	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Medium Duty Fugitive ⁽²⁾	0.000467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Fugitive ⁽²⁾	0.002314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total		0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

CO _{2EQ}	2020	49	50	51	52	53	54	55	56	57	58	59	60
Light Duty	0.885	21.23	21.23	21.23	21.23	21.23	21.23	21.23	21.23	21.23	21.23	21.23	21.23
Medium Duty	2.177	8.71	8.71	8.71	8.71	8.71	8.71	8.71	8.71	8.71	8.71	8.71	8.71
Heavy Duty	3.716	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		29.94	29.94	29.94	29.94	29.94	29.94	29.94	29.94	29.94	29.94	29.94	29.94

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m2)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO_{2e}) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Appendix B-1
Tesoro Integration and Compliance Project

Onsite Mitigated Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		61	62	63	64	65	66	67	68	69	70	71	72
Cars	2												
Pickup Trucks	2	12	12	12									
Total Light Vehicle Miles		24	24	24	0	0	0	0	0	0	0	0	0
Water Truck	2	1	1	1									
Delivery Truck	2												
1 Ton Truck	2	1	1	1									
Misc. MD Truck	5												
Total Medium Truck Miles		4	4	4	0	0	0	0	0	0	0	0	0
Truck, Dump Ford LT8000	2												
Concrete Truck	2												
Semi-Tractor, Diesel 20 Ton	2												
Misc. HD Truck	2												
Total Heavy Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0

VOC	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		61	62	63	64	65	66	67	68	69	70	71	72
Light Duty	0.0000656	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0001691	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0007107	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CO	2021	61	62	63	64	65	66	67	68	69	70	71	72
		0.009223	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.0009223	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0011932	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0298546	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NOx	2021	61	62	63	64	65	66	67	68	69	70	71	72
		0.0013112	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.0013112	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0020527	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0068365	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

SOx	2021	61	62	63	64	65	66	67	68	69	70	71	72
		0.0000086	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.0000086	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000209	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000259	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PM10	2021	61	62	63	64	65	66	67	68	69	70	71	72
		0.0000919	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty Exhaust	0.0000919	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty Exhaust	0.0001873	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0001470	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Exhaust PM		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty Fugitive ⁽²⁾	0.000230	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty Fugitive ⁽²⁾	0.000515	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Fugitive ⁽²⁾	0.002314	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM		0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CO _{2EQ}	2021	61	62	63	64	65	66	67	68	69	70	71	72
		0.886	21.27	21.27	21.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty	0.886	21.27	21.27	21.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	2.177	8.71	8.71	8.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	3.720	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		29.98	29.98	29.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m2)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO_{2e}) = CO₂ + CH₄ * 21 + N₂O*310

where CO2 emissions factors are from Emfac2011. CH4 and N2O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Appendix B-1
Tesoro Integration and Compliance Project
Offsite Mitigated Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		1	2	3	4	5	6	7	8	9	10	11	12
Tradesmen	29.4	0	0	0	0	0	298	298	298	396	479	523	523
Construction Staff	29.4	0	0	0	0	0	40	40	40	40	40	40	40
Total Light Vehicle Miles		0	0	0	0	0	9937.2	9937.2	9937.2	12818.4	15288.6	16552.2	16552.2
Water Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Delivery Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Misc. MD Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0
Truck, Dump Ford LT8000	40	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Dump Trucks	400	0	0	0	0	0	21	15	15	15	6	6	6
Non-Haz Dump Trucks	200	0	0	0	0	0	11	13	12	12	18	18	18
Misc. HD Truck	40	0	0	0	0	0	47	27	19	19	30	25	25
Total Heavy Truck Miles		0	0	0	0	0	12480	9680	9160	9160	7200	7000	7000
							496	448	430	528	627	661	661

Emission Rate (lb/ml) ⁽¹⁾	Month (lb/day)											
	1	2	3	4	5	6	7	8	9	10	11	12
VOC												
Light Duty	0.0000611	0.00	0.00	0.00	0.00	0.61	0.61	0.61	0.78	0.93	1.01	1.01
Medium Duty	0.0002576	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0005111	0.00	0.00	0.00	0.00	6.38	4.98	4.68	3.68	3.68	3.58	3.58
Total		0.00	0.00	0.00	0.00	6.99	5.55	5.29	5.47	4.61	4.59	4.59
CO												
Light Duty	0.0021819	0.00	0.00	0.00	0.00	21.68	21.68	21.68	27.97	33.29	36.11	36.11
Medium Duty	0.0018541	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0039926	0.00	0.00	0.00	0.00	49.83	38.65	36.57	36.57	28.75	27.95	27.95
Total		0.00	0.00	0.00	0.00	71.51	60.33	58.25	64.54	62.04	64.06	64.06
NOx												
Light Duty	0.0003153	0.00	0.00	0.00	0.00	3.13	3.13	3.13	4.04	4.81	5.22	5.22
Medium Duty	0.00049148	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.00097764	0.00	0.00	0.00	0.00	122.01	94.64	89.55	89.55	70.39	68.43	68.43
Total		0.00	0.00	0.00	0.00	125.14	97.77	92.69	93.59	75.20	73.65	73.65
SOx												
Light Duty	0.0000089	0.00	0.00	0.00	0.00	0.09	0.09	0.09	0.11	0.14	0.15	0.15
Medium Duty	0.0000216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000355	0.00	0.00	0.00	0.00	0.44	0.34	0.33	0.33	0.26	0.25	0.25
Total		0.00	0.00	0.00	0.00	0.53	0.43	0.41	0.44	0.39	0.40	0.40
PM10												
Light Duty Exhaust	0.0000546	0.00	0.00	0.00	0.00	0.54	0.54	0.54	0.70	0.83	0.90	0.90
Medium Duty Exhaust	0.0002713	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0003135	0.00	0.00	0.00	0.00	3.91	3.03	2.87	2.87	2.26	2.19	2.19
Total Exhaust PM		0.00	0.00	0.00	0.00	4.46	3.58	3.41	3.57	3.09	3.10	3.10
Light Duty Fugitive ⁽²⁾	0.000221	0.00	0.00	0.00	0.00	2.20	2.20	2.20	2.83	3.37	3.66	3.66
Medium Duty Fugitive ⁽²⁾	0.000467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Fugitive ⁽²⁾	0.002314	0.00	0.00	0.00	0.00	28.88	22.40	21.20	21.20	16.66	16.20	16.20
Total Fugitive PM		0.00	0.00	0.00	0.00	31.08	24.60	23.40	24.03	20.04	19.86	19.86
Total		0.00	0.00	0.00	0.00	35.53	28.18	26.81	27.60	23.13	22.96	22.96
CO₂eq												
Light Duty	0.901	0.00	0.00	0.00	0.00	8954.86	8954.86	8954.86	11551.24	13750.22	14915.94	14915.94
Medium Duty	2.255	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	3.724	0.00	0.00	0.00	0.00	46474.65	36047.65	34111.20	34111.20	26812.30	26067.51	26067.51
Total		0.00	0.00	0.00	0.00	55429.51	45002.51	43066.07	45662.45	40562.52	40983.45	40983.45

(1) Enflac2011 emission factors for the South Coast Air District.
(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011
 $E = k(\text{lb})^{0.913} \times (\text{W})^{0.2}$
Where: $k = 0.0022 \text{ lb/NMT}$ for PM10, $\text{lb} = \text{road silt loading (gms/m}^2)$
(0.03 for major/collector roads), $W = \text{weight of vehicles (2.5 tons for light, 5.5 for medium trucks, and 24 for heavy trucks)}$
(3) Carbon Dioxide Equivalence (CO₂) = CO₂ + CH₄ + 21 + N₂O*310
where CO₂ emissions factors are from Enflac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.
where light vehicle are gasoline light duty trucks.
where medium/heavy duty vehicle are diesel heavy duty trucks.

Appendix B-1
Tesoro Integration and Compliance Project
Offsite Mitigated Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)												23	24
		13	14	15	16	17	18	19	20	21	22	23	24		
Tradesmen	29.4	576	603	539	546	621	525	622	656	586	453	453	392		
Construction Staff	29.4	40	40	40	40	40	40	40	40	40	40	40	40		
Total Light Vehicle Miles		18110.4	18904.2	17022.6	17228.4	16611	19433.4	19462.8	20462.4	18404.4	14494.2	14494.2	12700.8		
Water Truck	40	0	0	0	0	0	0	0	0	0	0	0	0		
Delivery Truck	40	0	0	0	0	0	0	0	0	0	0	0	0		
1 Ton Truck	40	0	0	0	0	0	0	0	0	0	0	0	0		
Misc. MD Truck	40	0	0	0	0	0	0	0	0	0	0	0	0		
Total Medium Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0		
Truck, Dump Ford LT8000	40	0	0	0	0	0	0	0	0	0	0	0	0		
Hazardous Dump Trucks	400	9	9	9	9	9	9	9	4	4	1	1	1		
Non-Haz Dump Trucks	200	20	20	20	20	20	20	20	10	10	6	6	6		
Misc. HD Truck	40	38	36	36	44	44	44	47	47	47	62	62	62		
Total Heavy Truck Miles		9120	9040	9040	9360	9360	9360	5480	5480	5480	4080	4080	4080		
		750	773	709	732	711	807	784	818	748	631	631	570		

Emission Rate (lb/ml) ⁽¹⁾	Month (lb/day)												23	24
	13	14	15	16	17	18	19	20	21	22	23	24		
VOC														
Light Duty	1.11	1.16	1.04	1.06	1.02	1.19	1.19	1.26	1.13	0.89	0.89	0.78		
Medium Duty	0.002584	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Heavy Duty	4.68	4.64	4.64	4.81	4.81	2.81	2.81	2.81	2.10	2.10	2.10	2.10		
Total	5.80	5.80	5.69	5.87	5.83	6.00	6.00	4.07	3.94	2.99	2.99	2.88		
CO														
Light Duty	0.0021982	39.81	41.55	37.42	37.87	36.51	42.72	42.78	40.46	31.86	31.86	27.92		
Medium Duty	0.0018571	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Heavy Duty	0.0039454	35.98	35.67	35.67	36.93	36.93	21.62	21.62	16.10	16.10	16.10	16.10		
Total		75.79	77.22	73.09	74.80	73.44	79.65	64.40	62.08	47.96	47.96	44.02		
NOx														
Light Duty	0.0003168	5.74	5.98	5.39	5.46	5.26	6.16	6.17	6.48	5.83	4.59	4.02		
Medium Duty	0.00049198	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Heavy Duty	0.00097959	89.34	88.56	88.56	91.69	91.69	53.68	53.68	39.97	39.97	39.97	39.97		
Total		95.08	94.54	93.95	97.15	96.95	60.17	59.85	44.56	44.56	44.56	43.99		
SOx														
Light Duty	0.0000089	0.16	0.17	0.15	0.15	0.15	0.17	0.17	0.18	0.16	0.13	0.11		
Medium Duty	0.0000216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Heavy Duty	0.0000356	0.32	0.32	0.32	0.33	0.33	0.33	0.33	0.19	0.19	0.15	0.15		
Total		0.49	0.49	0.47	0.49	0.48	0.51	0.37	0.36	0.36	0.27	0.26		
PM10														
Light Duty Exhaust	0.0000548	0.99	1.04	0.93	0.94	0.91	1.06	1.07	1.12	1.01	0.79	0.70		
Medium Duty Exhaust	0.0002718	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Heavy Duty Exhaust	0.0003153	2.88	2.85	2.85	2.95	2.95	1.73	1.73	1.73	1.29	1.29	1.29		
Total Exhaust PM		3.87	3.89	3.78	3.90	3.86	4.02	2.79	2.85	2.74	2.08	1.98		
Light Duty Fugitive ⁽²⁾	0.000221	4.00	4.18	3.76	3.81	3.67	4.30	4.30	4.52	4.07	3.20	3.20		
Medium Duty Fugitive ⁽²⁾	0.000467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Heavy Duty Fugitive ⁽²⁾	0.002314	21.11	20.92	20.92	21.66	21.66	12.68	12.68	9.44	9.44	9.44	9.44		
Total Fugitive PM		25.11	25.10	24.68	25.47	25.33	16.98	16.98	17.20	16.75	12.65	12.65		
Total		28.98	28.98	28.47	29.37	29.19	29.97	29.97	30.05	29.49	24.73	24.73		
CO ₂ eq														
Light Duty	0.902	16329.23	17044.96	15348.41	15533.97	14977.30	17522.11	17548.62	18449.91	16594.31	13068.68	11451.67		
Medium Duty	2.256	33997.37	33699.15	33699.15	34892.04	34892.04	34892.04	34892.04	20428.24	20428.24	15209.35	15209.35		
Heavy Duty	3.728	50326.60	50744.10	49047.56	50426.01	49869.33	52414.15	37976.86	38878.15	37022.56	28278.03	26661.02		

(1) Emfac2011 emission factors for the South Coast Air District.
(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011
 $E = K(\text{kg})^{0.913} \times (\text{W})^{0.2}$
Where: $k = 0.0022 \text{ lb/MFT}$ for PM10, $W =$ road silt loading (gms/m²)
(0.03 for major/collector roads), $W =$ weight of vehicles (2.5 tons for light, 5.5 for medium trucks, and 24 for heavy trucks)
(3) Carbon Dioxide Equivalence (CO₂) = CO₂ + CH₄ * 21 + N₂O*310
where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.
where light vehicle are gasoline light duty trucks.
where medium/heavy duty vehicle are diesel heavy duty trucks.

Appendix B-1
Tesoro Integration and Compliance Project

Offsite Mitigated Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		25	26	27	28	29	30	31	32	33	34	35	36
Tradesmen	29.4	569	569	512	512	512	249	249	208	208	208	208	114
Construction Staff	29.4	40	40	40	40	40	40	40	40	40	40	40	40
Total Light Vehicle Miles		17904.6	17904.6	16228.8	16228.8	16228.8	8496.6	8496.6	7291.2	7291.2	7291.2	7291.2	4527.6
Water Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Delivery Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Misc. MD Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0
Truck, Dump Ford LT8000	40	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Dump Trucks	400	1	1	1	2	2	2	1	1	1	0	0	0
Non-Haz Dump Trucks	200	4	4	4	1	1	1	1	1	1	1	1	1
Misc. HD Truck	40	66	62	62	55	55	55	10	10	10	7	7	7
Total Heavy Truck Miles		3840	3680	3680	3200	3200	3200	1000	1000	1000	480	480	480
		751	743	686	668	668	405	313	272	272	264	264	170
VOC	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		25	26	27	28	29	30	31	32	33	34	35	36
Light Duty	0.0000417	0.75	0.75	0.68	0.68	0.68	0.35	0.35	0.30	0.30	0.30	0.30	0.19
Medium Duty	0.0002047	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0004755	1.83	1.75	1.75	1.52	1.52	1.52	0.48	0.48	0.48	0.23	0.23	0.23
Total		2.57	2.50	2.43	2.20	2.20	1.88	0.83	0.78	0.78	0.53	0.53	0.42
CO	2018	25	26	27	28	29	30	31	32	33	34	35	36
		25	26	27	28	29	30	31	32	33	34	35	36
Light Duty	0.0017671	31.64	31.64	28.68	28.68	28.68	15.01	15.01	12.88	12.88	12.88	12.88	8.00
Medium Duty	0.0013302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0036653	14.07	13.49	13.49	11.73	11.73	11.73	3.67	3.67	3.67	1.76	1.76	1.76
Total		45.71	45.13	42.17	40.41	40.41	26.74	18.68	16.55	16.55	14.64	14.64	9.76
NOx	2018	25	26	27	28	29	30	31	32	33	34	35	36
		25	26	27	28	29	30	31	32	33	34	35	36
Light Duty	0.0002582	4.62	4.62	4.19	4.19	4.19	2.19	2.19	1.88	1.88	1.88	1.88	1.17
Medium Duty	0.0034725	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0078275	30.06	28.81	28.81	25.05	25.05	25.05	7.83	7.83	7.83	3.76	3.76	3.76
Total		34.68	33.43	33.00	29.24	29.24	27.24	10.02	9.71	9.71	5.64	5.64	4.93
SOx	2018	25	26	27	28	29	30	31	32	33	34	35	36
		25	26	27	28	29	30	31	32	33	34	35	36
Light Duty	0.0000089	0.16	0.16	0.14	0.14	0.14	0.08	0.08	0.07	0.07	0.07	0.07	0.04
Medium Duty	0.0000216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000355	0.14	0.13	0.13	0.11	0.11	0.11	0.04	0.04	0.04	0.02	0.02	0.02
Total		0.30	0.29	0.28	0.26	0.26	0.19	0.11	0.10	0.10	0.08	0.08	0.06
PM10	2018	25	26	27	28	29	30	31	32	33	34	35	36
		25	26	27	28	29	30	31	32	33	34	35	36
Light Duty Exhaust	0.0000546	0.98	0.98	0.89	0.89	0.89	0.46	0.46	0.40	0.40	0.40	0.40	0.25
Medium Duty Exhaust	0.0002379	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0002813	1.08	1.04	1.04	0.90	0.90	0.90	0.28	0.28	0.28	0.14	0.14	0.14
Total Exhaust PM		2.06	2.01	1.92	1.79	1.79	1.36	0.75	0.68	0.68	0.53	0.53	0.38
Light Duty Fugitive ⁽²⁾	0.000221	3.96	3.96	3.59	3.59	3.59	1.88	1.88	1.61	1.61	1.61	1.61	1.00
Medium Duty Fugitive ⁽²⁾	0.000467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Fugitive ⁽²⁾	0.002314	8.89	8.52	8.52	7.41	7.41	7.41	2.31	2.31	2.31	1.11	1.11	1.11
Total Fugitive PM		12.84	12.47	12.10	10.99	10.99	9.28	4.19	3.93	3.93	2.72	2.72	2.11
Total		14.90	14.49	14.03	12.78	12.78	10.65	4.94	4.61	4.61	3.26	3.26	2.49
CO _{2EQ}	2018	25	26	27	28	29	30	31	32	33	34	35	36
		25	26	27	28	29	30	31	32	33	34	35	36
Light Duty	0.903	16160.75	16160.75	14648.17	14648.17	14648.17	7669.06	7669.06	6581.06	6581.06	6581.06	6581.06	4086.63
Medium Duty	2.254	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	3.726	14306.70	13710.59	13710.59	11922.25	11922.25	11922.25	3725.70	3725.70	3725.70	1788.34	1788.34	1788.34
Total		30467.45	29871.33	28358.75	26570.41	26570.41	19591.31	11394.76	10306.76	10306.76	8369.40	8369.40	5874.96

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011.

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m²)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks,

and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO₂e) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Appendix B-1
Tesoro Integration and Compliance Project

Offsite Mitigated Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		37	38	39	40	41	42	43	44	45	46	47	48
Tradesmen	29.4	58	58	58	58	58	58	58	58	58	58	58	58
Construction Staff	29.4	40	40	40	40	40	40	40	40	40	40	40	40
Total Light Vehicle Miles		2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2
Water Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Delivery Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
1 Ton Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Misc. MD Truck	40	0	0	0	0	0	0	0	0	0	0	0	0
Total Medium Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0
Truck, Dump Ford LT8000	40	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Dump Trucks	400	0	0	0	0	0	0	0	0	0	0	0	0
Non-Haz Dump Trucks	200	0	0	0	0	0	0	0	0	0	0	0	0
Misc. HD Truck	40	5	5	5	5	5	5	5	5	5	5	5	5
Total Heavy Truck Miles		200	200	200	200	200	200	200	200	200	200	200	200

VOC	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		37	38	39	40	41	42	43	44	45	46	47	48
Light Duty	0.0000374	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Medium Duty	0.0001917	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0004702	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Total		0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20

CO	2019	37	38	39	40	41	42	43	44	45	46	47	48
		Light Duty	0.0016716	4.82	4.82	4.82	4.82	4.82	4.82	4.82	4.82	4.82	4.82
		Medium Duty	0.0012121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Heavy Duty	0.0036071	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Total			5.54	5.54	5.54	5.54	5.54	5.54	5.54	5.54	5.54	5.54	5.54

NOx	2019	37	38	39	40	41	42	43	44	45	46	47	48
		Light Duty	0.0002446	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
		Medium Duty	0.0031210	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Heavy Duty	0.0074303	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49
Total			2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19

SOx	2019	37	38	39	40	41	42	43	44	45	46	47	48
		Light Duty	0.0000089	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
		Medium Duty	0.0000215	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Heavy Duty	0.0000354	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total			0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03

PM10	2019	37	38	39	40	41	42	43	44	45	46	47	48
		Light Duty Exhaust	0.0000547	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
		Medium Duty Exhaust	0.0002301	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Heavy Duty Exhaust	0.0002824	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
		Total Exhaust PM		0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
		Light Duty Fugitive ⁽²⁾	0.000221	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
		Medium Duty Fugitive ⁽²⁾	0.000467	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Heavy Duty Fugitive ⁽²⁾	0.002314	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
		Total Fugitive PM		1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Total			1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31

CO _{2EQ}	2019	37	38	39	40	41	42	43	44	45	46	47	48
		Light Duty	0.9013893	2597.08	2597.08	2597.08	2597.08	2597.08	2597.08	2597.08	2597.08	2597.08	2597.08
		Medium Duty	2.246	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Heavy Duty	3.715	743.05	743.05	743.05	743.05	743.05	743.05	743.05	743.05	743.05	743.05
Total			3340.14	3340.14	3340.14	3340.14	3340.14	3340.14	3340.14	3340.14	3340.14	3340.14	3340.14

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011.

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m²)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks,

and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO₂) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Appendix B-1
Tesoro Integration and Compliance Project

Offsite Mitigated Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		49	50	51	52	53	54	55	56	57	58	59	60
Tradesmen	29.4	58	58	58	58	58	58	58	58	58	58	58	58
Construction Staff	29.4	40	40	40	40	40	40	40	40	40	40	40	40
Total Light Vehicle Miles		2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2	2881.2
Water Truck	40	1	1	1	1	1	1	1	1	1	1	1	1
Delivery Truck	40												
1 Ton Truck	40												
Misc. MD Truck	40												
Total Medium Truck Miles		40	40	40	40	40	40	40	40	40	40	40	40
Truck, Dump Ford LT8000	40	0	0	0	0	0	0	0	0	0	0	0	0
Hazardous Dump Trucks	400	0	0	0	0	0	0	0	0	0	0	0	0
Non-Haz Dump Trucks	200	0	0	0	0	0	0	0	0	0	0	0	0
Misc. HD Truck	40	5	5	5	5	5	5	5	5	5	5	5	5
Total Heavy Truck Miles		200	200	200	200	200	200	200	200	200	200	200	200

VOC	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		49	50	51	52	53	54	55	56	57	58	59	60
Light Duty	0.0000678	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Medium Duty	0.0001773	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty	0.0007303	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Total		0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35

CO	2020	49	50	51	52	53	54	55	56	57	58	59	60
		2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65
Light Duty	0.0009190	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Medium Duty	0.0012979	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Heavy Duty	0.0300122	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70	8.70
Total													

NOx	2020	49	50	51	52	53	54	55	56	57	58	59	60
		3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99	3.99
Light Duty	0.0013865	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Medium Duty	0.0024624	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39
Heavy Duty	0.0069447	5.48	5.48	5.48	5.48	5.48	5.48	5.48	5.48	5.48	5.48	5.48	5.48
Total													

SOx	2020	49	50	51	52	53	54	55	56	57	58	59	60
		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Light Duty	0.0000085	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000209	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Heavy Duty	0.0000259	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Total													

PM10	2020	49	50	51	52	53	54	55	56	57	58	59	60
		0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Light Duty Exhaust	0.0000927	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Medium Duty Exhaust	0.0001978	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Heavy Duty Exhaust	0.0001468	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Total Exhaust PM		0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Light Duty Fugitive ⁽²⁾	0.000221	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Medium Duty Fugitive ⁽²⁾	0.000467	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Heavy Duty Fugitive ⁽²⁾	0.002314	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
Total Fugitive PM		1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
Total													

CO _{2EQ}	2020	49	50	51	52	53	54	55	56	57	58	59	60
		2548.56	2548.56	2548.56	2548.56	2548.56	2548.56	2548.56	2548.56	2548.56	2548.56	2548.56	2548.56
Light Duty	0.885	87.07	87.07	87.07	87.07	87.07	87.07	87.07	87.07	87.07	87.07	87.07	87.07
Medium Duty	2.177	743.27	743.27	743.27	743.27	743.27	743.27	743.27	743.27	743.27	743.27	743.27	743.27
Heavy Duty	3.716	3378.90	3378.90	3378.90	3378.90	3378.90	3378.90	3378.90	3378.90	3378.90	3378.90	3378.90	3378.90
Total													

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011.

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m²)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks,

and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO₂e) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Appendix B-1
Tesoro Integration and Compliance Project

Offsite Mitigated Construction Vehicle Trip Emissions

Vehicle	Miles per Day	Month (Vehicles per day)											
		61	62	63	64	65	66	67	68	69	70	71	72
Tradesmen	29.4	58	58	58									
Construction Staff	29.4	40	40	40									
Total Light Vehicle Miles		2881.2	2881.2	2881.2	0	0	0	0	0	0	0	0	0
Water Truck	40	0	0	0									
Delivery Truck	40	0	0	0									
1 Ton Truck	40	0	0	0									
Misc. MD Truck	40	0	0	0									
Total Medium Truck Miles		0	0	0	0	0	0	0	0	0	0	0	0
Truck, Dump Ford LT8000	40	0	0	0									
Hazardous Dump Trucks	400	0	0	0									
Non-Haz Dump Trucks	200	0	0	0									
Misc. HD Truck	40	5	5	5									
Total Heavy Truck Miles		200	200	200	0	0	0	0	0	0	0	0	0

VOC	Emission Rate (lb/mi) ⁽¹⁾	Month (lb/day)											
		61	62	63	64	65	66	67	68	69	70	71	72
Light Duty	0.0000656	0.19	0.19	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0001691	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0007107	0.14	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.33	0.33	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CO	2021	61	62	63	64	65	66	67	68	69	70	71	72
Light Duty	0.0009223	2.66	2.66	2.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0011932	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0298546	5.97	5.97	5.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		8.63	8.63	8.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

NOx	2021	61	62	63	64	65	66	67	68	69	70	71	72
Light Duty	0.0013112	3.78	3.78	3.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0020527	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0068365	1.37	1.37	1.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		5.15	5.15	5.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

SOx	2021	61	62	63	64	65	66	67	68	69	70	71	72
Light Duty	0.0000086	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	0.0000209	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	0.0000259	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PM10	2021	61	62	63	64	65	66	67	68	69	70	71	72
Light Duty Exhaust	0.0000919	0.26	0.26	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty Exhaust	0.0001873	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Exhaust	0.0001470	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Exhaust PM		0.29	0.29	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Duty Fugitive ⁽²⁾	0.000230	0.66	0.66	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty Fugitive ⁽²⁾	0.000515	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty Fugitive ⁽²⁾	0.002314	0.46	0.46	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Fugitive PM		1.13	1.13	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		1.42	1.42	1.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

CO _{2EQ}	2021	61	62	63	64	65	66	67	68	69	70	71	72
Light Duty	0.886	2553.38	2553.38	2553.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medium Duty	2.177	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Duty	3.720	743.97	743.97	743.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		3297.35	3297.35	3297.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

(1) Emfac2011 emission factors for the South Coast Air District.

(2) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, January 2011.

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where: k = 0.0022 lb/VMT for PM10, sL = road silt loading (gms/m²)

(0.03 for major/collector roads), W = weight of vehicles (2.5 tons for light; 5.5 for medium trucks, and 24 for heavy trucks)

(3) Carbon Dioxide Equivalence (CO_{2e}) = CO₂ + CH₄ * 21 + N₂O*310

where CO₂ emissions factors are from Emfac2011. CH₄ and N₂O emissions factors are from Direct Emissions from Mobile Combustion Sources, EPA 2008.

where light vehicle are gasoline light duty trucks.

where medium/heavy duty vehicle are diesel heavy duty trucks.

Appendix B-1 Tesoro Integration and Compliance Project

Offroad Mitigated Construction Vehicle Dust Emissions

Vehicle	Miles/Trip	Trips/Day
Light Vehicles	0.05	10
Total Light Vehicle Miles		0.5
Delivey Trucks	0.05	0
Water Trucks	0.1	10
Total Medium Truck Miles		1
Concrete Truck	0.05	0
Dump Trucks	0.05	40
Total Heavy Truck Miles		2
Tractors	0.05	13
Fork Lifts	0.05	10
Loader/Backhoe	0.05	6
Total Heavy-Heavy Duty Miles		1.45

PM10	Emission Rate (lb/mi) ⁽¹⁾	Emissions (lb/day)
Light Duty	0.9021196	0.45
Medium Duty	1.2863357	1.29
Heavy Duty	2.1931267	4.39
Heavy Heavy Duty	2.4962390	3.62
Uncontrolled Total		9.74
Controlled Total ⁽²⁾		3.80

(1) Based on Section 13.2.2 of EPA's Compilation of Air Pollutant Emission Factors (AP-42).

$$\text{Emission Rate} = 1.5((s/12)^{.9})*((W/3)^{.45})$$

s = silt content = 8.5%

W = Vehicle Weight (ton) =2.5 for light, 5.5 for medium, 15 for heavy,
and 24 for heavy heavy (EMFAC2007).

(2) Controlled Emissions assume that watering 3 times per day reduces emissions by
61 percent (Uncontrolled Emissions x 0.39)

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Construction
Paint Emissions

Month	6	7	8	9	10	11	12	13	14	25	26	27	43	44	45
Volume paint applied per day (gal)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	75.0	75.0	75.0	75.0	75.0	75.0
VOC content (lb/gal) ⁽¹⁾	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
VOC Emissions (lb/day)	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	62.3	62.3	62.3	62.3	62.3	62.3

(1) Based on SCAQMD Rule 1113 VOC limit of 100g/L for industrial maintenance coatings.

Appendix B-1
Tesoro Integration and Compliance Project
Peak Monthly Fugitive PM Mitigated Construction Emissions

Grading Operations Construction Activities ⁽¹⁾	Average Pieces of Equipment Operating	Peak Pieces of Equipment Operating	Hours of Operation	PM10 Emission Factor (lb/hour)	Water Control Factor ⁽⁵⁾	Controlled Emissions		Uncontrolled Emissions		SCAQMD Emission Factor Source
						Average PM10 Emissions (lbs/day)	Peak PM10 Emissions (lbs/day)	Average PM10 Emissions (lbs/day)	Peak PM10 Emissions (lbs/day)	
2	2	2	8	0.348	0.39	2.17	2.17	5.56218435	5.56218435	Table A9-9-F

Stockpiles Construction Activities ⁽²⁾	Average Tons of Materials Handled Per Day	Peak Tons of Materials Handled Per Day	PM10 Emission Factor (lb/ton)	Water Control Factor ⁽⁵⁾	Controlled Emissions		Uncontrolled Emissions		SCAQMD Emission Factor Source
					Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	
1200	1200	1200	0.00005	0.39	0.02411771	0.02411771	0.06184029	0.06184029	Table A9-9-G

Assumptions: 1 cubic yard trench spoils = 1 ton

WIND EROSION Disturbed Area and Temporary Stockpiles Construction Activities ⁽³⁾	Days of Construction	Average Acreage Disturbed Per Day	Peak Acreage Disturbed Per Day	PM10 Emission Factor (lb/day/acre)	Controlled Emissions		Uncontrolled Emissions		SCAQMD Emission Factor Source
					Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	Average PM10 Emissions Tons/Year	Peak PM10 Emissions Tons/Year	
20	20	1	1	0.120	0.120	0.120	0.001	0.001	Table A9-9-E

Filling and Dumping Truck Filling ⁽⁴⁾ Truck Dumping	Estimated Materials Handled Per Day (tons)	Peak Tons of Materials Handled Per Day	PM10 Emission Factor (lb/ton)	Water Control Factor ⁽⁵⁾	Controlled Emissions		Uncontrolled Emissions		SCAQMD Emission Factor Source
					Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	Average PM10 Emissions Pounds/day	Peak PM10 Emissions Pounds/day	
1200.0	1200.0	1200.0	5.15E-05	0.39	0.02411771	0.02411771	0.06184029	0.06184029	Table A9-9
1200.0	1200.0	1200.0	5.15E-05	0.39	0.02411771	0.02411771	0.06184029	0.06184029	Table A9-9

TOTAL PM10 Pounds/day		Average	Peak
(Controlled Emissions)		2.3613	2.36133
(Uncontrolled Emissions)		5.749	5.749

- (1) Emissions (lbs/hr) = $0.75 \times (G^{-1.5}) / (H^{1.4}) \times J$
 where G = silt content (7.5%), H = moisture content (15.0%) and J = hrs of operation (EPA AP-42 Table 11.9-1 for bulldozing overburden).
- (2) Emissions (lbs/ton) = $0.00112 \times [(G/5)^{1.3} / (H/2)^{1.4}] \times I/J$
 where G=mean wind speed (4.1 mph), H=moisture content of surface material (15%); I=lbs of dirt handled per day; and J=2,000 lbs/ton. Wind speed data acquired from Long Beach 2005-2007 SCAQMD meteorological file.
- (3) Emissions (lbs/day/acre) = $1.7 \times [(G/1.5) / (365-H/235)] \times I/15 \times J$
 where G = silt content (7.5%); H = days with >0.01 inch of rain (34); I = percentage of time wind speed exceeds 12 mph (0.3%) and J= fraction of TSP (0.5). Wind speed data acquired from Long Beach 2005-2007 SCAQMD meteorological file.
- (4) Used SCAQMD Table 9-9 Default emission factors.
- (5) Mitigated Emissions assume that watering 3 times per day controls emissions by 61 percent (Uncontrolled Emissions x 0.39). www.AQMD.gov/CEQA/handbook/mitigation/fugitive/ Table XI-A.doc

Appendix B-1
Tesoro Integration and Compliance Project
Total Project Component
Mitigated Crude Tank Construction Emission Summary

	Year 1												Year 2												Year 3											
Emissions from Equipment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
VOC (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.38	5.07	5.83	6.02	2.54	2.84	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.31	1.58	1.58	1.70	1.41	2.14	2.44	2.44	2.74	2.61	2.61	2.61
CO (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.28	43.47	48.76	53.92	25.85	27.08	25.88	25.88	25.88	25.88	25.88	25.88	22.56	22.56	17.55	12.90	12.90	15.52	12.70	18.10	21.99	21.99	23.39	22.19	22.19	22.19
NOx (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.32	39.58	44.04	45.68	18.53	19.46	18.80	18.80	18.80	18.80	18.80	18.80	14.57	14.57	12.12	9.39	9.39	11.38	9.17	12.81	16.53	16.53	17.35	16.74	16.74	16.74
SOx (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.13	0.15	0.17	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.07	0.05	0.05	0.06	0.04	0.07	0.08	0.08	0.09	0.09	0.09	0.09
PM10 (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	1.92	2.08	2.21	0.97	0.99	0.94	0.94	0.94	0.94	0.94	0.94	0.74	0.74	0.61	0.46	0.46	0.55	0.48	0.61	0.83	0.83	0.85	0.80	0.80	0.80
PM2.5 (lb/day) ⁽¹⁾	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.98	1.90	2.06	2.19	0.96	0.98	0.93	0.93	0.93	0.93	0.93	0.93	0.73	0.73	0.60	0.45	0.45	0.54	0.48	0.60	0.82	0.82	0.84	0.80	0.80	0.80
CO ₂ (MT/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.38	3.07	3.63	3.98	1.98	2.16	2.09	2.09	2.09	2.09	2.09	2.09	1.81	1.81	1.63	1.18	1.18	1.37	1.07	1.63	1.98	1.98	2.16	2.09	2.09	2.09

	Year 1												Year 2												Year 3											
Offroad Fugitive PM - Peak	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
PM10 (lb/day) ⁽²⁾										4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22
PM2.5 (lb/day) ⁽¹⁾⁽²⁾						0.00	0.00	0.00	0.00	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89

		Year 1												Year 2												Year 3											
Total Emissions	Thresholds	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
VOC (lb/day)	75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.38	5.07	5.83	6.02	2.54	2.84	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.31	1.58	1.58	1.70	1.41	2.14	2.44	2.44	2.74	2.61	2.61	2.61
CO (lb/day)	550	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.28	43.47	48.76	53.92	25.85	27.08	25.88	25.88	25.88	25.88	25.88	25.88	25.88	22.56	22.56	17.55	12.90	12.90	15.52	12.70	18.10	21.99	21.99	23.39	22.19	22.19	22.19
NOx (lb/day)	100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.32	39.58	44.04	45.68	18.53	19.46	18.80	18.80	18.80	18.80	18.80	18.80	18.80	14.57	14.57	12.12	9.39	9.39	11.38	9.17	12.81	16.53	16.53	17.35	16.74	16.74	16.74
SOx (lb/day)	150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.13	0.15	0.17	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.07	0.05	0.05	0.06	0.04	0.07	0.08	0.08	0.09	0.09	0.09	0.09
PM10 (lb/day) ⁽²⁾	150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.22	6.14	6.31	6.43	5.19	5.22	5.17	5.17	5.17	5.17	5.17	5.17	5.17	4.96	4.96	4.83	4.68	4.68	4.77	4.71	4.83	5.05	5.05	5.07	5.03	5.03	5.03
PM2.5 (lb/day) ⁽¹⁾⁽²⁾	55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.87	2.79	2.95	3.07	1.84	1.87	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.62	1.62	1.49	1.34	1.34	1.43	1.36	1.49	1.71	1.71	1.73	1.68	1.68	1.68
CO ₂ (tonnes/day)	NA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.38	3.07	3.63	3.98	1.98	2.16	2.09	2.09	2.09	2.09	2.09	2.09	2.09	1.81	1.81	1.63	1.18	1.18	1.37	1.07	1.63	1.98	1.98	2.16	2.09	2.09	2.09
CO ₂ (tonnes/yr)	NA	226.98												594.24												460.26											

	Year 4												Year 5												Year 6											
Emissions from Equipment	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
VOC (lb/day)	2.57	2.57	2.57	2.57	2.57	2.57	2.27	1.55	1.55	1.67	1.38	2.10	2.39	2.39	2.69	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.22	1.53	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
CO (lb/day)	21.94	21.94	21.94	21.94	18.75	18.75	17.38	12.74	12.74	15.38	12.56	17.93	23.00	23.00	24.36	23.18	23.18	23.18	23.18	23.18	23.18	23.18	20.05	20.05	18.52	13.92	13.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
NOx (lb/day)	15.52	15.52	15.52	15.52	12.03	12.03	11.25	8.73	8.73	10.56	8.51	11.91	14.51	14.51	15.25	14.71	14.71	14.71	14.71	14.71	14.71	14.71	11.47	11.47	9.99	7.80	7.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
SOx (lb/day)	0.09	0.09	0.09	0.09	0.08	0.08	0.07	0.05	0.05	0.06	0.04	0.07	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.07	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PM10 (lb/day)	0.72	0.72	0.72	0.72	0.56	0.56	0.54	0.41	0.41	0.50	0.44	0.55	0.69	0.69	0.70	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.51	0.51	0.45	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PM2.5 (lb/day) ⁽¹⁾	0.71	0.71	0.71	0.71	0.55	0.55	0.54	0.41	0.41	0.49	0.43	0.55	0.68	0.68	0.70	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.51	0.51	0.45	0.34	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
CO ₂ (MT/day)	2.09	2.09	2.09	2.09	1.81	1.81	1.63	1.18	1.18	1.37	1.07	1.62	2.00	2.00	2.19	2.12	2.12	2.12	2.12	2.12	2.12	2.12	1.84	1.84	1.65	1.21	1.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

	Year 4												Year 5												Year 6											
Offroad Fugitive PM - Peak	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
PM10 (lb/day) ⁽²⁾	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22									
PM2.5 (lb/day) ⁽¹⁾⁽²⁾	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89									

		Year 4														Year 5												Year 6											
Total Emissions	Thresholds	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60		
VOC (lb/day)	75	2.57	2.57	2.57	2.57	2.57	2.57	2.27	1.55	1.55	1.67	1.38	2.10	2.39	2.39	2.69	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.22	1.53	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
CO (lb/day)	550	21.94	21.94	21.94	21.94	18.75	18.75	17.38	12.74	12.74	15.38	12.56	17.93	23.00	23.00	24.36	23.18	23.18	23.18	23.18	23.18	23.18	23.18	20.05	20.05	18.52	13.92	13.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
NOx (lb/day)	100	15.52	15.52	15.52	15.52	12.03	12.03	11.25	8.73	8.73	10.56	8.51	11.91	14.51	14.51	15.25	14.71	14.71	14.71	14.71	14.71	14.71	14.71	11.47	11.47	9.99	7.80	7.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
SOx (lb/day)	150	0.09	0.09	0.09	0.09	0.08	0.08	0.07	0.05	0.05	0.06	0.04	0.07	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.07	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
PM10 (lb/day) ⁽²⁾	150	4.94	4.94	4.94	4.94	4.78	4.78	4.77	4.63	4.63	4.72	4.66	4.78	4.91	4.91	4.93	4.89	4.89	4.89	4.89	4.89	4.89	4.89	4.74	4.74	4.67	4.57	4.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
PM2.5 (lb/day) ⁽¹⁾⁽²⁾	55	1.60	1.60	1.60	1.60	1.44	1.44	1.42	1.29	1.29	1.38	1.32	1.44	1.57	1.57	1.58	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.40	1.40	1.33	1.23	1.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
CO ₂ (tonnes/day)	NA	2.09	2.09	2.09	2.09	1.81	1.81	1.63	1.18	1.18	1.37	1.07	1.62	2.00	2.00	2.19	2.12	2.12	2.12	2.12	2.12	2.12	2.12	1.84	1.84	1.65	1.21	1.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
CO ₂ (tonnes/yr)	NA	451.29												555.61												91.49													
30yr amortized CO ₂ (tonnes/yr)	NA																																				79.33		

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Appendix B-1
Tesoro Integration and Compliance Project

Unmitigated Crude Tank Construction Equipment Emission Rates

Equipment Type	Hp	2016 Emission Factors lb/h ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.07023	0.4263	0.97905	0.00147	0.04659	0.03534
>40T Cranes	500	0.07815	0.4431	1.20587	0.00213	0.04978	0.05136
Pile/Drill Rig	Composite	0.04246	0.5016	0.72299	0.00244	0.02988	0.05882
Tractors	Composite	0.03268	0.3689	0.38566	0.00080	0.02590	0.01922
Welders	50	0.03684	0.2483	0.19141	0.00039	0.01712	0.00938
Light Plants	50	0.03684	0.3134	0.19141	0.00039	0.01712	0.00938
Generators	120	0.04342	0.4767	0.47247	0.00074	0.03702	0.01795
Hydro Vacs/Pumps	120	0.04342	0.4842	0.47247	0.00074	0.03702	0.01795
Fork Lifts	Composite	0.02152	0.4549	0.32340	0.00089	0.01769	0.02146
Loader/Backhoe	Composite	0.03268	0.3689	0.38566	0.00080	0.02590	0.01922
Air Compressors	50	0.03684	0.2281	0.19141	0.00039	0.01712	0.00938
Manlifts	Composite	0.00659	0.1592	0.12905	0.00044	0.00466	0.01066
Crawler Tractors	Composite	0.08267	0.5549	1.17033	0.00201	0.05691	0.04842
Scrapers	Composite	0.14749	0.9053	2.23679	0.00390	0.09265	0.094
Rubber Tired Loaders	Composite	0.08226	0.4557	0.83577	0.00161	0.03834	0.03869
Graders	Composite	0.07501	0.5883	1.05709	0.00170	0.04714	0.04104
Rollers	Composite	0.03401	0.3944	0.33113	0.00068	0.02159	0.01636
Excavators	Composite	0.03425	0.5213	0.47432	0.00133	0.02074	0.03212

Equipment Type	Hp	2017 Emission Factors lb/h ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.06537	0.4152	0.86923	0.00147	0.04291	0.03535
>40T Cranes	500	0.07236	0.4243	1.11889	0.00213	0.04536	0.05139
Pile/Drill Rig	Composite	0.04029	0.5013	0.67483	0.00244	0.02483	0.05882
Tractors	Composite	0.03046	0.3666	0.35832	0.00080	0.02366	0.0192
Welders	50	0.03579	0.2408	0.18867	0.00039	0.01662	0.00938
Light Plants	50	0.03579	0.3047	0.18867	0.00039	0.01662	0.00938
Generators	120	0.04173	0.4728	0.45336	0.00074	0.03547	0.01794
Hydro Vacs/Pumps	120	0.04173	0.4802	0.45336	0.00074	0.03547	0.01794
Fork Lifts	Composite	0.01948	0.4522	0.29726	0.00089	0.01519	0.02146
Loader/Backhoe	Composite	0.03046	0.3666	0.35832	0.00080	0.02366	0.0192
Air Compressors	50	0.03579	0.2209	0.18867	0.00039	0.01662	0.00938
Manlifts	Composite	0.00586	0.1548	0.11635	0.00044	0.00353	0.01066
Crawler Tractors	Composite	0.08013	0.5464	1.2114	0.00201	0.05470	0.04843
Scrapers	Composite	0.13882	0.8713	2.07961	0.00390	0.08569	0.094
Rubber Tired Loaders	Composite	0.08859	0.4510	0.77443	0.00161	0.03545	0.03869
Graders	Composite	0.07261	0.5844	1.01224	0.00170	0.04497	0.04101
Rollers	Composite	0.03177	0.3913	0.30830	0.00068	0.01994	0.01635
Excavators	Composite	0.03202	0.5184	0.42996	0.00133	0.01874	0.03212

Equipment Type	Hp	2018 Emission Factors lb/h ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.05782	0.4060	0.80171	0.00147	0.03738	0.03536
>40T Cranes	500	0.06523	0.4085	0.98933	0.00213	0.03992	0.05142
Pile/Drill Rig	Composite	0.03501	0.5011	0.56864	0.00243	0.02055	0.05865
Tractors	Composite	0.02557	0.3647	0.30639	0.00080	0.01923	0.01917
Welders	50	0.03361	0.2339	0.18349	0.00039	0.01563	0.00938
Light Plants	50	0.03361	0.2966	0.18349	0.00039	0.01563	0.00938
Generators	120	0.03690	0.4694	0.40643	0.00075	0.03112	0.01796
Hydro Vacs/Pumps	120	0.03690	0.4767	0.40643	0.00075	0.03112	0.01796
Fork Lifts	Composite	0.01616	0.2173	0.24736	0.00089	0.01150	0.02146
Loader/Backhoe	Composite	0.02557	0.3647	0.30639	0.00080	0.01923	0.01917
Air Compressors	50	0.03361	0.2142	0.18349	0.00039	0.01563	0.00938
Manlifts	Composite	0.00499	0.1740	0.10274	0.00044	0.00238	0.01066
Crawler Tractors	Composite	0.07346	0.5387	1.02899	0.00201	0.04950	0.04837
Scrapers	Composite	0.12245	0.8418	1.80997	0.00390	0.07335	0.09401
Rubber Tired Loaders	Composite	0.05178	0.4470	0.67139	0.00161	0.03036	0.03868
Graders	Composite	0.06730	0.5812	0.92988	0.00170	0.04074	0.04096
Rollers	Composite	0.02717	0.3885	0.26566	0.00068	0.01663	0.01636
Excavators	Composite	0.02715	0.5160	0.35232	0.00133	0.01498	0.03212

Equipment Type	Hp	2019 Emission Factors lb/h ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.05255	0.3982	0.72435	0.00147	0.03337	0.03536
>40T Cranes	500	0.06159	0.3951	0.91722	0.00213	0.03694	0.05143
Pile/Drill Rig	Composite	0.03316	0.5009	0.51942	0.00243	0.01889	0.05862
Tractors	Composite	0.02277	0.3630	0.27390	0.00080	0.01634	0.01916
Welders	50	0.03313	0.2271	0.18111	0.00039	0.01522	0.00937
Light Plants	50	0.03313	0.2890	0.18111	0.00039	0.01522	0.00937
Generators	120	0.03398	0.4663	0.37708	0.00075	0.02830	0.01796
Hydro Vacs/Pumps	120	0.03398	0.4736	0.37708	0.00075	0.02830	0.01796
Fork Lifts	Composite	0.01468	0.2166	0.22583	0.00089	0.00988	0.02146
Loader/Backhoe	Composite	0.02277	0.3630	0.27390	0.00080	0.01634	0.01916
Air Compressors	50	0.03313	0.2078	0.18111	0.00039	0.01522	0.00937
Manlifts	Composite	0.00475	0.1715	0.09788	0.00044	0.00194	0.01066
Crawler Tractors	Composite	0.08860	0.5319	0.92566	0.00201	0.04558	0.04837
Scrapers	Composite	0.11433	0.8161	1.65588	0.00390	0.06690	0.09398
Rubber Tired Loaders	Composite	0.04734	0.4436	0.60035	0.00161	0.02688	0.0387
Graders	Composite	0.06321	0.5787	0.86117	0.00170	0.03744	0.0409
Rollers	Composite	0.02435	0.3859	0.23986	0.00068	0.01451	0.01636
Excavators	Composite	0.02485	0.5140	0.31031	0.00133	0.01294	0.03212

Equipment Type	Hp	2020 Emission Factors lb/h ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.04866	0.3917	0.66105	0.00147	0.03031	0.03535
>40T Cranes	500	0.06566	0.3839	0.82455	0.00213	0.03305	0.05142
Pile/Drill Rig	Composite	0.07483	0.5008	0.93803	0.00277	0.03763	0.0668
Tractors	Composite	0.03349	0.6517	0.33335	0.00120	0.01797	0.029
Welders	50	0.03084	0.2219	0.17530	0.00039	0.01410	0.00937
Light Plants	50	0.03084	0.2833	0.17530	0.00039	0.01410	0.00937
Generators	120	0.03204	0.4641	0.35638	0.00075	0.02642	0.01798
Hydro Vacs/Pumps	120	0.03204	0.4713	0.35638	0.00075	0.02642	0.01798
Fork Lifts	Composite	0.01383	0.2160	0.21047	0.00089	0.00873	0.02147
Loader/Backhoe	Composite	0.02060	0.3616	0.24635	0.00080	0.01403	0.01915
Air Compressors	50	0.03084	0.2030	0.17530	0.00039	0.01410	0.00937
Manlifts	Composite	0.00463	0.1696	0.09324	0.00044	0.00161	0.01066
Crawler Tractors	Composite	0.06477	0.5260	0.86009	0.00201	0.04230	0.04838
Scrapers	Composite	0.10693	0.7938	1.51072	0.00390	0.06101	0.09396
Rubber Tired Loaders	Composite	0.04449	0.4406	0.55197	0.00161	0.02448	0.03871
Graders	Composite	0.06068	0.5765	0.81642	0.00170	0.03517	0.04087
Rollers	Composite	0.02288	0.3837	0.22494	0.00068	0.01333	0.01636
Excavators	Composite	0.02341	0.5124	0.28128	0.00133	0.01158	0.03211

Equipment Type	Hp	2021 Emission Factors lb/h ⁽¹⁾					
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾
<40 T Cranes	Composite	0.04494	0.3865	0.59772	0.00147	0.02738	0.03535
>40T Cranes	500	0.05211	0.3747	0.73491	0.00213	0.02957	0.05141
Pile/Drill Rig	Composite	0.07076	0.5007	0.84125	0.00277	0.03403	0.06676
Tractors	Composite	0.03012	0.6413	0.29307	0.00120	0.01547	0.029
Welders	50	0.02904	0.2163	0.17063	0.00039	0.01328	0.00936
Light Plants	50	0.02904	0.2789	0.17063	0.00039	0.01328	0.00936
Generators	120	0.02973	0.4617	0.33282	0.00075	0.02416	0.01798
Hydro Vacs/Pumps	120	0.02973	0.4687	0.33282	0.00075	0.02416	0.01798
Fork Lifts	Composite	0.01279	0.2148	0.19482	0.00089	0.00757	0.02147
Loader/Backhoe	Composite	0.01858	0.3606	0.22118	0.00080	0.01191	0.01916
Air Compressors	50	0.02904	0.1979	0.17063	0.00039	0.01328	0.00936
Manlifts	Composite	0.00446	0.1677	0.08926	0.00044	0.00132	0.01066
Crawler Tractors	Composite	0.06067	0.5208	0.78831	0.00201	0.03885	0.04834
Scrapers	Composite	0.09948	0.7745	1.37187	0.00390	0.05517	0.094
Rubber Tired Loaders	Composite	0.04079	0.4381	0.48855	0.00161	0.02150	0.03874
Graders	Composite	0.05664	0.5747	0.75163	0.00170	0.03199	0.04084
Rollers	Composite	0.02085	0.3816	0.20626	0.00068	0.01180	0.01636
Excavators	Composite	0.02185	0.5113	0.24844	0.00133	0.01017	0.03209

(1) Off-Road 2011. CO emissions from SCAQMD, 2006. http://www.aqmd.gov/cqa/ahandbook/offroad/offroadEF07_25.xls

(2) Carbon Dioxide Equivalents (CO₂e) are based on default emission factors for diesel. Metric tons per hour.

**Appendix B-1
Tesoro Integration and Compliance Project**

Mitigated Crude Tank Construction Equipment Emission Rates

Percent Mitigated		50%						
Equipment Type	Hp	2016 Emission Factors lb/hr ⁽¹⁾						
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾	
<40 T Cranes	Composite	0.0702	0.4263	0.5637	0.0015	0.0270	0.0353	
>40T Cranes	500	0.0742	0.4431	0.7670	0.0018	0.0331	0.0434	
Pile/Drill Rig	Composite	0.0563	0.5016	0.4290	0.0020	0.0169	0.0471	
Tractors	Composite	0.0515	0.3689	0.2250	0.0011	0.0146	0.0273	
Welders	50	0.0535	0.2483	0.1914	0.0009	0.0098	0.0224	
Light Plants	50	0.0535	0.3134	0.1914	0.0009	0.0098	0.0224	
Generators	120	0.0568	0.4767	0.2756	0.0011	0.0205	0.0266	
Hydro Vacs/Pumps	120	0.0568	0.4842	0.2756	0.0011	0.0205	0.0266	
Fork Lifts	Composite	0.0459	0.4549	0.1992	0.0012	0.0105	0.0284	
Loader/Backhoe	Composite	0.0515	0.3689	0.2250	0.0011	0.0146	0.0273	
Air Compressors	50	0.0535	0.2281	0.1914	0.0009	0.0098	0.0224	
Manlifts	Composite	0.0384	0.1592	0.1290	0.0010	0.0039	0.0230	
Crawler Tractors	Composite	0.0765	0.5549	0.6535	0.0017	0.0319	0.0419	
Scrapers	Composite	0.1089	0.9053	1.2370	0.0027	0.0523	0.0647	
Rubber Tired Loaders	Composite	0.0662	0.4557	0.4838	0.0015	0.0224	0.0370	
Graders	Composite	0.0726	0.5883	0.5859	0.0016	0.0254	0.0382	
Rollers	Composite	0.0521	0.3944	0.1920	0.0011	0.0121	0.0259	
Excavators	Composite	0.0522	0.5213	0.2905	0.0014	0.0130	0.0337	

Equipment Type	Hp	2017 Emission Factors lb/hr ⁽¹⁾						
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾	
<40 T Cranes	Composite	0.0678	0.4152	0.5288	0.0015	0.0252	0.0353	
>40T Cranes	500	0.0713	0.4243	0.7225	0.0018	0.0309	0.0434	
Pile/Drill Rig	Composite	0.0553	0.5013	0.4050	0.0020	0.0168	0.0471	
Tractors	Composite	0.0503	0.3666	0.2113	0.0011	0.0134	0.0273	
Welders	50	0.0530	0.2408	0.1887	0.0009	0.0095	0.0224	
Light Plants	50	0.0530	0.3047	0.1887	0.0009	0.0095	0.0224	
Generators	120	0.0560	0.4728	0.2661	0.0011	0.0197	0.0266	
Hydro Vacs/Pumps	120	0.0560	0.4802	0.2661	0.0011	0.0197	0.0266	
Fork Lifts	Composite	0.0449	0.4522	0.1816	0.0012	0.0092	0.0284	
Loader/Backhoe	Composite	0.0503	0.3666	0.2113	0.0011	0.0134	0.0273	
Air Compressors	50	0.0530	0.2209	0.1887	0.0009	0.0095	0.0224	
Manlifts	Composite	0.0380	0.1548	0.1163	0.0010	0.0033	0.0230	
Crawler Tractors	Composite	0.0752	0.5464	0.6289	0.0017	0.0308	0.0419	
Scrapers	Composite	0.1045	0.8713	1.1584	0.0027	0.0488	0.0647	
Rubber Tired Loaders	Composite	0.0644	0.4510	0.4527	0.0015	0.0210	0.0370	
Graders	Composite	0.0714	0.5844	0.5634	0.0016	0.0254	0.0382	
Rollers	Composite	0.0510	0.3913	0.1806	0.0011	0.0113	0.0258	
Excavators	Composite	0.0511	0.5184	0.2684	0.0014	0.0120	0.0337	

Equipment Type	Hp	2018 Emission Factors lb/hr ⁽¹⁾						
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾	
<40 T Cranes	Composite	0.0640	0.4060	0.4751	0.0015	0.0224	0.0353	
>40T Cranes	500	0.0677	0.4085	0.6587	0.0018	0.0282	0.0434	
Pile/Drill Rig	Composite	0.0526	0.5011	0.3519	0.0020	0.0137	0.0470	
Tractors	Composite	0.0479	0.3647	0.1853	0.0011	0.0112	0.0273	
Welders	50	0.0519	0.2339	0.1835	0.0009	0.0090	0.0224	
Light Plants	50	0.0519	0.2966	0.1835	0.0009	0.0090	0.0224	
Generators	120	0.0536	0.4694	0.2426	0.0011	0.0175	0.0267	
Hydro Vacs/Pumps	120	0.0536	0.4767	0.2426	0.0011	0.0175	0.0267	
Fork Lifts	Composite	0.0432	0.2173	0.1566	0.0012	0.0074	0.0284	
Loader/Backhoe	Composite	0.0479	0.3647	0.1853	0.0011	0.0112	0.0273	
Air Compressors	50	0.0519	0.2142	0.1835	0.0009	0.0090	0.0224	
Manlifts	Composite	0.0376	0.1740	0.1027	0.0010	0.0024	0.0230	
Crawler Tractors	Composite	0.0718	0.5387	0.5728	0.0017	0.0282	0.0419	
Scrapers	Composite	0.0963	0.8418	1.0236	0.0027	0.0426	0.0647	
Rubber Tired Loaders	Composite	0.0610	0.4470	0.4012	0.0015	0.0185	0.0370	
Graders	Composite	0.0688	0.5812	0.5222	0.0016	0.0232	0.0381	
Rollers	Composite	0.0487	0.3885	0.1592	0.0011	0.0096	0.0258	
Excavators	Composite	0.0487	0.5160	0.2295	0.0014	0.0102	0.0337	

Equipment Type	Hp	2019 Emission Factors lb/hr ⁽¹⁾						
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾	
<40 T Cranes	Composite	0.0614	0.3882	0.4364	0.0015	0.0204	0.0353	
>40T Cranes	500	0.0659	0.3951	0.6227	0.0018	0.0267	0.0434	
Pile/Drill Rig	Composite	0.0517	0.5009	0.3272	0.0020	0.0128	0.0470	
Tractors	Composite	0.0465	0.3630	0.1691	0.0011	0.0098	0.0273	
Welders	50	0.0517	0.2271	0.1811	0.0009	0.0088	0.0224	
Light Plants	50	0.0517	0.2890	0.1811	0.0009	0.0088	0.0224	
Generators	120	0.0521	0.4663	0.2279	0.0011	0.0161	0.0267	
Hydro Vacs/Pumps	120	0.0521	0.4736	0.2279	0.0011	0.0161	0.0267	
Fork Lifts	Composite	0.0425	0.2166	0.1459	0.0012	0.0068	0.0284	
Loader/Backhoe	Composite	0.0465	0.3630	0.1691	0.0011	0.0098	0.0273	
Air Compressors	50	0.0517	0.2078	0.1811	0.0009	0.0088	0.0224	
Manlifts	Composite	0.0375	0.1715	0.0979	0.0010	0.0019	0.0230	
Crawler Tractors	Composite	0.0694	0.5319	0.5312	0.0017	0.0262	0.0419	
Scrapers	Composite	0.0923	0.8161	0.9466	0.0027	0.0394	0.0647	
Rubber Tired Loaders	Composite	0.0588	0.4436	0.3857	0.0015	0.0167	0.0370	
Graders	Composite	0.0667	0.5787	0.4879	0.0016	0.0216	0.0381	
Rollers	Composite	0.0473	0.3859	0.1463	0.0011	0.0086	0.0259	
Excavators	Composite	0.0475	0.5140	0.2085	0.0014	0.0091	0.0337	

Equipment Type	Hp	2020 Emission Factors lb/hr ⁽¹⁾						
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾	
<40 T Cranes	Composite	0.0594	0.3917	0.4047	0.0015	0.0189	0.0353	
>40T Cranes	500	0.0634	0.3839	0.5763	0.0018	0.0247	0.0434	
Pile/Drill Rig	Composite	0.0725	0.5008	0.5366	0.0021	0.0222	0.0511	
Tractors	Composite	0.0518	0.6517	0.1988	0.0013	0.0106	0.0322	
Welders	50	0.0505	0.2219	0.1753	0.0009	0.0083	0.0224	
Light Plants	50	0.0505	0.2833	0.1753	0.0009	0.0083	0.0224	
Generators	120	0.0511	0.4641	0.2176	0.0011	0.0152	0.0267	
Hydro Vacs/Pumps	120	0.0511	0.4713	0.2176	0.0011	0.0152	0.0267	
Fork Lifts	Composite	0.0420	0.2160	0.1382	0.0012	0.0060	0.0284	
Loader/Backhoe	Composite	0.0454	0.3616	0.1553	0.0011	0.0086	0.0272	
Air Compressors	50	0.0505	0.2030	0.1753	0.0009	0.0083	0.0224	
Manlifts	Composite	0.0374	0.1696	0.0932	0.0010	0.0016	0.0230	
Crawler Tractors	Composite	0.0675	0.5260	0.4984	0.0017	0.0246	0.0419	
Scrapers	Composite	0.0886	0.7938	0.8740	0.0027	0.0364	0.0647	
Rubber Tired Loaders	Composite	0.0574	0.4406	0.3415	0.0015	0.0155	0.0370	
Graders	Composite	0.0655	0.5765	0.4655	0.0016	0.0205	0.0381	
Rollers	Composite	0.0466	0.3837	0.1389	0.0011	0.0080	0.0259	
Excavators	Composite	0.0468	0.5124	0.1940	0.0014	0.0085	0.0337	

Equipment Type	Hp	2021 Emission Factors lb/hr ⁽¹⁾						
		VOC	CO	NOx	SOx	PM10	CO2e ⁽²⁾	
<40 T Cranes	Composite	0.0576	0.3865	0.3731	0.0015	0.0174	0.0353	
>40T Cranes	500	0.0612	0.3747	0.5315	0.0018	0.0230	0.0434	
Pile/Drill Rig	Composite	0.0705	0.5007	0.4882	0.0021	0.0204	0.0511	
Tractors	Composite	0.0502	0.6413	0.1787	0.0013	0.0093	0.0322	
Welders	50	0.0496	0.2163	0.1706	0.0009	0.0079	0.0224	
Light Plants	50	0.0496	0.2789	0.1706	0.0009	0.0079	0.0224	
Generators	120	0.0500	0.4617	0.2058	0.0011	0.0140	0.0267	
Hydro Vacs/Pumps	120	0.0500	0.4687	0.2058	0.0011	0.0140	0.0267	
Fork Lifts	Composite	0.0415	0.2148	0.1304	0.0012	0.0054	0.0284	
Loader/Backhoe	Composite	0.0444	0.3606	0.1427	0.0011	0.0076	0.0273	
Air Compressors	50	0.0496	0.1979	0.1706	0.0009	0.0079	0.0224	
Manlifts	Composite	0.0373	0.1677	0.0893	0.0010	0.0013	0.0230	
Crawler Tractors	Composite	0.0654	0.5208	0.4625	0.0017	0.0228	0.0418	
Scrapers	Composite	0.0849	0.7745	0.8046	0.0027	0.0335	0.0647	
Rubber Tired Loaders	Composite	0.0555	0.4381	0.3098	0.0015	0.0140	0.0370	
Graders	Composite	0.0634	0.5747	0.4331	0.0016	0.0189	0.0381	
Rollers	Composite	0.0455	0.3816	0.1296	0.0011	0.0072	0.0259	
Excavators	Composite	0.0460	0.5113	0.1776	0.0014	0.0078	0.0337	

(1) Off-Road 2011. CO emissions from SCAQMD, 2006. http://www.aqmd.gov/cqa/handbook/offroad/offroad/F07_25.xls

(2) Carbon Dioxide Equivalents (CO₂e) are based on default emission factors for diesel. Metric tons per hour.

Appendix B-1
Tesoro Integration and Compliance Project
Offroad Construction Vehicle Dust Emissions

Equipment	Hours (hr/day)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
<40 T Cranes	8	0	0	0	0	0	0	0	0	0	1	1	1
>40T Cranes	0	0	0	0	0	0	0	0	0	0	0	0	0
Pile/Drill Rig	8	0	0	0	0	0	0	0	0	0	1	0	1
Tractors	5	0	0	0	0	0	0	0	0	0	1	1	1
Welders	8												
Light Plants	3	0	0	0	0	0	0	0	0	0	2	2	2
Generators	8												
Hydro Vacs/Pumps	5	0	0	0	0	0	0	0	0	0	0	0.5	0.5
Fork Lifts	8	0	0	0	0	0	0	0	0	0	1	1	1
Loader/Backhoe	8	0	0	0	0	0	0	0	0	0	1	1	1
Air Compressors	8												
Manlifts	8	0	0	0	0	0	0	0	0	0	0	0	1
Crawler Tractors	8	0	0	0	0	0	0	0	0	0	1	1	1
Scrapers	8	0	0	0	0	0	0	0	0	0	1	1	1
Rubber Tired Loaders	8	0	0	0	0	0	0	0	0	0	1	1	1
Graders	10	0	0	0	0	0	0	0	0	0	1	1	1
Rollers	8	0	0	0	0	0	0	0	0	0	1	1	1
Excavators	8	0	0	0	0	0	0	0	0	0	1	1	1

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
VOC	2016												
<40 T Cranes	0.070	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.56	0.56
>40T Cranes	0.074	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.056	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.45
Tractors	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.26	0.26
Welders	0.054	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.054	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.32
Generators	0.057	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.057	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14
Fork Lifts	0.046	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.37	0.37
Loader/Backhoe	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.41	0.41
Air Compressors	0.054	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.038	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31
Crawler Tractors	0.076	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.61	0.61
Scrapers	0.109	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.87	0.87
Rubber Tired Loaders	0.066	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.53	0.53
Graders	0.073	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73	0.73	0.73
Rollers	0.052	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.42	0.42
Excavators	0.052	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.42	0.42
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.38	5.07	5.83

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
CO	2016												
<40 T Cranes	0.426	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.41	3.41	3.41
>40T Cranes	0.443	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.502	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.01	0.00	4.01
Tractors	0.369	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.84	1.84	1.84
Welders	0.248	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.313	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.88	1.88	1.88
Generators	0.477	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.484	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21	1.21
Fork Lifts	0.455	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.64	3.64	3.64
Loader/Backhoe	0.369	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.95	2.95	2.95
Air Compressors	0.228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27
Crawler Tractors	0.555	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.44	4.44	4.44
Scrapers	0.905	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.24	7.24	7.24
Rubber Tired Loaders	0.456	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.65	3.65	3.65
Graders	0.588	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.88	5.88	5.88
Rollers	0.394	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.16	3.16	3.16
Excavators	0.521	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.17	4.17	4.17
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.28	43.47	48.76

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
NOX	2016												
<40 T Cranes	0.564	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.51	4.51	4.51
>40T Cranes	0.767	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.429	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.43	0.00	3.43
Tractors	0.225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	1.12	1.12
Welders	0.191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.15	1.15	1.15
Generators	0.276	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.276	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.69
Fork Lifts	0.199	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.59	1.59	1.59
Loader/Backhoe	0.225	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	1.80	1.80
Air Compressors	0.191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.129	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.03
Crawler Tractors	0.653	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.23	5.23	5.23
Scrapers	1.237	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.90	9.90	9.90
Rubber Tired Loaders	0.484	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.87	3.87	3.87
Graders	0.586	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.86	5.86	5.86
Rollers	0.192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.54	1.54	1.54
Excavators	0.291	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.32	2.32	2.32
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	42.32	39.58	44.04

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
<40 T Cranes	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
Tractors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Welders	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Loader/Backhoe	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Air Compressors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Crawler Tractors	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Scrapers	0.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02
Rubber Tired Loaders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Graders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02
Rollers	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Excavators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.13	0.15

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
PM10	2016												
<40 T Cranes	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.22
>40T Cranes	0.033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.13
Tractors	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.07
Welders	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.06
Generators	0.020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
Fork Lifts	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.08
Loader/Backhoe	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.12
Air Compressors	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Crawler Tractors	0.032	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25	0.25
Scrapers	0.052	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.42	0.42
Rubber Tired Loaders	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.18	0.18
Graders	0.026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.26	0.26
Rollers	0.012	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10
Excavators	0.013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.10
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	1.92	2.08

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (MT/yr)	Month											
		1	2	3	4	5	6	7	8	9	10	11	12
CO2EQ	2016												
<40 T Cranes	0.035	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.28	0.28
>40T Cranes	0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.047	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.38
Tractors	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14	0.14
Welders	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.13	0.13
Generators	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07
Fork Lifts	0.028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.23	0.23
Loader/Backhoe	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.22
Air Compressors	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18
Crawler Tractors	0.042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.34	0.34
Scrapers	0.065	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.52	0.52
Rubber Tired Loaders	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.30	0.30
Graders	0.038	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.38	0.38
Rollers	0.026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.21	0.21
Excavators	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.27	0.27
Total		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.38	3.07	3.63

Appendix B-1
Tesoro Integration and Compliance Project
Offroad Construction Vehicle Dust Emissions

Equipment	Hours (hr/day)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	8	2	2	2	2	2	2	2	2	2	2	1	1
>40T Cranes	0	0	0	0	0	0	0	0	0	0	0	0	0
Pile/Drill Rig	8	0	0	0	0	0	0	0	0	0	0	0	0
Tractors	5	1	1	1	1	1	1	1	1	1	1	1	1
Welders	8												
Light Plants	3	2	2	2	2	2	2	2	2	2	2	2	2
Generators	8												
Hydro Vacs/Pumps	5	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0
Fork Lifts	8	2	2	2	2	2	2	2	2	2	2	2	2
Loader/Backhoe	8	2	2	2	2	2	2	2	2	2	2	2	2
Air Compressors	8												
Manlifts	8	1	1	2	2	2	2	2	2	2	2	2	2
Crawler Tractors	8	1	0	0	0	0	0	0	0	0	0	0	0
Scrapers	8	1	0	0	0	0	0	0	0	0	0	0	0
Rubber Tired Loaders	8	1	0	0	0	0	0	0	0	0	0	0	0
Graders	10	1	0	0	0	0	0	0	0	0	0	0	0
Rollers	8	1	0	0	0	0	0	0	0	0	0	0	0
Excavators	8	1	0	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
VOC													
<40 T Cranes	0.068	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	0.54	0.54
>40T Cranes	0.071	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig													
Tractors	0.055	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.050	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Light Plants	0.053	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.053	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Hydro Vacs/Pumps	0.056	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.045	0.14	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.050	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Air Compressors	0.053	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Manlifts	0.038	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.075	0.30	0.30	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Scrapers	0.105	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.064	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.071	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.051	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.051	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		6.02	2.54	2.84	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
CO	2017												
<40 T Cranes	0.415	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	3.32	3.32
>40T Cranes	0.424	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.367	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
Welders	0.241	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.305	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
Generators	0.473	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.480	1.20	1.20	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.452	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24	7.24
Loader/Backhoe	0.367	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87	5.87
Air Compressors	0.221	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.155	1.24	1.24	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48
Crawler Tractors	0.546	4.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.871	6.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.451	3.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.584	5.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.391	3.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.518	4.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		53.92	25.85	27.08	25.88	25.88	25.88	25.88	25.88	25.88	25.88	22.56	22.56

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
NOX													
<40 T Cranes	0.529	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	8.46	4.23	4.23
>40T Cranes	0.723	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.405	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.211	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Welders	0.189	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.189	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
Generators	0.266	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.266	0.67	0.67	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.182	2.91	2.91	2.91	2.91	2.91	2.91	2.91	2.91	2.91	2.91	2.91	2.91
Loader/Backhoe	0.211	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38
Air Compressors	0.189	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.116	0.93	0.93	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86
Crawler Tractors	0.629	5.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	1.158	9.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.453	3.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.563	5.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.181	1.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.268	2.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		45.68	18.53	19.46	18.80	18.80	18.80	18.80	18.80	18.80	18.80	14.57	14.57

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
<40 T Cranes	0.001	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Welders	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Loader/Backhoe	0.001	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Air Compressors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.001	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Crawler Tractors	0.002	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.003	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.002	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.002	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.001	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.001	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.17	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.08

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr) 2017	Month											
		13	14	15	16	17	18	19	20	21	22	23	24
PM10													
<40 T Cranes	0.025	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.20	0.20
>40T Cranes	0.031	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.013	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Welders	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.010	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Generators	0.020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.020	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.009	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Loader/Backhoe	0.013	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Air Compressors	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.003	0.03	0.03	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Crawler Tractors	0.031	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.049	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.021	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.025	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.011	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.012	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.21	0.97	0.99	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.74	0.74

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

CO2EQ	Emission Rate (MT/yr)	Month												24
		13	14	15	16	17	18	19	20	21	22	23	24	
<40 T Cranes	0.035	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.28
>40T Cranes	0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.047	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.027	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Welders	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.022	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Generators	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.027	0.07	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.028	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Loader/Backhoe	0.027	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Air Compressors	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.023	0.18	0.18	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Crawler Tractors	0.042	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.065	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.037	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.038	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.026	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.034	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		3.98	1.98	2.16	2.09	2.09	2.09	2.09	2.09	2.09	2.09	1.81	1.81	1.81

Appendix B-1
Tesoro Integration and Compliance Project
Offroad Construction Vehicle Dust Emissions

Equipment	Hours (hr/day)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	8	1	1	1	1	1	1	2	2	2	2	2	2
>40T Cranes	0	0	0	0	0	0	0	0	0	0	0	0	0
Pile/Drill Rig	8	0	0	0	1	0	1	0	0	0	0	0	0
Tractors	5	1	1	1	1	1	1	1	1	1	1	1	1
Welders	8												
Light Plants	3	2	2	2	2	2	2	2	2	2	2	2	2
Generators	8												
Hydro Vacs/Pumps	5	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0	0	0
Fork Lifts	8	2	1	1	1	1	1	2	2	2	2	2	2
Loader/Backhoe	8	2	1	1	1	1	1	2	2	2	2	2	2
Air Compressors	8												
Manlifts	8	1	1	1	0	0	1	1	1	2	2	2	2
Crawler Tractors	8	0	0	0	0	0	0	0	0	0	0	0	0
Scrapers	8	0	0	0	0	0	0	0	0	0	0	0	0
Rubber Tired Loaders	8	0	0	0	0	0	0	0	0	0	0	0	0
Graders	10	0	0	0	0	0	0	0	0	0	0	0	0
Rollers	8	0	0	0	0	0	0	0	0	0	0	0	0
Excavators	8	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
VOC													
<40 T Cranes	0.064	0.51	0.51	0.51	0.51	0.51	0.51	1.02	1.02	1.02	1.02	1.02	1.02
>40T Cranes	0.068	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.053	0.00	0.00	0.00	0.42	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.048	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Welders	0.052	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.052	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Generators	0.054	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.054	0.00	0.00	0.00	0.00	0.13	0.13	0.13	0.13	0.13	0.00	0.00	0.00
Fork Lifts	0.043	0.69	0.35	0.35	0.35	0.35	0.35	0.69	0.69	0.69	0.69	0.69	0.69
Loader/Backhoe	0.048	0.77	0.38	0.38	0.38	0.38	0.38	0.77	0.77	0.77	0.77	0.77	0.77
Air Compressors	0.052	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.038	0.30	0.30	0.30	0.00	0.00	0.30	0.30	0.30	0.60	0.60	0.60	0.60
Crawler Tractors	0.072	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.096	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.069	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.049	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.049	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.31	1.58	1.58	1.70	1.41	2.14	2.44	2.44	2.74	2.61	2.61	2.61

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
CO	2018												
<40 T Cranes	0.406	3.25	3.25	3.25	3.25	3.25	3.25	6.50	6.50	6.50	6.50	6.50	6.50
>40T Cranes	0.409	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.501	0.00	0.00	0.00	4.01	0.00	4.01	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.365	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82
Welders	0.234	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.297	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78
Generators	0.469	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.477	0.00	0.00	0.00	0.00	1.19	1.19	1.19	1.19	1.19	0.00	0.00	0.00
Fork Lifts	0.217	3.48	1.74	1.74	1.74	1.74	1.74	3.48	3.48	3.48	3.48	3.48	3.48
Loader/Backhoe	0.365	5.83	2.92	2.92	2.92	2.92	2.92	5.83	5.83	5.83	5.83	5.83	5.83
Air Compressors	0.214	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.174	1.39	1.39	1.39	0.00	0.00	1.39	1.39	1.39	2.78	2.78	2.78	2.78
Crawler Tractors	0.539	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.842	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.447	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.581	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.388	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.516	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		17.55	12.90	12.90	15.52	12.70	18.10	21.99	21.99	23.39	22.19	22.19	22.19

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
NOX													
<40 T Cranes	0.475	3.80	3.80	3.80	3.80	3.80	3.80	7.60	7.60	7.60	7.60	7.60	7.60
>40T Cranes	0.659	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.352	0.00	0.00	0.00	2.81	0.00	2.81	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.185	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Welders	0.183	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.183	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Generators	0.243	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.243	0.00	0.00	0.00	0.00	0.61	0.61	0.61	0.61	0.61	0.00	0.00	0.00
Fork Lifts	0.157	2.51	1.25	1.25	1.25	1.25	1.25	2.51	2.51	2.51	2.51	2.51	2.51
Loader/Backhoe	0.185	2.97	1.48	1.48	1.48	1.48	1.48	2.97	2.97	2.97	2.97	2.97	2.97
Air Compressors	0.183	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.103	0.82	0.82	0.82	0.00	0.00	0.82	0.82	0.82	1.64	1.64	1.64	1.64
Crawler Tractors	0.573	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	1.024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.401	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.522	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.230	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		12.12	9.39	9.39	11.38	9.17	12.81	16.53	16.53	17.35	16.74	16.74	16.74

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
<40 T Cranes	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.002	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Welders	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
Loader/Backhoe	0.001	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
Air Compressors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.001	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Crawler Tractors	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.07	0.05	0.05	0.06	0.04	0.07	0.08	0.08	0.08	0.09	0.09	0.09

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
PM10													
<40 T Cranes	0.022	0.18	0.18	0.18	0.18	0.18	0.18	0.36	0.36	0.36	0.36	0.36	0.36
>40T Cranes	0.028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.014	0.00	0.00	0.00	0.11	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.011	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Welders	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.009	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Generators	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.018	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.04	0.00	0.00	0.00
Fork Lifts	0.007	0.12	0.06	0.06	0.06	0.06	0.06	0.12	0.12	0.12	0.12	0.12	0.12
Loader/Backhoe	0.011	0.18	0.09	0.09	0.09	0.09	0.09	0.18	0.18	0.18	0.18	0.18	0.18
Air Compressors	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.002	0.02	0.02	0.02	0.00	0.00	0.02	0.02	0.02	0.04	0.04	0.04	0.04
Crawler Tractors	0.028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.018	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.61	0.46	0.46	0.55	0.48	0.61	0.83	0.83	0.85	0.80	0.80	0.80

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (MT/yr)	Month											
		25	26	27	28	29	30	31	32	33	34	35	36
CO2EQ	2018												
<40 T Cranes	0.035	0.28	0.28	0.28	0.28	0.28	0.28	0.57	0.57	0.57	0.57	0.57	0.57
>40T Cranes	0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.047	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.027	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Welders	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.022	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Generators	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.07	0.00	0.00	0.00
Fork Lifts	0.028	0.45	0.23	0.23	0.23	0.23	0.23	0.45	0.45	0.45	0.45	0.45	0.45
Loader/Backhoe	0.027	0.44	0.22	0.22	0.22	0.22	0.22	0.44	0.44	0.44	0.44	0.44	0.44
Air Compressors	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.023	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.37	0.37	0.37	0.37
Crawler Tractors	0.042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.065	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.038	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		1.63	1.18	1.18	1.37	1.07	1.63	1.98	1.98	2.16	2.09	2.09	2.09

Appendix B-1
Tesoro Integration and Compliance Project
Offroad Construction Vehicle Dust Emissions

Equipment	Hours (hr/day)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	8	2	2	2	2	1	1	1	1	1	1	1	1
>40T Cranes	0	0	0	0	0	0	0	0	0	0	0	0	0
Pile/Drill Rig	8	0	0	0	0	0	0	0	0	0	1	0	1
Tractors	5	1	1	1	1	1	1	1	1	1	1	1	1
Welders	8												
Light Plants	3	2	2	2	2	2	2	2	2	2	2	2	2
Generators	8												
Hydro Vacs/Pumps	5	0	0	0	0	0	0	0	0	0	0	0.5	0.5
Fork Lifts	8	2	2	2	2	2	2	2	1	1	1	1	1
Loader/Backhoe	8	2	2	2	2	2	2	2	1	1	1	1	1
Air Compressors	8												
Manlifts	8	2	2	2	2	2	2	1	1	1	0	0	1
Crawler Tractors	8	0	0	0	0	0	0	0	0	0	0	0	0
Scrapers	8	0	0	0	0	0	0	0	0	0	0	0	0
Rubber Tired Loaders	8	0	0	0	0	0	0	0	0	0	0	0	0
Graders	10	0	0	0	0	0	0	0	0	0	0	0	0
Rollers	8	0	0	0	0	0	0	0	0	0	0	0	0
Excavators	8	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
VOC													
<40 T Cranes	0.061	0.98	0.98	0.98	0.98	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
>40T Cranes	0.066	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.052	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00	0.41
Tractors	0.046	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Welders	0.052	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.052	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Generators	0.052	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.052	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.13
Fork Lifts	0.042	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.34	0.34	0.34	0.34	0.34
Loader/Backhoe	0.046	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.37	0.37	0.37	0.37	0.37
Air Compressors	0.052	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.037	0.60	0.60	0.60	0.60	0.60	0.60	0.30	0.30	0.30	0.00	0.00	0.30
Crawler Tractors	0.069	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.092	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.059	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.067	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.047	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.048	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.57	2.57	2.57	2.57	2.57	2.57	2.27	1.55	1.55	1.67	1.38	2.10

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
CO	2019												
<40 T Cranes	0.398	6.37	6.37	6.37	6.37	3.19	3.19	3.19	3.19	3.19	3.19	3.19	3.19
>40T Cranes	0.395	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.01	0.00	4.01
Tractors	0.363	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82
Welders	0.227	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.289	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73
Generators	0.466	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.474	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	1.18
Fork Lifts	0.217	3.47	3.47	3.47	3.47	3.47	3.47	3.47	1.73	1.73	1.73	1.73	1.73
Loader/Backhoe	0.363	5.81	5.81	5.81	5.81	5.81	5.81	5.81	2.90	2.90	2.90	2.90	2.90
Air Compressors	0.208	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.172	2.74	2.74	2.74	2.74	2.74	2.74	1.37	1.37	1.37	0.00	0.00	1.37
Crawler Tractors	0.532	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.816	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.444	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.579	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.386	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.514	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		21.94	21.94	21.94	21.94	18.75	18.75	17.38	12.74	12.74	15.38	12.56	17.93

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
NOX													
<40 T Cranes	0.436	6.98	6.98	6.98	6.98	3.49	3.49	3.49	3.49	3.49	3.49	3.49	3.49
>40T Cranes	0.623	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.327	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.62	0.00	2.62
Tractors	0.169	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Welders	0.181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.181	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Generators	0.228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.228	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.146	2.33	2.33	2.33	2.33	2.33	2.33	2.33	1.17	1.17	1.17	1.17	1.17
Loader/Backhoe	0.169	2.71	2.71	2.71	2.71	2.71	2.71	2.71	1.35	1.35	1.35	1.35	1.35
Air Compressors	0.181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.098	1.57	1.57	1.57	1.57	1.57	1.57	0.78	0.78	0.78	0.00	0.00	0.78
Crawler Tractors	0.531	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.947	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.366	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.488	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.146	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.209	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		15.52	15.52	15.52	15.52	12.03	12.03	11.25	8.73	8.73	10.56	8.51	11.91

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
<40 T Cranes	0.001	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02
Tractors	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Welders	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Loader/Backhoe	0.001	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Air Compressors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.001	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.01
Crawler Tractors	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.09	0.09	0.09	0.09	0.08	0.08	0.07	0.05	0.05	0.06	0.04	0.07

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
PM10													
<40 T Cranes	0.020	0.33	0.33	0.33	0.33	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
>40T Cranes	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.013	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
Tractors	0.010	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Welders	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.009	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Generators	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04
Fork Lifts	0.007	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.05	0.05	0.05	0.05	0.05
Loader/Backhoe	0.010	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.08	0.08	0.08	0.08	0.08
Air Compressors	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.002	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.00	0.00	0.02
Crawler Tractors	0.026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.039	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.017	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.72	0.72	0.72	0.72	0.56	0.56	0.54	0.41	0.41	0.50	0.44	0.55

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (MT/yr)	Month											
		37	38	39	40	41	42	43	44	45	46	47	48
CO2EQ	2019												
<40 T Cranes	0.035	0.57	0.57	0.57	0.57	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
>40T Cranes	0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.047	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.38
Tractors	0.027	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Welders	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.022	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Generators	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.028	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.23	0.23	0.23	0.23	0.23
Loader/Backhoe	0.027	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.22	0.22	0.22	0.22	0.22
Air Compressors	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.023	0.37	0.37	0.37	0.37	0.37	0.37	0.18	0.18	0.18	0.00	0.00	0.18
Crawler Tractors	0.042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.065	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.038	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.09	2.09	2.09	2.09	1.81	1.81	1.63	1.18	1.18	1.37	1.07	1.62

Appendix B-1
Tesoro Integration and Compliance Project
Offroad Construction Vehicle Dust Emissions

Equipment	Hours (hr/day)	Month											
		49	50	51	52	53	54	55	56	57	58	59	60
<40 T Cranes	8	2	2	2	2	2	2	2	2	2	2	1	1
>40T Cranes	0	0	0	0	0	0	0	0	0	0	0	0	0
Pile/Drill Rig	8	0	0	0	0	0	0	0	0	0	0	0	0
Tractors	5	1	1	1	1	1	1	1	1	1	1	1	1
Welders	8												
Light Plants	3	2	2	2	2	2	2	2	2	2	2	2	2
Generators	8												
Hydro Vacs/Pumps	5	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0
Fork Lifts	8	2	2	2	2	2	2	2	2	2	2	2	2
Loader/Backhoe	8	2	2	2	2	2	2	2	2	2	2	2	2
Air Compressors	8												
Manlifts	8	1	1	2	2	2	2	2	2	2	2	2	2
Crawler Tractors	8	0	0	0	0	0	0	0	0	0	0	0	0
Scrapers	8	0	0	0	0	0	0	0	0	0	0	0	0
Rubber Tired Loaders	8	0	0	0	0	0	0	0	0	0	0	0	0
Graders	10	0	0	0	0	0	0	0	0	0	0	0	0
Rollers	8	0	0	0	0	0	0	0	0	0	0	0	0
Excavators	8	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		49	50	51	52	53	54	55	56	57	58	59	60
VOC	2020												
<40 T Cranes	0.059	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.48	0.48
>40T Cranes	0.063	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.073	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.052	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Welders	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.051	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Generators	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.051	0.13	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.042	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Loader/Backhoe	0.045	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Air Compressors	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.037	0.30	0.30	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Crawler Tractors	0.068	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.089	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.057	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.065	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.047	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.047	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.39	2.39	2.69	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		49	50	51	52	53	54	55	56	57	58	59	60
CO	2020												
<40 T Cranes	0.392	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	6.27	3.13	3.13
>40T Cranes	0.364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.652	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26	3.26
Welders	0.222	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.283	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
Generators	0.464	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.471	1.18	1.18	1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.216	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46	3.46
Loader/Backhoe	0.362	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79	5.79
Air Compressors	0.203	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.170	1.36	1.36	2.71	2.71	2.71	2.71	2.71	2.71	2.71	2.71	2.71	2.71
Crawler Tractors	0.526	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.794	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.441	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.577	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.384	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.512	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		23.00	23.00	24.36	23.18	23.18	23.18	23.18	23.18	23.18	23.18	20.05	20.05

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		49	50	51	52	53	54	55	56	57	58	59	60
NOX	2020												
<40 T Cranes	0.405	6.48	6.48	6.48	6.48	6.48	6.48	6.48	6.48	6.48	6.48	3.24	3.24
>40T Cranes	0.576	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.537	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.199	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Welders	0.175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.175	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Generators	0.218	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.218	0.54	0.54	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.138	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21
Loader/Backhoe	0.155	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48
Air Compressors	0.175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.093	0.75	0.75	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49
Crawler Tractors	0.498	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.874	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.342	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.466	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.139	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.194	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		14.51	14.51	15.25	14.71	14.71	14.71	14.71	14.71	14.71	14.71	11.47	11.47

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		49	50	51	52	53	54	55	56	57	58	59	60
<40 T Cranes	0.001	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Welders	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Loader/Backhoe	0.001	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Air Compressors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.001	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Crawler Tractors	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.08

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		49	50	51	52	53	54	55	56	57	58	59	60
PM10													
<40 T Cranes	0.019	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.15	0.15
>40T Cranes	0.025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.011	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Welders	0.008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.008	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Generators	0.015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.015	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.006	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Loader/Backhoe	0.009	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Air Compressors	0.008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.002	0.01	0.01	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Crawler Tractors	0.025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.036	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.016	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.69	0.69	0.70	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.51	0.51

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

CO2EQ	Emission Rate (MT/yr)	Month											
		49	50	51	52	53	54	55	56	57	58	59	60
<40 T Cranes	0.035	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.28	0.28
>40T Cranes	0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.032	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Welders	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.022	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Generators	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.027	0.07	0.07	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.028	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Loader/Backhoe	0.027	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Air Compressors	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.023	0.18	0.18	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37
Crawler Tractors	0.042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.065	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.038	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.00	2.00	2.19	2.12	2.12	2.12	2.12	2.12	2.12	2.12	1.84	1.84

Appendix B-1
Tesoro Integration and Compliance Project
Offroad Construction Vehicle Dust Emissions

Equipment	Hours (hr/day)	Month											
		61	62	63	64	65	66	67	68	69	70	71	72
<40 T Cranes	8	1	1	1	0	0	0	0	0	0	0	0	0
>40T Cranes	0	0	0	0	0	0	0	0	0	0	0	0	0
Pile/Drill Rig	8	0	0	0	0	0	0	0	0	0	0	0	0
Tractors	5	1	1	1	0	0	0	0	0	0	0	0	0
Welders	8												
Light Plants	3	2	2	2	0	0	0	0	0	0	0	0	0
Generators	8												
Hydro Vacs/Pumps	5	0	0	0	0	0	0	0	0	0	0	0	0
Fork Lifts	8	2	1	1	0	0	0	0	0	0	0	0	0
Loader/Backhoe	8	2	1	1	0	0	0	0	0	0	0	0	0
Air Compressors	8												
Manlifts	8	1	1	1	0	0	0	0	0	0	0	0	0
Crawler Tractors	8	0	0	0	0	0	0	0	0	0	0	0	0
Scrapers	8	0	0	0	0	0	0	0	0	0	0	0	0
Rubber Tired Loaders	8	0	0	0	0	0	0	0	0	0	0	0	0
Graders	10	0	0	0	0	0	0	0	0	0	0	0	0
Rollers	8	0	0	0	0	0	0	0	0	0	0	0	0
Excavators	8	0	0	0	0	0	0	0	0	0	0	0	0

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		61	62	63	64	65	66	67	68	69	70	71	72
VOC	2021												
<40 T Cranes	0.058	0.46	0.46	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.061	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.070	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.050	0.25	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.050	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.050	0.30	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.050	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.050	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.042	0.66	0.33	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.044	0.71	0.36	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.050	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.037	0.30	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.065	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.085	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.056	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.063	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.046	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.046	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		2.22	1.53	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		61	62	63	64	65	66	67	68	69	70	71	72
CO	2021												
<40 T Cranes	0.387	3.09	3.09	3.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.375	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.501	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.641	3.21	3.21	3.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.216	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.279	1.67	1.67	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.462	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.469	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.215	3.44	1.72	1.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.361	5.77	2.88	2.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.198	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.168	1.34	1.34	1.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.521	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.775	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.438	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.575	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.382	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.511	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		18.52	13.92	13.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		61	62	63	64	65	66	67	68	69	70	71	72
NOX	2021												
<40 T Cranes	0.373	2.98	2.98	2.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.532	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.488	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.179	0.89	0.89	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.171	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.171	1.02	1.02	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.206	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.206	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.130	2.09	1.04	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.143	2.28	1.14	1.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.171	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.089	0.71	0.71	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.462	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.805	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.310	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.433	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.178	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		9.99	7.80	7.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

SOx	Emission Rate (lb/hr)	Month											
		61	62	63	64	65	66	67	68	69	70	71	72
<40 T Cranes	0.001	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.001	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.001	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.001	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.001	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.001	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.07	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (lb/hr)	Month											
		61	62	63	64	65	66	67	68	69	70	71	72
PM10	2021												
<40 T Cranes	0.017	0.14	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.009	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.008	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.005	0.09	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.008	0.12	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.001	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.014	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.019	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.007	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		0.45	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1
Tesoro Integration and Compliance Project
Mitigated Crude Tank Construction Equipment Emissions

	Emission Rate (MT/yr)	Month											
		61	62	63	64	65	66	67	68	69	70	71	72
CO2EQ	2021												
<40 T Cranes	0.035	0.28	0.28	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
>40T Cranes	0.043	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pile/Drill Rig	0.051	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tractors	0.032	0.16	0.16	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Welders	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Light Plants	0.022	0.13	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Generators	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro Vacs/Pumps	0.027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fork Lifts	0.028	0.45	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Loader/Backhoe	0.027	0.44	0.22	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air Compressors	0.022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manlifts	0.023	0.18	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Tractors	0.042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scrapers	0.065	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	0.037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Graders	0.038	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollers	0.026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Excavators	0.034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		1.65	1.21	1.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Appendix B-1 Tesoro Integration and Compliance Project

Mitigated Crude Tank Offroad Construction Vehicle Dust Emissions

Vehicle	Miles/Trip	Trips/Day
Light Vehicles	0.1	2
Total Light Vehicle Miles		0.2
Delivey Trucks	0.1	0
Water Trucks	0.1	1
Total Medium Truck Miles		0.1
Concrete Truck	0.1	0
Dump Trucks	0.1	40
Total Heavy Truck Miles		4
Tractors	0.1	3
Fork Lifts	0.1	2
Loader/Backhoe	0.1	2
Total Heavy-Heavy Duty Miles		0.7

PM10	Emission Rate (lb/mi) ⁽¹⁾	Emissions (lb/day)
Light Duty	0.9021196	0.18
Medium Duty	1.2863357	0.13
Heavy Duty	2.1931267	8.77
Heavy Heavy Duty	2.4962390	1.75
Uncontrolled Total		10.83
Controlled Total ⁽²⁾		4.22

(1) Based on Section 13.2.2 of EPA's Compilation of Air Pollutant Emission Factors (AP-42).

$$\text{Emission Rate} = 1.5((s/12)^{.9}) * ((W/3)^{.45})$$

s = silt content = 8.5%

W = Vehicle Weight (ton) =2.5 for light, 5.5 for medium, 15 for heavy,
and 24 for heavy heavy (EMFAC2007).

(2) Controlled Emissions assume that watering 3 times per day reduces emissions by
61 percent (Uncontrolled Emissions x 0.39)

Appendix B-1
Tesoro Integration and Compliance Project
NOx Reduction from Mitigation Measure A-9

Priority	Project	Scope	Timing	MIN NOx Red lb/yr	lb/day	2015 Emissions lb/yr	2015 Concentration NOx, ppm @ 3% O2 (Cogen at 15%)	Expected Concentration NOx, ppm @ 3% O2 (Cogen at 15%)	Reduction %	Reduction lb/yr	Reduction lb/day
1	So H2 Plant SCR catalyst changeout and lower NOx target.	SCR catalyst replacement (est 3 ppm). Currently at 5-6 ppm.	Start of construction	10,000	27	26,215	5.8	3.0	48%	12,609	35
2	HGU-2 SCR catalyst changeout and lower NOx target.	SCR catalyst replacement (est 3 ppm) Currently at 7-8 ppm. Limit is 12 ppm	3/31/2017	10,000	27	20,796	7.6	3.0	60%	12,533	34
3	Cogen GT6 Unit 91 SCR catalyst changeout and lower NOx target.	SCR catalyst replacement (est 2.5 ppm) Currently at 3-4 ppm.	6/30/2017	20,000	55	118,543	3.2	2.5	21%	24,759	68

Catalyst has a 9 month delivery schedule.

40,000 109

49,900 137

APPENDIX B-1

MISCELLANEOUS VOC EMISSION CALCULATIONS

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Appendix B-1

Tesoro Integration and Compliance Project

Fugitive VOC Emissions During Excavation

Soil Assumptions

β - Soil Bulk Density
ρ - Particle Density
Θm - Soil Moisture
Pt - Soil Porosity (total)
Pa - Soil Porosity (air filled)
A - Area
T - Exposure Interval
foc - Fraction of Organic Carbon

1.5 g/cm3
2.65 g/cm3
0.24 cm3/g
0.434
0.074
7524900 cm2
86400 seconds
0.02 g/g

Moisture Content
Soil Density
Soil Density
Soil Density

20% moisture content
1 ton/yd3
74.1 lb/cuft
1.19 g/cm3

Chemical Properties

Carbon Range	Henry's Constant Hc	Soil/Organic Carbon Partition Coefficient Koc	Soil/Water Partition Coefficient Kd	Soil/Air Partition Coefficient Kas	Diffusivity in Air Di	Effective Diffusivity Dei	Conversion Factor α
C5-C6	41	630	12.6	3.2540	0.0857	0.0001	0.0000
C7-C8	77	3160	63.2	1.2184	0.0669	0.0001	0.0000
C9-C10	160	31600	632	0.2532	0.0644	0.0001	0.0000
C11-C12	160	316000	6320	0.0253	0.0460	0.0000	0.0000
C13-C16	160	5000000	100000	0.0016	0.0395	0.0000	0.0000
C17-C21	110	400000000	80000000	0.0000	0.0328	0.0000	0.0000
C22-C35	110	400000000	80000000	0.0000	0.0328	0.0000	0.0000

Fugitive VOC Emissions

Chemical	TPH Fraction	mg/kg	mg/kg	g/g	E (mg/sec)
C5-C6	0.0015625	11000	17.1875	1.71875E-05	3.53123634
C7-C8	0.0046875	11000	51.5625	5.15625E-05	5.565012283
C9-C10	0.0484375	11000	532.8125	0.000532813	25.35542018
C11-C12	0.4078125	11000	4485.9375	0.004485938	56.85918567
C13-C16	0.067571429	9600	648.6857143	0.000648686	1.914717769
C17-C21	0.153142857	9600	1470.171429	0.001470171	0.366570712
C22-C35	0.427214286	9600	4101.257143	0.004101257	1.022602345
Total Emission (lb/day)					18.02197447

Note: Equation for emissions from US EPA PEA Guidance, 1999.
Chemical Properties from Utah Department of Environmental Quality TPH Fractionation at Leaking UGST Sites, July 2001.