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ConocoPhillips Refinery Crude, Coke and Sulfur Throughputs and Future Estimates

Year	Crude Throughput, bpy	Crude Average, bpd	Green Coke (Production and Inventory reduction)						Inventory reduction only				Production Only	Calcine Coke				Total Coke		Sulfur		Total Trucks	
			Trucks, tons	Tons/truck	Trucks, number	Rail, tons	Rail fraction	Total Tons	Inventory Reduction, truck tons	Inventory Reduction, # trucks	Inventory Reduction, rail tons	Inventory Reduction, total tons	Trucks, number	Trucks, tons	Trucks, number	Rail, tons	Total Tons	Total Coke, tons calcin + green	Rail fraction	Truck, tons	Trucks, number		tons per truck
2003	13,813,748	37,851	183,024	25.0	7,321	96,076	0.34	279,100	0	0	0	0	7,321	2,550	102	33,994	36,544	315,644	0.41	34,539	1,382	25.0	8,805
2004	14,352,098	39,326	190,157	25.0	7,606	99,820	0.34	289,978	0	0	0	0	7,606	2,649	106	35,319	37,968	327,945	0.41	35,885	1,435	25.0	9,148
2005	15,489,149	42,442	205,222	25.0	8,209	107,729	0.34	312,951	0	0	0	0	8,209	2,859	114	38,117	40,976	353,927	0.41	38,728	1,549	25.0	9,872
2006	14,290,448	39,157	219,202	25.5	8,588	115,067	0.34	334,269	30,645	1,226	15,787	46,432	7,362	2,700	110	36,000	38,700	372,969	0.41	31,783	1,271	25.0	9,969
2007	15,810,183	43,321	320,439	25.4	12,637	209,166	0.39	529,605	109,551	4,382	70,041	179,592	8,255	1,250	50	10,000	11,250	540,855	0.41	39,531	1,581	25.0	14,268
2008	15,249,521	41,780	303,396	25.6	11,849	135,000	0.31	438,396	89,944	3,598	0	89,944	8,251	0	0	0	0	438,396	0.31	24,665	1,000	24.7	12,849
2009	13,080,967	35,838	334,562	24.3	13,759	78,347	0.19	412,909	114,009	4,560	0	114,009	9,199	0	0	0	0	412,909	0.19	30,645	1,250	24.5	15,009
Avg 2007, 2008, 2009	14,713,557	40,313	319,466	25.1	12,748	140,838	0.30	460,303	104,502	4,180	23,347	127,849		417	17	3,333	3,750	464,053	0.30	31,614	1,277	24.7	14,042
County permit level, 44,500 bpd	16,242,500	44,500	404,309	25.1	16,108	94,680	0.19	498,990	127,849	5,114	0	127,849		0	0	0	0	498,990	0.19	40,612	1,624	25	17,732
Proposed Project, with increased coke transported by truck	17,866,750	48,950	434,381		17,375	101,722		536,104	127,849	5,114	0	127,849					0	536,104		44,673	1,787		19,162

Future crude throughput based on 10% over the development plan limit of 44,500 bpd, assuming an average over 365 days:

Assumed tons coke or sulfur/truck	25	based on coke load weight
Assumed coke produces per bbl	0.02285	short tons green coke per bbl crude, from applicant
Assumed sulfur tons/bbls crude	0.00250	from 2007 levels
Calculated Coke/green coke ratio	0.12	from 2006 levels
Green Coke truck/total tons	0.7	from 2006 levels
Calcline coke trucks/total tons	0.1	from 2006 levels

Future truck trips assume all coke moved by truck

Production/truck trips in 2003-2005 estimated based on 2007 levels and crude production

2007 green coke from production, trucks tons 229,526

2007 green coke from production, trucks trips 9181

2007 total coke from production, trucks trips 9231

Density of coke, lb/ft3 49 based on CP site visit verbal info

Assumes all future coke transport is by truck

Rail tons in the future based on 2009 crude throughput and 19% moved by rail

Numbers for 2003-2005 are estimated based on crude throughput

Onshore Crude Sources

transportation to SMPS

Year 2009

Year 2009 BPD

		35838				Distances with Counties, miles				Trucks number		
Source	Oil Field	Volume (barrels)	Number of Trucks	Percent	Combined	SLO	SBC	Mont	All	SLO	SBC	Mont
Price Canyon	Arroyo Grande	314,963	1,882	27.86	1882 (27.9%)	20	6	0	26	1,882	1,882	0
Greka	SM Valley, Casmalia, Zaca, CC	93,502	590	8.74	590 (8.7%)	0	28	0	28	0	590	0
Lombardi	San Ardo	106,492	673	9.96	673 (10%)	69	6	21	96	673	673	673
Tognazzini	Cat Canyon, Santa Maria	4,527	30	0.44	30 (0.4%)	0	28	0	28	0	30	0
Delaney/Tunnel	Cat Canyon	2,178	13	0.19	13 (0.2%)	0	28	0	28	0	13	0
Transition	San Ardo *	37,668	230	3.41	230 (3.4%)	69	6	21	96	230	230	230
San Ardo Rosenberg	San Ardo	460,146	2,801	41.47	2801 (41.5%)	69	6	21	96	2,801	2,801	2,801
Peshine	Casmalia	8,622	57	0.84	57 (0.8%)	0	12	0	12	0	57	0
San Ardo Ex/Mob	San Ardo	26,302	125	1.85	125 (1.9%)	69	6	21	96	125	125	125
Wickendon	Cat Canyon	12,503	84	1.24	84 (1.2%)	11	27	0	38	84	84	0
Brinan	San Ardo	246	2	0.03	2 (0%)	69	6	21	96	2	2	2
Cantin	Cat Canyon	26,247	170	2.52	170 (2.5%)	11	27	0	38	170	170	0
Thompkins	Casmalia	9,789	67	0.99	67 (1%)	0	12	0	12	0	67	0
McCool	McCool Ranch	4,845	30	0.44	30 (0.4%)	69	6	21	96	30	30	30
Total		1,108,030	6,754	164.06		45	9	21	66	5,997	6,754	3,861
		3036										

Baseline Operations at -->

		44500 bpd				Distances with Counties, miles				Trucks number		
Source	Oil Field	Volume (barrels)	Number of Trucks	Percent	Combined	SLO	SBC	Mont	All	SLO	SBC	Mont
Price Canyon	Arroyo Grande	391,089	2,385	35.31	2385 (35.3%)	20	6	0	26	2,385	2,385	0
Greka	SM Valley, Casmalia, Zaca, CC	116,101	708	10.48	708 (10.5%)	0	28	0	28	0	708	0
Lombardi	San Ardo	132,231	806	11.94	806 (11.9%)	69	6	21	96	806	806	806
Tognazzini	Cat Canyon, Santa Maria	5,621	34	0.51	34 (0.5%)	0	28	0	28	0	34	0
Delaney/Tunnel	Cat Canyon	2,704	16	0.24	16 (0.2%)	0	28	0	28	0	16	0
Transition	San Ardo *	46,772	285	4.22	285 (4.2%)	69	6	21	96	285	285	285
San Ardo Rosenberg	San Ardo	571,363	3,484	51.58	3484 (51.6%)	69	6	21	96	3,484	3,484	3,484
Peshine	Casmalia	10,706	65	0.97	65 (1%)	0	12	0	12	0	65	0
San Ardo Ex/Mob	San Ardo	32,659	199	2.95	199 (2.9%)	69	6	21	96	199	199	199
Wickendon	Cat Canyon	15,525	95	1.40	95 (1.4%)	11	27	0	38	95	95	0
Brinan	San Ardo	305	2	0.03	2 (0%)	69	6	21	96	2	2	2
Cantin	Cat Canyon	32,591	199	2.94	199 (2.9%)	11	27	0	38	199	199	0
Thompkins	Casmalia	12,155	74	1.10	74 (1.1%)	0	12	0	12	0	74	0
McCool	McCool Ranch	6,016	37	0.54	37 (0.5%)	69	6	21	96	37	37	37
Total		1,375,839	8,389	164.00		46	9	21	67	7,491	8,389	4,813
		3769										

Note: assumes all sources increase 10% (pipelines from offshore and onshore, trucks to SMPS)

Onshore Crude Sources

transportation to SMPS

Project Operations at -->

48950 bpd

Source	Oil Field	Volume (barrels)	Number of Trucks	Percent	Combined	Distances with Counties, miles				Trucks number		
						SLO	SBC	Mont	All	SLO	SBC	Mont
Price Canyon	Arroyo Grande	852,790	5,200	76.99	5200 (77%)	20	6	0	26	5,200	5,200	0
Greka	SM Valley, Casmalia, Zaca, CC	253,165	1,544	22.86	1544 (22.9%)	0	28	0	28	0	1,544	0
Lombardi	San Ardo	288,337	1,758	26.03	1758 (26%)	69	6	21	96	1,758	1,758	1,758
Tognazzini	Cat Canyon, Santa Maria	12,257	75	1.11	75 (1.1%)	0	28	0	28	0	75	0
Delaney/Tunnel	Cat Canyon	5,897	36	0.53	36 (0.5%)	0	28	0	28	0	36	0
Transition	San Ardo *	101,989	622	9.21	622 (9.2%)	69	6	21	96	622	622	622
San Ardo Rosenberg	San Ardo	1,245,886	7,597	112.48	7597 (112.5%)	69	6	21	96	7,597	7,597	7,597
Peshine	Casmalia	23,345	142	2.11	142 (2.1%)	0	12	0	12	0	142	0
San Ardo Ex/Mob	San Ardo	71,215	434	6.43	434 (6.4%)	69	6	21	96	434	434	434
Wickendon	Cat Canyon	33,853	206	3.06	206 (3.1%)	11	27	0	38	206	206	0
Brinan	San Ardo	666	4	0.06	4 (0.1%)	69	6	21	96	4	4	4
Cantin	Cat Canyon	71,066	433	6.42	433 (6.4%)	11	27	0	38	433	433	0
Thompkins	Casmalia	26,505	162	2.39	162 (2.4%)	0	12	0	12	0	162	0
McCool	McCool Ranch	13,118	80	1.18	80 (1.2%)	69	6	21	96	80	80	80
Total		3,000,089	18,293	164.00		46	9	21	67	16,335	18,293	10,495
		8219										

Note: the increase is assumed to come only from trucks to SMPS sources

Alternative: Summit Station and SMPS Unloading of Crude Oil

Project Operations at -->

48950 bpd

Source	Oil Field	Volume (barrels)	Number of Trucks	Percent	Combined	Distances with Counties, miles				Trucks number		
						SLO	SBC	Mont	All	SLO	SBC	Mont
Price Canyon	Arroyo Grande	852,790	5,200	76.99	5200 (77%)	13	0	0	13	5,200	0	0
Greka	SM Valley, Casmalia, Zaca, CC	253,165	1,544	22.86	1544 (22.9%)	0	28	0	28	0	1,544	0
Lombardi	San Ardo	288,337	1,758	26.03	1758 (26%)	64	0	21	85	1,758	0	1,758
Tognazzini	Cat Canyon, Santa Maria	12,257	75	1.11	75 (1.1%)	0	28	0	28	0	75	0
Delaney/Tunnel	Cat Canyon	5,897	36	0.53	36 (0.5%)	0	28	0	28	0	36	0
Transition	San Ardo *	101,989	622	9.21	622 (9.2%)	64	0	21	85	622	0	622
San Ardo Rosenberg	San Ardo	1,245,886	7,597	112.48	7597 (112.5%)	64	0	21	85	7,597	0	7,597
Peshine	Casmalia	23,345	142	2.11	142 (2.1%)	0	12	0	12	0	142	0
San Ardo Ex/Mob	San Ardo	71,215	434	6.43	434 (6.4%)	64	0	21	85	434	0	434
Wickendon	Cat Canyon	33,853	206	3.06	206 (3.1%)	0	28	0	28	0	206	0
Brinan	San Ardo	666	4	0.06	4 (0.1%)	64	0	21	85	4	0	4
Cantin	Cat Canyon	71,066	433	6.42	433 (6.4%)	0	28	0	28	0	433	0
Thompkins	Casmalia	26,505	162	2.39	162 (2.4%)	0	12	0	12	0	162	0
McCool	McCool Ranch	13,118	80	1.18	80 (1.2%)	64	0	21	85	80	0	80
Total		3,000,089	18,293	164.00		40	26	21	56	15,695	2,598	10,495
		8219										

Note: the increase is assumed to come only from trucks to SMPS sources

Santa Maria Refinery Emissions Summary, 2009

Annual Emissions, Tons/Year								
Equipment Description	TOG	ROG	CO	NO _x	SO ₂	PM	PM-10	PM-2.5
Diesel Pumps and Compressors	0.1	0.1	0.3	1.3	0.0	0.1	0.1	0.1
Crude Heaters B2A/B	2.9	1.5	0.0	12.9	26.8	2.0	1.9	1.9
Vacuum Heaters B62A/B	0.5	0.2	0.2	1.7	2.4	0.3	0.3	0.3
Coke Heaters B102A/B	3.1	1.6	0.0	14.8	31.8	2.2	2.1	2.0
Steam Superheaters B201A/B	0.2	0.1	0.0	1.5	1.6	0.1	0.1	0.1
Boilers B504/506	3.0	1.5	0.9	9.7	16.9	2.0	2.0	2.0
Boiler Steam Generators B505	0.8	0.4	1.8	9.7	15.1	1.7	1.7	1.7
Boiler B507	1.7	0.8	0.8	5.3	9.7	1.2	1.2	1.2
Sulfur Plant Incinerator B602A/B	0.2	0.1	1.3	1.5	22.7	0.1	0.1	0.1
Tail Gas Combustor B702	0.2	0.1	1.3	1.6	1.6	0.1	0.1	0.1
Flare Stack C451	0.3	0.1	0.8	0.1	0.0	0.0	0.0	0.0
Kilns (Rotary and Cold Stack) - Carbon Plant	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oily water treatment system	4.8	4.7	0.0	0.0	0.0	0.0	0.0	0.0
Cooling towers	2.8	2.8	0.0	0.0	0.0	0.0	0.0	0.0
Sulfur pit vents	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: non-crude tank	6.5	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: crude tank	7.2	6.6	0.0	0.0	0.0	0.0	0.0	0.0
Coke Storage - Carbon Plant	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0
Rail car loading, baghouse	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coke handling and conveying	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0
Cooler Stack to Wet Scrubber	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misc Sources (solvent use, etc)	0.3	0.3	0.0	0.1	0.0	0.0	0.0	0.0
Total	34.5	26.8	7.5	60.1	129	10.4	9.9	9.6
Average Daily Emissions, lbs/day								
Equipment Description	TOG	ROG	CO	NO _x	SO ₂	PM	PM-10	PM-2.5
Diesel Pumps and Compressors	0.6	0.4	1.5	7.1	0.1	0.5	0.5	0.5
Crude Heaters B2A/B	16.0	8.0	0.0	70.5	146.7	11.0	10.5	10.3
Vacuum Heaters B62A/B	2.6	1.3	1.2	9.4	12.9	1.8	1.7	1.7
Coke Heaters B102A/B	17.2	8.6	0.3	80.9	174.2	11.9	11.3	11.0
Steam Superheaters B201A/B	0.8	0.4	0.0	8.1	8.6	0.6	0.6	0.5
Boilers B504/506	16.2	8.1	4.9	53.0	92.7	11.2	11.2	11.2
Boiler Steam Generators B505	4.3	2.2	9.9	53.3	82.8	9.2	9.2	9.2
Boiler B507	9.3	4.6	4.6	28.8	52.9	6.4	6.4	6.4
Sulfur Plant Incinerator B602A/B	0.9	0.5	6.9	8.2	124.4	0.6	0.6	0.6
Tail Gas Combustor B702	1.0	0.5	7.4	8.8	9.0	0.7	0.7	0.7
Flare Stack C451	1.6	0.6	4.2	0.8	0.1	0.0	0.0	0.0
Kilns (Rotary and Cold Stack) - Carbon Plant	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Oily water treatment system	26.3	25.6	0.0	0.0	0.0	0.0	0.0	0.0
Cooling towers	15.5	15.5	0.0	0.0	0.0	0.0	0.0	0.0
Sulfur pit vents	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: non-crude tank	35.4	32.9	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: crude tank	39.7	36.2	0.0	0.0	0.0	0.0	0.0	0.0
Coke Storage - Carbon Plant	0.0	0.0	0.0	0.0	0.0	1.6	0.8	0.2
Rail car loading, baghouse	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coke handling and conveying	0.0	0.0	0.0	0.0	0.0	1.6	0.8	0.2
Cooler Stack to Wet Scrubber	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misc Sources (solvent use, etc)	1.7	1.7	0.1	0.5	0.0	0.0	0.0	0.0
Total, lbs/day	189.0	146.8	40.9	329.3	704	57.1	54.2	52.6

Santa Maria Refinery Emissions Summary, Permitted Operations

Crude throughput, 2009

35,838

Baseline level (44,500 permit level)

44,500

Throughput Increase, faction

0.24 over 2009

Annual Emissions, Tons/Year									
Equipment Description	Affected?	TOG	ROG	CO	NO _x	SO ₂	PM	PM-10	PM-2.5
Diesel Pumps and Compressors	N	0.1	0.1	0.3	1.3	0.0	0.1	0.1	0.1
Crude Heaters B2A/B	Y	3.6	1.8	0.0	16.0	33.2	2.5	2.4	2.3
Vacuum Heaters B62A/B	Y	0.6	0.3	0.3	2.1	2.9	0.4	0.4	0.4
Coke Heaters B102A/B	Y	3.9	1.9	0.1	18.3	39.5	2.7	2.6	2.5
Steam Superheaters B201A/B	Y	0.2	0.1	0.0	1.8	1.9	0.1	0.1	0.1
Boilers B504/506	Y	3.7	1.8	1.1	12.0	21.0	2.5	2.5	2.5
Boiler Steam Generators B505	Y	1.0	0.5	2.2	12.1	18.8	2.1	2.1	2.1
Boiler B507	Y	2.1	1.0	1.0	6.5	12.0	1.4	1.4	1.4
Sulfur Plant Incinerator B602A/B	Y	0.2	0.1	1.6	1.9	28.2	0.1	0.1	0.1
Tail Gas Combustor B702	Y	0.2	0.1	1.7	2.0	2.0	0.2	0.2	0.2
Flare Stack C451	Y	0.4	0.1	0.9	0.2	0.0	0.0	0.0	0.0
Kilns (Rotary and Cold Stack) - Carbon Plant	Y	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Oily water treatment system	Y	6.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0
Cooling towers	N	2.8	2.8	0.0	0.0	0.0	0.0	0.0	0.0
Sulfur pit vents	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: non-crude tank	N	6.5	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: crude tank	Y	9.0	8.2	0.0	0.0	0.0	0.0	0.0	0.0
Coke Storage - Carbon Plant	N	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0
Rail car loading, baghouse	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coke handling and conveying	Y	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.1
Cooler Stack to Wet Scrubber	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misc Sources (solvent use, etc)	N	0.3	0.3	0.0	0.1	0.0	0.0	0.0	0.0
Total, tons/yr		40.5	31.0	9.2	74.3	160	12.8	12.2	11.9
Average Daily Emissions, lbs/day									
Equipment Description	Affected?	TOG	ROG	CO	NO _x	SO ₂	PM	PM-10	PM-2.5
Diesel Pumps and Compressors	N	0.6	0.4	1.5	7.1	0.1	0.5	0.5	0.5
Crude Heaters B2A/B	Y	19.8	9.9	0.0	87.5	182.1	13.7	13.0	12.7
Vacuum Heaters B62A/B	Y	3.3	1.6	1.5	11.6	16.1	2.2	2.1	2.1
Coke Heaters B102A/B	Y	21.3	10.7	0.3	100.5	216.3	14.7	14.0	13.7
Steam Superheaters B201A/B	Y	1.0	0.5	0.0	10.0	10.6	0.7	0.7	0.7
Boilers B504/506	Y	20.1	10.1	6.0	65.9	115.1	13.9	13.9	13.9
Boiler Steam Generators B505	Y	5.4	2.7	12.3	66.2	102.8	11.4	11.4	11.4
Boiler B507	Y	11.5	5.7	5.7	35.7	65.7	7.9	7.9	7.9
Sulfur Plant Incinerator B602A/B	Y	1.1	0.6	8.6	10.2	154.4	0.8	0.8	0.8
Tail Gas Combustor B702	Y	1.2	0.6	9.1	10.9	11.1	0.8	0.8	0.8
Flare Stack C451	Y	2.0	0.7	5.2	1.0	0.1	0.0	0.0	0.0
Kilns (Rotary and Cold Stack) - Carbon Plant	Y	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Oily water treatment system	Y	32.7	31.7	0.0	0.0	0.0	0.0	0.0	0.0
Cooling towers	N	15.5	15.5	0.0	0.0	0.0	0.0	0.0	0.0
Sulfur pit vents	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: non-crude tank	N	35.4	32.9	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: crude tank	Y	49.3	45.0	0.0	0.0	0.0	0.0	0.0	0.0
Coke Storage - Carbon Plant	N	0.0	0.0	0.0	0.0	0.0	1.6	0.8	0.2
Rail car loading, baghouse	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coke handling and conveying	Y	0.0	0.0	0.0	0.0	0.0	2.0	1.0	0.3
Cooler Stack to Wet Scrubber	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misc Sources (solvent use, etc)	N	1.7	1.7	0.1	0.5	0.0	0.0	0.0	0.0
Total, lbs/day		221.9	170.1	50.4	407.0	874	70.3	67.0	65.1

Santa Maria Refinery Emissions Summary, Baseline Operations and Proposed Project

Crude throughput, 2009	35,838
Baseline level (current permit)	44,500
Proposed Project throughput level	48,950
Throughput Increase, faction	0.37 over 2009

Annual Emissions, Tons/Year									
Equipment Description	Affected?	TOG	ROG	CO	NO _x	SO ₂	PM	PM-10	PM-2.5
Diesel Pumps and Compressors	N	0.1	0.1	0.3	1.3	0.0	0.1	0.1	0.1
Crude Heaters B2A/B	Y	4.0	2.0	0.0	17.6	36.6	2.8	2.6	2.6
Vacuum Heaters B62A/B	Y	0.7	0.3	0.3	2.3	3.2	0.5	0.4	0.4
Coke Heaters B102A/B	Y	4.3	2.1	0.1	20.2	43.4	3.0	2.8	2.8
Steam Superheaters B201A/B	Y	0.2	0.1	0.0	2.0	2.1	0.1	0.1	0.1
Boilers B504/506	Y	4.0	2.0	1.2	13.2	23.1	2.8	2.8	2.8
Boiler Steam Generators B505	Y	1.1	0.5	2.5	13.3	20.6	2.3	2.3	2.3
Boiler B507	Y	2.3	1.2	1.1	7.2	13.2	1.6	1.6	1.6
Sulfur Plant Incinerator B602A/B	Y	0.2	0.1	1.7	2.0	31.0	0.2	0.2	0.2
Tail Gas Combustor B702	Y	0.2	0.1	1.8	2.2	2.2	0.2	0.2	0.2
Flare Stack C451	Y	0.4	0.1	1.0	0.2	0.0	0.0	0.0	0.0
Kilns (Rotary and Cold Stack) - Carbon Plant	Y	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Oily water treatment system	Y	6.6	6.4	0.0	0.0	0.0	0.0	0.0	0.0
Cooling towers	N	2.8	2.8	0.0	0.0	0.0	0.0	0.0	0.0
Sulfur pit vents	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: non-crude tank	N	6.5	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: crude tank	Y	9.9	9.0	0.0	0.0	0.0	0.0	0.0	0.0
Coke Storage - Carbon Plant	N	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0
Rail car loading, baghouse	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coke handling and conveying	Y	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.1
Cooler Stack to Wet Scrubber	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misc Sources (solvent use, etc)	N	0.3	0.3	0.0	0.1	0.0	0.0	0.0	0.0
Total, tons/yr		43.6	33.2	10.1	81.6	176	14.1	13.4	13.1
Increase over Baseline, tons/yr		3.1	2.2	0.9	7.3	16.0	1.2	1.2	1.2

Average Daily Emissions, lbs/day									
Equipment Description	Affected?	TOG	ROG	CO	NO _x	SO ₂	PM	PM-10	PM-2.5
Diesel Pumps and Compressors	N	0.6	0.4	1.5	7.1	0.1	0.5	0.5	0.5
Crude Heaters B2A/B	Y	21.8	10.9	0.0	96.2	200.3	15.1	14.3	14.0
Vacuum Heaters B62A/B	Y	3.6	1.8	1.6	12.8	17.7	2.5	2.4	2.3
Coke Heaters B102A/B	Y	23.5	11.7	0.4	110.5	237.9	16.2	15.4	15.1
Steam Superheaters B201A/B	Y	1.2	0.6	0.0	11.0	11.7	0.8	0.8	0.7
Boilers B504/506	Y	22.1	11.1	6.6	72.4	126.6	15.3	15.3	15.3
Boiler Steam Generators B505	Y	5.9	3.0	13.5	72.8	113.0	12.5	12.5	12.5
Boiler B507	Y	12.6	6.3	6.3	39.3	72.2	8.7	8.7	8.7
Sulfur Plant Incinerator B602A/B	Y	1.2	0.6	9.4	11.2	169.9	0.9	0.9	0.9
Tail Gas Combustor B702	Y	1.3	0.7	10.1	12.0	12.2	0.9	0.9	0.9
Flare Stack C451	Y	2.2	0.8	5.7	1.0	0.1	0.0	0.0	0.0
Kilns (Rotary and Cold Stack) - Carbon Plant	Y	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Oily water treatment system	Y	36.0	34.9	0.0	0.0	0.0	0.0	0.0	0.0
Cooling towers	N	15.5	15.5	0.0	0.0	0.0	0.0	0.0	0.0
Sulfur pit vents	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: non-crude tank	N	35.4	32.9	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: crude tank	Y	54.2	49.5	0.0	0.0	0.0	0.0	0.0	0.0
Coke Storage - Carbon Plant	N	0.0	0.0	0.0	0.0	0.0	1.6	0.8	0.2
Rail car loading, baghouse	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coke handling and conveying	Y	0.0	0.0	0.0	0.0	0.0	2.2	1.1	0.3
Cooler Stack to Wet Scrubber	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misc Sources (solvent use, etc)	N	1.7	1.7	0.1	0.5	0.0	0.0	0.0	0.0
Total, lbs/day		238.7	182.1	55.3	447.0	962	77.2	73.5	71.5
Increase over baseline, lbs/day		16.9	12.0	4.9	39.9	87.4	6.8	6.6	6.4

SMF Only	Daily		Ann, Tons	
Thresholds	Thresh	Proj	Thresh	Proj
ROG + NO _x	25	51.9	25	9.5
Diesel Particulate Matter	1.25	0.0		
Fugitive Dust Particulate Matter (PM ₁₀)	25	0.10	25	0.02
CO	550	4.9		

SMF and Mobile Sources	Daily		Ann, Tons	
Thresholds	Thresh	Proj	Thresh	Proj
ROG + NO _x	25	128.1	25	23.4
Diesel Particulate Matter	1.25	2.7		
Fugitive Dust Particulate Matter (PM ₁₀)	25	0.10	25	0.02
CO	550	22.1		

Santa Maria Refinery Emissions Summary, Baseline Operations and Proposed Project - Mitigated

Crude throughput, 2009	35,838
Baseline level (current permit)	44,500
Proposed Project throughput level	48,950
Throughput Increase, faction	0.37 over 2009
Crude heater and boiler mitigated level	0.70 assumes 21 ppm Nox from 30 ppm Nox for crude heaters coke heaters and boilers B504/506

Annual Emissions, Tons/Year									
Equipment Description	Affected?	TOG	ROG	CO	NOx	SO2	PM	PM-10	PM-2.5
Diesel Pumps and Compressors	N	0.1	0.1	0.3	1.3	0.0	0.1	0.1	0.1
Crude Heaters B2A/B, , mitigated Nox	Y	4.0	2.0	0.0	12.3	36.6	2.8	2.6	2.6
Vacuum Heaters B62A/B	Y	0.7	0.3	0.3	2.3	3.2	0.5	0.4	0.4
Coke Heaters B102A/B, , mitigated Nox	Y	4.3	2.1	0.1	14.1	43.4	3.0	2.8	2.8
Steam Superheaters B201A/B	Y	0.2	0.1	0.0	2.0	2.1	0.1	0.1	0.1
Boilers B504/506, mitigated Nox	Y	4.0	2.0	1.2	9.3	23.1	2.8	2.8	2.8
Boiler Steam Generators B505	Y	1.1	0.5	2.5	13.3	20.6	2.3	2.3	2.3
Boiler B507	Y	2.3	1.2	1.1	7.2	13.2	1.6	1.6	1.6
Sulfur Plant Incinerator B602A/B	Y	0.2	0.1	1.7	2.0	31.0	0.2	0.2	0.2
Tail Gas Combustor B702	Y	0.2	0.1	1.8	2.2	2.2	0.2	0.2	0.2
Flare Stack C451	Y	0.4	0.1	1.0	0.2	0.0	0.0	0.0	0.0
Kilns (Rotary and Cold Stack) - Carbon Plant	Y	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Oily water treatment system	Y	6.6	6.4	0.0	0.0	0.0	0.0	0.0	0.0
Cooling towers	N	2.8	2.8	0.0	0.0	0.0	0.0	0.0	0.0
Sulfur pit vents	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: non-crude tank	N	6.5	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: crude tank	Y	9.9	9.0	0.0	0.0	0.0	0.0	0.0	0.0
Coke Storage - Carbon Plant	N	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0
Rail car loading, baghouse	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coke handling and conveying	Y	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.1
Cooler Stack to Wet Scrubber	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misc Sources (solvent use, etc)	N	0.3	0.3	0.0	0.1	0.0	0.0	0.0	0.0
Total, tons/yr		43.6	33.2	10.1	66.3	176	14.1	13.4	13.1
Increase over Baseline, tons/yr		3.1	2.2	0.9	-8.0	16.0	1.2	1.2	1.2

Average Daily Emissions, lbs/day									
Equipment Description	Affected?	TOG	ROG	CO	NOx	SO2	PM	PM-10	PM-2.5
Diesel Pumps and Compressors	N	0.6	0.4	1.5	7.1	0.1	0.5	0.5	0.5
Crude Heaters B2A/B, , mitigated Nox	Y	21.8	10.9	0.0	67.4	200.3	15.1	14.3	14.0
Vacuum Heaters B62A/B	Y	3.6	1.8	1.6	12.8	17.7	2.5	2.4	2.3
Coke Heaters B102A/B, , mitigated Nox	Y	23.5	11.7	0.4	77.4	237.9	16.2	15.4	15.1
Steam Superheaters B201A/B	Y	1.2	0.6	0.0	11.0	11.7	0.8	0.8	0.7
Boilers B504/506, mitigated Nox	Y	22.1	11.1	6.6	50.7	126.6	15.3	15.3	15.3
Boiler Steam Generators B505	Y	5.9	3.0	13.5	72.8	113.0	12.5	12.5	12.5
Boiler B507	Y	12.6	6.3	6.3	39.3	72.2	8.7	8.7	8.7
Sulfur Plant Incinerator B602A/B	Y	1.2	0.6	9.4	11.2	169.9	0.9	0.9	0.9
Tail Gas Combustor B702	Y	1.3	0.7	10.1	12.0	12.2	0.9	0.9	0.9
Flare Stack C451	Y	2.2	0.8	5.7	1.0	0.1	0.0	0.0	0.0
Kilns (Rotary and Cold Stack) - Carbon Plant	Y	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Oily water treatment system	Y	36.0	34.9	0.0	0.0	0.0	0.0	0.0	0.0
Cooling towers	N	15.5	15.5	0.0	0.0	0.0	0.0	0.0	0.0
Sulfur pit vents	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: non-crude tank	N	35.4	32.9	0.0	0.0	0.0	0.0	0.0	0.0
Fugitive Emissions: crude tank	Y	54.2	49.5	0.0	0.0	0.0	0.0	0.0	0.0
Coke Storage - Carbon Plant	N	0.0	0.0	0.0	0.0	0.0	1.6	0.8	0.2
Rail car loading, baghouse	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coke handling and conveying	Y	0.0	0.0	0.0	0.0	0.0	2.2	1.1	0.3
Cooler Stack to Wet Scrubber	Y	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Misc Sources (solvent use, etc)	N	1.7	1.7	0.1	0.5	0.0	0.0	0.0	0.0
Total, lbs/day		238.7	182.1	55.3	363.2	962	77.2	73.5	71.5
Increase over baseline, lbs/day		16.9	12.0	4.9	-43.8	87.4	6.8	6.6	6.4

SMF Only	Daily		Ann, Tons	
Thresholds	Thresh	Proj	Thresh	Proj
ROG + NOx	25	-31.8	25	-5.8
Diesel Particulate Matter	1.25	0.0		
Fugitive Dust Particulate Matter (PM ₁₀)	25	0.10	25	0.02
CO	550	4.9		

SMF and Mobile Sources	Daily		Ann, Tons	
Thresholds	Thresh	Proj	Thresh	Proj
ROG + NOx	25	44.3	25	8.1
Diesel Particulate Matter	1.25	2.7		
Fugitive Dust Particulate Matter (PM ₁₀)	25	0.10	25	0.02
CO	550	22.1		

ConocoPhillips Offsite Mobile Emissions
year 2009

Source	Vehicle Type	Emission Factors (lbs/mile or g/bhp-hr for locomotives)									Peak Round Trips per day	Average Round Trips per day	Length of Round Trip (miles)	Days	Peak Day Emissions, lbs/day						Total Emissions, Tons or Tons/yr									
		ROG	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	N2O	CH4	CO2					ROG	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	ROG	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	N2O	CH4	CO2	
Within SLO County																														
Workers/Visitors weekdays	LDA - Gasoline	0.00019	0.00558	0.00062	0.00001	0.00006	0.00003	0.00003	0.00005	0.6	170	170.0	44	260	1.45	41.72	4.65	0.05	0.48	0.23	0.19	5.42	0.60	0.01	0.06	0.03	0.03	0.05	617	
Workers/Visitors weekends	LDA - Gasoline	0.00019	0.00558	0.00062	0.00001	0.00006	0.00003	0.00003	0.00005	0.6	0	10.0	44	104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.00	0.00	0.00	0.00	0.00	15	
LDT trucks - misc refinery deliveries	LDT - Diesel	0.00039	0.01073	0.00137	0.00001	0.00007	0.00004	0.00012	0.00008	0.8	10	10.0	44	365	0.17	4.72	0.60	0.00	0.03	0.02	0.03	0.86	0.11	0.00	0.01	0.00	0.01	0.01	63	
HHDT Trucks - coke export	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	37.7	37.7	150	365	7.02	35.15	148.48	0.20	5.56	4.65	1.28	6.42	27.10	0.04	1.01	0.85	0.06	0.06	3870	
HHDT Trucks - sulfur export	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	3.4	3.4	150	365	0.64	3.19	13.49	0.02	0.51	0.42	0.12	0.58	2.46	0.00	0.09	0.08	0.01	0.01	352	
HHDT Trucks - crude deliveries to SM	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	16.4	16.4	90	365	1.84	9.19	38.83	0.05	1.45	1.22	0.33	1.68	7.09	0.01	0.27	0.22	0.01	0.02	1012	
Locomotives to Long Beach- SLOC		3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0		9		0.72	2.10	12.86	0.00	0.44	0.40	0.01	0.04	0.22	0.00	0.01	0.01	0.00	0.00	13	
Total															11.83	96.08	218.91	0.32	8.47	6.94	1.97	15.12	37.59	0.06	1.45	1.19	0.11	0.14	5941	
Kern County																														
HHDT Trucks - sulfur export	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	3.4	3.4	120	365	0.51	2.55	10.79	0.01	0.40	0.34	0.09	0.47	1.97	0.00	0.07	0.06	0.00	0.00	281	
HHDT Trucks - coke export	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	37.7	37.7	200	365	9.36	46.87	197.97	0.27	7.41	6.20	1.71	8.55	36.13	0.05	1.35	1.13	0.07	0.08	5160	
Total															9.87	49.43	208.76	0.28	7.82	6.54	1.80	9.02	38.10	0.05	1.43	1.19	0.08	0.08	5441	
Santa Barbara County																														
HHDT Trucks - crude deliveries to SM	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	18.5	18.5	18	365	0.41	2.07	8.75	0.01	0.33	0.27	0.08	0.38	1.60	0.00	0.06	0.05	0.00	0.00	228	
Locomotives to Long Beach- SBC		3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0				16.13	47.32	290.04	0.01	10.04	9.03	0.27	0.81	4.94	0.00	0.17	0.15	0.02	0.01	297	
Total															16.55	49.39	298.78	0.02	10.37	9.31	0.35	1.18	6.54	0.00	0.23	0.20	0.03	0.01	525	
Monterey County																														
HHDT Trucks - crude deliveries to SM	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	10.6	10.6	42	365	0.55	2.76	11.67	0.02	0.44	0.37	0.10	0.50	2.13	0.00	0.08	0.07	0.00	0.00	304	
Ventura County																														
Locomotives to Long Beach- VC		3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0				8.65	25.37	155.48	0.00	5.38	4.84	0.15	0.43	2.65	0.00	0.09	0.08	0.01	0.00	159	
Los Angeles County																														
Locomotives to Long Beach- LAC		3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0				8.32	24.39	149.50	0.00	5.17	4.66	0.14	0.42	2.55	0.00	0.09	0.08	0.01	0.00	153	
Total Emissions All Counties																														
															55.76	247.43	1043.11	0.65	37.65	32.65	4.51	26.68	89.55	0.11	3.37	2.81	0.25	0.24	12,524	

1. Emission Factors from EMFAC 2007 area fleet average for SLO Basin, 57F, 73% H and 45 mph average speed. EMFAC for locomotives are in g/bhp-hr
2. Length of trip is assumed to be round trip distances, based on distance to SLO for LDA and LDT
3. Weekday and weekend trip numbers include 10 trips for the night shift
4. Distance for HDT for crude deliveries is based on the weighted distance from crude sources listed in section 2.0
5. Assumes that all of Hwy 166 is within SLO County (up to Kern County Line)
6. Distance for sulfur deliveries based on distance to Bakersfield
7. Distance for coke deliveries based on distance to Mojave
8. SO2 emissions from locomotives based on 330 ppm fuel and mass balance assuming BSFC of 0.336 gal/bhp-hr
9. Locomotive emission factors based on EPA 1997 and fleet average for 2009
10. Locomotive HP from POLB air emissions inventory 2008 documents, assuming 3 locomotives, 4000 hp each with an average 28% load factor
11. Locomotive GHG emission factors based on POLB 2008
12. Locomotive emissions assumes 40 mph average train speed, 100 tons of coke per rail car and 23 rail cars per train (as per POLB 2008).
13. Aermod Emissions, g/m2-s
2.64E-09 route to 166. For diesel trucks only between refinery and 101, annual average, x2 for leaving and returning
14. Aermod Emissions, g/m2-s
2.64E-09 route to 10N. For diesel trucks only between refinery and 101, annual average, x2 for leaving and returning
15. Aermod Emissions, g/m2-s
2.11E-08 route to 101S. For diesel trucks only between refinery and 101, annual average, x2 for leaving and returning
- Route to 166 distance
6.9 miles
- Route to 101N distance
6.3 miles
- Route to 101S distance
16.7 miles
- Route to 166 fraction
0.1 estimated
- Route to 101N fraction
0.1 estimated
- Route to 101S fraction
0.8 estimated

Santa Barbara APCD Significance Threshold for mobile sources is 25 lbs NOx/day
Monterrey APCD Significance Threshold for is 137 lbs Nox or VOC/day
San Joaquin (Kern County) APCD Significance Threshold for is 10 tons Nox or VOC/year

ConocoPhillips Offsite Mobile Emissions
Baseline Operations at 44,500 bpd

		Emission Factors (lbs/mile or g/bhp-hr for locomotives)									Peak Round Trips per day	Average Round Trips per day	Length of Round Trip (miles)	Days	Peak Day Emissions, lbs/day						Total Emissions, Tons or Tons/yr									
		ROG	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	N2O	CH4	CO2					ROG	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	ROG	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	N2O	CH4	CO2	
Source		Vehicle Type																												
Within SLO County																														
Workers/Visitors weekdays		LDA - Gasoline	0.00019	0.00558	0.00062	0.00001	0.00006	0.00003	0.00003	0.00005	0.6	170	170.0	44	260	1.45	41.72	4.65	0.05	0.48	0.23	0.19	5.42	0.60	0.01	0.06	0.03	0.03	0.05	617
Workers/Visitors weekends		LDA - Gasoline	0.00019	0.00558	0.00062	0.00001	0.00006	0.00003	0.00003	0.00005	0.6	0	10.0	44	104	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.00	0.00	0.00	0.00	0.00	0.00	15
LDT trucks - misc refinery deliveries		LDT - Diesel	0.00039	0.01073	0.00137	0.00001	0.00007	0.00004	0.00012	0.00008	0.8	10	10.0	44	365	0.17	4.72	0.60	0.00	0.03	0.02	0.03	0.86	0.11	0.00	0.01	0.00	0.01	0.01	63
HHDT Trucks - coke export		HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	44.1	44.1	150	365	8.22	41.16	173.83	0.23	6.51	5.44	1.50	7.51	31.72	0.04	1.19	0.99	0.07	0.07	4531
HHDT Trucks - sulfur export		HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	4.4	4.4	150	365	0.83	4.15	17.53	0.02	0.66	0.55	0.15	0.76	3.20	0.00	0.12	0.10	0.01	0.01	457
HHDT Trucks - crude deliveries to SM		HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	20.5	20.5	90	365	2.29	11.48	48.50	0.07	1.82	1.52	0.42	2.10	8.85	0.01	0.33	0.28	0.02	0.02	1264
Locomotives to Long Beach- SLOC		3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0		0.11	9		0.72	2.10	12.86	0.00	0.44	0.40	0.01	0.04	0.26	0.00	0.01	0.01	0.00	0.00	16
Total																13.68	105.33	257.97	0.37	9.94	8.16	2.31	16.82	44.77	0.07	1.72	1.41	0.13	0.15	6962
Kern County																														
HHDT Trucks - sulfur export		HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	4.3	4.3	120	365	0.63	3.17	13.40	0.02	0.50	0.42	0.12	0.58	2.45	0.00	0.09	0.08	0.01	0.01	349
HHDT Trucks - coke export		HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	44.1	44.1	200	365	10.96	54.87	231.77	0.31	8.68	7.26	2.00	10.01	42.30	0.06	1.58	1.32	0.09	0.09	6041
Total																11.59	58.05	245.17	0.33	9.18	7.68	2.11	10.59	44.74	0.06	1.68	1.40	0.09	0.10	6390
Santa Barbara County																														
HHDT Trucks - crude deliveries to SM		HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	23.0	23.0	18	365	0.51	2.57	10.86	0.01	0.41	0.34	0.09	0.47	1.98	0.00	0.07	0.06	0.00	0.00	283
Locomotives to Long Beach- SBC		3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0		0.11	194		16.13	47.32	290.04	0.01	10.04	9.03	0.33	0.97	5.97	0.00	0.21	0.19	0.03	0.01	359
Total																16.65	49.90	300.90	0.02	10.45	9.37	0.43	1.44	7.95	0.00	0.28	0.25	0.03	0.01	643
Monterey County																														
HHDT Trucks - crude deliveries to SM		HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	13.2	13.2	42	365	0.69	3.44	14.54	0.02	0.54	0.46	0.13	0.63	2.65	0.00	0.10	0.08	0.01	0.01	379
Ventura County																														
Locomotives to Long Beach- VC		3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0		0.11	104		8.65	25.37	155.48	0.00	5.38	4.84	0.18	0.52	3.20	0.00	0.11	0.10	0.02	0.01	193
Los Angeles County																														
Locomotives to Long Beach- LAC		3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0		0.11	100		8.32	24.39	149.50	0.00	5.17	4.66	0.17	0.50	3.08	0.00	0.11	0.10	0.02	0.00	185
Total Emissions All Counties																														
															59.56	266.47	1123.57	0.75	40.66	35.17	5.32	30.51	106.40	0.13	3.99	3.34	0.29	0.28	14,751	

1. Aermod Emissions, g/m2-s 3.12E-09 route to 166. For diesel trucks only between refinery and 101, annual average, x2 for leaving and returning
 2. Aermod Emissions, g/m2-s 3.12E-09 route to 10N. For diesel trucks only between refinery and 101, annual average, x2 for leaving and returning
 3. Aermod Emissions, g/m2-s 2.50E-08 route to 101S. For diesel trucks only between refinery and 101, annual average, x2 for leaving and returning
- Route to 166 distance 6.9 miles
Route to 101N distance 6.3 miles
Route to 101S distance 16.7 miles
Route to 166 fraction 0.1 estimated
Route to 101N fraction 0.1 estimated
Route to 101S fraction 0.8 estimated

ConocoPhillips Offsite Mobile Emissions
Project Operations at 48,950 bpd

Source	Vehicle Type	Emission Factors (lbs/mile or g/bhp-hr for locomotives)									Peak Round Trips per day	Average Round Trips per day	Length of Round Trip (miles)	Days	Peak Day Emissions, lbs/day						Total Emissions, Tons or Tons/yr								
		ROG	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	N2O	CH4	CO2					ROG	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	ROG	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	N2O	CH4	CO2
Within SLO County																													
Workers/Visitors weekdays	LDA - Gasoline	0.00019	0.00558	0.00062	0.00001	0.00006	0.00003	0.00003	0.00005	0.6	170	170.0	44	260	1.45	41.72	4.65	0.05	0.48	0.23	0.19	5.42	0.60	0.01	0.06	0.03	0.03	0.05	617
Workers/Visitors weekends	LDA - Gasoline	0.00019	0.00558	0.00062	0.00001	0.00006	0.00003	0.00003	0.00005	0.6	0	10.0	44	104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.00	0.00	0.00	0.00	0.00	15
LDT trucks - misc refinery deliveries	LDT - Diesel	0.00039	0.01073	0.00137	0.00001	0.00007	0.00004	0.00012	0.00008	0.8	10	10.0	44	365	0.17	4.72	0.60	0.00	0.03	0.02	0.03	0.86	0.11	0.00	0.01	0.00	0.01	0.01	63
HHDT Trucks - coke export	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	47.6	47.6	150	365	8.86	44.39	187.50	0.25	7.02	5.87	1.62	8.10	34.22	0.05	1.28	1.07	0.07	0.07	4887
HHDT Trucks - sulfur export	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	4.9	4.9	150	365	0.91	4.57	19.28	0.03	0.72	0.60	0.17	0.83	3.52	0.00	0.13	0.11	0.01	0.01	503
HHDT Trucks - crude deliveries to SM	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	44.8	44.8	90	365	5.00	25.04	105.77	0.14	3.96	3.31	0.91	4.57	19.30	0.03	0.72	0.60	0.04	0.04	2757
Locomotives to Long Beach- SLOC		3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0	0.12	9		0.72	2.10	12.86	0.00	0.44	0.40	0.02	0.05	0.28	0.00	0.01	0.01	0.00	0.00	17
Total															17.11	122.54	330.67	0.47	12.66	10.44	2.94	19.96	58.05	0.08	2.22	1.83	0.16	0.18	8858
Increase over Baseline															3.44	17.21	72.70	0.10	2.72	2.28	0.63	3.14	13.29	0.02	0.50	0.42	0.03	0.03	1896
Kern County																													
HHDT Trucks - sulfur export	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	4.3	4.3	120	365	0.63	3.17	13.40	0.02	0.50	0.42	0.12	0.58	2.45	0.00	0.09	0.08	0.01	0.01	349
HHDT Trucks - coke export	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	47.6	47.6	200	365	11.82	59.19	250.00	0.34	9.36	7.83	2.16	10.80	45.63	0.06	1.71	1.43	0.09	0.10	6516
Total															12.45	62.36	263.40	0.35	9.86	8.25	2.27	11.38	48.07	0.06	1.80	1.51	0.10	0.10	6865
Increase over Baseline															0.86	4.32	18.23	0.02	0.68	0.57	0.16	0.79	3.33	0.00	0.12	0.10	0.01	0.01	475
Santa Barbara County																													
HHDT Trucks - crude deliveries to SM	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	50.1	50.1	18	365	1.12	5.61	23.69	0.03	0.89	0.74	0.20	1.02	4.32	0.01	0.16	0.14	0.01	0.01	617
Locomotives to Long Beach- SBC		3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0	0.12	194		16.13	47.32	290.04	0.01	10.04	9.03	0.36	1.05	6.41	0.00	0.22	0.20	0.03	0.01	386
Total															17.25	52.93	313.73	0.04	10.93	9.78	0.56	2.07	10.74	0.01	0.38	0.34	0.04	0.02	1004
Increase over Baseline															0.61	3.04	12.83	0.02	0.48	0.40	0.14	0.63	2.78	0.00	0.10	0.09	0.01	0.01	361
Monterey County																													
HHDT Trucks - crude deliveries to SM	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	28.8	28.8	42	365	1.50	7.51	31.71	0.04	1.19	0.99	0.27	1.37	5.79	0.01	0.22	0.18	0.01	0.01	827
Increase over Baseline															0.81	4.06	17.17	0.02	0.64	0.54	0.15	0.74	3.13	0.00	0.12	0.10	0.01	0.01	447
Ventura County																													
Locomotives to Long Beach- VC		3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0	0.12	104		8.65	25.37	155.48	0.00	5.38	4.84	0.19	0.56	3.44	0.00	0.12	0.11	0.02	0.01	207
Increase over Baseline															0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.24	0.00	0.01	0.01	0.00	0.00	14
Los Angeles County																													
Locomotives to Long Beach- LAC		3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0	0.12	100		8.32	24.39	149.50	0.00	5.17	4.66	0.18	0.54	3.31	0.00	0.11	0.10	0.02	0.01	199
Increase over Baseline															0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.23	0.00	0.01	0.01	0.00	0.00	14
Total All Counties Increase Over Baseline																													
Total Emissions All Counties																													
															5.72	28.63	120.92	0.16	4.53	3.79	1.09	5.38	23.00	0.03	0.86	0.72	0.05	0.05	3208
															65.28	295.10	1244.49	0.92	45.19	38.95	6.42	35.89	129.39	0.16	4.85	4.06	0.34	0.33	17959

1. Aermod Emissions, g/m2-s 3.37E-09 route to 166. For diesel trucks only between refinery and 101, annual average, x2 for leaving and returning
 2. Aermod Emissions, g/m2-s 3.37E-09 route to 10N. For diesel trucks only between refinery and 101, annual average, x2 for leaving and returning
 3. Aermod Emissions, g/m2-s 2.70E-08 route to 101S. For diesel trucks only between refinery and 101, annual average, x2 for leaving and returning
- Route to 166 distance 6.9 miles
Route to 101N distance 6.3 miles
Route to 101S distance 16.7 miles
Route to 166 fraction 0.1 estimated
Route to 101N fraction 0.1 estimated
Route to 101S fraction 0.8 estimated

	Daily		Ann, Tons	
	Thresh	Proj	Thresh	Proj
SLOC Thresholds	25	76.1	25	13.9
ROG + NO _x	1.25	2.7		
Diesel Particulate Matter	25	0.0	25	0.0
Fugitive Dust Particulate Matter (PM ₁₀)	550	17.2		
CO				

ConocoPhillips Offsite Mobile Emissions - Summit Pump Station Alternative
Project Operations at 48,950 bpd

Source	Vehicle Type	Emission Factors (lbs/mile)									Peak Round Trips per day	Average Round Trips per day	Length of Round Trip (miles)	Days	Peak Day Emissions, lbs/day						Total Emissions, Tons or Tons/yr								
		ROG	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	N2O	CH4	CO2					ROG	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	ROG	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	N2O	CH4	CO2
Within SLO County																													
Workers/Visitors weekdays	LDA - Gasoline	0.00019	0.00558	0.00062	0.00001	0.00006	0.00003	0.00003	0.00005	0.6	170	170.0	44	260	1.45	41.72	4.65	0.05	0.48	0.23	0.19	5.42	0.60	0.01	0.06	0.03	0.03	0.05	617
Workers/Visitors weekends	LDA - Gasoline	0.00019	0.00558	0.00062	0.00001	0.00006	0.00003	0.00003	0.00005	0.6	0	10.0	44	104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.00	0.00	0.00	0.00	0.00	15
LDT trucks - misc refinery deliveries	LDT - Diesel	0.00039	0.01073	0.00137	0.00001	0.00007	0.00004	0.00012	0.00008	0.8	10	10.0	44	365	0.17	4.72	0.60	0.00	0.03	0.02	0.03	0.86	0.11	0.00	0.01	0.00	0.01	0.01	63
HHDT Trucks - coke export	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	47.6	47.6	150	365	8.86	44.39	187.50	0.25	7.02	5.87	1.62	8.10	34.22	0.05	1.28	1.07	0.07	0.07	4887
HHDT Trucks - sulfur export	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	4.9	4.9	150	365	0.91	4.57	19.28	0.03	0.72	0.60	0.17	0.83	3.52	0.00	0.13	0.11	0.01	0.01	503
HHDT Trucks - crude deliveries to SM	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	43.0	43.0	80	365	4.27	21.39	90.33	0.12	3.38	2.83	0.78	3.90	16.49	0.02	0.62	0.52	0.03	0.04	2354
Locomotives to Long Beach- SLOC	3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0		0.12	9		0.72	2.10	12.86	0.00	0.44	0.40	0.02	0.05	0.28	0.00	0.01	0.01	0.00	0.00	17
Total															16.38	118.88	315.23	0.45	12.08	9.95	2.80	19.30	55.24	0.08	2.11	1.74	0.15	0.18	8456
Increase over Baseline															2.71	13.56	57.26	0.08	2.14	1.79	0.50	2.48	10.47	0.01	0.39	0.33			
Kern County																													
HHDT Trucks - sulfur export	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	4.3	4.3	120	365	0.63	3.17	13.40	0.02	0.50	0.42	0.12	0.58	2.45	0.00	0.09	0.08	0.01	0.01	349
HHDT Trucks - coke export	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	47.6	47.6	200	365	11.82	59.19	250.00	0.34	9.36	7.83	2.16	10.80	45.63	0.06	1.71	1.43	0.09	0.10	6516
Total															12.45	62.36	263.40	0.35	9.86	8.25	2.27	11.38	48.07	0.06	1.80	1.51	0.10	0.10	6865
Increase over Baseline															0.86	4.32	18.23	0.02	0.68	0.57	0.16	0.79	3.33	0.00	0.12	0.10			
Santa Barbara County																													
HHDT Trucks - crude deliveries to SM	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	7.1	7.1	52	365	0.46	2.30	9.72	0.01	0.36	0.30	0.08	0.42	1.77	0.00	0.07	0.06	0.00	0.00	253
Locomotives to Long Beach- SBC	3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0		0.12	194		16.13	47.32	290.04	0.01	10.04	9.03	0.36	1.05	6.41	0.00	0.22	0.20	0.03	0.01	386
Total															16.59	49.62	299.76	0.02	10.40	9.34	0.44	1.47	8.19	0.00	0.29	0.26	0.04	0.01	639
Increase over Baseline															-0.05	-0.27	-1.14	0.00	-0.04	-0.04	0.01	0.02	0.24	0.00	0.01	0.01			
Monterey County																													
HHDT Trucks - crude deliveries to SM	HDDT - Diesel	0.00124	0.00622	0.02626	0.00004	0.00098	0.00082	0.00005	0.00006	3.8	28.8	28.8	42	365	1.50	7.51	31.71	0.04	1.19	0.99	0.27	1.37	5.79	0.01	0.22	0.18	0.01	0.01	827
Increase over Baseline															0.81	4.06	17.17	0.02	0.64	0.54	0.15	0.74	3.13	0.00	0.12	0.10			
Ventura County																													
Locomotives to Long Beach- VC	3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0		0.12	104		8.65	25.37	155.48	0.00	5.38	4.84	0.19	0.56	3.44	0.00	0.12	0.11	0.02	0.01	207
Increase over Baseline															0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.24	0.00	0.01	0.01			
Los Angeles County																													
Locomotives to Long Beach- LAC	3360	0.45	1.32	8.09	0.00	0.28	0.25	0.04	0.01	487.0		0.12	100		8.32	24.39	149.50	0.00	5.17	4.66	0.18	0.54	3.31	0.00	0.11	0.10	0.02	0.01	199
Increase over Baseline															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 Emissions within SLO County																													
															17.10	120.98	328.09	0.45	12.53	10.35	2.82	19.34	55.52	0.08	2.12	1.75	0.15	0.18	8473

- Aermod Emissions, g/m2-s
3.37E-09 route to 166. For diesel trucks only between refinery and 101, annual average, x2 for leaving and returning
 - Aermod Emissions, g/m2-s
3.37E-09 route to 10N. For diesel trucks only between refinery and 101, annual average, x2 for leaving and returning
 - Aermod Emissions, g/m2-s
2.70E-08 route to 101S. For diesel trucks only between refinery and 101, annual average, x2 for leaving and returning
- Route to 166 distance
6.9 miles
Route to 101N distance
6.3 miles
Route to 101S distance
16.7 miles
Route to 166 fraction
0.1 estimated
Route to 101N fraction
0.1 estimated
Route to 101S fraction
0.8 estimated

	Daily		Ann, Tons		Change
	Thresh	Proj	Thresh	Proj	
SLOC Thresholds	25	60.0	25	11.0	-16.2
ROG + NO _x	1.25	2.1			-0.6
Diesel Particulate Matter	25	0.0	25	0.0	
Fugitive Dust Particulate Matter (PM ₁₀)	550	13.6			-3.7

GHG Emissions Calculations, metric tonnes

2007 GHG Emissions

Source Type	CO2	N2O	CH4	SF6	Total CO2 Equivalent Emissions
<i>Refinery</i>					
Stationary Combustion	233,432	0.4	3.9	0	233,650
Coke Process	7,351	0.2	0.0	0	7,402
Mobile Combustion	751	0.0	0.0	0	759
Refrigerant Usage	0.0	0.0	0.0	0	20
Sulfur Recovery	8,511	0.0	0.0	0	8,511
Water Processes	0	0.2	1.5	0	105
VOC Fugitives	0	0.0	0.5	0	11
SF6 Usage	0	0.0	0.0	0	0
Purchased Electricity	7,690	0.0	0.1	0	7,701
TOTAL REFINERY	257,734	0.9	6.0	0	258,160
<i>Offsite Mobile</i>					
Workers commuting	568	0.0	0.0	0	577
LDT trucks - misc refinery deliveries	57	0.0	0.0	0	60
HHDT Trucks - coke export	8,127	0.1	0.1	0	8,165
HHDT Trucks - sulfur export	570	0.0	0.0	0	572
HHDT Trucks - crude deliveries to SM	1,390	0.0	0.0	0	1,396
Locomotives to Long Beach	561	0.0	0.0	0	576
TOTAL MOBILE	11,272	0.2	0.2	0	11,346
TOTAL					269,506

Source: SLOAPCD GHG Inventory, year 2007

Baseline Operations (at 44,500 bpd)

2007 Throughput, bpd

43321

Baseline operations throughput, bpd

44500

Throughput Increase, faction

0.03

Source Type	CO2	N2O	CH4	SF6	Total CO2 Equivalent Emissions
Stationary Combustion	238,905	0.4	4.0	0.0	239,129
Coke Process (removed in 2007)	0	0.0	0.0	0.0	0
Mobile Combustion	751	0.0	0.0	0.0	780
Refrigerant Usage	0	0.0	0.0	0.0	20
Sulfur Recovery	8,743	0.0	0.0	0.0	8,743
Water Processes	0	0.2	1.5	0.0	105
VOC Fugitives	0	0.0	0.5	0.0	11
SF6 Usage	0	0.0	0.0	0.0	0
Purchased Electricity	6,256	0.0	0.0	0.0	6,265
TOTAL	254,655	0.7	6.1	0.0	255,052
<i>Offsite Mobile</i>					
Workers commuting	568	0.0	0.0	0.0	577
LDT trucks - misc refinery deliveries	57	0.0	0.0	0.0	60
HHDT Trucks - coke export	9,514	0.1	0.1	0.0	9,560
HHDT Trucks - sulfur export	725	0.0	0.0	0.0	729
HHDT Trucks - crude deliveries to SM	1,734	0.0	0.0	0.0	1,742
Locomotives to Long Beach	678	0.1	0.0	0.0	696
TOTAL MOBILE	13,276	0.3	0.3	0.0	13,362
TOTAL					268,415

as per calculations provided by Applicant. Increases in emissions are not linear with crude throughput

GHG Emissions Calculations

Project Operations

Proposed Project throughput

48950

Throughput Increase, fraction

0.1

Source Type	CO2	N2O	CH4	SF6	Total CO2 Equivalent Emissions
Stationary Combustion	259,563	0.5	4.4	0.0	259,806
Coke Process (removed in 2007)	0	0.0	0.0	0.0	0
Mobile Combustion	751	0.0	0.0	0.0	780
Refrigerant Usage	0	0.0	0.0	0.0	20
Sulfur Recovery	9,617	0.0	0.0	0.0	9,617
Water Processes	0	0.2	1.5	0.0	105
VOC Fugitives	0	0.0	0.5	0.0	11
SF6 Usage	0	0.0	0.0	0.0	0
Purchased Electricity	2,279	0.0	0.0	0.0	2,282
TOTAL	272,210	0.8	6.4	0.0	272,621
<i>Offsite Mobile</i>					
Workers commuting	568	0.0	0.0	0.0	577
LDT trucks - misc refinery deliveries	57	0.0	0.0	0.0	60
HHDT Trucks - coke export	10,262	0.1	0.2	0.0	10,311
HHDT Trucks - sulfur export	767	0.0	0.0	0.0	770
HHDT Trucks - crude deliveries to SM	3,780	0.1	0.1	0.0	3,799
Locomotives to Long Beach	728	0.1	0.0	0.0	747
TOTAL MOBILE	16,163	0.3	0.3	0.0	16,264
TOTAL					288,885
Increase Over Baseline					20,470

as per calculations provided by Applicant. Increases in emissions are not linear with crude throughput

AERMOD Results, Diesel Truck Traffic Modeling

Peak Area near Refinery Exit, all three Routes receptors combined
pts within 100 feet of roadway centerline have been removed

max combined 2009 operations 4.60 cancer risk per million
max combined baseline operations 5.43 cancer risk per million
max combined proposed project 5.87 cancer risk per million

X	Y	Unit Conc, ug/m3-g			Year 2009 Cancer Risk				Baseline Operations Cancer Risk				Project Operations Cancer Risk			
		Route 101 North	Route 101 South	Route 166	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined
172076	3881403	7363	25771	7472	0.0058	0.1635	0.0059	0.1753	6.90E-03	1.93E-01	7.00E-03	2.07E-01	7.45E-03	2.09E-01	7.56E-03	2.24E-01
172176	3881403	7691	26453	7675	0.0061	0.1678	0.0061	0.1800	7.21E-03	1.98E-01	7.19E-03	2.13E-01	7.79E-03	2.14E-01	7.77E-03	2.30E-01
172276	3881403	7981	27198	7915	0.0063	0.1726	0.0063	0.1852	7.48E-03	2.04E-01	7.42E-03	2.19E-01	8.08E-03	2.20E-01	8.01E-03	2.36E-01
172376	3881403	8250	28063	8183	0.0065	0.1780	0.0065	0.1911	7.73E-03	2.10E-01	7.67E-03	2.26E-01	8.35E-03	2.27E-01	8.29E-03	2.44E-01
172476	3881403	8466	28997	8463	0.0067	0.1840	0.0067	0.1974	7.93E-03	2.17E-01	7.93E-03	2.33E-01	8.57E-03	2.35E-01	8.57E-03	2.52E-01
172576	3881403	8565	30047	8758	0.0068	0.1906	0.0069	0.2044	8.03E-03	2.25E-01	8.21E-03	2.41E-01	8.67E-03	2.43E-01	8.87E-03	2.61E-01
172676	3881403	8445	31044	9047	0.0067	0.1969	0.0072	0.2108	7.91E-03	2.33E-01	8.48E-03	2.49E-01	8.55E-03	2.51E-01	9.16E-03	2.69E-01
172776	3881403	8190	32223	9373	0.0065	0.2044	0.0074	0.2184	7.67E-03	2.42E-01	8.78E-03	2.58E-01	8.29E-03	2.61E-01	9.49E-03	2.79E-01
172876	3881403	7948	33315	9677	0.0063	0.2114	0.0077	0.2253	7.45E-03	2.50E-01	9.07E-03	2.66E-01	8.05E-03	2.70E-01	9.80E-03	2.88E-01
172976	3881403	7969	34540	9976	0.0063	0.2191	0.0079	0.2334	7.47E-03	2.59E-01	9.35E-03	2.76E-01	8.07E-03	2.80E-01	1.01E-02	2.98E-01
173076	3881403	8255	35626	10224	0.0065	0.2260	0.0081	0.2407	7.73E-03	2.67E-01	9.58E-03	2.84E-01	8.36E-03	2.89E-01	1.04E-02	3.07E-01
173176	3881403	8732	36757	10478	0.0069	0.2332	0.0083	0.2484	8.18E-03	2.76E-01	9.82E-03	2.94E-01	8.84E-03	2.98E-01	1.06E-02	3.17E-01
173276	3881403	9171	38041	10777	0.0073	0.2413	0.0085	0.2572	8.59E-03	2.85E-01	1.01E-02	3.04E-01	9.29E-03	3.08E-01	1.09E-02	3.28E-01
173376	3881403	9326	39436	11109	0.0074	0.2502	0.0088	0.2664	8.74E-03	2.96E-01	1.04E-02	3.15E-01	9.44E-03	3.19E-01	1.12E-02	3.40E-01
173476	3881403	9213	41293	11506	0.0073	0.2620	0.0091	0.2784	8.63E-03	3.10E-01	1.08E-02	3.29E-01	9.33E-03	3.34E-01	1.16E-02	3.55E-01
173576	3881403	8959	43422	11909	0.0071	0.2755	0.0094	0.2920	8.39E-03	3.25E-01	1.12E-02	3.45E-01	9.07E-03	3.52E-01	1.21E-02	3.73E-01
173676	3881403	8707	45640	12258	0.0069	0.2896	0.0097	0.3062	8.16E-03	3.42E-01	1.15E-02	3.62E-01	8.82E-03	3.70E-01	1.24E-02	3.91E-01
173776	3881403	8525	48177	12576	0.0068	0.3057	0.0100	0.3224	7.99E-03	3.61E-01	1.18E-02	3.81E-01	8.63E-03	3.90E-01	1.27E-02	4.12E-01
173876	3881403	8409	51188	12893	0.0067	0.3248	0.0102	0.3416	7.88E-03	3.84E-01	1.21E-02	4.04E-01	8.51E-03	4.15E-01	1.31E-02	4.36E-01
173976	3881403	8334	54641	13223	0.0066	0.3467	0.0105	0.3638	7.81E-03	4.10E-01	1.24E-02	4.30E-01	8.44E-03	4.43E-01	1.34E-02	4.64E-01
174076	3881403	8287	58383	13584	0.0066	0.3704	0.0108	0.3877	7.76E-03	4.38E-01	1.27E-02	4.58E-01	8.39E-03	4.73E-01	1.38E-02	4.95E-01
174176	3881403	8281	62573	13942	0.0066	0.3970	0.0111	0.4146	7.76E-03	4.69E-01	1.31E-02	4.90E-01	8.38E-03	5.07E-01	1.41E-02	5.29E-01
174276	3881403	8335	67873	14340	0.0066	0.4306	0.0114	0.4486	7.81E-03	5.09E-01	1.34E-02	5.30E-01	8.44E-03	5.50E-01	1.45E-02	5.73E-01
174376	3881403	8436	74330	14738	0.0067	0.4716	0.0117	0.4900	7.90E-03	5.57E-01	1.38E-02	5.79E-01	8.54E-03	6.02E-01	1.49E-02	6.26E-01
174476	3881403	8558	80460	15136	0.0068	0.5105	0.0120	0.5293	8.02E-03	6.03E-01	1.42E-02	6.25E-01	8.66E-03	6.52E-01	1.53E-02	6.76E-01
174576	3881403	8667	86280	15497	0.0069	0.5474	0.0123	0.5665	8.12E-03	6.47E-01	1.45E-02	6.69E-01	8.78E-03	6.99E-01	1.57E-02	7.23E-01
174676	3881403	8646	94461	15904	0.0069	0.5993	0.0126	0.6188	8.10E-03	7.08E-01	1.49E-02	7.31E-01	8.75E-03	7.65E-01	1.61E-02	7.90E-01
172076	3881503	7580	25605	7695	0.0060	0.1624	0.0061	0.1746	7.10E-03	1.92E-01	7.21E-03	2.06E-01	7.67E-03	2.07E-01	7.79E-03	2.23E-01
172176	3881503	7945	26327	7910	0.0063	0.1670	0.0063	0.1796	7.44E-03	1.97E-01	7.41E-03	2.12E-01	8.04E-03	2.13E-01	8.01E-03	2.29E-01
172276	3881503	8256	27042	8156	0.0065	0.1716	0.0065	0.1846	7.73E-03	2.03E-01	7.64E-03	2.18E-01	8.36E-03	2.19E-01	8.26E-03	2.36E-01
172376	3881503	8555	27948	8447	0.0068	0.1773	0.0067	0.1908	8.02E-03	2.09E-01	7.91E-03	2.25E-01	8.66E-03	2.26E-01	8.55E-03	2.44E-01
172476	3881503	8775	28857	8740	0.0070	0.1831	0.0069	0.1970	8.22E-03	2.16E-01	8.19E-03	2.33E-01	8.88E-03	2.34E-01	8.85E-03	2.51E-01
172576	3881503	8864	29869	9045	0.0070	0.1895	0.0072	0.2037	8.30E-03	2.24E-01	8.47E-03	2.41E-01	8.97E-03	2.42E-01	9.16E-03	2.60E-01
172676	3881503	8733	30947	9366	0.0069	0.1963	0.0074	0.2107	8.18E-03	2.32E-01	8.77E-03	2.49E-01	8.84E-03	2.51E-01	9.48E-03	2.69E-01
172776	3881503	8431	32032	9693	0.0067	0.2032	0.0077	0.2176	7.90E-03	2.40E-01	9.08E-03	2.57E-01	8.54E-03	2.59E-01	9.81E-03	2.78E-01
172876	3881503	8239	33285	10041	0.0065	0.2112	0.0080	0.2257	7.72E-03	2.49E-01	9.41E-03	2.67E-01	8.34E-03	2.70E-01	1.02E-02	2.88E-01
172976	3881503	8309	34410	10335	0.0066	0.2183	0.0082	0.2331	7.78E-03	2.58E-01	9.68E-03	2.75E-01	8.41E-03	2.79E-01	1.05E-02	2.98E-01
173076	3881503	8698	35606	10623	0.0069	0.2259	0.0084	0.2412	8.15E-03	2.67E-01	9.95E-03	2.85E-01	8.81E-03	2.88E-01	1.08E-02	3.08E-01
173176	3881503	9234	36796	10915	0.0073	0.2334	0.0087	0.2494	8.65E-03	2.76E-01	1.02E-02	2.95E-01	9.35E-03	2.98E-01	1.11E-02	3.18E-01
173276	3881503	9647	38208	11273	0.0077	0.2424	0.0089	0.2590	9.04E-03	2.86E-01	1.06E-02	3.06E-01	9.77E-03	3.09E-01	1.14E-02	3.31E-01
173376	3881503	9692	39630	11641	0.0077	0.2514	0.0092	0.2683	9.08E-03	2.97E-01	1.09E-02	3.17E-01	9.81E-03	3.21E-01	1.18E-02	3.43E-01
173476	3881503	9464	41275	12029	0.0075	0.2619	0.0095	0.2789	8.87E-03	3.09E-01	1.13E-02	3.30E-01	9.58E-03	3.34E-01	1.22E-02	3.56E-01
173576	3881503	9169	43160	12413	0.0073	0.2738	0.0098	0.2909	8.59E-03	3.23E-01	1.16E-02	3.44E-01	9.28E-03	3.50E-01	1.26E-02	3.71E-01
173676	3881503	8933	45328	12784	0.0071	0.2876	0.0101	0.3048	8.37E-03	3.40E-01	1.20E-02	3.60E-01	9.04E-03	3.67E-01	1.29E-02	3.89E-01
173776	3881503	8783	47749	13114	0.0070	0.3029	0.0104	0.3203	8.23E-03	3.58E-01	1.23E-02	3.78E-01	8.89E-03	3.87E-01	1.33E-02	4.09E-01
173876	3881503	8709	50659	13449	0.0069	0.3214	0.0107	0.3390	8.16E-03	3.80E-01	1.26E-02	4.00E-01	8.82E-03	4.10E-01	1.36E-02	4.33E-01
173976	3881503	8660	53931	13784	0.0069	0.3422	0.0109	0.3600	8.11E-03	4.04E-01	1.29E-02	4.25E-01	8.77E-03	4.37E-01	1.40E-02	4.60E-01
174076	3881503	8638	57512	14199	0.0069	0.3649	0.0113	0.3830	8.09E-03	4.31E-01	1.33E-02	4.52E-01	8.75E-03	4.66E-01	1.44E-02	4.89E-01
174176	3881503	8670	61347	14611	0.0069	0.3892	0.0116	0.4077	8.12E-03	4.60E-01	1.37E-02	4.82E-01	8.78E-03	4.97E-01	1.48E-02	5.20E-01
174276	3881503	8725	66218	15076	0.0069	0.4201	0.0120	0.4390	8.17E-03	4.96E-01	1.41E-02	5.19E-01	8.83E-03	5.36E-01	1.53E-02	5.60E-01
174376	3881503	8831	72437	15524	0.0070	0.4596	0.0123	0.4789	8.27E-03	5.43E-01	1.45E-02	5.66E-01	8.94E-03	5.87E-01	1.57E-02	6.11E-01
174476	3881503	8959	78368	15926	0.0071	0.4972	0.0126	0.5169	8.39E-03	5.87E-01	1.49E-02	6.11E-01	9.07E-03	6.35E-01	1.61E-02	6.60E-01
174576	3881503	8982	83583	16347	0.0071	0.5303	0.0130	0.5504	8.42E-03	6.26E-01	1.53E-02	6.50E-01	9.09E-03	6.77E-01	1.66E-02	7.03E-01
174676	3881503	8838	90909	16776	0.0070	0.5768	0.0133	0.5971	8.28E-03	6.81E-01	1.57E-02	7.05E-01	8.95E-03	7.36E-01	1.70E-02	7.62E-01
172076	3881603	7831	25553	7968	0.0062	0.1621	0.0063	0.1746	7.34E-03	1.92E-01	7.47E-03	2.06E-01	7.93E-03	2.07E-01	8.07E-03	2.23E-01
172176	3881603	8215	26218	8181	0.0065	0.1663	0.0065	0.1793	7.70E-03	1.97E-01	7.67E-03	2.12E-01	8.32E-03	2.12E-01	8.28E-03	2.29E-01
172276	3881603	8580	27022	8455	0.0068	0.1714	0.0067	0.1849	8.04E-03	2.03E-01	7.92E-03	2.18E-01	8.69E-03	2.19E-01	8.56E-03	2.36E-01
172376	3881603	8869	27802	8742	0.0070	0.1764	0.0069	0.1904	8.31E-03	2.08E-01	8.19E-03	2.25E-01	8.98E-03	2.25E-01	8.85E-03	2.43E-01

AERMOD Results, Diesel Truck Traffic Modeling

Peak Area near Refinery Exit, all three Routes receptors combined
pts within 100 feet of roadway centerline have been removed

max combined 2009 operations 4.60 cancer risk per million
max combined baseline operations 5.43 cancer risk per million
max combined proposed project 5.87 cancer risk per million

X	Y	Unit Conc, ug/m3-g			Year 2009 Cancer Risk				Baseline Operations Cancer Risk				Project Operations Cancer Risk			
		Route 101 North	Route 101 South	Route 166	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined
174376	3881603	9258	70773	16362	0.0073	0.4490	0.0130	0.4693	8.67E-03	5.30E-01	1.53E-02	5.54E-01	9.37E-03	5.73E-01	1.66E-02	5.99E-01
174476	3881603	9277	76341	16847	0.0074	0.4843	0.0134	0.5050	8.69E-03	5.72E-01	1.58E-02	5.97E-01	9.39E-03	6.18E-01	1.71E-02	6.45E-01
174576	3881603	9111	81111	17255	0.0072	0.5146	0.0137	0.5355	8.54E-03	6.08E-01	1.62E-02	6.33E-01	9.22E-03	6.57E-01	1.75E-02	6.84E-01
174676	3881603	8951	87995	17668	0.0071	0.5583	0.0140	0.5794	8.39E-03	6.60E-01	1.66E-02	6.84E-01	9.06E-03	7.13E-01	1.79E-02	7.40E-01
172076	3881703	8093	25527	8286	0.0064	0.1619	0.0066	0.1749	7.58E-03	1.91E-01	7.76E-03	2.07E-01	8.19E-03	2.07E-01	8.39E-03	2.23E-01
172176	3881703	8536	26245	8515	0.0068	0.1665	0.0068	0.1800	8.00E-03	1.97E-01	7.98E-03	2.13E-01	8.64E-03	2.13E-01	8.62E-03	2.30E-01
172276	3881703	8901	26935	8783	0.0071	0.1709	0.0070	0.1849	8.34E-03	2.02E-01	7.83E-03	2.18E-01	9.01E-03	2.18E-01	8.89E-03	2.36E-01
172376	3881703	9241	27827	9110	0.0073	0.1765	0.0072	0.1911	8.66E-03	2.09E-01	8.53E-03	2.26E-01	9.36E-03	2.25E-01	9.22E-03	2.44E-01
172476	3881703	9470	28717	9440	0.0075	0.1822	0.0075	0.1972	8.87E-03	2.15E-01	8.84E-03	2.33E-01	9.59E-03	2.33E-01	9.56E-03	2.52E-01
172576	3881703	9530	29706	9782	0.0076	0.1885	0.0078	0.2038	8.93E-03	2.23E-01	9.17E-03	2.41E-01	9.65E-03	2.41E-01	9.90E-03	2.60E-01
172676	3881703	9313	30697	10126	0.0074	0.1947	0.0080	0.2102	8.73E-03	2.30E-01	9.49E-03	2.48E-01	9.43E-03	2.49E-01	1.03E-02	2.68E-01
172776	3881703	8994	31815	10503	0.0071	0.2018	0.0083	0.2173	8.43E-03	2.38E-01	9.84E-03	2.57E-01	9.11E-03	2.58E-01	1.06E-02	2.77E-01
172876	3881703	8863	32965	10868	0.0070	0.2091	0.0086	0.2248	8.30E-03	2.47E-01	1.02E-02	2.66E-01	8.97E-03	2.67E-01	1.10E-02	2.87E-01
172976	3881703	9112	34090	11192	0.0072	0.2163	0.0089	0.2324	8.54E-03	2.56E-01	1.05E-02	2.75E-01	9.23E-03	2.76E-01	1.13E-02	2.97E-01
173076	3881703	9719	35507	11576	0.0077	0.2253	0.0092	0.2422	9.11E-03	2.66E-01	1.08E-02	2.86E-01	9.84E-03	2.88E-01	1.17E-02	3.09E-01
173176	3881703	10317	36992	12008	0.0082	0.2347	0.0095	0.2524	9.67E-03	2.77E-01	1.13E-02	2.98E-01	1.04E-02	3.00E-01	1.22E-02	3.22E-01
173276	3881703	10592	38560	12499	0.0084	0.2446	0.0099	0.2629	9.92E-03	2.89E-01	1.17E-02	3.11E-01	1.07E-02	3.12E-01	1.27E-02	3.36E-01
173376	3881703	10374	40135	12984	0.0082	0.2546	0.0103	0.2732	9.72E-03	3.01E-01	1.22E-02	3.23E-01	1.05E-02	3.25E-01	1.31E-02	3.49E-01
173476	3881703	9982	41796	13446	0.0079	0.2652	0.0107	0.2837	9.35E-03	3.13E-01	1.26E-02	3.35E-01	1.01E-02	3.39E-01	1.36E-02	3.62E-01
173576	3881703	9663	43399	13815	0.0077	0.2753	0.0110	0.2940	9.05E-03	3.25E-01	1.29E-02	3.47E-01	9.78E-03	3.52E-01	1.40E-02	3.75E-01
173676	3881703	9489	45237	14154	0.0075	0.2870	0.0112	0.3057	8.89E-03	3.39E-01	1.33E-02	3.61E-01	9.61E-03	3.66E-01	1.43E-02	3.90E-01
173776	3881703	9430	47364	14465	0.0075	0.3005	0.0115	0.3194	8.84E-03	3.55E-01	1.36E-02	3.77E-01	9.55E-03	3.84E-01	1.46E-02	4.08E-01
173876	3881703	9431	49968	14841	0.0075	0.3170	0.0118	0.3363	8.84E-03	3.75E-01	1.39E-02	3.97E-01	9.55E-03	4.05E-01	1.50E-02	4.29E-01
173976	3881703	9445	53054	15266	0.0075	0.3366	0.0121	0.3562	8.85E-03	3.98E-01	1.43E-02	4.21E-01	9.56E-03	4.30E-01	1.55E-02	4.55E-01
174076	3881703	9480	56403	15759	0.0075	0.3578	0.0125	0.3779	8.88E-03	4.23E-01	1.48E-02	4.46E-01	9.60E-03	4.57E-01	1.60E-02	4.82E-01
174176	3881703	9538	59843	16263	0.0076	0.3797	0.0129	0.4001	8.94E-03	4.49E-01	1.52E-02	4.73E-01	9.66E-03	4.85E-01	1.65E-02	5.11E-01
174276	3881703	9642	64029	16756	0.0076	0.4062	0.0133	0.4272	9.03E-03	4.80E-01	1.57E-02	5.05E-01	9.76E-03	5.19E-01	1.70E-02	5.45E-01
174376	3881703	9696	69498	17288	0.0077	0.4409	0.0137	0.4623	9.08E-03	5.21E-01	1.62E-02	5.46E-01	9.82E-03	5.63E-01	1.75E-02	5.90E-01
174476	3881703	9473	74642	17785	0.0075	0.4736	0.0141	0.4952	8.88E-03	5.59E-01	1.67E-02	5.85E-01	9.59E-03	6.05E-01	1.80E-02	6.32E-01
174576	3881703	9259	79366	18225	0.0073	0.5035	0.0145	0.5253	8.67E-03	5.95E-01	1.71E-02	6.21E-01	9.37E-03	6.43E-01	1.85E-02	6.71E-01
174676	3881703	9087	86045	18670	0.0072	0.5459	0.0148	0.5679	8.51E-03	6.45E-01	1.75E-02	6.71E-01	9.20E-03	6.97E-01	1.89E-02	7.25E-01
172076	3881803	8391	25576	8653	0.0067	0.1623	0.0069	0.1758	7.66E-03	1.92E-01	8.11E-03	2.08E-01	8.50E-03	2.07E-01	8.76E-03	2.24E-01
172176	3881803	8861	26221	8878	0.0070	0.1664	0.0070	0.1804	8.30E-03	1.97E-01	8.32E-03	2.13E-01	8.97E-03	2.12E-01	8.99E-03	2.30E-01
172276	3881803	9280	26989	9175	0.0074	0.1712	0.0073	0.1859	8.69E-03	2.02E-01	8.60E-03	2.20E-01	9.40E-03	2.19E-01	9.29E-03	2.37E-01
172376	3881803	9599	27751	9498	0.0076	0.1761	0.0075	0.1912	8.99E-03	2.08E-01	8.90E-03	2.26E-01	9.72E-03	2.25E-01	9.62E-03	2.44E-01
172476	3881803	9861	28721	9869	0.0078	0.1822	0.0078	0.1979	9.24E-03	2.15E-01	9.25E-03	2.34E-01	9.98E-03	2.33E-01	9.99E-03	2.53E-01
172576	3881803	9884	29667	10228	0.0078	0.1882	0.0081	0.2042	9.26E-03	2.22E-01	9.58E-03	2.41E-01	1.00E-02	2.40E-01	1.04E-02	2.61E-01
172676	3881803	9654	30717	10612	0.0077	0.1949	0.0084	0.2110	9.04E-03	2.30E-01	9.94E-03	2.49E-01	9.77E-03	2.49E-01	1.07E-02	2.69E-01
172776	3881803	9329	31833	11017	0.0074	0.2020	0.0087	0.2181	8.74E-03	2.39E-01	1.03E-02	2.58E-01	9.45E-03	2.58E-01	1.12E-02	2.78E-01
172876	3881803	9260	32970	11404	0.0073	0.2092	0.0090	0.2256	8.68E-03	2.47E-01	1.07E-02	2.66E-01	9.38E-03	2.67E-01	1.15E-02	2.88E-01
172976	3881803	9629	34132	11761	0.0076	0.2165	0.0093	0.2335	9.02E-03	2.56E-01	1.10E-02	2.76E-01	9.75E-03	2.76E-01	1.19E-02	2.98E-01
173076	3881803	10312	35538	12178	0.0082	0.2255	0.0097	0.2433	9.66E-03	2.66E-01	1.14E-02	2.87E-01	1.04E-02	2.88E-01	1.23E-02	3.11E-01
173176	3881803	10876	37003	12645	0.0086	0.2348	0.0100	0.2534	1.02E-02	2.77E-01	1.18E-02	2.99E-01	1.10E-02	3.00E-01	1.28E-02	3.24E-01
173276	3881803	10966	38585	13181	0.0087	0.2448	0.0105	0.2639	1.03E-02	2.89E-01	1.23E-02	3.12E-01	1.11E-02	3.13E-01	1.33E-02	3.37E-01
173376	3881803	10627	40200	13715	0.0084	0.2550	0.0109	0.2743	9.96E-03	3.01E-01	1.28E-02	3.24E-01	1.08E-02	3.26E-01	1.39E-02	3.50E-01
173476	3881803	10213	41813	14210	0.0081	0.2653	0.0113	0.2846	9.57E-03	3.13E-01	1.33E-02	3.36E-01	1.03E-02	3.39E-01	1.44E-02	3.63E-01
173576	3881803	9935	43339	14619	0.0079	0.2750	0.0116	0.2944	9.31E-03	3.25E-01	1.37E-02	3.48E-01	1.01E-02	3.51E-01	1.48E-02	3.76E-01
173676	3881803	9824	45143	14981	0.0078	0.2864	0.0119	0.3061	9.20E-03	3.38E-01	1.40E-02	3.62E-01	9.95E-03	3.66E-01	1.52E-02	3.91E-01
173776	3881803	9824	47271	15345	0.0078	0.2999	0.0122	0.3199	9.20E-03	3.54E-01	1.44E-02	3.78E-01	9.95E-03	3.83E-01	1.55E-02	4.08E-01
173876	3881803	9862	49875	1												

AERMOD Results, Diesel Truck Traffic Modeling

Peak Area near Refinery Exit, all three Routes receptors combined
pts within 100 feet of roadway centerline have been removed

max combined 2009 operations 4.60 cancer risk per million
max combined baseline operations 5.43 cancer risk per million
max combined proposed project 5.87 cancer risk per million

X	Y	Unit Conc, ug/m3-g			Year 2009 Cancer Risk				Baseline Operations Cancer Risk				Project Operations Cancer Risk			
		Route 101 North	Route 101 South	Route 166	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined
173976	3881903	10393	52829	17366	0.0082	0.3352	0.0138	0.3572	9.74E-03	3.96E-01	1.63E-02	4.22E-01	1.05E-02	4.28E-01	1.76E-02	4.56E-01
174076	3881903	10450	56092	17924	0.0083	0.3559	0.0142	0.3784	9.79E-03	4.20E-01	1.68E-02	4.47E-01	1.06E-02	4.54E-01	1.81E-02	4.83E-01
174176	3881903	10548	59419	18455	0.0084	0.3770	0.0146	0.4000	9.88E-03	4.45E-01	1.73E-02	4.73E-01	1.07E-02	4.81E-01	1.87E-02	5.11E-01
174276	3881903	10466	62738	19072	0.0083	0.3980	0.0151	0.4215	9.81E-03	4.70E-01	1.79E-02	4.98E-01	1.06E-02	5.08E-01	1.93E-02	5.38E-01
174376	3881903	10253	67673	19563	0.0081	0.4293	0.0155	0.4530	9.61E-03	5.07E-01	1.83E-02	5.35E-01	1.04E-02	5.48E-01	1.98E-02	5.78E-01
174476	3881903	9972	73277	20058	0.0079	0.4649	0.0159	0.4887	9.34E-03	5.49E-01	1.88E-02	5.77E-01	1.01E-02	5.94E-01	2.03E-02	6.24E-01
174576	3881903	9756	78490	20485	0.0077	0.4980	0.0162	0.5219	9.14E-03	5.88E-01	1.92E-02	6.17E-01	9.88E-03	6.36E-01	2.07E-02	6.66E-01
174676	3881903	9371	85075	20707	0.0074	0.5397	0.0164	0.5636	8.78E-03	6.38E-01	1.94E-02	6.66E-01	9.49E-03	6.89E-01	2.10E-02	7.20E-01
172076	3882003	9070	25657	9447	0.0072	0.1628	0.0075	0.1775	8.50E-03	1.92E-01	8.85E-03	2.10E-01	9.18E-03	2.08E-01	9.56E-03	2.27E-01
172176	3882003	9626	26292	9693	0.0076	0.1668	0.0077	0.1821	9.02E-03	1.97E-01	9.08E-03	2.15E-01	9.75E-03	2.13E-01	9.81E-03	2.33E-01
172276	3882003	10101	27036	10016	0.0080	0.1715	0.0079	0.1875	9.46E-03	2.03E-01	9.38E-03	2.21E-01	1.02E-02	2.19E-01	1.01E-02	2.39E-01
172376	3882003	10501	27967	10424	0.0083	0.1774	0.0083	0.1940	9.84E-03	2.10E-01	9.77E-03	2.29E-01	1.06E-02	2.27E-01	1.06E-02	2.48E-01
172476	3882003	10735	28901	10847	0.0085	0.1834	0.0086	0.2005	1.01E-02	2.17E-01	1.02E-02	2.37E-01	1.09E-02	2.34E-01	1.10E-02	2.56E-01
172576	3882003	10732	29917	11292	0.0085	0.1898	0.0090	0.2073	1.01E-02	2.24E-01	1.06E-02	2.45E-01	1.09E-02	2.42E-01	1.14E-02	2.65E-01
172676	3882003	10433	30965	11754	0.0083	0.1964	0.0093	0.2140	9.77E-03	2.32E-01	1.10E-02	2.53E-01	1.06E-02	2.51E-01	1.19E-02	2.73E-01
172776	3882003	10153	32155	12263	0.0081	0.2040	0.0097	0.2218	9.51E-03	2.41E-01	1.15E-02	2.62E-01	1.03E-02	2.60E-01	1.24E-02	2.83E-01
172876	3882003	10291	33351	12739	0.0082	0.2116	0.0101	0.2299	9.64E-03	2.50E-01	1.19E-02	2.72E-01	1.04E-02	2.70E-01	1.29E-02	2.93E-01
172976	3882003	10929	34588	13196	0.0087	0.2194	0.0105	0.2386	1.02E-02	2.59E-01	1.24E-02	2.82E-01	1.11E-02	2.80E-01	1.34E-02	3.05E-01
173076	3882003	11699	35928	13697	0.0093	0.2279	0.0109	0.2481	1.10E-02	2.69E-01	1.28E-02	2.93E-01	1.18E-02	2.91E-01	1.39E-02	3.17E-01
173176	3882003	11974	37411	14276	0.0095	0.2373	0.0113	0.2582	1.12E-02	2.80E-01	1.34E-02	3.05E-01	1.21E-02	3.03E-01	1.45E-02	3.30E-01
173276	3882003	11643	38979	14875	0.0092	0.2473	0.0118	0.2683	1.09E-02	2.92E-01	1.39E-02	3.17E-01	1.18E-02	3.16E-01	1.51E-02	3.43E-01
173376	3882003	11146	40524	15432	0.0088	0.2571	0.0122	0.2782	1.04E-02	3.04E-01	1.45E-02	3.29E-01	1.13E-02	3.28E-01	1.56E-02	3.55E-01
173476	3882003	10790	42054	15977	0.0086	0.2668	0.0127	0.2880	1.01E-02	3.15E-01	1.50E-02	3.40E-01	1.09E-02	3.41E-01	1.62E-02	3.68E-01
173576	3882003	10643	43772	16499	0.0084	0.2777	0.0131	0.2992	9.97E-03	3.28E-01	1.55E-02	3.54E-01	1.08E-02	3.55E-01	1.67E-02	3.82E-01
173676	3882003	10669	45620	16979	0.0085	0.2894	0.0135	0.3114	1.00E-02	3.42E-01	1.59E-02	3.68E-01	1.08E-02	3.70E-01	1.72E-02	3.98E-01
173776	3882003	10780	47725	17468	0.0085	0.3028	0.0139	0.3252	1.01E-02	3.58E-01	1.64E-02	3.84E-01	1.09E-02	3.87E-01	1.77E-02	4.15E-01
173876	3882003	10878	50186	18006	0.0086	0.3184	0.0143	0.3413	1.02E-02	3.76E-01	1.69E-02	4.03E-01	1.10E-02	4.06E-01	1.82E-02	4.36E-01
173976	3882003	10946	53093	18594	0.0087	0.3368	0.0147	0.3603	1.03E-02	3.98E-01	1.74E-02	4.26E-01	1.11E-02	4.30E-01	1.88E-02	4.60E-01
174076	3882003	11038	56400	19158	0.0088	0.3578	0.0152	0.3818	1.03E-02	4.23E-01	1.79E-02	4.51E-01	1.12E-02	4.57E-01	1.94E-02	4.87E-01
174176	3882003	11013	59611	19806	0.0087	0.3782	0.0157	0.4026	1.03E-02	4.47E-01	1.86E-02	4.76E-01	1.12E-02	4.83E-01	2.01E-02	5.14E-01
174276	3882003	10736	62614	20388	0.0085	0.3972	0.0162	0.4219	1.01E-02	4.69E-01	1.91E-02	4.98E-01	1.09E-02	5.07E-01	2.06E-02	5.39E-01
174376	3882003	10518	67462	20908	0.0083	0.4280	0.0166	0.4529	9.85E-03	5.06E-01	1.96E-02	5.35E-01	1.06E-02	5.46E-01	2.12E-02	5.78E-01
174476	3882003	10231	73453	21321	0.0081	0.4660	0.0169	0.4910	9.59E-03	5.51E-01	2.00E-02	5.80E-01	1.04E-02	5.95E-01	2.16E-02	6.27E-01
174576	3882003	9914	79076	21602	0.0079	0.5017	0.0171	0.5267	9.29E-03	5.93E-01	2.02E-02	6.22E-01	1.00E-02	6.40E-01	2.19E-02	6.72E-01
174676	3882003	9565	86129	21881	0.0076	0.5464	0.0174	0.5714	8.96E-03	6.46E-01	2.05E-02	6.75E-01	9.68E-03	6.98E-01	2.22E-02	7.29E-01
172076	3882103	9447	25726	9844	0.0075	0.1632	0.0078	0.1785	8.85E-03	1.93E-01	9.22E-03	2.11E-01	9.56E-03	2.08E-01	9.97E-03	2.28E-01
172176	3882103	10064	26361	10108	0.0080	0.1672	0.0080	0.1832	9.43E-03	1.98E-01	9.47E-03	2.16E-01	1.02E-02	2.14E-01	1.02E-02	2.34E-01
172276	3882103	10590	27137	10455	0.0084	0.1722	0.0083	0.1889	9.92E-03	2.03E-01	9.80E-03	2.23E-01	1.07E-02	2.20E-01	1.06E-02	2.41E-01
172376	3882103	10987	28048	10884	0.0087	0.1779	0.0086	0.1953	1.03E-02	2.10E-01	1.02E-02	2.31E-01	1.11E-02	2.27E-01	1.10E-02	2.49E-01
172476	3882103	11219	29037	11354	0.0089	0.1842	0.0090	0.2021	1.05E-02	2.18E-01	1.06E-02	2.39E-01	1.14E-02	2.35E-01	1.15E-02	2.58E-01
172576	3882103	11206	30121	11858	0.0089	0.1911	0.0094	0.2094	1.05E-02	2.26E-01	1.11E-02	2.47E-01	1.13E-02	2.44E-01	1.20E-02	2.67E-01
172676	3882103	10922	31332	12424	0.0087	0.1988	0.0099	0.2173	1.02E-02	2.35E-01	1.16E-02	2.57E-01	1.11E-02	2.54E-01	1.26E-02	2.77E-01
172776	3882103	10672	32521	12991	0.0085	0.2063	0.0103	0.2251	1.00E-02	2.44E-01	1.22E-02	2.66E-01	1.08E-02	2.63E-01	1.32E-02	2.87E-01
172876	3882103	10900	33724	13525	0.0086	0.2140	0.0107	0.2333	1.02E-02	2.53E-01	1.27E-02	2.76E-01	1.10E-02	2.73E-01	1.37E-02	2.98E-01
172976	3882103	11713	34970	14044	0.0093	0.2219	0.0111	0.2423	1.10E-02	2.62E-01	1.32E-02	2.86E-01	1.19E-02	2.83E-01	1.42E-02	3.09E-01
173076	3882103	12459	36331	14619	0.0099	0.2305	0.0116	0.2520	1.17E-02	2.72E-01	1.37E-02	2.98E-01	1.26E-02	2.94E-01	1.48E-02	3.22E-01
173176	3882103	12458	37796	15246	0.0099	0.2398	0.0121	0.2618	1.17E-02	2.83E-01	1.43E-02	3.09E-01	1.26E-02	3.06E-01	1.54E-02	3.34E-01
173276	3882103	11957	39337	15867	0.0095	0.2496	0.0126	0.2716	1.12E-02	2.95E-01	1.49E-02	3.21E-01	1.21E-02	3.19E-01	1.61E-02	3.47E-01
173376	3882103	11447	40883	16503	0.0091	0.2594	0.0131	0.2815	1.07E-02	3.06E-01	1.55E-02	3.33E-01	1.16E-02	3.31E-01	1.67E-02	3.59E-0

AERMOD Results, Diesel Truck Traffic Modeling

Peak Area near Refinery Exit, all three Routes receptors combined
pts within 100 feet of roadway centerline have been removed

max combined 2009 operations 4.60 cancer risk per million
max combined baseline operations 5.43 cancer risk per million
max combined proposed project 5.87 cancer risk per million

X	Y	Unit Conc, ug/m3-g			Year 2009 Cancer Risk				Baseline Operations Cancer Risk				Project Operations Cancer Risk			
		Route 101 North	Route 101 South	Route 166	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined
173576	3882203	11599	44956	18927	0.0092	0.2852	0.0150	0.3094	1.09E-02	3.37E-01	1.77E-02	3.66E-01	1.17E-02	3.64E-01	1.92E-02	3.95E-01
173676	3882203	11743	46990	19555	0.0093	0.2981	0.0155	0.3229	1.10E-02	3.52E-01	1.83E-02	3.82E-01	1.19E-02	3.81E-01	1.98E-02	4.12E-01
173776	3882203	11927	49157	20184	0.0095	0.3119	0.0160	0.3373	1.12E-02	3.68E-01	1.89E-02	3.99E-01	1.21E-02	3.98E-01	2.04E-02	4.31E-01
173876	3882203	12040	51628	20878	0.0095	0.3275	0.0166	0.3536	1.13E-02	3.87E-01	1.96E-02	4.18E-01	1.22E-02	4.18E-01	2.11E-02	4.52E-01
173976	3882203	12010	54379	21606	0.0095	0.3450	0.0171	0.3717	1.13E-02	4.08E-01	2.02E-02	4.39E-01	1.22E-02	4.40E-01	2.19E-02	4.74E-01
174076	3882203	11919	57545	22202	0.0095	0.3651	0.0176	0.3921	1.12E-02	4.31E-01	2.08E-02	4.63E-01	1.21E-02	4.66E-01	2.25E-02	5.01E-01
174176	3882203	11700	60984	22821	0.0093	0.3869	0.0181	0.4143	1.10E-02	4.57E-01	2.14E-02	4.89E-01	1.18E-02	4.94E-01	2.31E-02	5.29E-01
174276	3882203	11412	64435	23317	0.0090	0.4088	0.0185	0.4363	1.07E-02	4.83E-01	2.18E-02	5.16E-01	1.16E-02	5.22E-01	2.36E-02	5.57E-01
174376	3882203	11095	68913	23685	0.0088	0.4372	0.0188	0.4648	1.04E-02	5.17E-01	2.22E-02	5.49E-01	1.12E-02	5.58E-01	2.40E-02	5.93E-01
174476	3882203	10819	76324	24099	0.0086	0.4842	0.0191	0.5119	1.01E-02	5.72E-01	2.26E-02	6.05E-01	1.10E-02	6.18E-01	2.44E-02	6.54E-01
174576	3882203	10580	83584	24551	0.0084	0.5303	0.0195	0.5581	9.91E-03	6.26E-01	2.30E-02	6.59E-01	1.07E-02	6.77E-01	2.49E-02	7.13E-01
174676	3882203	10336	91989	25024	0.0082	0.5836	0.0198	0.6116	9.68E-03	6.89E-01	2.34E-02	7.23E-01	1.05E-02	7.45E-01	2.53E-02	7.81E-01
172076	3882303	10288	26044	10637	0.0082	0.1652	0.0084	0.1818	9.64E-03	1.95E-01	9.97E-03	2.15E-01	1.04E-02	2.11E-01	1.08E-02	2.32E-01
172176	3882303	11074	26698	10956	0.0088	0.1694	0.0087	0.1869	1.04E-02	2.00E-01	1.03E-02	2.21E-01	1.12E-02	2.16E-01	1.11E-02	2.39E-01
172276	3882303	11731	27485	11350	0.0093	0.1744	0.0090	0.1927	1.10E-02	2.06E-01	1.06E-02	2.28E-01	1.19E-02	2.23E-01	1.15E-02	2.46E-01
172376	3882303	12167	28454	11861	0.0096	0.1805	0.0094	0.1996	1.14E-02	2.13E-01	1.11E-02	2.36E-01	1.23E-02	2.30E-01	1.20E-02	2.55E-01
172476	3882303	12417	29617	12469	0.0098	0.1879	0.0099	0.2076	1.16E-02	2.22E-01	1.17E-02	2.45E-01	1.26E-02	2.40E-01	1.26E-02	2.65E-01
172576	3882303	12362	30856	13121	0.0098	0.1958	0.0104	0.2160	1.16E-02	2.31E-01	1.23E-02	2.55E-01	1.25E-02	2.50E-01	1.33E-02	2.76E-01
172676	3882303	11915	32140	13825	0.0094	0.2039	0.0110	0.2243	1.12E-02	2.41E-01	1.30E-02	2.65E-01	1.21E-02	2.60E-01	1.40E-02	2.86E-01
172776	3882303	11802	33494	14583	0.0094	0.2125	0.0116	0.2334	1.11E-02	2.51E-01	1.37E-02	2.76E-01	1.19E-02	2.71E-01	1.48E-02	2.98E-01
172876	3882303	12471	34732	15254	0.0099	0.2203	0.0121	0.2423	1.17E-02	2.60E-01	1.43E-02	2.86E-01	1.26E-02	2.81E-01	1.54E-02	3.09E-01
172976	3882303	13539	36062	15932	0.0107	0.2288	0.0126	0.2522	1.27E-02	2.70E-01	1.49E-02	2.98E-01	1.37E-02	2.92E-01	1.61E-02	3.22E-01
173076	3882303	13827	37513	16713	0.0110	0.2380	0.0133	0.2622	1.30E-02	2.81E-01	1.57E-02	3.10E-01	1.40E-02	3.04E-01	1.69E-02	3.35E-01
173176	3882303	13288	39010	17523	0.0105	0.2475	0.0139	0.2719	1.25E-02	2.92E-01	1.64E-02	3.21E-01	1.35E-02	3.16E-01	1.77E-02	3.47E-01
173276	3882303	12620	40525	18258	0.0100	0.2571	0.0145	0.2816	1.18E-02	3.04E-01	1.71E-02	3.33E-01	1.28E-02	3.28E-01	1.85E-02	3.60E-01
173376	3882303	12182	42119	18996	0.0097	0.2672	0.0151	0.2919	1.14E-02	3.16E-01	1.78E-02	3.45E-01	1.23E-02	3.41E-01	1.92E-02	3.73E-01
173476	3882303	12061	43871	19646	0.0096	0.2783	0.0156	0.3035	1.13E-02	3.29E-01	1.84E-02	3.59E-01	1.22E-02	3.55E-01	1.99E-02	3.87E-01
173576	3882303	12161	45858	20316	0.0096	0.2909	0.0161	0.3167	1.14E-02	3.44E-01	1.90E-02	3.74E-01	1.23E-02	3.71E-01	2.06E-02	4.04E-01
173676	3882303	12355	48017	21036	0.0098	0.3046	0.0167	0.3311	1.16E-02	3.60E-01	1.97E-02	3.91E-01	1.25E-02	3.89E-01	2.13E-02	4.23E-01
173776	3882303	12515	50333	21793	0.0099	0.3193	0.0173	0.3465	1.17E-02	3.77E-01	2.04E-02	4.09E-01	1.27E-02	4.08E-01	2.21E-02	4.42E-01
173876	3882303	12558	52862	22543	0.0100	0.3354	0.0179	0.3632	1.18E-02	3.96E-01	2.11E-02	4.29E-01	1.27E-02	4.28E-01	2.28E-02	4.64E-01
173976	3882303	12431	55436	23089	0.0099	0.3517	0.0183	0.3799	1.16E-02	4.16E-01	2.16E-02	4.49E-01	1.26E-02	4.49E-01	2.34E-02	4.85E-01
174076	3882303	12199	58557	23693	0.0097	0.3715	0.0188	0.4000	1.14E-02	4.39E-01	2.22E-02	4.73E-01	1.24E-02	4.74E-01	2.40E-02	5.11E-01
174176	3882303	11953	62193	24260	0.0095	0.3946	0.0192	0.4233	1.12E-02	4.66E-01	2.27E-02	5.00E-01	1.21E-02	5.04E-01	2.46E-02	5.40E-01
174276	3882303	11666	66150	24722	0.0093	0.4197	0.0196	0.4485	1.09E-02	4.96E-01	2.32E-02	5.30E-01	1.18E-02	5.36E-01	2.50E-02	5.73E-01
174376	3882303	11332	70548	25086	0.0090	0.4476	0.0199	0.4765	1.06E-02	5.29E-01	2.35E-02	5.63E-01	1.15E-02	5.71E-01	2.54E-02	6.08E-01
174476	3882303	11147	78597	25645	0.0088	0.4986	0.0203	0.5278	1.04E-02	5.89E-01	2.40E-02	6.24E-01	1.13E-02	6.37E-01	2.60E-02	6.74E-01
174576	3882303	10963	87201	26270	0.0087	0.5532	0.0208	0.5828	1.03E-02	6.54E-01	2.46E-02	6.88E-01	1.11E-02	7.06E-01	2.66E-02	7.44E-01
174676	3882303	10711	96744	26844	0.0085	0.6138	0.0213	0.6436	1.00E-02	7.25E-01	2.52E-02	7.60E-01	1.08E-02	7.84E-01	2.72E-02	8.22E-01
172076	3882403	10805	26396	11117	0.0086	0.1675	0.0088	0.1848	1.01E-02	1.98E-01	1.04E-02	2.18E-01	1.09E-02	2.14E-01	1.13E-02	2.36E-01
172176	3882403	11689	27078	11472	0.0093	0.1718	0.0091	0.1902	1.10E-02	2.03E-01	1.07E-02	2.25E-01	1.18E-02	2.19E-01	1.16E-02	2.43E-01
172276	3882403	12453	27916	11911	0.0099	0.1771	0.0094	0.1964	1.17E-02	2.09E-01	1.12E-02	2.32E-01	1.26E-02	2.26E-01	1.21E-02	2.51E-01
172376	3882403	12943	28982	12510	0.0103	0.1839	0.0099	0.2041	1.21E-02	2.17E-01	1.17E-02	2.41E-01	1.31E-02	2.35E-01	1.27E-02	2.61E-01
172476	3882403	13157	30162	13191	0.0104	0.1914	0.0105	0.2123	1.23E-02	2.26E-01	1.24E-02	2.51E-01	1.33E-02	2.44E-01	1.34E-02	2.71E-01
172576	3882403	12931	31354	13882	0.0103	0.1989	0.0110	0.2202	1.21E-02	2.35E-01	1.30E-02	2.60E-01	1.31E-02	2.54E-01	1.41E-02	2.81E-01
172676	3882403	12494	32627	14630	0.0099	0.2070	0.0116	0.2285	1.17E-02	2.45E-01	1.37E-02	2.70E-01	1.27E-02	2.64E-01	1.48E-02	2.92E-01
172776	3882403	12521	34009	15439	0.0099	0.2158	0.0122	0.2379	1.17E-02	2.55E-01	1.45E-02	2.81E-01	1.27E-02	2.75E-01	1.56E-02	3.04E-01
172876	3882403	13452	35345	16206	0.0107	0.2242	0.0129	0.2478	1.26E-02	2.65E-01	1.52E-02	2.93E-01	1.36E-02	2.86E-01	1.64E-02	3.16E-01
172976	3882403	14471	36762	17042	0.0115	0.2332	0.0135	0.2582	1.36E-02	2.76E-01	1.60E-02	3.05E-01	1.47E-02	2.98E-01	1.73E-02	

AERMOD Results, Diesel Truck Traffic Modeling

Peak Area near Refinery Exit, all three Routes receptors combined
pts within 100 feet of roadway centerline have been removed

max combined 2009 operations 4.60 cancer risk per million
max combined baseline operations 5.43 cancer risk per million
max combined proposed project 5.87 cancer risk per million

X	Y	Unit Conc, ug/m3-g			Year 2009 Cancer Risk				Baseline Operations Cancer Risk				Project Operations Cancer Risk			
		Route 101 North	Route 101 South	Route 166	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined
173176	3882503	14040	40684	20185	0.0111	0.2581	0.0160	0.2853	1.32E-02	3.05E-01	1.89E-02	3.37E-01	1.42E-02	3.30E-01	2.04E-02	3.64E-01
173276	3882503	13459	42261	21039	0.0107	0.2681	0.0167	0.2955	1.26E-02	3.17E-01	1.97E-02	3.49E-01	1.36E-02	3.42E-01	2.13E-02	3.77E-01
173376	3882503	13289	43965	21817	0.0105	0.2789	0.0173	0.3068	1.25E-02	3.30E-01	2.04E-02	3.62E-01	1.35E-02	3.56E-01	2.21E-02	3.92E-01
173476	3882503	13396	46004	22643	0.0106	0.2919	0.0180	0.3204	1.26E-02	3.45E-01	2.12E-02	3.79E-01	1.36E-02	3.73E-01	2.29E-02	4.09E-01
173576	3882503	13606	48394	23567	0.0108	0.3070	0.0187	0.3365	1.27E-02	3.63E-01	2.21E-02	3.98E-01	1.38E-02	3.92E-01	2.39E-02	4.30E-01
173676	3882503	13720	50769	24302	0.0109	0.3221	0.0193	0.3522	1.29E-02	3.81E-01	2.28E-02	4.16E-01	1.39E-02	4.11E-01	2.46E-02	4.50E-01
173776	3882503	13659	53290	25007	0.0108	0.3381	0.0198	0.3688	1.28E-02	3.99E-01	2.34E-02	4.36E-01	1.38E-02	4.32E-01	2.53E-02	4.71E-01
173876	3882503	13564	56066	25681	0.0108	0.3557	0.0204	0.3868	1.27E-02	4.20E-01	2.41E-02	4.57E-01	1.37E-02	4.54E-01	2.60E-02	4.94E-01
173976	3882503	13357	59214	26407	0.0106	0.3757	0.0209	0.4072	1.25E-02	4.44E-01	2.47E-02	4.81E-01	1.35E-02	4.80E-01	2.67E-02	5.20E-01
174076	3882503	13005	62318	26937	0.0103	0.3954	0.0214	0.4270	1.22E-02	4.67E-01	2.52E-02	5.05E-01	1.32E-02	5.05E-01	2.73E-02	5.45E-01
174176	3882503	12657	65960	27383	0.0100	0.4185	0.0217	0.4502	1.19E-02	4.94E-01	2.57E-02	5.32E-01	1.28E-02	5.34E-01	2.77E-02	5.75E-01
174276	3882503	12317	70218	27790	0.0098	0.4455	0.0220	0.4773	1.15E-02	5.26E-01	2.60E-02	5.64E-01	1.25E-02	5.69E-01	2.81E-02	6.09E-01
174376	3882503	12172	76496	28613	0.0097	0.4853	0.0227	0.5177	1.14E-02	5.73E-01	2.68E-02	6.12E-01	1.23E-02	6.20E-01	2.90E-02	6.61E-01
174476	3882503	11981	86004	29462	0.0095	0.5456	0.0234	0.5785	1.12E-02	6.45E-01	2.76E-02	6.83E-01	1.21E-02	6.97E-01	2.98E-02	7.39E-01
174576	3882503	11776	98389	30313	0.0093	0.6242	0.0240	0.6576	1.10E-02	7.37E-01	2.84E-02	7.77E-01	1.19E-02	7.97E-01	3.07E-02	8.40E-01
174676	3882503	11644	112348	31171	0.0092	0.7128	0.0247	0.7467	1.09E-02	8.42E-01	2.92E-02	8.82E-01	1.18E-02	9.10E-01	3.16E-02	9.53E-01
172076	3882603	11944	27351	12365	0.0095	0.1735	0.0098	0.1928	1.12E-02	2.05E-01	1.16E-02	2.28E-01	1.21E-02	2.22E-01	1.25E-02	2.46E-01
172176	3882603	13101	28218	12888	0.0104	0.1790	0.0102	0.1996	1.23E-02	2.12E-01	1.21E-02	2.36E-01	1.33E-02	2.29E-01	1.30E-02	2.55E-01
172276	3882603	14136	29073	13391	0.0112	0.1844	0.0106	0.2063	1.32E-02	2.18E-01	1.25E-02	2.44E-01	1.43E-02	2.35E-01	1.36E-02	2.63E-01
172376	3882603	14680	30158	14091	0.0116	0.1913	0.0112	0.2141	1.38E-02	2.26E-01	1.32E-02	2.53E-01	1.49E-02	2.44E-01	1.43E-02	2.73E-01
172476	3882603	14622	31323	14884	0.0116	0.1987	0.0118	0.2221	1.37E-02	2.35E-01	1.39E-02	2.62E-01	1.48E-02	2.54E-01	1.51E-02	2.84E-01
172576	3882603	14241	32630	15787	0.0113	0.2070	0.0125	0.2308	1.33E-02	2.45E-01	1.48E-02	2.73E-01	1.44E-02	2.64E-01	1.60E-02	2.95E-01
172676	3882603	13878	33973	16770	0.0110	0.2155	0.0133	0.2398	1.30E-02	2.55E-01	1.57E-02	2.83E-01	1.41E-02	2.75E-01	1.70E-02	3.06E-01
172776	3882603	14344	35459	17750	0.0114	0.2250	0.0141	0.2504	1.34E-02	2.66E-01	1.66E-02	2.96E-01	1.45E-02	2.87E-01	1.80E-02	3.20E-01
172876	3882603	15722	36925	18695	0.0125	0.2343	0.0148	0.2616	1.47E-02	2.77E-01	1.75E-02	3.09E-01	1.59E-02	2.99E-01	1.89E-02	3.34E-01
172976	3882603	16102	38590	19768	0.0128	0.2448	0.0157	0.2733	1.51E-02	2.89E-01	1.85E-02	3.23E-01	1.63E-02	3.13E-01	2.00E-02	3.49E-01
173076	3882603	15325	40303	20860	0.0122	0.2557	0.0165	0.2844	1.44E-02	3.02E-01	1.95E-02	3.36E-01	1.55E-02	3.26E-01	2.11E-02	3.63E-01
173176	3882603	14484	41872	21798	0.0115	0.2656	0.0173	0.2944	1.36E-02	3.14E-01	2.04E-02	3.48E-01	1.47E-02	3.39E-01	2.21E-02	3.76E-01
173276	3882603	14078	43429	22666	0.0112	0.2755	0.0180	0.3047	1.32E-02	3.26E-01	2.12E-02	3.60E-01	1.43E-02	3.52E-01	2.29E-02	3.89E-01
173376	3882603	14081	45224	23557	0.0112	0.2869	0.0187	0.3168	1.32E-02	3.39E-01	2.21E-02	3.74E-01	1.43E-02	3.66E-01	2.39E-02	4.04E-01
173476	3882603	14276	47479	24554	0.0113	0.3012	0.0195	0.3320	1.34E-02	3.56E-01	2.30E-02	3.92E-01	1.45E-02	3.85E-01	2.49E-02	4.24E-01
173576	3882603	14430	49871	25374	0.0114	0.3164	0.0201	0.3480	1.35E-02	3.74E-01	2.38E-02	4.11E-01	1.46E-02	4.04E-01	2.57E-02	4.44E-01
173676	3882603	14442	52476	26183	0.0115	0.3329	0.0208	0.3651	1.35E-02	3.93E-01	2.45E-02	4.31E-01	1.46E-02	4.25E-01	2.65E-02	4.66E-01
173776	3882603	14428	55232	26923	0.0114	0.3504	0.0214	0.3832	1.35E-02	4.14E-01	2.52E-02	4.53E-01	1.46E-02	4.47E-01	2.73E-02	4.89E-01
173876	3882603	14154	58153	27592	0.0112	0.3689	0.0219	0.4020	1.33E-02	4.36E-01	2.59E-02	4.75E-01	1.43E-02	4.71E-01	2.79E-02	5.13E-01
173976	3882603	13801	61341	28262	0.0109	0.3892	0.0224	0.4225	1.29E-02	4.60E-01	2.65E-02	4.99E-01	1.40E-02	4.97E-01	2.86E-02	5.39E-01
174076	3882603	13462	64736	28808	0.0107	0.4107	0.0228	0.4442	1.26E-02	4.85E-01	2.70E-02	5.25E-01	1.36E-02	5.24E-01	2.92E-02	5.67E-01
174176	3882603	13147	68383	29331	0.0104	0.4338	0.0233	0.4675	1.23E-02	5.13E-01	2.75E-02	5.52E-01	1.33E-02	5.54E-01	2.97E-02	5.97E-01
174276	3882603	12884	73828	30025	0.0102	0.4684	0.0238	0.5024	1.21E-02	5.53E-01	2.81E-02	5.94E-01	1.30E-02	5.98E-01	3.04E-02	6.41E-01
174376	3882603	12705	81350	30980	0.0101	0.5161	0.0246	0.5508	1.19E-02	6.10E-01	2.90E-02	6.51E-01	1.29E-02	6.59E-01	3.14E-02	7.03E-01
174476	3882603	12517	91707	31948	0.0099	0.5818	0.0253	0.6171	1.17E-02	6.87E-01	2.99E-02	7.29E-01	1.27E-02	7.43E-01	3.23E-02	7.88E-01
174576	3882603	12363	107237	32948	0.0098	0.6803	0.0261	0.7163	1.16E-02	8.04E-01	3.09E-02	8.46E-01	1.25E-02	8.69E-01	3.34E-02	9.14E-01
174676	3882603	12299	125290	33936	0.0098	0.7949	0.0269	0.8315	1.15E-02	9.39E-01	3.18E-02	9.82E-01	1.25E-02	1.01E+00	3.44E-02	1.06E+00
172076	3882703	12560	27921	13150	0.0100	0.1771	0.0104	0.1975	1.18E-02	2.09E-01	1.23E-02	2.33E-01	1.27E-02	2.26E-01	1.33E-02	2.52E-01
172176	3882703	13838	28869	13761	0.0110	0.1832	0.0109	0.2050	1.30E-02	2.16E-01	1.29E-02	2.42E-01	1.40E-02	2.34E-01	1.39E-02	2.62E-01
172276	3882703	15039	29762	14309	0.0119	0.1888	0.0113	0.2121	1.41E-02	2.23E-01	1.34E-02	2.51E-01	1.52E-02	2.41E-01	1.45E-02	2.71E-01
172376	3882703	15574	30843	15031	0.0124	0.1957	0.0119	0.2199	1.46E-02	2.31E-01	1.41E-02	2.60E-01	1.58E-02	2.50E-01	1.52E-02	2.81E-01
172476	3882703	15406	32151	15988	0.0122	0.2040	0.0127	0.2289	1.44E-02	2.41E-01	1.50E-02	2.70E-01	1.56E-02	2.60E-01	1.62E-02	2.92E-01
172576	3882703	15001	33494	17051	0.0119	0.2125	0.0135	0.2379	1.41E-02	2.51E-01	1.60E-02	2.81E-01	1.52E-02	2.71E-01	1.73E-02	3.

AERMOD Results, Diesel Truck Traffic Modeling

Peak Area near Refinery Exit, all three Routes receptors combined
pts within 100 feet of roadway centerline have been removed

max combined 2009 operations 4.60 cancer risk per million
max combined baseline operations 5.43 cancer risk per million
max combined proposed project 5.87 cancer risk per million

X	Y	Unit Conc, ug/m3-g			Year 2009 Cancer Risk				Baseline Operations Cancer Risk				Project Operations Cancer Risk			
		Route 101 North	Route 101 South	Route 166	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined
172776	3882803	16898	37722	20955	0.0134	0.2393	0.0166	0.2693	1.58E-02	2.83E-01	1.96E-02	3.18E-01	1.71E-02	3.06E-01	2.12E-02	3.44E-01
172876	3882803	18041	39424	22221	0.0143	0.2501	0.0176	0.2820	1.69E-02	2.95E-01	2.08E-02	3.33E-01	1.83E-02	3.19E-01	2.25E-02	3.60E-01
172976	3882803	17457	41271	23528	0.0138	0.2618	0.0187	0.2943	1.64E-02	3.09E-01	2.20E-02	3.48E-01	1.77E-02	3.34E-01	2.38E-02	3.76E-01
173076	3882803	16402	43072	24703	0.0130	0.2733	0.0196	0.3059	1.54E-02	3.23E-01	2.31E-02	3.61E-01	1.66E-02	3.49E-01	2.50E-02	3.90E-01
173176	3882803	15883	44843	25805	0.0126	0.2845	0.0205	0.3176	1.49E-02	3.36E-01	2.42E-02	3.75E-01	1.61E-02	3.63E-01	2.61E-02	4.05E-01
173276	3882803	15934	46794	26971	0.0126	0.2969	0.0214	0.3309	1.49E-02	3.51E-01	2.53E-02	3.91E-01	1.61E-02	3.79E-01	2.73E-02	4.22E-01
173376	3882803	16106	48833	28038	0.0128	0.3098	0.0222	0.3448	1.51E-02	3.66E-01	2.63E-02	4.07E-01	1.63E-02	3.96E-01	2.84E-02	4.40E-01
173476	3882803	16243	51283	29201	0.0129	0.3254	0.0232	0.3614	1.52E-02	3.84E-01	2.74E-02	4.27E-01	1.64E-02	4.15E-01	2.96E-02	4.61E-01
173576	3882803	16334	53791	30100	0.0130	0.3413	0.0239	0.3781	1.53E-02	4.03E-01	2.82E-02	4.47E-01	1.65E-02	4.36E-01	3.05E-02	4.83E-01
173676	3882803	16267	56615	30942	0.0129	0.3592	0.0245	0.3966	1.52E-02	4.24E-01	2.90E-02	4.69E-01	1.65E-02	4.59E-01	3.13E-02	5.06E-01
173776	3882803	15933	60022	31911	0.0126	0.3808	0.0253	0.4187	1.49E-02	4.50E-01	2.99E-02	4.95E-01	1.61E-02	4.86E-01	3.23E-02	5.35E-01
173876	3882803	15456	63097	32501	0.0123	0.4003	0.0258	0.4383	1.45E-02	4.73E-01	3.05E-02	5.18E-01	1.56E-02	5.11E-01	3.29E-02	5.60E-01
173976	3882803	15042	66404	33110	0.0119	0.4213	0.0263	0.4595	1.41E-02	4.98E-01	3.10E-02	5.43E-01	1.52E-02	5.38E-01	3.35E-02	5.87E-01
174076	3882803	14677	70221	33805	0.0116	0.4455	0.0268	0.4840	1.38E-02	5.26E-01	3.17E-02	5.72E-01	1.49E-02	5.69E-01	3.42E-02	6.18E-01
174176	3882803	14345	75091	34642	0.0114	0.4764	0.0275	0.5152	1.34E-02	5.63E-01	3.25E-02	6.09E-01	1.45E-02	6.08E-01	3.51E-02	6.58E-01
174276	3882803	14283	84224	36209	0.0113	0.5343	0.0287	0.5744	1.34E-02	6.31E-01	3.39E-02	6.79E-01	1.45E-02	6.82E-01	3.67E-02	7.33E-01
174376	3882803	14180	95513	37589	0.0112	0.6060	0.0298	0.6470	1.33E-02	7.16E-01	3.52E-02	7.64E-01	1.44E-02	7.74E-01	3.81E-02	8.26E-01
174476	3882803	14011	110342	38822	0.0111	0.7000	0.0308	0.7419	1.31E-02	8.27E-01	3.64E-02	8.77E-01	1.42E-02	8.94E-01	3.93E-02	9.47E-01
174576	3882803	13769	135958	39870	0.0109	0.8626	0.0316	0.9051	1.29E-02	1.02E+00	3.74E-02	1.07E+00	1.39E-02	1.10E+00	4.04E-02	1.16E+00
174676	3882803	13611	174625	40996	0.0108	1.1079	0.0325	1.1512	1.28E-02	1.31E+00	3.84E-02	1.36E+00	1.38E-02	1.41E+00	4.15E-02	1.47E+00
172076	3882903	13962	29229	15007	0.0111	0.1854	0.0119	0.2084	1.31E-02	2.19E-01	1.41E-02	2.46E-01	1.41E-02	2.37E-01	1.52E-02	2.66E-01
172176	3882903	15485	30265	15694	0.0123	0.1920	0.0124	0.2167	1.45E-02	2.27E-01	1.47E-02	2.56E-01	1.57E-02	2.45E-01	1.59E-02	2.77E-01
172276	3882903	17060	31337	16483	0.0135	0.1988	0.0131	0.2254	1.60E-02	2.35E-01	1.54E-02	2.66E-01	1.73E-02	2.54E-01	1.67E-02	2.88E-01
172376	3882903	17607	32524	17386	0.0140	0.2063	0.0138	0.2341	1.65E-02	2.44E-01	1.63E-02	2.77E-01	1.78E-02	2.63E-01	1.76E-02	2.99E-01
172476	3882903	17276	34139	18703	0.0137	0.2166	0.0148	0.2451	1.62E-02	2.56E-01	1.75E-02	2.90E-01	1.75E-02	2.77E-01	1.89E-02	3.13E-01
172576	3882903	16839	35849	20130	0.0134	0.2274	0.0160	0.2568	1.58E-02	2.69E-01	1.89E-02	3.03E-01	1.70E-02	2.90E-01	2.04E-02	3.28E-01
172676	3882903	16741	37662	21645	0.0133	0.2389	0.0172	0.2694	1.57E-02	2.82E-01	2.03E-02	3.18E-01	1.69E-02	3.05E-01	2.19E-02	3.44E-01
172776	3882903	18401	39406	23041	0.0146	0.2500	0.0183	0.2829	1.72E-02	2.95E-01	2.16E-02	3.34E-01	1.86E-02	3.19E-01	2.33E-02	3.61E-01
172876	3882903	19111	41278	24480	0.0152	0.2619	0.0194	0.2964	1.79E-02	3.09E-01	2.29E-02	3.50E-01	1.93E-02	3.34E-01	2.48E-02	3.78E-01
172976	3882903	18138	43160	25844	0.0144	0.2738	0.0205	0.3087	1.70E-02	3.24E-01	2.42E-02	3.65E-01	1.84E-02	3.50E-01	2.62E-02	3.94E-01
173076	3882903	17197	44969	27114	0.0136	0.2853	0.0215	0.3204	1.61E-02	3.37E-01	2.54E-02	3.79E-01	1.74E-02	3.64E-01	2.75E-02	4.09E-01
173176	3882903	16995	46882	28415	0.0135	0.2974	0.0225	0.3334	1.59E-02	3.51E-01	2.66E-02	3.94E-01	1.72E-02	3.80E-01	2.88E-02	4.26E-01
173276	3882903	17201	49146	29861	0.0136	0.3118	0.0237	0.3491	1.61E-02	3.68E-01	2.80E-02	4.12E-01	1.74E-02	3.98E-01	3.02E-02	4.46E-01
173376	3882903	17313	51363	30954	0.0137	0.3259	0.0245	0.3641	1.62E-02	3.85E-01	2.90E-02	4.30E-01	1.75E-02	4.16E-01	3.13E-02	4.65E-01
173476	3882903	17510	53935	32121	0.0139	0.3422	0.0255	0.3815	1.64E-02	4.04E-01	3.01E-02	4.51E-01	1.77E-02	4.37E-01	3.25E-02	4.87E-01
173576	3882903	17560	56560	33120	0.0139	0.3588	0.0263	0.3990	1.65E-02	4.24E-01	3.10E-02	4.71E-01	1.78E-02	4.58E-01	3.35E-02	5.09E-01
173676	3882903	17153	59429	34011	0.0136	0.3770	0.0270	0.4176	1.61E-02	4.45E-01	3.19E-02	4.93E-01	1.74E-02	4.81E-01	3.44E-02	5.33E-01
173776	3882903	16746	62845	34954	0.0133	0.3987	0.0277	0.4397	1.57E-02	4.71E-01	3.27E-02	5.19E-01	1.70E-02	5.09E-01	3.54E-02	5.61E-01
173876	3882903	16385	66754	35878	0.0130	0.4235	0.0285	0.4650	1.54E-02	5.00E-01	3.36E-02	5.49E-01	1.66E-02	5.41E-01	3.63E-02	5.94E-01
173976	3882903	16121	71665	37071	0.0128	0.4547	0.0294	0.4968	1.51E-02	5.37E-01	3.47E-02	5.87E-01	1.63E-02	5.80E-01	3.75E-02	6.34E-01
174076	3882903	15791	77172	38179	0.0125	0.4896	0.0303	0.5324	1.48E-02	5.78E-01	3.58E-02	6.29E-01	1.60E-02	6.25E-01	3.87E-02	6.80E-01
174176	3882903	15511	83658	39346	0.0123	0.5308	0.0312	0.5743	1.45E-02	6.27E-01	3.69E-02	6.78E-01	1.57E-02	6.78E-01	3.98E-02	7.33E-01
174276	3882903	15410	94009	40942	0.0122	0.5964	0.0325	0.6411	1.44E-02	7.05E-01	3.84E-02	7.57E-01	1.56E-02	7.61E-01	4.15E-02	8.19E-01
174376	3882903	15269	108563	42432	0.0121	0.6888	0.0337	0.7345	1.43E-02	8.14E-01	3.98E-02	8.68E-01	1.55E-02	8.79E-01	4.30E-02	9.38E-01
174476	3882903	15033	129142	43749	0.0119	0.8193	0.0347	0.8659	1.41E-02	9.68E-01	4.10E-02	1.02E+00	1.52E-02	1.05E+00	4.43E-02	1.11E+00
174576	3882903	14778	168259	45015	0.0117	1.0675	0.0357	1.1149	1.38E-02	1.26E+00	4.22E-02	1.32E+00	1.50E-02	1.36E+00	4.56E-02	1.42E+00
174676	3882903	14511	239816	45950	0.0115	1.5215	0.0364	1.5694	1.36E-02	1.80E+00	4.31E-02	1.85E+00	1.47E-02	1.94E+00	4.65E-02	2.00E+00
172076	3883003	14795	29939	16048	0.0117	0.1899	0.0127	0.2144	1.39E-02	2.24E-01	1.50E-02	2.53E-01	1.50E-02	2.43E-01	1.62E-02	2.74E-01
172176	3883003	16410	31157	16964	0.0130	0.1977	0.0135	0.2241	1.54E-02	2.34E-01	1.59E-02	2.65E-01	1.66E-02	2.52E-01	1.72E-02	

AERMOD Results, Diesel Truck Traffic Modeling

Peak Area near Refinery Exit, all three Routes receptors combined
pts within 100 feet of roadway centerline have been removed

max combined 2009 operations 4.60 cancer risk per million
max combined baseline operations 5.43 cancer risk per million
max combined proposed project 5.87 cancer risk per million

X	Y	Unit Conc, ug/m3-g			Year 2009 Cancer Risk				Baseline Operations Cancer Risk				Project Operations Cancer Risk			
		Route 101 North	Route 101 South	Route 166	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined
172376	3883103	19991	34989	20596	0.0159	0.2220	0.0163	0.2542	1.87E-02	2.62E-01	1.93E-02	3.00E-01	2.02E-02	2.83E-01	2.09E-02	3.24E-01
172476	3883103	19884	36844	22180	0.0158	0.2338	0.0176	0.2671	1.86E-02	2.76E-01	2.08E-02	3.16E-01	2.01E-02	2.98E-01	2.25E-02	3.41E-01
172576	3883103	19298	39140	24184	0.0153	0.2483	0.0192	0.2828	1.81E-02	2.93E-01	2.27E-02	3.34E-01	1.95E-02	3.17E-01	2.45E-02	3.61E-01
172676	3883103	20236	41522	26225	0.0160	0.2634	0.0208	0.3003	1.90E-02	3.11E-01	2.46E-02	3.55E-01	2.05E-02	3.36E-01	2.66E-02	3.83E-01
172776	3883103	22038	43773	28068	0.0175	0.2777	0.0223	0.3174	2.06E-02	3.28E-01	2.63E-02	3.75E-01	2.23E-02	3.55E-01	2.84E-02	4.05E-01
172876	3883103	21268	46217	30051	0.0169	0.2932	0.0238	0.3339	1.99E-02	3.46E-01	2.82E-02	3.94E-01	2.15E-02	3.74E-01	3.04E-02	4.26E-01
172976	3883103	20158	48456	31810	0.0160	0.3074	0.0252	0.3486	1.89E-02	3.63E-01	2.98E-02	4.12E-01	2.04E-02	3.92E-01	3.22E-02	4.45E-01
173076	3883103	19859	50801	33666	0.0157	0.3223	0.0267	0.3647	1.86E-02	3.81E-01	3.15E-02	4.31E-01	2.01E-02	4.11E-01	3.41E-02	4.66E-01
173176	3883103	20024	52911	35214	0.0159	0.3357	0.0279	0.3795	1.88E-02	3.97E-01	3.30E-02	4.48E-01	2.03E-02	4.29E-01	3.57E-02	4.84E-01
173276	3883103	20163	55419	36937	0.0160	0.3516	0.0293	0.3969	1.89E-02	4.15E-01	3.46E-02	4.69E-01	2.04E-02	4.49E-01	3.74E-02	5.07E-01
173376	3883103	20486	58045	38444	0.0162	0.3683	0.0305	0.4150	1.92E-02	4.35E-01	3.60E-02	4.90E-01	2.07E-02	4.70E-01	3.89E-02	5.30E-01
173476	3883103	20387	61112	39962	0.0162	0.3877	0.0317	0.4356	1.91E-02	4.58E-01	3.74E-02	5.15E-01	2.06E-02	4.95E-01	4.05E-02	5.56E-01
173576	3883103	19971	64451	41349	0.0158	0.4089	0.0328	0.4575	1.87E-02	4.83E-01	3.87E-02	5.41E-01	2.02E-02	5.22E-01	4.19E-02	5.84E-01
173676	3883103	19651	68317	42848	0.0156	0.4334	0.0340	0.4830	1.84E-02	5.12E-01	4.01E-02	5.71E-01	1.99E-02	5.53E-01	4.34E-02	6.17E-01
173776	3883103	19363	72864	44542	0.0154	0.4623	0.0353	0.5130	1.81E-02	5.46E-01	4.17E-02	6.06E-01	1.96E-02	5.90E-01	4.51E-02	6.55E-01
173876	3883103	19235	78867	46714	0.0153	0.5004	0.0370	0.5527	1.80E-02	5.91E-01	4.38E-02	6.53E-01	1.95E-02	6.39E-01	4.73E-02	7.06E-01
173976	3883103	18974	86141	48777	0.0150	0.5465	0.0387	0.6002	1.78E-02	6.46E-01	4.57E-02	7.09E-01	1.92E-02	6.98E-01	4.94E-02	7.66E-01
174076	3883103	18671	94909	50583	0.0148	0.6021	0.0401	0.6571	1.75E-02	7.11E-01	4.74E-02	7.76E-01	1.89E-02	7.69E-01	5.12E-02	8.39E-01
174176	3883103	18389	105909	52256	0.0146	0.6719	0.0414	0.7279	1.72E-02	7.94E-01	4.90E-02	8.60E-01	1.86E-02	8.58E-01	5.29E-02	9.29E-01
174276	3883103	18016	120982	53706	0.0143	0.7675	0.0426	0.8244	1.69E-02	9.07E-01	5.03E-02	9.74E-01	1.82E-02	9.80E-01	5.44E-02	1.05E+00
174376	3883103	17612	145269	55108	0.0140	0.9216	0.0437	0.9793	1.65E-02	1.09E+00	5.16E-02	1.16E+00	1.78E-02	1.18E+00	5.58E-02	1.25E+00
174476	3883103	17127	192038	56235	0.0136	1.2183	0.0446	1.2765	1.60E-02	1.44E+00	5.27E-02	1.51E+00	1.73E-02	1.56E+00	5.69E-02	1.63E+00
174576	3883103	16837	331672	57324	0.0134	2.1042	0.0455	2.1630	1.58E-02	2.49E+00	5.37E-02	2.56E+00	1.70E-02	2.69E+00	5.80E-02	2.76E+00
174676	3883103	16643	715379	58305	0.0132	4.5386	0.0462	4.5980	1.56E-02	5.36E+00	5.46E-02	5.43E+00	1.69E-02	5.79E+00	5.90E-02	5.87E+00
172076	3883203	16867	31795	18464	0.0134	0.2017	0.0146	0.2297	1.58E-02	2.38E-01	1.73E-02	2.71E-01	1.71E-02	2.58E-01	1.87E-02	2.93E-01
172176	3883203	18732	33262	19693	0.0149	0.2110	0.0156	0.2415	1.75E-02	2.49E-01	1.85E-02	2.85E-01	1.90E-02	2.69E-01	1.99E-02	3.08E-01
172276	3883203	20993	34823	21008	0.0166	0.2209	0.0167	0.2542	1.97E-02	2.61E-01	1.97E-02	3.00E-01	2.13E-02	2.82E-01	2.13E-02	3.25E-01
172376	3883203	21523	36561	22517	0.0171	0.2320	0.0179	0.2669	2.02E-02	2.74E-01	2.11E-02	3.15E-01	2.18E-02	2.96E-01	2.28E-02	3.41E-01
172476	3883203	21593	38704	24421	0.0171	0.2455	0.0194	0.2820	2.02E-02	2.90E-01	2.29E-02	3.33E-01	2.19E-02	3.13E-01	2.47E-02	3.60E-01
172576	3883203	20979	41355	26792	0.0166	0.2624	0.0212	0.3003	1.97E-02	3.10E-01	2.51E-02	3.55E-01	2.12E-02	3.35E-01	2.71E-02	3.83E-01
172676	3883203	22755	44099	29188	0.0180	0.2798	0.0231	0.3210	2.13E-02	3.31E-01	2.73E-02	3.79E-01	2.30E-02	3.57E-01	2.96E-02	4.10E-01
172776	3883203	23796	46834	31514	0.0189	0.2971	0.0250	0.3410	2.23E-02	3.51E-01	2.95E-02	4.03E-01	2.41E-02	3.79E-01	3.19E-02	4.35E-01
172876	3883203	22302	49668	33902	0.0177	0.3151	0.0269	0.3597	2.09E-02	3.72E-01	3.18E-02	4.25E-01	2.26E-02	4.02E-01	3.43E-02	4.59E-01
172976	3883203	21576	52301	36018	0.0171	0.3318	0.0286	0.3775	2.02E-02	3.92E-01	3.37E-02	4.46E-01	2.18E-02	4.24E-01	3.65E-02	4.82E-01
173076	3883203	21741	55129	38308	0.0172	0.3498	0.0304	0.3974	2.04E-02	4.13E-01	3.59E-02	4.69E-01	2.20E-02	4.47E-01	3.88E-02	5.07E-01
173176	3883203	21802	57252	39814	0.0173	0.3632	0.0316	0.4121	2.04E-02	4.29E-01	3.73E-02	4.87E-01	2.21E-02	4.64E-01	4.03E-02	5.26E-01
173276	3883203	22277	60108	41834	0.0177	0.3813	0.0332	0.4322	2.09E-02	4.51E-01	3.92E-02	5.11E-01	2.26E-02	4.87E-01	4.24E-02	5.52E-01
173376	3883203	22385	63305	43907	0.0178	0.4016	0.0348	0.4542	2.10E-02	4.74E-01	4.11E-02	5.37E-01	2.27E-02	5.13E-01	4.45E-02	5.80E-01
173476	3883203	22235	67160	46252	0.0176	0.4261	0.0367	0.4804	2.08E-02	5.03E-01	4.33E-02	5.68E-01	2.25E-02	5.44E-01	4.68E-02	6.13E-01
173576	3883203	21857	70860	48025	0.0173	0.4496	0.0381	0.5050	2.05E-02	5.31E-01	4.50E-02	5.97E-01	2.21E-02	5.74E-01	4.86E-02	6.45E-01
173676	3883203	21744	75680	50319	0.0172	0.4801	0.0399	0.5373	2.04E-02	5.67E-01	4.71E-02	6.35E-01	2.20E-02	6.13E-01	5.09E-02	6.86E-01
173776	3883203	21358	80958	52371	0.0169	0.5136	0.0415	0.5721	2.00E-02	6.07E-01	4.91E-02	6.76E-01	2.16E-02	6.56E-01	5.30E-02	7.30E-01
173876	3883203	20957	87195	54732	0.0166	0.5532	0.0434	0.6132	1.96E-02	6.54E-01	5.13E-02	7.24E-01	2.12E-02	7.06E-01	5.54E-02	7.83E-01
173976	3883203	20535	94525	56821	0.0163	0.5997	0.0451	0.6610	1.92E-02	7.08E-01	5.32E-02	7.81E-01	2.08E-02	7.66E-01	5.75E-02	8.44E-01
174076	3883203	20157	103851	58627	0.0160	0.6589	0.0465	0.7213	1.89E-02	7.78E-01	5.49E-02	8.52E-01	2.04E-02	8.41E-01	5.94E-02	9.21E-01
174176	3883203	19708	116227	60243	0.0156	0.7374	0.0478	0.8008	1.85E-02	8.71E-01	5.64E-02	9.46E-01	2.00E-02	9.41E-01	6.10E-02	1.02E+00
174276	3883203	19234	134126	61701	0.0153	0.8509	0.0489	0.9151	1.80E-02	1.01E+00	5.78E-02	1.08E+00	1.95E-02	1.09E+00	6.25E-02	1.17E+00
174376	3883203	18772	164183	62913	0.0149	1.0416	0.0499	1.1064	1.76E-02	1.23E+00	5.89E-02	1.31E+00	1.90E-02	1.33E+00	6.37E-02	1.41E+00
174476	3883203	18369	225752	63973	0.0146	1.4322	0.0507	1.4975	1.72E-02	1.69E+00	5.99E-02	1.77E+00	1.86E-02	1.83E+00	6.48E-02	1.91E+00
174676																

AERMOD Results, Diesel Truck Traffic Modeling

Peak Area near Refinery Exit, all three Routes receptors combined
pts within 100 feet of roadway centerline have been removed

max combined 2009 operations 4.60 cancer risk per million
max combined baseline operations 5.43 cancer risk per million
max combined proposed project 5.87 cancer risk per million

X	Y	Unit Conc, ug/m3-g			Year 2009 Cancer Risk				Baseline Operations Cancer Risk				Project Operations Cancer Risk			
		Route 101 North	Route 101 South	Route 166	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined
172176	3883403	21987	36115	23166	0.0174	0.2291	0.0184	0.2649	2.06E-02	2.71E-01	2.17E-02	3.13E-01	2.23E-02	2.93E-01	2.35E-02	3.38E-01
172276	3883403	24940	38229	25038	0.0198	0.2425	0.0199	0.2822	2.34E-02	2.87E-01	2.35E-02	3.33E-01	2.53E-02	3.10E-01	2.53E-02	3.60E-01
172376	3883403	26002	40683	27250	0.0206	0.2581	0.0216	0.3003	2.44E-02	3.05E-01	2.55E-02	3.55E-01	2.63E-02	3.30E-01	2.76E-02	3.83E-01
172476	3883403	26491	43813	30125	0.0210	0.2780	0.0239	0.3229	2.48E-02	3.28E-01	2.82E-02	3.81E-01	2.68E-02	3.55E-01	3.05E-02	4.12E-01
172576	3883403	26597	47956	33972	0.0211	0.3042	0.0269	0.3523	2.49E-02	3.59E-01	3.18E-02	4.16E-01	2.69E-02	3.88E-01	3.44E-02	4.50E-01
172676	3883403	29140	51989	37681	0.0231	0.3298	0.0299	0.3828	2.73E-02	3.90E-01	3.53E-02	4.52E-01	2.95E-02	4.21E-01	3.82E-02	4.89E-01
172776	3883403	27837	56253	41584	0.0221	0.3569	0.0330	0.4119	2.61E-02	4.22E-01	3.90E-02	4.87E-01	2.82E-02	4.56E-01	4.21E-02	5.26E-01
172876	3883403	27072	60200	45115	0.0215	0.3819	0.0358	0.4392	2.54E-02	4.51E-01	4.23E-02	5.19E-01	2.74E-02	4.88E-01	4.57E-02	5.61E-01
172976	3883403	27169	64602	49039	0.0215	0.4099	0.0389	0.4703	2.55E-02	4.84E-01	4.59E-02	5.56E-01	2.75E-02	5.23E-01	4.97E-02	6.00E-01
173076	3883403	28050	69489	53361	0.0222	0.4409	0.0423	0.5054	2.63E-02	5.21E-01	5.00E-02	5.97E-01	2.84E-02	5.63E-01	5.40E-02	6.45E-01
173176	3883403	28787	74329	57480	0.0228	0.4716	0.0456	0.5400	2.70E-02	5.57E-01	5.39E-02	6.38E-01	2.91E-02	6.02E-01	5.82E-02	6.89E-01
173276	3883403	28590	79050	61197	0.0227	0.5015	0.0485	0.5727	2.68E-02	5.93E-01	5.73E-02	6.77E-01	2.89E-02	6.40E-01	6.20E-02	7.31E-01
173376	3883403	28039	83736	64575	0.0222	0.5312	0.0512	0.6047	2.63E-02	6.28E-01	6.05E-02	7.14E-01	2.84E-02	6.78E-01	6.54E-02	7.72E-01
173476	3883403	27875	88517	67793	0.0221	0.5616	0.0538	0.6374	2.61E-02	6.63E-01	6.35E-02	7.53E-01	2.82E-02	7.17E-01	6.86E-02	8.14E-01
173576	3883403	27411	93245	70745	0.0217	0.5916	0.0561	0.6694	2.57E-02	6.99E-01	6.63E-02	7.91E-01	2.78E-02	7.55E-01	7.16E-02	8.55E-01
173676	3883403	26387	98048	73373	0.0209	0.6220	0.0582	0.7012	2.47E-02	7.35E-01	6.87E-02	8.28E-01	2.67E-02	7.94E-01	7.43E-02	8.95E-01
173776	3883403	25414	102643	75218	0.0202	0.6512	0.0597	0.7310	2.38E-02	7.69E-01	7.05E-02	8.64E-01	2.57E-02	8.31E-01	7.62E-02	9.33E-01
173876	3883403	24570	108398	77186	0.0195	0.6877	0.0612	0.7684	2.30E-02	8.12E-01	7.23E-02	9.08E-01	2.49E-02	8.78E-01	7.81E-02	9.81E-01
173976	3883403	23655	115928	78998	0.0188	0.7355	0.0626	0.8169	2.22E-02	8.69E-01	7.40E-02	9.65E-01	2.39E-02	9.39E-01	8.00E-02	1.04E+00
174076	3883403	22978	124728	80450	0.0182	0.7913	0.0638	0.8733	2.15E-02	9.35E-01	7.54E-02	1.03E+00	2.33E-02	1.01E+00	8.15E-02	1.11E+00
174176	3883403	22348	136535	81711	0.0177	0.8662	0.0648	0.9487	2.09E-02	1.02E+00	7.66E-02	1.12E+00	2.26E-02	1.11E+00	8.27E-02	1.21E+00
174276	3883403	21662	153768	82920	0.0172	0.9756	0.0658	1.0585	2.03E-02	1.15E+00	7.77E-02	1.25E+00	2.19E-02	1.25E+00	8.40E-02	1.35E+00
174376	3883403	20901	176883	84107	0.0166	1.1222	0.0667	1.2055	1.96E-02	1.33E+00	7.88E-02	1.42E+00	2.12E-02	1.43E+00	8.52E-02	1.54E+00
174476	3883403	20233	223619	85154	0.0160	1.4187	0.0675	1.5023	1.90E-02	1.68E+00	7.98E-02	1.77E+00	2.05E-02	1.81E+00	8.62E-02	1.92E+00
174676	3883403	18882	468536	87600	0.0150	2.9725	0.0695	3.0570	1.77E-02	3.51E+00	8.21E-02	3.61E+00	1.91E-02	3.80E+00	8.87E-02	3.90E+00
172076	3883503	21738	35307	22983	0.0172	0.2240	0.0182	0.2595	2.04E-02	2.65E-01	2.15E-02	3.07E-01	2.20E-02	2.86E-01	2.33E-02	3.31E-01
172176	3883503	24137	37884	25331	0.0191	0.2403	0.0201	0.2796	2.26E-02	2.84E-01	2.37E-02	3.30E-01	2.44E-02	3.07E-01	2.56E-02	3.57E-01
172276	3883503	27609	40505	27731	0.0219	0.2570	0.0220	0.3009	2.59E-02	3.04E-01	2.60E-02	3.55E-01	2.80E-02	3.28E-01	2.81E-02	3.84E-01
172376	3883503	29240	43599	30579	0.0232	0.2766	0.0243	0.3240	2.74E-02	3.27E-01	2.87E-02	3.83E-01	2.96E-02	3.53E-01	3.10E-02	4.14E-01
172476	3883503	30103	47391	34109	0.0239	0.3007	0.0270	0.3516	2.82E-02	3.55E-01	3.20E-02	4.15E-01	3.05E-02	3.84E-01	3.45E-02	4.49E-01
172576	3883503	31264	52826	39234	0.0248	0.3351	0.0311	0.3911	2.93E-02	3.96E-01	3.68E-02	4.62E-01	3.17E-02	4.28E-01	3.97E-02	4.99E-01
172676	3883503	32779	58275	44335	0.0260	0.3697	0.0352	0.4309	3.07E-02	4.37E-01	4.15E-02	5.09E-01	3.32E-02	4.72E-01	4.49E-02	5.50E-01
172776	3883503	31379	63818	49478	0.0249	0.4049	0.0392	0.4690	2.94E-02	4.78E-01	4.64E-02	5.54E-01	3.18E-02	5.17E-01	5.01E-02	5.99E-01
172876	3883503	31412	69409	54612	0.0249	0.4404	0.0433	0.5086	2.94E-02	5.20E-01	5.12E-02	6.01E-01	3.18E-02	5.62E-01	5.53E-02	6.49E-01
172976	3883503	31990	75788	60477	0.0254	0.4808	0.0480	0.5542	3.00E-02	5.68E-01	5.67E-02	6.55E-01	3.24E-02	6.14E-01	6.12E-02	7.07E-01
173076	3883503	32853	82133	66231	0.0261	0.5211	0.0525	0.5997	3.08E-02	6.16E-01	6.21E-02	7.08E-01	3.33E-02	6.65E-01	6.71E-02	7.66E-01
173176	3883503	32747	87959	71309	0.0260	0.5580	0.0566	0.6406	3.07E-02	6.59E-01	6.68E-02	7.57E-01	3.32E-02	7.12E-01	7.22E-02	8.18E-01
173276	3883503	32330	93370	75801	0.0256	0.5924	0.0601	0.6781	3.03E-02	7.00E-01	7.10E-02	8.01E-01	3.27E-02	7.56E-01	7.67E-02	8.66E-01
173376	3883503	31920	98661	79914	0.0253	0.6259	0.0634	0.7146	2.99E-02	7.39E-01	7.49E-02	8.44E-01	3.23E-02	7.99E-01	8.09E-02	9.12E-01
173476	3883503	31142	103582	83440	0.0247	0.6572	0.0662	0.7480	2.92E-02	7.76E-01	7.82E-02	8.84E-01	3.15E-02	8.39E-01	8.45E-02	9.55E-01
173576	3883503	29874	108171	86350	0.0237	0.6863	0.0685	0.7784	2.80E-02	8.11E-01	8.09E-02	9.20E-01	3.02E-02	8.76E-01	8.74E-02	9.94E-01
173676	3883503	28515	112965	88950	0.0226	0.7167	0.0705	0.8098	2.67E-02	8.47E-01	8.33E-02	9.57E-01	2.89E-02	9.15E-01	9.01E-02	1.03E+00
173776	3883503	27265	117994	91183	0.0216	0.7486	0.0723	0.8425	2.55E-02	8.84E-01	8.54E-02	9.95E-01	2.76E-02	9.56E-01	9.23E-02	1.08E+00
173876	3883503	26217	123228	92937	0.0208	0.7818	0.0737	0.8763	2.46E-02	9.24E-01	8.71E-02	1.04E+00	2.65E-02	9.98E-01	9.41E-02	1.12E+00
173976	3883503	25270	129996	94710	0.0200	0.8247	0.0751	0.9199	2.37E-02	9.74E-01	8.87E-02	1.09E+00	2.56E-02	1.05E+00	9.59E-02	1.17E+00
174076	3883503	24506	138204	96062	0.0194	0.8768	0.0762	0.9724	2.30E-02	1.04E+00	9.00E-02	1.15E+00	2.48E-02	1.12E+00	9.73E-02	1.24E+00
174176	3883503	23568	149055	97773	0.0187	0.9457	0.0775	1.0419	2.21E-02	1.12E+00	9.16E-02	1.23E+00	2.39E-02	1.21E+00	9.90E-02	1.33E+00
174276	3883503	22731	160282	98973	0.0180	1.0169	0.0785	1.1134	2.13E-02	1.20E+00	9.27E-02	1.32E+00	2.30E-02	1.30E+00	1.00E-01	1.42E+00
174376	3883503	21777	184507	100327	0.0173	1.1706	0.0796	1.2674	2.04E-02	1.38E+00	9.40E-02	1.50E+00	2.20E-02	1		

AERMOD Results, Diesel Truck Traffic Modeling

Peak Area near Refinery Exit, all three Routes receptors combined
pts within 100 feet of roadway centerline have been removed

max combined 2009 operations 4.60 cancer risk per million
max combined baseline operations 5.43 cancer risk per million
max combined proposed project 5.87 cancer risk per million

X	Y	Unit Conc, ug/m3-g			Year 2009 Cancer Risk				Baseline Operations Cancer Risk				Project Operations Cancer Risk			
		Route 101 North	Route 101 South	Route 166	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined
174576	3883603	20150	376792	127341	0.0160	2.3905	0.1010	2.5074	1.89E-02	2.82E+00	1.19E-01	2.96E+00	2.04E-02	3.05E+00	1.29E-01	3.20E+00
174676	3883603	19266	486667	128816	0.0153	3.0876	0.1022	3.2050	1.81E-02	3.65E+00	1.21E-01	3.79E+00	1.95E-02	3.94E+00	1.30E-01	4.09E+00
172076	3883703	28009	37719	26098	0.0222	0.2393	0.0207	0.2822	2.62E-02	2.83E-01	2.45E-02	3.33E-01	2.84E-02	3.06E-01	2.64E-02	3.60E-01
172176	3883703	30730	42028	30228	0.0244	0.2666	0.0240	0.3150	2.88E-02	3.15E-01	2.83E-02	3.72E-01	3.11E-02	3.40E-01	3.06E-02	4.02E-01
172276	3883703	35431	47277	35298	0.0281	0.2999	0.0280	0.3560	3.32E-02	3.54E-01	3.31E-02	4.21E-01	3.59E-02	3.83E-01	3.57E-02	4.55E-01
172376	3883703	39841	53043	40863	0.0316	0.3365	0.0324	0.4005	3.73E-02	3.98E-01	3.83E-02	4.73E-01	4.03E-02	4.30E-01	4.14E-02	5.11E-01
172476	3883703	42605	60138	47747	0.0338	0.3815	0.0379	0.4532	3.99E-02	4.51E-01	4.47E-02	5.35E-01	4.31E-02	4.87E-01	4.83E-02	5.79E-01
172576	3883703	45765	71105	58459	0.0363	0.4511	0.0464	0.5338	4.29E-02	5.33E-01	5.48E-02	6.31E-01	4.63E-02	5.76E-01	5.92E-02	6.81E-01
172676	3883703	46046	83463	70529	0.0365	0.5295	0.0559	0.6220	4.31E-02	6.26E-01	6.61E-02	7.35E-01	4.66E-02	6.76E-01	7.14E-02	7.94E-01
172776	3883703	46355	97039	83764	0.0368	0.6156	0.0664	0.7188	4.34E-02	7.27E-01	7.85E-02	8.49E-01	4.69E-02	7.86E-01	8.48E-02	9.18E-01
172876	3883703	46140	111247	97547	0.0366	0.7058	0.0774	0.8197	4.32E-02	8.34E-01	9.14E-02	9.68E-01	4.67E-02	9.01E-01	9.88E-02	1.05E+00
172976	3883703	45567	123657	109467	0.0361	0.7845	0.0868	0.9075	4.27E-02	9.27E-01	1.03E-01	1.07E+00	4.61E-02	1.00E+00	1.11E-01	1.16E+00
173076	3883703	44200	134225	119474	0.0351	0.8516	0.0947	0.9814	4.14E-02	1.01E+00	1.12E-01	1.16E+00	4.48E-02	1.09E+00	1.21E-01	1.25E+00
173176	3883703	42191	142679	127241	0.0335	0.9052	0.1009	1.0396	3.95E-02	1.07E+00	1.19E-01	1.23E+00	4.27E-02	1.16E+00	1.29E-01	1.33E+00
173276	3883703	40147	149521	133224	0.0318	0.9486	0.1057	1.0861	3.76E-02	1.12E+00	1.25E-01	1.28E+00	4.06E-02	1.21E+00	1.35E-01	1.39E+00
173376	3883703	37820	155275	137935	0.0300	0.9851	0.1094	1.1245	3.54E-02	1.16E+00	1.29E-01	1.33E+00	3.83E-02	1.26E+00	1.40E-01	1.44E+00
173476	3883703	35708	160362	141725	0.0283	1.0174	0.1124	1.1581	3.35E-02	1.20E+00	1.33E-01	1.37E+00	3.62E-02	1.30E+00	1.43E-01	1.48E+00
173576	3883703	33806	165201	144904	0.0268	1.0481	0.1149	1.1898	3.17E-02	1.24E+00	1.36E-01	1.41E+00	3.42E-02	1.34E+00	1.47E-01	1.52E+00
173676	3883703	32104	170456	147932	0.0255	1.0814	0.1173	1.2242	3.01E-02	1.28E+00	1.39E-01	1.45E+00	3.25E-02	1.38E+00	1.50E-01	1.56E+00
173776	3883703	30645	175553	150233	0.0243	1.1138	0.1191	1.2572	2.87E-02	1.32E+00	1.41E-01	1.49E+00	3.10E-02	1.42E+00	1.52E-01	1.61E+00
173876	3883703	29090	181383	152743	0.0231	1.1507	0.1211	1.2949	2.73E-02	1.36E+00	1.43E-01	1.53E+00	2.95E-02	1.47E+00	1.55E-01	1.65E+00
173976	3883703	27622	186469	154721	0.0219	1.1830	0.1227	1.3276	2.59E-02	1.40E+00	1.45E-01	1.57E+00	2.80E-02	1.51E+00	1.57E-01	1.69E+00
174076	3883703	26188	190776	156160	0.0208	1.2103	0.1238	1.3550	2.45E-02	1.43E+00	1.46E-01	1.60E+00	2.65E-02	1.55E+00	1.58E-01	1.73E+00
174176	3883703	24738	198367	158025	0.0196	1.2585	0.1253	1.4034	2.32E-02	1.49E+00	1.48E-01	1.66E+00	2.50E-02	1.61E+00	1.60E-01	1.79E+00
174276	3883703	23358	209974	160055	0.0185	1.3321	0.1269	1.4776	2.19E-02	1.57E+00	1.50E-01	1.75E+00	2.36E-02	1.70E+00	1.62E-01	1.89E+00
174376	3883703	22123	227225	162092	0.0175	1.4416	0.1285	1.5877	2.07E-02	1.70E+00	1.52E-01	1.88E+00	2.24E-02	1.84E+00	1.64E-01	2.03E+00
174476	3883703	20969	266919	164586	0.0166	1.6934	0.1305	1.8406	1.96E-02	2.00E+00	1.54E-01	2.17E+00	2.12E-02	2.16E+00	1.67E-01	2.35E+00
174576	3883703	19966	387182	167128	0.0158	2.4564	0.1325	2.6048	1.87E-02	2.90E+00	1.57E-01	3.08E+00	2.02E-02	3.14E+00	1.69E-01	3.33E+00
174676	3883703	19159	489727	169142	0.0152	3.1070	0.1341	3.2563	1.80E-02	3.67E+00	1.58E-01	3.85E+00	1.94E-02	3.97E+00	1.71E-01	4.16E+00
172076	3883803	33096	38526	27368	0.0262	0.2444	0.0217	0.2924	3.10E-02	2.89E-01	2.56E-02	3.45E-01	3.35E-02	3.12E-01	2.77E-02	3.73E-01
172176	3883803	36719	43918	32581	0.0291	0.2786	0.0258	0.3336	3.44E-02	3.29E-01	3.05E-02	3.94E-01	3.72E-02	3.56E-01	3.30E-02	4.26E-01
172276	3883803	42245	50970	39446	0.0335	0.3234	0.0313	0.3882	3.96E-02	3.82E-01	3.70E-02	4.59E-01	4.28E-02	4.13E-01	3.99E-02	4.96E-01
172376	3883803	49826	60686	48977	0.0395	0.3850	0.0388	0.4634	4.67E-02	4.55E-01	4.59E-02	5.47E-01	5.04E-02	4.92E-01	4.96E-02	5.92E-01
172476	3883803	55936	72188	60296	0.0444	0.4580	0.0478	0.5502	5.24E-02	5.41E-01	5.65E-02	6.50E-01	5.66E-02	5.85E-01	6.10E-02	7.02E-01
172576	3883803	58821	91858	79727	0.0466	0.5828	0.0632	0.6926	5.51E-02	6.89E-01	7.47E-02	8.18E-01	5.96E-02	7.44E-01	8.07E-02	8.84E-01
172676	3883803	61199	116427	104058	0.0485	0.7386	0.0825	0.8697	5.73E-02	8.73E-01	9.75E-02	1.03E+00	6.20E-02	9.43E-01	1.05E-01	1.11E+00
172776	3883803	59587	144190	131526	0.0473	0.9148	0.1043	1.0663	5.58E-02	1.08E+00	1.23E-01	1.26E+00	6.03E-02	1.17E+00	1.33E-01	1.36E+00
172876	3883803	57247	166721	135670	0.0454	1.0577	0.1219	1.2250	5.36E-02	1.25E+00	1.44E-01	1.45E+00	5.80E-02	1.35E+00	1.56E-01	1.56E+00
172976	3883803	53769	183257	169786	0.0426	1.1626	0.1346	1.3399	5.04E-02	1.37E+00	1.59E-01	1.58E+00	5.44E-02	1.48E+00	1.72E-01	1.71E+00
173076	3883803	49768	195325	181401	0.0395	1.2392	0.1439	1.4225	4.66E-02	1.46E+00	1.70E-01	1.68E+00	5.04E-02	1.58E+00	1.84E-01	1.82E+00
173176	3883803	46439	205088	190611	0.0368	1.3011	0.1512	1.4891	4.35E-02	1.54E+00	1.79E-01	1.76E+00	4.70E-02	1.66E+00	1.93E-01	1.90E+00
173276	3883803	43145	213279	198100	0.0342	1.3531	0.1571	1.5444	4.04E-02	1.60E+00	1.86E-01	1.82E+00	4.37E-02	1.73E+00	2.01E-01	1.97E+00
173376	3883803	40279	220166	203976	0.0319	1.3968	0.1618	1.5905	3.77E-02	1.65E+00	1.91E-01	1.88E+00	4.08E-02	1.78E+00	2.07E-01	2.03E+00
173476	3883803	37828	225688	208206	0.0300	1.4318	0.1651	1.6269	3.54E-02	1.69E+00	1.95E-01	1.92E+00	3.83E-02	1.83E+00	2.11E-01	2.08E+00
173576	3883803	35623	231374	212167	0.0283	1.4679	0.1683	1.6644	3.34E-02	1.73E+00	1.99E-01	1.97E+00	3.61E-02	1.87E+00	2.15E-01	2.12E+00
173676	3883803	33486	237142	215790	0.0266	1.5045	0.1711	1.7022	3.14E-02	1.78E+00	2.02E-01	2.01E+00	3.39E-02	1.92E+00	2.18E-01	2.17E+00
173776	3883803	31473	242736	219241	0.0250	1.5400	0.1739	1.7388	2.95E-02	1.82E+00	2.05E-01	2.05E+00	3.19E-02	1.97E+00	2.22E-01	2.22E+00
173876	3883803	29393	247434	221959	0.0233	1.5698	0.1760	1.7691	2.75E-02	1.85E+00	2.08E-01	2.09E+00	2.98E-02	2.00E+00	2.25E-01	2.26E+00
173976	3883803	27604	251728	224557	0.0219	1.5970	0.1781	1.7970	2.59E-02	1.89E+00	2.10E-01	2.12E+00	2.79E-0			

AERMOD Results, Diesel Truck Traffic Modeling

Peak Area near Refinery Exit, all three Routes receptors combined
pts within 100 feet of roadway centerline have been removed

max combined 2009 operations 4.60 cancer risk per million
max combined baseline operations 5.43 cancer risk per million
max combined proposed project 5.87 cancer risk per million

X	Y	Unit Conc, ug/m3-g			Year 2009 Cancer Risk				Baseline Operations Cancer Risk				Project Operations Cancer Risk			
		Route 101 North	Route 101 South	Route 166	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined
174176	3883903	24139	524394	497992	0.0191	3.3269	0.3949	3.7410	2.26E-02	3.93E+00	4.67E-01	4.42E+00	2.44E-02	4.25E+00	5.04E-01	4.78E+00
174276	3883903	22738	552025	521635	0.0180	3.5022	0.4137	3.9339	2.13E-02	4.14E+00	4.89E-01	4.65E+00	2.30E-02	4.47E+00	5.28E-01	5.02E+00
174376	3883903	21520	578466	547584	0.0171	3.6700	0.4343	4.1213	2.02E-02	4.34E+00	5.13E-01	4.87E+00	2.18E-02	4.69E+00	5.54E-01	5.26E+00
174476	3883903	20507	609920	575852	0.0163	3.8695	0.4567	4.3425	1.92E-02	4.57E+00	5.40E-01	5.13E+00	2.08E-02	4.94E+00	5.83E-01	5.54E+00
172076	3884003	48344	42664	32356	0.0383	0.2707	0.0257	0.3347	4.53E-02	3.20E-01	3.03E-02	3.95E-01	4.89E-02	3.46E-01	3.28E-02	4.27E-01
172176	3884003	58724	49604	39152	0.0466	0.3147	0.0310	0.3923	5.50E-02	3.72E-01	3.67E-02	4.63E-01	5.95E-02	4.02E-01	3.96E-02	5.01E-01
172276	3884003	76284	60775	50158	0.0605	0.3856	0.0398	0.4858	7.15E-02	4.56E-01	4.70E-02	5.74E-01	7.72E-02	4.92E-01	5.08E-02	6.20E-01
172376	3884003	114338	80250	69503	0.0907	0.5091	0.0551	0.6549	1.07E-01	6.02E-01	6.51E-02	7.74E-01	1.16E-01	6.50E-01	7.04E-02	8.36E-01
174076	3884003	25469	363531	342767	0.0202	2.3063	0.2718	2.5984	2.39E-02	2.72E+00	3.21E-01	3.07E+00	2.58E-02	2.94E+00	3.47E-01	3.32E+00
174176	3884003	23933	353107	332556	0.0190	2.2402	0.2637	2.5229	2.24E-02	2.65E+00	3.12E-01	2.98E+00	2.42E-02	2.86E+00	3.37E-01	3.22E+00
174276	3884003	22555	340782	321684	0.0179	2.1620	0.2551	2.4350	2.11E-02	2.55E+00	3.01E-01	2.88E+00	2.28E-02	2.76E+00	3.26E-01	3.11E+00
174376	3884003	21394	325686	311628	0.0170	2.0663	0.2471	2.3304	2.00E-02	2.44E+00	2.92E-01	2.75E+00	2.17E-02	2.64E+00	3.16E-01	2.98E+00
174476	3884003	20401	288666	301790	0.0162	1.8314	0.2393	2.0869	1.91E-02	2.16E+00	2.83E-01	2.47E+00	2.07E-02	2.34E+00	3.06E-01	2.66E+00
174576	3884003	19608	207060	292446	0.0155	1.3137	0.2319	1.5611	1.84E-02	1.55E+00	2.74E-01	1.84E+00	1.99E-02	1.68E+00	2.96E-01	1.99E+00
174676	3884003	18947	136989	282465	0.0150	0.8691	0.2240	1.1081	1.78E-02	1.03E+00	2.65E-01	1.31E+00	1.92E-02	1.11E+00	2.86E-01	1.41E+00
172076	3884103	58926	42631	32429	0.0467	0.2705	0.0257	0.3429	5.52E-02	3.20E-01	3.04E-02	4.05E-01	5.97E-02	3.45E-01	3.28E-02	4.38E-01
172176	3884103	76769	50241	39897	0.0609	0.3187	0.0316	0.4113	7.19E-02	3.77E-01	3.74E-02	4.86E-01	7.77E-02	4.07E-01	4.04E-02	5.25E-01
172276	3884103	113708	63518	53050	0.0902	0.4030	0.0421	0.5352	1.07E-01	4.76E-01	4.97E-02	6.32E-01	1.15E-01	5.14E-01	5.37E-02	6.83E-01
172376	3884103	270554	92054	81452	0.2146	0.5840	0.0646	0.8632	2.53E-01	6.90E-01	7.63E-02	1.02E+00	2.74E-01	7.46E-01	8.25E-02	1.10E+00
172576	3884103	176357	195159	183984	0.1399	1.2381	0.1459	1.5239	1.65E-01	1.46E+00	1.72E-01	1.80E+00	1.79E-01	1.58E+00	1.86E-01	1.95E+00
172676	3884103	117605	212256	200974	0.0933	1.3466	0.1594	1.5993	1.10E-01	1.59E+00	1.88E-01	1.89E+00	1.19E-01	1.72E+00	2.03E-01	2.04E+00
172776	3884103	92283	219912	208686	0.0732	1.3952	0.1655	1.6339	8.65E-02	1.65E+00	1.96E-01	1.93E+00	9.34E-02	1.78E+00	2.11E-01	2.09E+00
172876	3884103	77163	223655	212194	0.0612	1.4189	0.1683	1.6484	7.23E-02	1.68E+00	1.99E-01	1.95E+00	7.81E-02	1.81E+00	2.15E-01	2.10E+00
172976	3884103	66573	224981	213178	0.0528	1.4273	0.1691	1.6492	6.24E-02	1.69E+00	2.00E-01	1.95E+00	6.74E-02	1.82E+00	2.16E-01	2.11E+00
173076	3884103	58815	225086	212625	0.0466	1.4280	0.1686	1.6433	5.51E-02	1.69E+00	1.99E-01	1.94E+00	5.95E-02	1.82E+00	2.15E-01	2.10E+00
173176	3884103	53207	223976	211006	0.0422	1.4210	0.1673	1.6305	4.99E-02	1.68E+00	1.98E-01	1.93E+00	5.39E-02	1.81E+00	2.14E-01	2.08E+00
173276	3884103	48911	221998	208423	0.0388	1.4084	0.1653	1.6125	4.58E-02	1.66E+00	1.95E-01	1.91E+00	4.95E-02	1.80E+00	2.11E-01	2.06E+00
173376	3884103	45041	218962	204606	0.0357	1.3892	0.1623	1.5871	4.22E-02	1.64E+00	1.92E-01	1.88E+00	4.56E-02	1.77E+00	2.07E-01	2.03E+00
173476	3884103	41533	213703	198515	0.0329	1.3558	0.1577	1.5464	3.89E-02	1.60E+00	1.86E-01	1.83E+00	4.21E-02	1.73E+00	2.01E-01	1.97E+00
173576	3884103	38349	207280	192199	0.0304	1.3151	0.1524	1.4979	3.59E-02	1.55E+00	1.80E-01	1.77E+00	3.88E-02	1.68E+00	1.95E-01	1.91E+00
173676	3884103	34823	205416	190215	0.0276	1.3032	0.1508	1.4817	3.26E-02	1.54E+00	1.78E-01	1.75E+00	3.53E-02	1.66E+00	1.93E-01	1.89E+00
173776	3884103	31800	200753	185368	0.0252	1.2736	0.1470	1.4459	2.98E-02	1.50E+00	1.74E-01	1.71E+00	3.22E-02	1.63E+00	1.88E-01	1.85E+00
173876	3884103	29256	198113	182006	0.0232	1.2569	0.1443	1.4244	2.74E-02	1.48E+00	1.71E-01	1.68E+00	2.96E-02	1.60E+00	1.84E-01	1.82E+00
173976	3884103	27153	196531	179779	0.0215	1.2469	0.1426	1.4110	2.54E-02	1.47E+00	1.68E-01	1.67E+00	2.75E-02	1.59E+00	1.82E-01	1.80E+00
174076	3884103	25287	192223	171789	0.0201	1.2195	0.1405	1.3801	2.37E-02	1.44E+00	1.66E-01	1.63E+00	2.56E-02	1.56E+00	1.79E-01	1.76E+00
174176	3884103	23815	186935	175327	0.0189	1.1860	0.1390	1.3439	2.23E-02	1.40E+00	1.64E-01	1.59E+00	2.41E-02	1.51E+00	1.78E-01	1.72E+00
174276	3884103	22321	177138	171342	0.0177	1.1238	0.1359	1.2774	2.09E-02	1.33E+00	1.61E-01	1.51E+00	2.26E-02	1.43E+00	1.73E-01	1.63E+00
174376	3884103	21207	162179	168653	0.0168	1.0289	0.1337	1.1795	1.99E-02	1.22E+00	1.58E-01	1.39E+00	2.15E-02	1.31E+00	1.71E-01	1.51E+00
174476	3884103	20265	136860	165694	0.0161	0.8683	0.1314	1.0158	1.90E-02	1.03E+00	1.55E-01	1.20E+00	2.05E-02	1.11E+00	1.68E-01	1.30E+00
174576	3884103	19482	110228	162286	0.0155	0.6993	0.1287	0.8435	1.83E-02	8.26E-01	1.52E-01	9.96E-01	1.97E-02	8.93E-01	1.64E-01	1.08E+00
174676	3884103	18515	81947	150642	0.0147	0.5199	0.1195	0.6540	1.73E-02	6.14E-01	1.41E-01	7.73E-01	1.87E-02	6.64E-01	1.53E-01	8.35E-01
172076	3884203	71824	43681	33573	0.0570	0.2771	0.0266	0.3607	6.73E-02	3.27E-01	3.15E-02	4.26E-01	7.27E-02	3.54E-01	3.40E-02	4.61E-01
172176	3884203	101083	52439	42216	0.0802	0.3327	0.0335	0.4463	9.47E-02	3.93E-01	3.96E-02	5.27E-01	1.02E-01	4.25E-01	4.27E-02	5.70E-01
172276	3884203	178821	65748	55407	0.1418	0.4171	0.0439	0.6029	1.68E-01	4.93E-01	5.19E-02	7.12E-01	1.81E-01	5.33E-01	5.61E-02	7.70E-01
172476	3884203	276763	104340	93721	0.2195	0.6620	0.0743	0.9558	2.59E-01	7.82E-01	8.78E-02	1.13E+00	2.80E-01	8.45E-01	9.49E-02	1.22E+00
172576	3884203	165448	120119	109372	0.1312	0.7621	0.0867	0.9800	1.55E-01	9.00E-01	1.02E-01	1.16E+00	1.68E-01	9.73E-01	1.11E-01	1.25E+00
172676	3884203	120439	130498	119632	0.0955	0.8279	0.0949	1.0183	1.13E-01	9.78E-01	1.12E-01	1.20E+00	1.22E-01	1.06E+00	1.21E-01	1.30E+00
172776	3884203	95387	138192	127115	0.0756	0.8767	0.1008	1.0532	8.94E-02	1.04E+00	1.19E-01	1.24E+00	9.66E-02	1.12E+00	1.29E-01	1.34E+00
172876	3884203	79589	143405	132045	0.0631	0.9098	0.1047	1.0776	7.							

AERMOD Results, Diesel Truck Traffic Modeling

Peak Area near Refinery Exit, all three Routes receptors combined
pts within 100 feet of roadway centerline have been removed

max combined 2009 operations 4.60 cancer risk per million
max combined baseline operations 5.43 cancer risk per million
max combined proposed project 5.87 cancer risk per million

X	Y	Unit Conc, ug/m3-g			Year 2009 Cancer Risk				Baseline Operations Cancer Risk				Project Operations Cancer Risk			
		Route 101 North	Route 101 South	Route 166	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined
173176	3884303	55287	113348	101565	0.0438	0.7191	0.0805	0.8435	5.18E-02	8.50E-01	9.52E-02	9.97E-01	5.60E-02	9.18E-01	1.03E-01	1.08E+00
173276	3884303	49887	113550	101730	0.0396	0.7204	0.0807	0.8406	4.67E-02	8.51E-01	9.53E-02	9.93E-01	5.05E-02	9.20E-01	1.03E-01	1.07E+00
173376	3884303	45539	112906	101308	0.0361	0.7163	0.0803	0.8328	4.27E-02	8.46E-01	9.49E-02	9.84E-01	4.61E-02	9.15E-01	1.03E-01	1.06E+00
173476	3884303	41891	111526	100436	0.0332	0.7076	0.0796	0.8204	3.92E-02	8.36E-01	9.41E-02	9.69E-01	4.24E-02	9.03E-01	1.02E-01	1.05E+00
173576	3884303	38823	109659	99175	0.0308	0.6957	0.0786	0.8051	3.64E-02	8.22E-01	9.29E-02	9.51E-01	3.93E-02	8.88E-01	1.00E-01	1.03E+00
173676	3884303	35522	109754	99574	0.0282	0.6963	0.0790	0.8034	3.33E-02	8.23E-01	9.33E-02	9.49E-01	3.60E-02	8.89E-01	1.01E-01	1.03E+00
173776	3884303	32496	110163	100008	0.0258	0.6989	0.0793	0.8040	3.04E-02	8.26E-01	9.37E-02	9.50E-01	3.29E-02	8.92E-01	1.01E-01	1.03E+00
173876	3884303	30055	107233	98024	0.0238	0.6803	0.0777	0.7819	2.82E-02	8.04E-01	9.18E-02	9.24E-01	3.04E-02	8.69E-01	9.92E-02	9.98E-01
173976	3884303	27518	103504	97055	0.0218	0.6567	0.0770	0.7555	2.58E-02	7.76E-01	9.09E-02	8.93E-01	2.79E-02	8.38E-01	9.83E-02	9.64E-01
174076	3884303	25155	96995	94605	0.0199	0.6154	0.0750	0.7103	2.36E-02	7.27E-01	8.86E-02	8.39E-01	2.55E-02	7.86E-01	9.58E-02	9.07E-01
174176	3884303	23289	89265	91979	0.0185	0.5663	0.0729	0.6577	2.18E-02	6.69E-01	8.62E-02	7.77E-01	2.36E-02	7.23E-01	9.31E-02	8.40E-01
174276	3884303	21700	80173	88714	0.0172	0.5086	0.0704	0.5962	2.03E-02	6.01E-01	8.31E-02	7.04E-01	2.20E-02	6.49E-01	8.98E-02	7.61E-01
174376	3884303	20665	73445	88456	0.0164	0.4660	0.0701	0.5525	1.94E-02	5.50E-01	8.29E-02	6.53E-01	2.09E-02	5.95E-01	8.96E-02	7.05E-01
174476	3884303	20063	66896	90151	0.0159	0.4244	0.0715	0.5118	1.88E-02	5.01E-01	8.45E-02	6.05E-01	2.03E-02	5.42E-01	9.13E-02	6.53E-01
174576	3884303	19021	57065	86309	0.0151	0.3620	0.0684	0.4456	1.78E-02	4.28E-01	8.09E-02	5.26E-01	1.93E-02	4.62E-01	8.74E-02	5.69E-01
174676	3884303	17234	39767	75160	0.0137	0.2523	0.0596	0.3256	1.61E-02	2.98E-01	7.04E-02	3.85E-01	1.74E-02	3.22E-01	7.61E-02	4.16E-01
172076	3884403	102052	43795	34293	0.0809	0.2779	0.0272	0.3860	9.56E-02	3.28E-01	3.21E-02	4.56E-01	1.03E-01	3.55E-01	3.47E-02	4.93E-01
172176	3884403	143181	49429	39856	0.1135	0.3136	0.0316	0.4587	1.34E-01	3.70E-01	3.73E-02	5.42E-01	1.45E-01	4.00E-01	4.04E-02	5.86E-01
172276	3884403	253329	55128	45473	0.2009	0.3497	0.0361	0.5867	2.37E-01	4.13E-01	4.26E-02	6.93E-01	2.56E-01	4.47E-01	4.60E-02	7.49E-01
172476	3884403	246462	67832	57961	0.1955	0.4303	0.0460	0.6718	2.31E-01	5.08E-01	5.43E-02	7.94E-01	2.50E-01	5.49E-01	5.87E-02	8.58E-01
172576	3884403	164664	74209	64183	0.1306	0.4708	0.0509	0.6523	1.54E-01	5.56E-01	6.01E-02	7.71E-01	1.67E-01	6.01E-01	6.50E-02	8.33E-01
172676	3884403	123066	79237	69067	0.0976	0.5027	0.0548	0.6551	1.15E-01	5.94E-01	6.47E-02	7.74E-01	1.25E-01	6.42E-01	6.99E-02	8.36E-01
172776	3884403	98945	83163	72831	0.0785	0.5276	0.0578	0.6638	9.27E-02	6.23E-01	6.82E-02	7.84E-01	1.00E-01	6.74E-01	7.37E-02	8.48E-01
172876	3884403	83573	85851	75371	0.0663	0.5447	0.0598	0.6707	7.83E-02	6.43E-01	7.06E-02	7.92E-01	8.46E-02	6.95E-01	7.63E-02	8.56E-01
172976	3884403	71031	87942	77330	0.0563	0.5579	0.0613	0.6756	6.66E-02	6.59E-01	7.25E-02	7.98E-01	7.19E-02	7.12E-01	7.83E-02	8.63E-01
173076	3884403	61626	89848	79190	0.0489	0.5700	0.0628	0.6817	5.77E-02	6.73E-01	7.42E-02	8.05E-01	6.24E-02	7.28E-01	8.02E-02	8.70E-01
173176	3884403	54718	91056	80513	0.0434	0.5777	0.0638	0.6849	5.13E-02	6.82E-01	7.54E-02	8.09E-01	5.54E-02	7.38E-01	8.15E-02	8.74E-01
173276	3884403	49522	91346	81163	0.0393	0.5795	0.0644	0.6832	4.64E-02	6.85E-01	7.60E-02	8.07E-01	5.01E-02	7.40E-01	8.22E-02	8.72E-01
173376	3884403	45473	90884	81281	0.0361	0.5766	0.0645	0.6771	4.26E-02	6.81E-01	7.62E-02	8.00E-01	4.60E-02	7.36E-01	8.23E-02	8.64E-01
173476	3884403	42090	89910	81015	0.0334	0.5704	0.0642	0.6680	3.94E-02	6.74E-01	7.59E-02	7.89E-01	4.26E-02	7.28E-01	8.20E-02	8.53E-01
173576	3884403	39124	88780	80500	0.0310	0.5632	0.0638	0.6581	3.67E-02	6.65E-01	7.54E-02	7.78E-01	3.96E-02	7.19E-01	8.15E-02	8.40E-01
173676	3884403	35990	88705	80714	0.0285	0.5628	0.0640	0.6553	3.37E-02	6.65E-01	7.56E-02	7.74E-01	3.64E-02	7.18E-01	8.17E-02	8.37E-01
173776	3884403	32948	88648	81228	0.0261	0.5624	0.0644	0.6530	3.09E-02	6.64E-01	7.61E-02	7.71E-01	3.34E-02	7.18E-01	8.22E-02	8.34E-01
173876	3884403	30572	85973	80529	0.0242	0.5454	0.0639	0.6335	2.86E-02	6.44E-01	7.54E-02	7.48E-01	3.10E-02	6.96E-01	8.15E-02	8.09E-01
173976	3884403	28193	82837	80303	0.0224	0.5255	0.0637	0.6116	2.64E-02	6.21E-01	7.52E-02	7.23E-01	2.85E-02	6.71E-01	8.13E-02	7.81E-01
174076	3884403	25700	78826	79412	0.0204	0.5001	0.0630	0.5835	2.41E-02	5.91E-01	7.44E-02	6.89E-01	2.60E-02	6.38E-01	8.04E-02	7.45E-01
174176	3884403	23600	73399	77375	0.0187	0.4657	0.0614	0.5457	2.21E-02	5.50E-01	7.25E-02	6.45E-01	2.39E-02	5.95E-01	7.83E-02	6.97E-01
174276	3884403	21779	65000	73780	0.0173	0.4124	0.0585	0.4882	2.04E-02	4.87E-01	6.91E-02	5.77E-01	2.21E-02	5.26E-01	7.47E-02	6.23E-01
174376	3884403	20800	59502	73489	0.0165	0.3775	0.0583	0.4523	1.95E-02	4.46E-01	6.89E-02	5.34E-01	2.11E-02	4.82E-01	7.44E-02	5.77E-01
174476	3884403	20299	54464	74856	0.0161	0.3455	0.0594	0.4210	1.90E-02	4.08E-01	7.01E-02	4.97E-01	2.06E-02	4.41E-01	7.58E-02	5.37E-01
174576	3884403	19749	53076	74970	0.0157	0.3367	0.0595	0.4118	1.85E-02	3.98E-01	7.02E-02	4.87E-01	2.00E-02	4.30E-01	7.59E-02	5.26E-01
174676	3884403	18243	40939	68931	0.0145	0.2597	0.0547	0.3289	1.71E-02	3.07E-01	6.46E-02	3.89E-01	1.85E-02	3.32E-01	6.98E-02	4.20E-01
172076	3884503	113820	41550	32426	0.0903	0.2636	0.0257	0.3796	1.07E-01	3.11E-01	3.04E-02	4.48E-01	1.15E-01	3.37E-01	3.28E-02	4.85E-01
172176	3884503	157506	45222	36064	0.1249	0.2869	0.0286	0.4404	1.48E-01	3.39E-01	3.38E-02	5.20E-01	1.59E-01	3.66E-01	3.65E-02	5.62E-01
172276	3884503	280747	49501	40242	0.2226	0.3141	0.0319	0.5686	2.63E-01	3.71E-01	3.77E-02	6.72E-01	2.84E-01	4.01E-01	4.07E-02	7.26E-01
172376	3884503	506943	54669	45312	0.4020	0.3468	0.0359	0.7848	4.75E-01	4.10E-01	4.25E-02	9.27E-01	5.13E-01	4.43E-01	4.59E-02	1.00E+00
172476	3884503	243604	59057	49589	0.1932	0.3747	0.0393	0.6072	2.28E-01	4.43E-01	4.65E-02	7.17E-01	2.47E-01	4.78E-01	5.02E-02	7.75E-01
172576	3884503	160317	64396	54815	0.1271	0.4086	0.0435	0.5792	1.50E-01	4.83E-01	5.14E-02	6.84E-01	1.62E-01	5.22E-01	5.55E-02	7.39E-01
172676	3884503	120805	67799	58138	0.0958	0.4301	0.0461	0.5720	1.13E-01	5.08E-01	5.45E-02	6.76E-01	1.22E-01	5.49E-01		

AERMOD Results, Diesel Truck Traffic Modeling

Peak Area near Refinery Exit, all three Routes receptors combined
pts within 100 feet of roadway centerline have been removed

max combined 2009 operations 4.60 cancer risk per million
max combined baseline operations 5.43 cancer risk per million
max combined proposed project 5.87 cancer risk per million

X	Y	Unit Conc, ug/m3-g			Year 2009 Cancer Risk				Baseline Operations Cancer Risk				Project Operations Cancer Risk			
		Route 101 North	Route 101 South	Route 166	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined	Route 101 North	Route 101 South	Route 166	Combined
172876	3884603	76292	62330	53487	0.0605	0.3954	0.0424	0.4984	7.15E-02	4.67E-01	5.01E-02	5.89E-01	7.72E-02	5.05E-01	5.42E-02	6.36E-01
172976	3884603	66209	63346	54819	0.0525	0.4019	0.0435	0.4979	6.20E-02	4.75E-01	5.14E-02	5.88E-01	6.70E-02	5.13E-01	5.55E-02	6.36E-01
173076	3884603	58659	63790	55770	0.0465	0.4047	0.0442	0.4955	5.50E-02	4.78E-01	5.23E-02	5.85E-01	5.94E-02	5.17E-01	5.65E-02	6.33E-01
173176	3884603	52701	63769	56444	0.0418	0.4046	0.0448	0.4911	4.94E-02	4.78E-01	5.29E-02	5.80E-01	5.34E-02	5.17E-01	5.71E-02	6.27E-01
173276	3884603	47919	63727	57157	0.0380	0.4043	0.0453	0.4876	4.49E-02	4.78E-01	5.36E-02	5.76E-01	4.85E-02	5.16E-01	5.79E-02	6.23E-01
173376	3884603	44073	63796	57877	0.0350	0.4047	0.0459	0.4856	4.13E-02	4.78E-01	5.42E-02	5.74E-01	4.46E-02	5.17E-01	5.86E-02	6.20E-01
173476	3884603	40870	63949	58394	0.0324	0.4057	0.0463	0.4844	3.83E-02	4.79E-01	5.47E-02	5.72E-01	4.14E-02	5.18E-01	5.91E-02	6.18E-01
173576	3884603	38120	63883	58645	0.0302	0.4053	0.0465	0.4820	3.57E-02	4.79E-01	5.49E-02	5.69E-01	3.86E-02	5.17E-01	5.94E-02	6.15E-01
173676	3884603	35759	62841	58665	0.0284	0.3987	0.0465	0.4736	3.35E-02	4.71E-01	5.50E-02	5.59E-01	3.62E-02	5.09E-01	5.94E-02	6.05E-01
173776	3884603	33604	60743	58677	0.0266	0.3854	0.0465	0.4586	3.15E-02	4.55E-01	5.50E-02	5.42E-01	3.40E-02	4.92E-01	5.94E-02	5.85E-01
173876	3884603	31675	58661	58740	0.0251	0.3722	0.0466	0.4439	2.97E-02	4.40E-01	5.50E-02	5.24E-01	3.21E-02	4.75E-01	5.95E-02	5.67E-01
173976	3884603	30172	57183	58432	0.0239	0.3628	0.0463	0.4331	2.83E-02	4.29E-01	5.47E-02	5.12E-01	3.05E-02	4.63E-01	5.92E-02	5.53E-01
174076	3884603	28580	56549	58584	0.0227	0.3588	0.0465	0.4279	2.68E-02	4.24E-01	5.49E-02	5.06E-01	2.89E-02	4.58E-01	5.93E-02	5.46E-01
174176	3884603	27118	55664	58839	0.0215	0.3532	0.0467	0.4213	2.54E-02	4.17E-01	5.51E-02	4.98E-01	2.75E-02	4.51E-01	5.96E-02	5.38E-01
174276	3884603	25695	54146	58933	0.0204	0.3435	0.0467	0.4106	2.41E-02	4.06E-01	5.52E-02	4.85E-01	2.60E-02	4.39E-01	5.97E-02	5.24E-01
174376	3884603	24452	50669	59036	0.0194	0.3215	0.0468	0.3877	2.29E-02	3.80E-01	5.53E-02	4.58E-01	2.48E-02	4.10E-01	5.98E-02	4.95E-01
174476	3884603	23224	47183	59017	0.0184	0.2993	0.0468	0.3646	2.18E-02	3.54E-01	5.53E-02	4.31E-01	2.35E-02	3.82E-01	5.98E-02	4.65E-01
174576	3884603	22348	47507	58995	0.0177	0.3014	0.0468	0.3659	2.09E-02	3.56E-01	5.53E-02	4.32E-01	2.26E-02	3.85E-01	5.97E-02	4.67E-01
174676	3884603	21251	45101	58586	0.0169	0.2861	0.0465	0.3495	1.99E-02	3.38E-01	5.49E-02	4.13E-01	2.15E-02	3.65E-01	5.93E-02	4.46E-01
172076	3884703	159217	36458	28194	0.1263	0.2313	0.0224	0.3799	1.49E-01	2.73E-01	2.64E-02	4.49E-01	1.61E-01	2.95E-01	2.85E-02	4.85E-01
172176	3884703	241515	38537	30231	0.1915	0.2445	0.0240	0.4600	2.26E-01	2.89E-01	2.83E-02	5.43E-01	2.45E-01	3.12E-01	3.06E-02	5.87E-01
172276	3884703	461777	40905	32563	0.3662	0.2595	0.0258	0.6515	4.33E-01	3.07E-01	3.05E-02	7.70E-01	4.68E-01	3.31E-01	3.30E-02	8.32E-01
172376	3884703	475995	43258	34881	0.3775	0.2744	0.0277	0.6796	4.46E-01	3.24E-01	3.27E-02	8.03E-01	4.82E-01	3.50E-01	3.53E-02	8.68E-01
172476	3884703	218933	45806	37358	0.1736	0.2906	0.0296	0.4939	2.05E-01	3.43E-01	3.50E-02	5.83E-01	2.22E-01	3.71E-01	3.78E-02	6.31E-01
172576	3884703	139741	49128	40728	0.1108	0.3117	0.0323	0.4548	1.31E-01	3.68E-01	3.82E-02	5.37E-01	1.41E-01	3.98E-01	4.12E-02	5.81E-01
172676	3884703	102387	51768	43438	0.0812	0.3284	0.0344	0.4441	9.59E-02	3.88E-01	4.07E-02	5.25E-01	1.04E-01	4.19E-01	4.40E-02	5.67E-01
172776	3884703	82683	53333	45233	0.0656	0.3384	0.0359	0.4398	7.75E-02	4.00E-01	4.24E-02	5.20E-01	8.37E-02	4.32E-01	4.58E-02	5.61E-01
172876	3884703	70711	54483	46765	0.0561	0.3457	0.0371	0.4388	6.62E-02	4.08E-01	4.38E-02	5.18E-01	7.16E-02	4.41E-01	4.73E-02	5.60E-01
172976	3884703	62287	55077	47890	0.0494	0.3494	0.0380	0.4368	5.84E-02	4.13E-01	4.49E-02	5.16E-01	6.31E-02	4.46E-01	4.85E-02	5.58E-01
173076	3884703	56208	55355	48847	0.0446	0.3512	0.0387	0.4345	5.27E-02	4.15E-01	4.58E-02	5.13E-01	5.69E-02	4.48E-01	4.95E-02	5.55E-01
173176	3884703	51535	55294	49483	0.0409	0.3508	0.0392	0.4309	4.83E-02	4.14E-01	4.64E-02	5.09E-01	5.22E-02	4.48E-01	5.01E-02	5.50E-01
173276	3884703	47692	55120	49922	0.0378	0.3497	0.0396	0.4271	4.47E-02	4.13E-01	4.68E-02	5.05E-01	4.83E-02	4.46E-01	5.05E-02	5.45E-01
173376	3884703	44295	55188	50387	0.0351	0.3501	0.0400	0.4252	4.15E-02	4.14E-01	4.72E-02	5.02E-01	4.48E-02	4.47E-01	5.10E-02	5.43E-01
173476	3884703	41184	55428	50902	0.0327	0.3516	0.0404	0.4247	3.86E-02	4.15E-01	4.77E-02	5.02E-01	4.17E-02	4.49E-01	5.15E-02	5.42E-01
173576	3884703	38428	55149	51366	0.0305	0.3499	0.0407	0.4211	3.60E-02	4.13E-01	4.81E-02	4.97E-01	3.89E-02	4.47E-01	5.20E-02	5.38E-01
173676	3884703	36082	53770	51653	0.0286	0.3411	0.0410	0.4107	3.38E-02	4.03E-01	4.84E-02	4.85E-01	3.65E-02	4.36E-01	5.23E-02	5.24E-01
173776	3884703	34080	51883	51757	0.0270	0.3292	0.0410	0.3972	3.19E-02	3.89E-01	4.85E-02	4.69E-01	3.45E-02	4.20E-01	5.24E-02	5.07E-01
173876	3884703	32344	50667	51747	0.0256	0.3214	0.0410	0.3881	3.03E-02	3.80E-01	4.85E-02	4.59E-01	3.27E-02	4.10E-01	5.24E-02	4.96E-01
173976	3884703	30824	50048	51652	0.0244	0.3175	0.0410	0.3829	2.89E-02	3.75E-01	4.84E-02	4.52E-01	3.12E-02	4.05E-01	5.23E-02	4.89E-01
174076	3884703	29508	49183	51531	0.0234	0.3120	0.0409	0.3763	2.76E-02	3.69E-01	4.83E-02	4.45E-01	2.99E-02	3.98E-01	5.22E-02	4.80E-01
174176	3884703	28380	48235	51402	0.0225	0.3060	0.0408	0.3693	2.66E-02	3.62E-01	4.82E-02	4.36E-01	2.87E-02	3.91E-01	5.20E-02	4.71E-01
174276	3884703	27399	46388	51276	0.0217	0.2943	0.0407	0.3567	2.57E-02	3.48E-01	4.80E-02	4.21E-01	2.77E-02	3.76E-01	5.19E-02	4.55E-01
174376	3884703	26516	43377	51241	0.0210	0.2752	0.0406	0.3369	2.48E-02	3.25E-01	4.80E-02	3.98E-01	2.68E-02	3.51E-01	5.19E-02	4.30E-01
174476	3884703	25338	42035	51799	0.0201	0.2667	0.0411	0.3279	2.37E-02	3.15E-01	4.85E-02	3.87E-01	2.57E-02	3.40E-01	5.24E-02	4.19E-01
174576	3884703	24462	42894	52017	0.0194	0.2721	0.0413	0.3328	2.29E-02	3.22E-01	4.87E-02	3.93E-01	2.48E-02	3.47E-01	5.27E-02	4.25E-01
174676	3884703	23436	42556	52270	0.0186	0.2700	0.0415	0.3300	2.20E-02	3.19E-01	4.90E-02	3.90E-01	2.37E-02	3.45E-01	5.29E-02	4.21E-01
172076	3884803	223307	33898	26087	0.1771	0.2151	0.0207	0.4128	2.09E-01	2.54E-01	2.44E-02	4.88E-01	2.26E-01	2.75E-01	2.64E-02	5.27E-01
172376	3884803	258775	39279	31454	0.2052	0.2492	0.0249	0.4794	2.42E-01	2.94E-01	2.95E-02	5.66E-01	2.62E-01	3.18E-01	3.18E-02	6.12E-01
172476	3884803	164337	40947	33166	0.1303	0.2598	0.0263	0.4164	1.54E-01	3.07E-01	3.11E-02	4.92E-01	1.66E-01	3.32E-01	3.36E-02	5.32E-01
172576	3884803	121080	43252	35594	0.0960	0.2744	0.0282	0.3987	1.13E-01	3.24E-01	3.33E-02	4.71E-01	1.23E-01	3.50E-01	3.60	

EXHIBIT 4



**AB2588 Health Risk Assessment
2011 Throughput Increase Project
ConocoPhillips Santa Maria Facility
San Luis Obispo County, California**

**Prepared for:
ConocoPhillips Company
Santa Maria Facility
2555 Willow Road
Arroyo Grande, California**

October 2011

Prepared by:
Reese-Chambers Systems Consultants, Inc.
Somis, California

1.0 INTRODUCTION

ConocoPhillips (CoP) owns and operates the Santa Maria Facility (SMF) in Arroyo Grande, California. The SMF consists primarily of a petroleum refinery. A petroleum coke processing facility, formerly operated at the facility, was shut down in 2010. Air emissions at SMF include a number of Toxic Air Contaminants (TAC) that are subject to risk assessment requirements of the California Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB2588). The most recent AB2588 level Health Risk Assessment (HRA) for the SMF, prior to this current version, was published in 2007 based on the 2004 emission inventory for the project¹. The 2007 HRA was coordinated with, and subsequently approved by the San Luis Obispo County Air Pollution Control District (APCD). ConocoPhillips and Reese-Chambers, its consultant, worked with the APCD to determine appropriate emission factors and other parameters applicable to the HRA. The analysis was performed using the Hotspots Analysis and Reporting Program (HARP) as developed by the California Air Resources Board.

This current HRA is an update of the 2007 analysis of 2004 emissions and has been prepared following the same procedures and analytical tools used in 2007. The purpose of the update is to assess the health risks associated with the CoP's proposed Throughput Increase Project as well as with changes that have been made at the facility since the analysis of 2004 emissions. The Throughput Increase Project, if approved, would allow an increase in refinery crude oil throughput by ten percent, from the current limits of 44,500 bbl/day and 16,242,500 bbl/yr to the proposed limits of 48,950 bbl/day and 17,866,750 bbl/yr.

A basic knowledge of AB2588 risk assessment requirements and procedures is assumed for the reader of this report. Detailed information of the process and requirements can be found in the following references:

- California Office of Environmental Health Hazard Assessment, August 2003. "Air Toxics Hot Spots Program Risk Assessment Guidelines"
- California Air Resources Board, December 2003. "HARP User Guide"

Referenced Tables and Figures follow the text of this report. Input and output files for the HARP computer program are available on request for examination.

2.0 OVERVIEW OF ANALYSIS

The analysis includes the following components:

- Identification of emission sources;
- Quantification of TAC emissions;
- Dispersion modeling;
- Calculation of risks, including:
 - lifetime carcinogenic risk (70-year exposure),

¹ ConocoPhillips, 2007. AB2588 Health Risk Assessment, 2004 Emissions Inventory, ConocoPhillips Santa Maria Facility, San Luis Obispo County, California. Submitted to San Luis Obispo Air Pollution Control District, July 2007. Prepared by Reese-Chambers Systems Consultants, Inc., Somis, California.

- chronic non-cancer risk (annual exposure);
 - acute non-cancer risk (maximum 1-hour exposure).
- The calculated area for carcinogenic risk was determined for the significance threshold of ten per million risk based on lifetime exposure and for one per million risk, as a benchmark.
- The calculated area for non-cancer risk, both chronic and acute, was determined for the hazard index (HI) significance threshold of 1.0, and for an HI of 0.1 as a benchmark.
- Risk significance and benchmark thresholds were established by the APCD.

In addition to considering proposed throughput increases in the analysis, several other changes since 2004 are noted as follows:

- Boiler B507, a 99.9 MMBtu/hr boiler, has been installed and is included in this analysis.
- The cooling water pump engine (G51-4), a Tier 0 diesel engine in 2004, has been replaced by a gas-fired engine. This engine was responsible for most of the cancer impact in the 2007 analysis of 2004 emissions.
- The plant air compressor (G-524), previously a Tier 0 diesel engine, has been replaced by a Tier 3 diesel engine with a diesel particulate filter (DPF). Diesel particulate emissions (DPM) were responsible for almost all of the 2004 projected cancer risk. DPM emissions from a Tier 3 engine with a DPF are approximately 2 percent of those from an uncontrolled Tier 0 engine.
- The cold stack and cooler stack, which were associated with the carbon plant, are no longer present.
- The green coke conveyor from the green coke storage pile to the carbon plant is no longer in service.
- The carbon plant backup generator is no longer in service.
- The railcar loading operation at the carbon plant is no longer in service.
- Facility fugitive emissions, from valves, flanges, etc., have been recalculated using a more accurate method, the correlation equation method, are substantially lower than represented for the 2004 inventory.
- Storage tank emissions are less than in 2004 due to vapor recovery and other improvements.
- Several other minor sources have been modified or are no longer in service.

3.0 EMISSIONS

Emission sources are listed in Table 1. Sources include combustion sources, tanks, fugitive emissions and other sources of emissions associated with the facility. Table 1 shows the following information about each source:

- Source (device) name.
- HARP stack and device IDs. These IDs can be used as reference points to entries in the HARP database file. Stack IDs are further identified in Tables 6 and 7.
- Annual and hourly throughput amounts and units (e.g., mbbbl/yr) for 2010. This information was generally taken from the 2010 annual emission inventory for the SMF, as reported by CoP to the APCD. TAC emissions are calculated based on

throughput and emission factors. Footnotes A through C for Table 1 provide additional details regarding throughput sources.

- Scaling factor for applicable annual throughput amounts. The scaling factor for external combustion equipment is the proposed annual throughput of 17,866,750 bbl/yr divided by the 2010 annual throughput of 13,862,352 bbl/yr. For sources not affected by throughput, the scaling factor is 1.
- Worst-case annual throughput based on operating at the full proposed throughput levels. This is equal to the 2010 throughput multiplied by the scaling factor.
- Hourly throughput for external combustion equipment, which would be affected by the proposed throughput increase amounts, is calculated at the rated duty of the equipment. For other equipment, hourly throughput is the annual throughput divided by 8760 hours per year.
- Emission factor units and the source of each emission factor (footnotes D through K).

Table 2 shows emission factors for each source, referenced to footnotes D through K in Table 1.

Table 3 shows annual emissions for each source and TAC, based on data in Tables 1 and 2, using worst-case annual throughput and the applicable emission factor. Some emission factors are in parts per billion (of TOG) by volume (ppbv), as indicated in Table 1. The TAC molecular weight was needed to convert these factors to a weight basis for multiplication with TOG mass emissions (throughput). The molecular weight of each applicable TAC is listed near the top of Table 3. Where a TAC is not indicated as present for a particular source, the corresponding field is left blank.

Table 4 shows hourly emissions for each source and TAC based on data in Tables 1 and 2. Calculations were made in the same manner as for annual emissions in Table 3, except that hourly throughput was used instead of annual throughput.

Table 5 provides additional data for coatings and solvent usage in 2010 as representative of future operations.

4.0 MODELING DATA

The HARP Model requires various physical data regarding the sources and surroundings in order to perform the dispersion analysis that is part of the overall health risk assessment. Modeling data used is discussed below.

Point Source Data

Sources from which emissions are released at a distinct point are generally combustion sources. Data needed include source coordinates, stack height, stack diameter at the release point, exhaust exit velocity, and exhaust temperature. Point source data are shown in Table 6.

Area Source Data

Sources where emissions come from a defined area, but not a specific point, are area sources. Data needed for area sources include source coordinates (at the southwest

corner of the area), release height, length and width of the area, and angle of the rectangular area relative to north. For circular sources such as tanks, the source is represented as a square with an area equivalent to the circle. In this case, the angle is unimportant and is set to zero. The model allows for the initial vertical spread of emissions with the parameter SZINIT. This parameter was conservatively set to zero for all sources. Area source data are shown in Table 7.

Structures

Structures in the vicinity of point sources are important in the modeling analysis because they affect dispersion due to building wake effects downwind of the building. Data required for structures includes coordinates (southwest corner), structure height, structure length and width, and angle relative to north. Structures data are shown in Table 8.

Property Boundaries

Property boundaries must be defined because the public health impacts addressed by AB2588 are only relevant outside of the facility property. The coordinates in Table 9 define the straight-line segments that make up the SMF property boundary.

Sources and building wake structures are shown in Figure 1. Individual units can be identified by referring to the coordinates in Tables 6 through 8. Figure 2 shows the property boundaries, as defined in Table 9. Relative source and structure positions, from Figure 1, are also shown in this figure.

Receptors

ISCST3, the dispersion model in HARP, calculates concentrations of each TAC at each receptor point defined for the model. The HARP model automatically determines the elevation above sea level for each receptor, and each source, because source-receptor terrain differential is a factor in dispersion model calculations.

Receptors were placed every 100 meters along the property boundary. Several rectangular receptor grids were defined to calculate risks for cancer, chronic non-cancer, and acute non-cancer. For the "near-field" analysis, in which areas with impacts above the significance thresholds are determined, a 100-meter grid (100 meters between grid points) was defined within several kilometers outside SMF property boundaries. A 250-meter grid was used to extend the modeling grid to several kilometers beyond property boundaries. A 500-meter grid was used inside of the property for risk impact continuity purposes. This grid set, along with boundary receptors, was sufficient to identify areas within the significance thresholds, as will be discussed later. The Near-Field receptor grid, overlaid on an aerial photo of the area, is shown in Figure 3.

Meteorological Data

The ISCST3 dispersion model within HARP requires local meteorological data. The data must be recorded on an hourly average basis and cover a one-year period for each model run. Meteorological parameters included are: wind speed, wind direction, temperature, atmospheric stability, and height of the mixing layer. Required meteorological data were recorded at the SMF site from 1994 through 1996. The data are maintained by the APCD. Three separate one-year data files were made available by the APCD, one for each of the three years in the monitoring period. A separate dispersion model run was made for each of the three meteorological data sets.

5.0 HEALTH RISK IMPACTS

The HARP model was used to calculate cancer and chronic non-cancer impacts at each receptor point shown in Figure 3. Annual average impacts were calculated for each of the three years of meteorological data discussed above. An electronic spreadsheet was then used to determine the maximum annual impact over the three-year period at each receptor point. This provided a worst-case set of impacts on a receptor-by-receptor basis. Maximum cancer impacts are based on the assumption of 70-years of continuous exposure at conditions represented by the worst-case year (on a receptor-by-receptor basis). There are several methods in HARP to calculate cancer risk over a 70-year period. Based on previous agreement with the APCD, and as recommended by the Air Resources Board, the "derived-adjusted" method was used for this analysis. Chronic non-cancer impacts are based on continuous exposure over the worst-case year. However, chronic impacts are not taken by the model to be cumulative.

The HARP model is not well suited to calculate acute impacts (maximum exposure over one hour). In its screening mode, HARP calculates the acute impact at a receptor as the sum of maximum acute impacts at that receptor from each individual source. However, this summing does not consider time and date of each source impact. That is, individual source impacts are not required to have occurred at the same time. Two sources that are separated by a significant distance (e.g., 100 meters) would generally require different meteorological conditions for their maximum impact at a given receptor. It is common that, during a given hour, Source 1 may have a significant impact at a receptor while Source 2, due to wind direction, would have no impact at the same receptor. Under different conditions, including wind direction, Source 2 may have a significant impact at the receptor while Source 1 would have no impact. However, HARP in its screening mode would add both impacts, from different hours, to estimate the worst-case impact at the receptor. HARP has the capability to calculate concurrent source impacts at a receptor. However, the process is cumbersome, time-consuming, computer-intensive, and, essentially, the model is not able to calculate non-screening impacts at each receptor point in a large grid. As a worst-case screening approach to calculating acute impacts, the HARP screening mode, as described above, was used in this analysis. Actual impacts could be expected to be less than those indicated in this study.

Contours of impacts reaching the two risk threshold levels of concern (the significant level and the benchmark level) were plotted and overlaid on an aerial map of the facility and surrounding area in Figures 4 through 6. Results of the risk analyses are discussed below.

No individuals, including sensitive individuals (children, elderly, those in medical facilities) and otherwise, were identified within any significant risk zones.

Cancer Risk

The maximum calculated cancer risk was 2.1 per million. This is much less than the non-residential maximum risk of 21 per million with 2004 emissions and the APCD significance threshold of ten-per-million. Therefore, there is no ten-per-million risk contour. The area within the one-per-million (1E-006 contour) significance threshold is shown in Figure 4 as a contour line. This area is primarily contained within plant

boundaries, but extends beyond these boundaries slightly to the west and north of the facility boundaries. There are no residential areas or businesses within this impact area. Property boundary receptors are shown in Figure 4 in order to delineate the site area. The worst-case cancer impact calculated beyond property boundaries of 2.1 per million at the property boundary location indicated in Figure 4. It should be understood that the calculated risks are based on constant exposure by an individual at the same location for a period of 70 years. The calculated risk would be proportionately less as the exposure time decreases. For example, a person with constant exposure at this maximum risk location for a period of one month would experience an estimated risk of 0.0025 per million ($2.1 \div 70 \div 12$).

Chronic Non-Cancer Risk

Figure 5 indicates the hazard index (HI) contours for chronic exposure, on an annual basis. The maximum HI calculated was 0.02 near the eastern end of the facility boundaries, as shown in the figure. This compares to, and is much less than, the 2004 maximum chronic impact of 0.21 and the APCD significance level of 1.0. No HI impacts greater than the APCD significance threshold of 1.0 were calculated. Therefore, there is no 1.0 contour. Figure 5 shows the extent of the benchmark HI threshold of 0.1 (the small circle inside of the facility boundaries). The 0.01 level (one percent of the significance threshold) is shown to indicate the extent of risk beyond property boundaries.

Acute Non-Cancer Risk

Figure 6 indicates the hazard index contours for acute exposure, on a worst-case one-hour basis. The maximum HI calculated was 0.38 to the northeast of the facility, as shown in the figure. This is significantly less than the 2004 maximum acute impact of 0.77 and the APCD significance threshold of 1.0. Therefore, there is no 1.0 contour. Figure 6 shows the 0.1 hazard index contour to indicate the extent of risk beyond property boundaries.

6.0 CONCLUSIONS

Based on guidance provided by the APCD and California Air Resources Board, SMF emissions, as they are projected to occur as a worst-case under the increased throughput scenario proposed by CoP, have been estimated to result in health risks far below significant risk thresholds. The following table compares risks calculated for this analysis to significance thresholds and to risks estimated previously based on 2004 Santa Maria Facility emissions.

	With Proposed Throughput Increase	Based on 2004 Emissions	APCD Significance Threshold
Cancer risk per million	2.1	21 ^a	10
Chronic Hazard Index	0.02	0.21	1.0
Acute Hazard Index	0.38	0.77	1.0

^a The 2004 maximum calculated cancer risk of 21 per million was in a non-populated area. The maximum residential risk was 4.8 per million, well below the APCD threshold.

Tables 1 through 9

Table 1
Emission Source Information

Device Name (Plant ID)	Emfac Units	HARP Stack ID	HARP Davica ID	2010 Annual Throughput	Scaling Factor	Worst-Case Annual Throughput	Hourly Throughput	Throughput Units	Throughput Source	Emfac Units	Emfac Source
	CAS#>										
Prassura Distillate Tank 550	ppbv	28	28	0.1065	1	0.1065	1.22E-05	tons TOG	A	ppbv	D
Pressure Distillate Tank 551	ppbv	29	29	0.1065	1	0.1065	1.22E-05	tons TOG	A	ppbv	D
Crude Oil Storage Tank 900	ppbv	32	32	0.577	1	0.577	6.59E-05	tons TOG	A	ppbv	D
Crude Oil Storage Tank 901	ppbv	33	33	0.577	1	0.577	6.59E-05	tons TOG	A	ppbv	D
Crude Oil Storage Tank 903	ppbv	34	34	0.577	1	0.577	6.59E-05	tons TOG	A	ppbv	D
Gas Oil Tank 800	ppbv	30	30	1.242	1	1.242	1.42E-04	tons TOG	A	ppbv	D
Gas Oil Tank 801	ppbv	31	31	1.242	1	1.242	1.42E-04	tons TOG	A	ppbv	D
Recovered Oil Storage Tank 100	ppbv	25	25	2.7E-07	1	2.71E-07	3.10E-11	tons TOG	A	ppbv	D
Recovered Oil Storage Tank 101	ppbv	26	26	2.7E-07	1	2.71E-07	3.10E-11	tons TOG	A	ppbv	D
Gland Oil Tank 115	ppbv	27	27	1.92E-05	1	1.92E-05	2.19E-09	tons TOG	A	ppbv	D
Wastewater Storage Tanks 822 & 823	lb/yr	68	68	NA	1	NA	NA	NA	-	lb/yr	E
Coke Cooling Water Tank 405	lb/mmbbl	35	35	2,400	1	2,400	2.74E-01	mmbbl	B	lb/mmbbl	F
Coke Cooling Water Tank 406	lb/mmbbl	36	36	2,400	1	2,400	2.74E-01	mmbbl	B	lb/mmbbl	F
Conveyor Segment 1 of 5	wt. frac.	46	54	0.056	1	0.056	6.36E-06	tons PM	B	wt. frac.	G
Conveyor Segment 2 of 5	wt. frac.	47	55	0.056	1	0.056	6.36E-06	tons PM	B	wt. frac.	G
Conveyor Segment 3 of 5	wt. frac.	48	56	0.056	1	0.056	6.36E-06	tons PM	B	wt. frac.	G
Conveyor Segment 4 of 5	wt. frac.	49	57	0.056	1	0.056	6.36E-06	tons PM	B	wt. frac.	G
Conveyor Segment 5 of 5	wt. frac.	50	58	0.056	1	0.056	6.36E-06	tons PM	B	wt. frac.	G
Green Coke Storage Piles	wt. frac.	44	44	0.80	1	0.80	9.13E-05	tons PM	B	wt. frac.	G
Cooling Tower Fugitives	lb/yr	38	70	NA	1	NA	NA	NA	-	lb/yr	E
Facility Fugitives	wt. frac.	42	42	1.32	1	1.32	1.51E-04	tons VOC	A	wt. frac.	A
Oil Water Treatment System	ppbv	40	40	4.805	1	4.805	NA	tons TOG	A	ppbv	D
Coatings & Solvent Usage	lb/yr	41	41	NA	1	NA	NA	NA	-	lb/yr	A, H
Tail Gas Treatment (U-3031-K)	lb/yr	14	66	NA	1	NA	NA	NA	-	lb/yr	E
Wastewater Area Process Drains	lb/yr	67	67	NA	1	NA	NA	NA	-	lb/yr	E
Cooling Towers (E-51, E-79)	lb/mmgal	38	38	8409.6	1	8409.6	9.60E-01	mmgal	B	lb/mmgal	F
Crude Heater B2-A (77.0 MMBtu/hr)	lb/mmcft	5	5	294	1.29	378.9	0.054	mmtcf	A	lb/mmcft	I
Crude Heater B2-B (76.2 MMBtu/hr)	lb/mmcft	6	6	286	1.29	368.6	0.053	mmtcf	A	lb/mmcft	I
Vacuum Heater B62-A (16.2 MMBtu/hr)	lb/mmcft	12	12	43	1.29	55.4	0.011	mmtcf	A	lb/mmcft	I
Vacuum Heater B62-B (16.0 MMBtu/hr)	lb/mmcft	13	13	47	1.29	60.6	0.011	mmtcf	A	lb/mmcft	I
Coking Heater B102-A (80.5 MMBtu/hr)	lb/mmcft	1	1	328	1.29	422.7	0.057	mmtcf	A	lb/mmcft	I
Coking Heater B102-B (80.5 MMBtu/hr)	lb/mmcft	2	2	303	1.29	390.5	0.057	mmtcf	A	lb/mmcft	I
Steam Superheater B201-A (3.2 MMBtu/hr)	lb/mmcft	3	3	15	1.29	19.3	0.002	mmtcf	A	lb/mmcft	I
Steam Superheater B201-B (3.2 MMBtu/hr)	lb/mmcft	4	4	15	1.29	19.3	0.002	mmtcf	A	lb/mmcft	I
Boiler B-504 (117 MMBtu/hr)	lb/mmcft	7	7	325	1.29	418.9	0.082	mmtcf	A	lb/mmcft	I
Boiler B-506 (127 MMBtu/hr)	lb/mmcft	7	9	305	1.29	393.1	0.089	mmtcf	A	lb/mmcft	I
Boiler B-505 (100 MMBtu/hr)	lb/mmcft	8	8	458	1.29	590.3	0.070	mmtcf	A	lb/mmcft	I
Boiler B-507 (99.9 MMBtu/hr)	lb/mmcft	9	16	324	1.29	417.6	0.070	mmtcf	A	lb/mmcft	I
Flare (C451)	lb/mmcft	15	15	4.14	1.29	5.34	0.00035	mmtcf	A	lb/mmcft	I
Incinerator B602-A	lb/mmcft	10	10	15	1.29	19.3	0.0018	mmtcf	A	lb/mmcft	I
Incinerator B602-B	lb/mmcft	11	11	15	1.29	19.3	0.0018	mmtcf	A	lb/mmcft	I
Tail Gas Combustor (B-702)	lb/mmcft	14	14	32	1.29	41.2	0.0039	mmtcf	A	lb/mmcft	I
Sulfur Pit Vent	ton/yr	39	39	NA		NA	NA	NA	-	ton/yr	B
Cooling Water Pump (G51-4) (gas-fired)	lb/MMBtu	19	19	173.8	1	173.8	1.68E+00	MMBtu	C	lb/MMBtu	J
Firewater Booster Pump G515-3	lb/mgal	20	20	0.31	1	0.311	1.65E-02	mgal	A	lb/mgal	K
Firewater Booster Pump G515-4	lb/mgal	21	21	0.26	1	0.256	1.67E-02	mgal	A	lb/mgal	K
Carbon Pit Water Pump (GE-522) w/DPF	lb/mgal	18	18	0.38	1	0.382	1.10E-02	mgal	A	lb/mgal	K
Utility Backup (Atlas Copco) T3 w/DPF	lb/mgal	22	22	1.78	1	1.781	1.14E-02	mgal	A	lb/mgal	K
Collection Pond Pump (BK699)	lb/mgal	54	47	0.02	1	0.017	1.68E-02	mgal	A	lb/mgal	K
Carbon Plant Air Compressor (G1015)	lb/mgal	55	48	1.06	1	1.063	6.49E-03	mgal	A	lb/mgal	K
Wet Plant Backup Generator (NE-800)	lb/mgal	57	50	0.26	1	0.260	1.90E-02	mgal	A	lb/mgal	K
Control Center Backup Gen. (NE-503)	lb/mgal	58	51	0.23	1	0.227	1.91E-02	mgal	A	lb/mgal	K
Maintenance Backup Generator (NE-504)	lb/mgal	59	52	0.24	1	0.244	1.89E-02	mgal	A	lb/mgal	K
R.O. Backup Generator (NE-RO)	lb/mgal	60	53	0.33	1	0.332	1.90E-02	mgal	A	lb/mgal	K

Table 1 (continued)

Throughput Sources:

- A 2010 CoP emission inventory provided to SLOCAPCD
- B From 2004 HRA except Green Coke Pile emissions are half of 2004 since pile extent is halved.
- C Converted from energy equivalent of diesel usage on diesel engine in 2010 (30.2 bbl/yr)

Emission Factor Sources:

- D OEC sample testing 09/08/2005. Except H2S factor (not sampled) is from 1995 Emission Inventory Report (see Note E).
Weight basis is converted to volume basis where necessary based on crude oil molecular weight of 150.
PAH factors converted from ng/sample to lb/ton based on data in source test tables. OEC data in Attachment 1.
- E 1995 Updated Air Toxics "Hot Spots" Emission Inventory Report, 1996 by Hal Taback Company.
- F SLOCAPCD - 05/29/06, 06/28/06 & 12/08/06 emails, Paul Reitz to Alex Bealer
- G Metallurgical Laboratories, Spectrographic Analysis of Santa Maria Facility Calcined and Green Coke Samples, 01/27/05.
Data in Attachment 2.
- H 2010 Emission Inventory - Santa Maria Facility, submitted by CoP Feb 25, 2005, and MSDS for each coating or solvent (see Table 6)
- I Ventura County APCD, May 17, 2001. AB2588 Combustion Emission Factors, NG-fired external combustion equipment
for all but PAHs, SO₂ & CO
AP-42, Table 1.4-3 for speciated PAHs, including naphthalene. AP-42, Tables 1.4-1 & 1.4-2 for CO & SO₂
- J AP-42, Table 3.2-3 for natural gas-fired 4-stroke, rich-burn engines
- K Ventura County APCD, May 17, 2001. AB2588 Combustion Emission Factors, Diesel-fired ICEs
for all but PAHs, SO₂, CO and PM. AP-42, Table 3.3-2 for speciated PAHs, including naphthalene.
SO₂ based on mass balance with 0.05%S in fuel. AP-42, Table 3.3-1 for CO and some PM.

Fuel Heat Value per 2010 Compliance Report 1424.7 Btu/scf

Table 2 (p. 1 of 3)
Emission Factors

Device Name (Plant ID)	Emfac Units	Benzene	1,3-Butadiene	Carbon Monoxide	Chlorine	Diesel Particulate	Ethyl Benzene	Formaldehyde	Hexane	HF	HCl	H2S	H2SO4	Propylene	Sulfur Dioxide	Sulfates	Toluene	Xylenes
CAS#>		71432	106990	630080	7782505	9901	100414	50000	110543	7664393	7647010	7763064	7664939	115071	7446095	9980	108883	1330207
Pressure Distillate Tank 550	ppbv	64,000					520					5,501,761					20,000	1,300
Pressure Distillate Tank 551	ppbv	64,000					520					1,838,235					20,000	1,300
Crude Oil Storage Tank 900	ppbv	240,000					3,900					10,017					70,000	8,300
Crude Oil Storage Tank 901	ppbv	240,000					3,900					10,017					70,000	8,300
Crude Oil Storage Tank 903	ppbv	240,000					3,900					10,017					70,000	8,300
Gas Oil Tank 800	ppbv	34,000					1,700										21,000	4,100
Gas Oil Tank 801	ppbv	34,000					1,700										21,000	4,100
Recovered Oil Storage Tank 100	ppbv	63,000					1,500					500,000					29,000	4,500
Recovered Oil Storage Tank 101	ppbv	63,000					1,500					500,000					29,000	4,500
Gland Oil Tank 115	ppbv	5,700					620										6,000	1,940
Wastewater Storage Tanks 822 & 823	lb/yr	0.00394															0.00692	0.0199
Coke Cooling Water Tank 405	lb/mmbbl	0.025															0.1255	0.1475
Coke Cooling Water Tank 406	lb/mmbbl	0.025															0.1255	0.1475
Conveyor Segment 1 of 5	wt. frac.																	
Conveyor Segment 2 of 5	wt. frac.																	
Conveyor Segment 3 of 5	wt. frac.																	
Conveyor Segment 4 of 5	wt. frac.																	
Conveyor Segment 5 of 5	wt. frac.																	
Green Coke Storage Piles	wt. frac.																	
Cooling Tower Fugitives	lb/yr				20.79													
Facility Fugitives	wt. frac.	0.000627										0.01084		0.00394			0.000155	0.000542
Oil Water Treatment System	ppbv	240,000					3,900					269,898					70,000	8,300
Coatings & Solvent Usage	lb/yr	0					24,0394										70.1	123.75
Tail Gas Treatment (U-3031-K)	lb/yr																	
Wastewater Area Process Drains	lb/yr	23.74															2.605	2.062
Cooling Towers (E-51, E-79)	lb/mmgal				0.00048													
Crude Heater B2-A (77.0 MMBtu/hr)	lb/mmcft	0.0058		84			0.0069	0.0123	0.0046					0.53	0.6		0.0265	0.0197
Crude Heater B2-B (76.2 MMBtu/hr)	lb/mmcft	0.0058		84			0.0069	0.0123	0.0046					0.53	0.6		0.0265	0.0197
Vacuum Heater B62-A (16.2 MMBtu/hr)	lb/mmcft	0.0058		84			0.0069	0.0123	0.0046					0.53	0.6		0.0265	0.0197
Vacuum Heater B62-B (16.0 MMBtu/hr)	lb/mmcft	0.0058		84			0.0069	0.0123	0.0046					0.53	0.6		0.0265	0.0197
Coking Heater B102-A (80.5 MMBtu/hr)	lb/mmcft	0.0058		84			0.0069	0.0123	0.0046					0.53	0.6		0.0265	0.0197
Coking Heater B102-B (80.5 MMBtu/hr)	lb/mmcft	0.0058		84			0.0069	0.0123	0.0046					0.53	0.6		0.0265	0.0197
Steam Superheater B201-A (3.2 MMBtu/hr)	lb/mmcft	0.008		84			0.0095	0.017	0.0063					0.731	0.6		0.0366	0.0272
Steam Superheater B201-B (3.2 MMBtu/hr)	lb/mmcft	0.008		84			0.0095	0.017	0.0063					0.731	0.6		0.0366	0.0272
Boiler B-504 (117 MMBtu/hr)	lb/mmcft	0.0017		84			0.002	0.0036	0.0013					0.01553	0.6		0.0078	0.0058
Boiler B-506 (127 MMBtu/hr)	lb/mmcft	0.0017		84			0.002	0.0036	0.0013					0.01553	0.6		0.0078	0.0058
Boiler B-505 (109 MMBtu/hr)	lb/mmcft	0.0017		84			0.002	0.0036	0.0013					0.01553	0.6		0.0078	0.0058
Boiler B-507 (99.9 MMBtu/hr)	lb/mmcft	0.0017		84			0.002	0.0036	0.0013					0.01553	0.6		0.0078	0.0058
Flare (C451)	lb/mmcft	0.159		84			1.444	1.169	0.029					2.44	0.6		0.058	0.029
Inclinerator B602-A	lb/mmcft	0.159		84			1.444	1.169	0.029					2.44	0.6		0.058	0.029
Inclinerator B602-B	lb/mmcft	0.159		84			1.444	1.169	0.029					2.44	0.6		0.058	0.029
Tail Gas Combustor (B-702)	lb/mmcft	0.008		84			0.0095	0.017	0.0063					0.731	0.6		0.0366	0.0272
Sulfur Pit Vent	ton/yr														23.75			
Cooling Water Pump (G51-4) (gas-fired)	lb/MMBtu	0.00158	0.000863	3.51			2.48E-05	0.0205							0.000588		0.000558	0.000195
Firewater Booster Pump G515-3	lb/mgal	0.1863	0.2174	131		42.61	0.0109	1.7261	0.0269		0.1863			0.467	7.1	10.6525	0.1054	0.0424
Firewater Booster Pump G515-4	lb/mgal	0.1863	0.2174	131		42.61	0.0109	1.7261	0.0269		0.1863			0.467	7.1	10.6525	0.1054	0.0424
Carbon Pit Water Pump (GE-522) w/DPF	lb/mgal	0.1863	0.2174	131		1.6	0.0109	1.7261	0.0269		0.1863			0.467	7.1	0.4	0.1054	0.0424
Utility Backup (Atlas Copco) T3 w/DPF	lb/mgal	0.1863	0.2174	131		0.90	0.0109	1.7261	0.0269		0.1863			0.467	7.1	0.225469	0.1054	0.0424
Collection Pond Pump (BK699)	lb/mgal	0.1863	0.2174	131		8	0.0109	1.7261	0.0269		0.1863			0.467	7.1	2	0.1054	0.0424
Carbon Plant Air Compressor (G1015)	lb/mgal	0.1863	0.2174	131		11.77	0.0109	1.7261	0.0269		0.1863			0.467	7.1	2.9425	0.1054	0.0424
Wet Plant Backup Generator (NE-800)	lb/mgal	0.1863	0.2174	131		17.5	0.0109	1.7261	0.0269		0.1863			0.467	7.1	4.375	0.1054	0.0424
Control Center Backup Gen. (NE-503)	lb/mgal	0.1863	0.2174	131		12.6	0.0109	1.7261	0.0269		0.1863			0.467	7.1	3.15	0.1054	0.0424
Maintenance Backup Generator (NE-504)	lb/mgal	0.1863	0.2174	131		10.5	0.0109	1.7261	0.0269		0.1863			0.467	7.1	2.625	0.1054	0.0424
R.O. Backup Generator (NE-RO)	lb/mgal	0.1863	0.2174	131		6.4	0.0109	1.7261	0.0269		0.1863			0.467	7.1	1.6	0.1054	0.0424

Table 2 (p.2 of 3)
Emission Factors

Device Name (Plant ID)	Emfac Units	PAHs								Total PCBs
		Naphthalene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	
CAS#>		91203	56553	50326	205992	205823	218019	53703	193395	1336363
Pressure Distillate Tank 550	ppbv	1,700								
Pressure Distillate Tank 551	ppbv	1,700								
Crude Oil Storage Tank 900	ppbv	8,800								
Crude Oil Storage Tank 901	ppbv	8,800								
Crude Oil Storage Tank 903	ppbv	8,800								
Gas Oil Tank 800	ppbv	2,200								
Gas Oil Tank 801	ppbv	2,200								
Recovered Oil Storage Tank 100	ppbv	700								
Recovered Oil Storage Tank 101	ppbv	700								
Glend Oil Tank 115	ppbv	160								
Wastewater Storage Tanks 822 & 823	lb/yr									
Coke Cooling Water Tank 405	lb/mbbl									
Coke Cooling Water Tank 406	lb/mbbl									
Conveyor Segment 1 of 5	wt. frac.									
Conveyor Segment 2 of 5	wt. frac.									
Conveyor Segment 3 of 5	wt. frac.									
Conveyor Segment 4 of 5	wt. frac.									
Conveyor Segment 5 of 5	wt. frac.									
Green Coke Storage Piles	wt. frac.									
Cooling Tower Fugitives	lb/yr									
Facility Fugitives	wt. frac.									
Olly Water Treatment System	ppbv	8,800								
Coatings & Solvent Usage	lb/yr									
Tail Gas Treatment (U-3031-K)	lb/yr									
Wastewater Area Process Drains	lb/yr									
Cooling Towers (E-51, E-79)	lb/mmgal									
Crude Heater B2-A (77.0 MMBtu/hr)	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Crude Heater B2-B (76.2 MMBtu/hr)	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Vacuum Heater B62-A (16.2 MMBtu/hr)	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Vacuum Heater B62-B (16.0 MMBtu/hr)	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Coking Heater B102-A (80.5 MMBtu/hr)	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Coking Heater B102-B (80.5 MMBtu/hr)	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Steam Superheater B201-A (3.2 MMBtu/hr)	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Steam Superheater B201-B (3.2 MMBtu/hr)	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Boiler B-504 (117 MMBtu/hr)	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Boiler B-506 (127 MMBtu/hr)	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Boiler B-505 (100 MMBtu/hr)	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Boiler B-507 (99.9 MMBtu/hr)	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Flare (C451)	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Incinerator B602-A	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Incinerator B602-B	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Tail Gas Combustor (B-702)	lb/mmcft	6.10E-04	1.80E-06	1.20E-06	1.80E-06	1.80E-06	1.80E-06	1.20E-06	1.80E-06	
Sulfur Pit Vent	ton/yr									
Cooling Water Pump (G51-4) (gas-fired)	lb/MMBtu	9.71E-05		0.000141						
Firewater Booster Pump G515-3	lb/mgal	0.011618	0.00023	2.58E-05	1.36E-05	2.12E-05	4.84E-05	7.99E-05	5.14E-05	
Firewater Booster Pump G515-4	lb/mgal	0.011618	0.00023	2.58E-05	1.36E-05	2.12E-05	4.84E-05	7.99E-05	5.14E-05	
Carbon Pit Water Pump (GE-522) w/DPF	lb/mgal	0.011618	0.00023	2.58E-05	1.36E-05	2.12E-05	4.84E-05	7.99E-05	5.14E-05	
Utility Backup (Atlas Copco) T3 w/DPF	lb/mgal	0.011618	0.00023	2.58E-05	1.36E-05	2.12E-05	4.84E-05	7.99E-05	5.14E-05	
Collection Pond Pump (BK699)	lb/mgal	0.011618	0.00023	2.58E-05	1.36E-05	2.12E-05	4.84E-05	7.99E-05	5.14E-05	
Carbon Plant Air Compressor (G1015)	lb/mgal	0.011618	0.00023	2.58E-05	1.36E-05	2.12E-05	4.84E-05	7.99E-05	5.14E-05	
Wet Plant Backup Generator (NE-800)	lb/mgal	0.011618	0.00023	2.58E-05	1.36E-05	2.12E-05	4.84E-05	7.99E-05	5.14E-05	
Control Center Backup Gen. (NE-503)	lb/mgal	0.011618	0.00023	2.58E-05	1.36E-05	2.12E-05	4.84E-05	7.99E-05	5.14E-05	
Maintenance Backup Generator (NE-504)	lb/mgal	0.011618	0.00023	2.58E-05	1.36E-05	2.12E-05	4.84E-05	7.99E-05	5.14E-05	
R.O. Backup Generator (NE-RO)	lb/mgal	0.011618	0.00023	2.58E-05	1.36E-05	2.12E-05	4.84E-05	7.99E-05	5.14E-05	

Table 2 (p.3 of 3)
Emission Factors

		Metals													
	Emfac Units	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc	Hex. Chrome
Device Name (Plant ID)	CAS#>	7440360	7440382	7440417	7440439	7440473	7440508	7439921	7439985	7439976	7440020	7782492	7440822	7440668	18540299
Pressure Distillate Tank 550	ppbv														
Pressure Distillate Tank 551	ppbv														
Cruda Oil Storage Tank 900	ppbv														
Crude Oil Storage Tank 901	ppbv														
Crude Oil Storage Tank 903	ppbv														
Gas Oil Tank 800	ppbv														
Gas Oil Tank 801	ppbv														
Recovered Oil Storage Tank 100	ppbv														
Recovered Oil Storage Tank 101	ppbv														
Gland Oil Tank 115	ppbv														
Wastewater Storage Tanks 822 & 823	lb/yr														
Coke Cooling Water Tank 405	lb/mbbl														
Coke Cooling Water Tank 406	lb/mbbl														
Conveyor Segment 1 of 5	wt. frac.	1.00E-06		1.00E-06	1.00E-06	4.00E-06	8.00E-08		1.00E-06		4.00E-04		3.30E-03		
Conveyor Segment 2 of 5	wt. frac.	1.00E-06		1.00E-06	1.00E-06	4.00E-06	8.00E-08		1.00E-06		4.00E-04		3.30E-03		
Conveyor Segment 3 of 5	wt. frac.	1.00E-06		1.00E-06	1.00E-06	4.00E-06	8.00E-08		1.00E-06		4.00E-04		3.30E-03		
Conveyor Segment 4 of 5	wt. frac.	1.00E-06		1.00E-06	1.00E-06	4.00E-06	8.00E-08		1.00E-06		4.00E-04		3.30E-03		
Conveyor Segment 5 of 5	wt. frac.	1.00E-06		1.00E-06	1.00E-06	4.00E-06	8.00E-08		1.00E-06		4.00E-04		3.30E-03		
Green Coke Storage Piles	wt. frac.	1.00E-06		1.00E-06	1.00E-06	4.00E-06	8.00E-08		1.00E-06		4.00E-04		3.30E-03		
Cooling Tower Fugitives	lb/yr														
Facility Fugitives	wt. frac.														
Oil Water Treatment System	ppbv														
Coatings & Solvent Usage	lb/yr														
Tail Gas Treatment (U-3031-K)	lb/yr														
Wastewater Area Process Drains	lb/yr														
Cooling Towers (E-51, E-79)	lb/mmgal														
Crude Heater B2-A (77.0 MMBtu/hr)	lb/mmcft														
Crude Heater B2-B (76.2 MMBtu/hr)	lb/mmcft														
Vacuum Heater B62-A (16.2 MMBtu/hr)	lb/mmcft														
Vacuum Heater B62-B (16.0 MMBtu/hr)	lb/mmcft														
Coking Heater B102-A (80.5 MMBtu/hr)	lb/mmcft														
Coking Heater B102-B (80.5 MMBtu/hr)	lb/mmcft														
Steam Superheater B201-A (3.2 MMBtu/hr)	lb/mmcft														
Steam Superheater B201-B (3.2 MMBtu/hr)	lb/mmcft														
Boiler B-504 (117 MMBtu/hr)	lb/mmcft														
Boiler B-506 (127 MMBtu/hr)	lb/mmcft														
Boiler B-505 (100 MMBtu/hr)	lb/mmcft														
Boiler B-507 (99.9 MMBtu/hr)	lb/mmcft														
Flare (C451)	lb/mmcft														
Inclinerator B602-A	lb/mmcft														
Inclinerator B602-B	lb/mmcft														
Tail Gas Combustor (B-702)	lb/mmcft														
Sulfur Pit Vent	ton/yr														
Cooling Water Pump (G51-4) (gas-fired)	lb/MMBtu														
Firewater Booster Pump G515-3	lb/mgal		0.0016		0.0015	0.0006	0.0041	0.0083	0.0031	0.002	0.0039	0.0022		0.0224	0.0001
Firewater Booster Pump G515-4	lb/mgal		0.0016		0.0015	0.0006	0.0041	0.0083	0.0031	0.002	0.0039	0.0022		0.0224	0.0001
Carbon Pit Water Pump (GE-522) w/DPF	lb/mgal		0.0016		0.0015	0.0006	0.0041	0.0083	0.0031	0.002	0.0039	0.0022		0.0224	0.0001
Utility Backup (Atlas Copco) T3 w/DPF	lb/mgal		0.0016		0.0015	0.0006	0.0041	0.0083	0.0031	0.002	0.0039	0.0022		0.0224	0.0001
Collection Pond Pump (BK699)	lb/mgal		0.0016		0.0015	0.0006	0.0041	0.0083	0.0031	0.002	0.0039	0.0022		0.0224	0.0001
Carbon Plant Air Compressor (G1015)	lb/mgal		0.0016		0.0015	0.0006	0.0041	0.0083	0.0031	0.002	0.0039	0.0022		0.0224	0.0001
Wet Plant Backup Generator (NE-800)	lb/mgal		0.0016		0.0015	0.0006	0.0041	0.0083	0.0031	0.002	0.0039	0.0022		0.0224	0.0001
Control Center Backup Gen. (NE-503)	lb/mgal		0.0016		0.0015	0.0006	0.0041	0.0083	0.0031	0.002	0.0039	0.0022		0.0224	0.0001
Maintenance Backup Generator (NE-504)	lb/mgal		0.0016		0.0015	0.0006	0.0041	0.0083	0.0031	0.002	0.0039	0.0022		0.0224	0.0001
R.O. Backup Generator (NE-RO)	lb/mgal		0.0016		0.0015	0.0006	0.0041	0.0083	0.0031	0.002	0.0039	0.0022		0.0224	0.0001

Table 3 (p.1 of 3)
Annual Emissions (lb/yr)

Device Name (Plant ID)	CAS#	Acetaldehyde	Acrolein	Ammonia	Benzene	1,3-Butadiene	Carbon Monoxide	Chlorine	Diesel Particulate	Ethyl Benzene	Formaldehyde	Hexane	HF	HCl	H2S	H2SO4	Propylene	Sulfur Dioxide	Sulfates	Toluene	Xylenes
	Mol.Wt.	75070	107028	7804417	71432	106990	630080	7782505	9901	100414	50000	110543	7864393	7847010	7783064	7864939	115071	7446095	8960	108893	1330207
Pressure Distillate Tank 550					78.11					106.17					34.08					92.13	106.16
Pressure Distillate Tank 551					7.10E-03					7.84E-05					2.66E-01					2.62E-03	1.96E-04
Crude Oil Storage Tank 900					1.44E-01					3.19E-03					2.63E-03					4.98E-02	6.78E-03
Crude Oil Storage Tank 901					1.44E-01					3.19E-03					2.63E-03					4.96E-02	6.78E-03
Crude Oil Storage Tank 903					1.44E-01					3.19E-03					2.63E-03					4.96E-02	6.78E-03
Gas Oil Tank 800					4.40E-02					2.99E-03										3.20E-02	7.21E-03
Gas Oil Tank 801					4.40E-02					2.99E-03										3.20E-02	7.21E-03
Recovered Oil Storage Tank 100					1.78E-08					5.76E-10					6.16E-08					9.66E-09	1.73E-09
Recovered Oil Storage Tank 101					1.78E-08					5.76E-10					6.16E-08					9.66E-09	1.73E-09
Gland Oil Tank 115					1.14E-07					1.68E-08										1.41E-07	5.27E-08
Wastewater Storage Tanks 822 & 823					3.94E-03															6.92E-03	1.99E-02
Coke Cooling Water Tank 405					6.00E+01															3.01E+02	3.54E+02
Coke Cooling Water Tank 406					6.00E+01															3.01E+02	3.54E+02
Conveyor Segment 1 of 5																					
Conveyor Segment 2 of 5																					
Conveyor Segment 3 of 5																					
Conveyor Segment 4 of 5																					
Conveyor Segment 5 of 5																					
Green Coke Storage Piles																					
Cooling Tower Fugitives								2.08E+01													
Facility Fugitives					1.66E+00										2.87E+01		1.04E+01			4.10E-01	1.44E+00
Oil Water Treatment System					1.20E+00					2.65E-02					5.89E-01					4.13E-01	5.65E-02
Coatings & Solvent Usage					0.00E+00					2.40E+01										7.01E+01	1.24E+02
Tail Gas Treatment (U-3031-K)				2.58E+02																	
Wastewater Area Process Drains					2.37E+01															2.81E+00	2.06E+00
Cooling Towers (E-51, E-79)								4.04E+00													
Crude Heater B2-A (77.0 MMBtu/hr)		1.17E+00	1.02E+00		2.20E+00		3.18E+04			2.61E+00	4.66E+00	1.74E+00					2.01E+02	2.27E+02		1.00E+01	7.46E+00
Crude Heater B2-B (76.2 MMBtu/hr)		1.14E+00	9.95E-01		2.14E+00		3.10E+04			2.54E+00	4.53E+00	1.70E+00					1.95E+02	2.21E+02		9.77E+00	7.26E+00
Vacuum Heater B82-A (16.2 MMBtu/hr)		1.72E-01	1.50E-01		3.21E-01		4.66E+03			3.82E-01	6.82E-01	2.55E-01					2.94E+01	3.33E+01		1.47E+00	1.09E+00
Vacuum Heater B62-B (16.0 MMBtu/hr)		1.88E-01	1.64E-01		3.51E-01		5.09E+03			4.18E-01	7.45E-01	2.79E-01					3.21E+01	3.63E+01		1.61E+00	1.19E+00
Coking Heater B102-A (80.5 MMBtu/hr)		1.31E+00	1.14E+00		2.45E+00		3.55E+04			2.92E+00	5.20E+00	1.94E+00					2.24E+02	2.54E+02		1.12E+01	8.33E+00
Coking Heater B102-B (80.5 MMBtu/hr)		1.21E+00	1.05E+00		2.27E+00		3.28E+04			2.69E+00	4.80E+00	1.80E+00					2.07E+02	2.34E+02		1.03E+01	7.89E+00
Steam Superheater B201-A (3.2 MMBtu/hr)		8.31E-02	5.22E-02		1.55E-01		1.62E+03			1.84E-01	3.29E-01	1.22E-01					1.41E+01	1.16E+01		7.08E-01	5.26E-01
Steam Superheater B201-B (3.2 MMBtu/hr)		8.31E-02	5.22E-02		1.55E-01		1.62E+03			1.84E-01	3.29E-01	1.22E-01					1.41E+01	1.16E+01		7.08E-01	5.26E-01
Boiler B-504 (117 MMBtu/hr)		3.77E-01	3.35E-01		7.12E-01		3.52E+04			8.38E-01	1.51E+00	5.45E-01					6.51E+00	2.51E+02		3.27E+00	2.43E+00
Boiler B-506 (127 MMBtu/hr)		3.54E-01	3.14E-01		6.68E-01		3.30E+04			7.86E-01	1.42E+00	5.11E-01					6.10E+00	2.36E+02		3.07E+00	2.28E+00
Boiler B-505 (100 MMBtu/hr)		5.31E-01	4.72E-01		1.00E+00		4.96E+04			1.18E+00	2.13E+00	7.87E-01					9.17E+00	3.54E+02		4.60E+00	3.42E+00
Boiler B-507 (99.9 MMBtu/hr)		3.76E-01	3.34E-01		7.10E-01		3.51E+04			8.35E-01	1.50E+00	5.43E-01					6.49E+00	2.51E+02		3.26E+00	2.42E+00
Flare (C451)		2.30E-01	5.34E-02		8.49E-01		4.48E+02			7.71E+00	6.24E+00	1.55E-01					1.30E+01	3.20E+00		3.10E-01	1.55E-01
Incinerator B602-A		8.31E-01	1.93E-01		3.07E+00		1.62E+03			2.79E+01	2.26E+01	5.61E-01					4.72E+01	1.16E+01		1.12E+00	5.61E-01
Incinerator B602-B		8.31E-01	1.93E-01		3.07E+00		1.62E+03			2.79E+01	2.26E+01	5.61E-01					4.72E+01	1.16E+01		1.12E+00	5.61E-01
Tail Gas Combustor (B-702)		1.77E-01	1.11E-01		3.30E-01		3.46E+03			3.92E-01	7.01E-01	2.60E-01					3.01E+01	2.47E+01		1.51E+00	1.12E+00
Sulfur Pit Vent																			4.75E+04		
Cooling Water Pump (G51-4) (gas-fired)		4.85E-01	4.57E-01		2.75E-01	1.15E-01	6.10E+02			4.31E-03	3.56E+00								1.02E-01	9.70E-02	3.39E-02
Firewater Booster Pump G515-3		2.43E-01	1.05E-02		5.79E-02	6.76E-02	4.07E+01		1.32E+01	3.39E-03	5.36E-01	8.36E-03		5.79E-02			1.45E-01	2.21E+00	3.31E+00	3.28E-02	1.32E-02
Firewater Booster Pump G515-4		2.01E-01	8.69E-03		4.77E-02	5.57E-02	3.36E+01		1.09E+01	2.79E-03	4.42E-01	6.89E-03		4.77E-02			1.20E-01	1.82E+00	2.79E+00	2.70E-02	1.09E-02
Carbon Pit Water Pump (GE-522) w/DPF		2.99E-01	1.30E-02		7.12E-02	8.31E-02	5.01E+01		6.12E-01	4.17E-03	6.80E-01	1.03E-02		7.12E-02			1.78E-01	2.71E+00	1.53E-01	4.03E-02	1.62E-02
Utility Backup (Atlas Copco) T3 w/DPF		1.39E+00	6.04E-02		3.32E-01	3.87E-01	2.33E+02		1.81E+00	1.94E-02	3.07E+00	4.79E-02		3.32E-01			8.32E-01	1.26E+01	4.02E-01	1.88E-01	7.55E-02
Collection Pond Pump (BK699)		1.32E-02	5.70E-04		3.13E-03	3.65E-03	2.20E+00		1.34E-01	1.83E-04	2.90E-02	4.52E-04		3.13E-03			7.85E-03	1.19E-01	3.36E-02	1.77E-03	7.12E-04
Carbon Plant Air Compressor (G1015)		8.32E-01	3.60E-02		1.98E-01	2.31E-01	1.39E+02		1.25E+01	1.16E-02	1.83E+00	2.86E-02		1.98E-01			4.98E-01	7.54E+00	3.13E+00	1.12E-01	4.51E-02
Wet Plant Backup Generator (NE-800)		2.04E-01	8.83E-03		4.85E-02	5.66E-02	3.41E+01		4.56E+00	2.84E-03	4.49E-01	7.00E-03		4.85E-02			1.22E-01	1.85E+00	1.14E+00	2.74E-02	1.10E-02
Control Center Backup Gen. (NE-503)		1.78E-01	7.69E-03		4.23E-02	4.93E-02	2.97E+01		2.86E+00	2.47E-03	3.91E-01	6.10E-03		4.23E-02			1.06E-01	1.81E+00	7.14E-01	2.39E-02	9.62E-03
Maintenance Backup Generator (NE-504)		1.91E-01	8.26E-03		4.54E-02	5.30E-02	3.19E+01		2.56E+00	2.68E-03	4.20E-01	6.55E-03		4.54E-02			1.14E-01	1.73E+00	6.39E-01	2.57E-02	1.03E-02
R.O. Backup Generator (NE-RO)		2.60E-01	1.12E-02		6.18E-02	7.21E-02	4.35E+01		2.12E+00	3.62E-03	5.73E-01	8.93E-03		6.18E-02			1.55E-01	2.36E+00	5.31E-01	3.50E-02	1.41E-02

Table 3 (p.2 of 3)
Annual Emissions (lb/yr)

Device Name (Plant ID)	CAS# Mol.Wt.	Naphthalene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Total PCBs
	91203	128.18	56553	50328	205992	205823	218019	53703	193395	1336363
Pressure Distillate Tank 550		3.09E-04								
Pressure Distillate Tank 551		3.09E-04								
Crude Oil Storage Tank 900		8.68E-03								
Crude Oil Storage Tank 901		8.68E-03								
Crude Oil Storage Tank 903		8.68E-03								
Gas Oil Tank 800		4.67E-03								
Gas Oil Tank 801		4.67E-03								
Recovered Oil Storage Tank 100		3.24E-10								
Recovered Oil Storage Tank 101		3.24E-10								
Gland Oil Tank 115		5.24E-09								
Wastewater Storage Tanks 822 & 823										
Coke Cooling Water Tank 405										
Coke Cooling Water Tank 406										
Conveyor Segment 1 of 5										
Conveyor Segment 2 of 5										
Conveyor Segment 3 of 5										
Conveyor Segment 4 of 5										
Conveyor Segment 5 of 5										
Green Coke Storage Piles										
Cooling Tower Fugitives										
Facility Fugitives										
Oil Water Treatment System	7.23E-02									
Coatings & Solvent Usage										
Tail Gas Treatment (U-3031-K)										
Wastewater Area Process Drains										
Cooling Towers (E-51, E-79)										
Crude Heater B2-A (77.0 MMBtu/hr)	2.31E-01	6.82E-04	4.55E-04	6.82E-04	6.82E-04	6.82E-04	6.82E-04	4.55E-04	6.82E-04	
Crude Heater B2-B (76.2 MMBtu/hr)	2.25E-01	6.64E-04	4.42E-04	6.64E-04	6.64E-04	6.64E-04	6.64E-04	4.42E-04	6.64E-04	
Vacuum Heater B62-A (16.2 MMBtu/hr)	3.38E-02	9.98E-05	6.65E-05	9.98E-05	9.98E-05	9.98E-05	9.98E-05	6.65E-05	9.98E-05	
Vacuum Heater B62-B (16.0 MMBtu/hr)	3.70E-02	1.09E-04	7.27E-05	1.09E-04	1.09E-04	1.09E-04	1.09E-04	7.27E-05	1.09E-04	
Coking Heater B102-A (80.5 MMBtu/hr)	2.58E-01	7.61E-04	5.07E-04	7.61E-04	7.61E-04	7.61E-04	7.61E-04	5.07E-04	7.61E-04	
Coking Heater B102-B (80.5 MMBtu/hr)	2.38E-01	7.03E-04	4.69E-04	7.03E-04	7.03E-04	7.03E-04	7.03E-04	4.69E-04	7.03E-04	
Steam Superheater B201-A (3.2 MMBtu/hr)	1.18E-02	3.48E-05	2.32E-05	3.48E-05	3.48E-05	3.48E-05	3.48E-05	2.32E-05	3.48E-05	
Steam Superheater B201-B (3.2 MMBtu/hr)	1.18E-02	3.48E-05	2.32E-05	3.48E-05	3.48E-05	3.48E-05	3.48E-05	2.32E-05	3.48E-05	
Boiler B-504 (117 MMBtu/hr)	2.56E-01	7.54E-04	5.03E-04	7.54E-04	7.54E-04	7.54E-04	7.54E-04	5.03E-04	7.54E-04	
Boiler B-506 (127 MMBtu/hr)	2.40E-01	7.08E-04	4.72E-04	7.08E-04	7.08E-04	7.08E-04	7.08E-04	4.72E-04	7.08E-04	
Boiler B-505 (100 MMBtu/hr)	3.60E-01	1.08E-03	7.08E-04	1.06E-03	1.06E-03	1.06E-03	7.08E-04	1.06E-03		
Boiler B-507 (99.9 MMBtu/hr)	2.55E-01	7.52E-04	5.01E-04	7.52E-04	7.52E-04	7.52E-04	7.52E-04	5.01E-04	7.52E-04	
Flare (C451)	3.26E-03	9.61E-06	6.41E-06	9.61E-06	9.61E-06	9.61E-06	9.61E-06	6.41E-06	9.61E-06	
Incinerator B602-A	1.18E-02	3.48E-05	2.32E-05	3.48E-05	3.48E-05	3.48E-05	3.48E-05	2.32E-05	3.48E-05	
Incinerator B602-B	1.18E-02	3.48E-05	2.32E-05	3.48E-05	3.48E-05	3.48E-05	3.48E-05	2.32E-05	3.48E-05	
Tail Gas Combustor (B-702)	2.52E-02	7.42E-05	4.95E-05	7.42E-05	7.42E-05	7.42E-05	7.42E-05	4.95E-05	7.42E-05	
Sulfur Pit Vent										
Cooling Water Pump (G51-4) (gas-fired)	1.69E-02		2.45E-02							
Firewater Booster Pump G515-3	3.81E-03	7.15E-05	8.00E-06	4.22E-06	6.60E-06	1.50E-05	2.48E-05	1.60E-05		
Firewater Booster Pump G515-4	2.98E-03	5.90E-05	6.60E-06	3.48E-06	5.44E-06	1.24E-05	2.05E-05	1.32E-05		
Carbon Pit Water Pump (GE-522) w/DPF	4.44E-03	8.80E-05	9.84E-06	5.19E-06	8.12E-06	1.85E-05	3.05E-05	1.96E-05		
Utility Backup (Atlas Copco) T3 w/DPF	2.07E-02	4.10E-04	4.59E-05	2.42E-05	3.78E-05	8.61E-05	1.42E-04	9.15E-05		
Collection Pond Pump (BK699)	1.95E-04	3.87E-06	4.33E-07	2.28E-07	3.57E-07	8.12E-07	1.34E-06	8.63E-07		
Carbon Plant Air Compressor (G1015)	1.23E-02	2.45E-04	2.74E-05	1.44E-05	2.26E-05	5.14E-05	8.49E-05	5.46E-05		
Wet Plant Backup Generator (NE-800)	3.03E-03	5.99E-05	6.71E-06	3.54E-06	5.53E-06	1.26E-05	2.08E-05	1.34E-05		
Control Center Backup Gen. (NE-503)	2.63E-03	5.22E-05	5.84E-06	3.08E-06	4.82E-06	1.10E-05	1.81E-05	1.17E-05		
Maintenance Backup Generator (NE-504)	2.83E-03	5.61E-05	6.27E-06	3.31E-06	5.17E-06	1.18E-05	1.95E-05	1.25E-05		
R.O. Backup Generator (NE-RO)	3.85E-03	7.64E-05	8.55E-06	4.50E-06	7.05E-06	1.60E-05	2.65E-05	1.70E-05		

Table 3 (p.3 of 3)
Annual Emissions (lb/yr)

Device Name (Plant ID)	CAS#	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc	Hex. Chrome
Mol.Wt.		7440360	7440382	7440417	7440439	7440473	7440508	7439921	7439965	7438976	7440020	7782492	7440622	7440666	18540299
Pressure Distillate Tank 550															
Pressure Distillate Tank 551															
Crude Oil Storage Tank 900															
Crude Oil Storage Tank 901															
Crude Oil Storage Tank 903															
Gas Oil Tank 800															
Gas Oil Tank 801															
Recovered Oil Storage Tank 100															
Recovered Oil Storage Tank 101															
Glend Oil Tank 115															
Wastewater Storage Tanks 822 & 823															
Coke Cooling Water Tank 405															
Coke Cooling Water Tank 406															
Conveyor Segment 1 of 5	1.11E-04			1.11E-04	1.11E-04	4.46E-04	8.91E-06		1.11E-04		4.46E-02		3.68E-01		
Conveyor Segment 2 of 5	1.11E-04			1.11E-04	1.11E-04	4.46E-04	8.91E-06		1.11E-04		4.46E-02		3.68E-01		
Conveyor Segment 3 of 5	1.11E-04			1.11E-04	1.11E-04	4.46E-04	8.91E-06		1.11E-04		4.46E-02		3.68E-01		
Conveyor Segment 4 of 5	1.11E-04			1.11E-04	1.11E-04	4.46E-04	8.91E-06		1.11E-04		4.46E-02		3.68E-01		
Conveyor Segment 5 of 5	1.11E-04			1.11E-04	1.11E-04	4.46E-04	8.91E-06		1.11E-04		4.46E-02		3.68E-01		
Green Coke Storage Piles	1.60E-03			1.60E-03	1.60E-03	6.40E-03	1.28E-04		1.60E-03		6.40E-01		5.28E+00		
Cooling Tower Fugitives															
Facility Fugitives															
Oilly Water Treatment System															
Coatings & Solvent Usage															
Tail Gas Treatment (U-3031-K)															
Wastewater Area Process Drains															
Cooling Towers (E-51, E-79)															
Crude Heater B2-A (77.0 MMBtu/hr)															
Crude Heater B2-B (76.2 MMBtu/hr)															
Vacuum Heater B62-A (16.2 MMBtu/hr)															
Vacuum Heater B62-B (16.0 MMBtu/hr)															
Coking Heater B102-A (80.5 MMBtu/hr)															
Coking Heater B102-B (80.5 MMBtu/hr)															
Steam Superheater B201-A (3.2 MMBtu/hr)															
Steam Superheater B201-B (3.2 MMBtu/hr)															
Boiler B-504 (117 MMBtu/hr)															
Boiler B-506 (127 MMBtu/hr)															
Boiler B-505 (100 MMBtu/hr)															
Boiler B-507 (99.9 MMBtu/hr)															
Flare (C451)															
Inclinator B602-A															
Inclinator B602-B															
Tail Gas Combustor (B-702)															
Sulfur Pit Vent															
Cooling Water Pump (G51-4) (gas-fired)															
Firewater Booster Pump G515-3			4.97E-04		4.66E-04	1.86E-04	1.27E-03	2.50E-03	9.63E-04	6.22E-04	1.21E-03	6.84E-04		6.96E-03	3.11E-05
Firewater Booster Pump G515-4			4.10E-04		3.84E-04	1.54E-04	1.05E-03	2.13E-03	7.94E-04	5.12E-04	9.99E-04	5.64E-04		5.74E-03	2.56E-05
Carbon Pit Water Pump (GE-522) w/DPF			6.12E-04		5.73E-04	2.29E-04	1.57E-03	3.17E-03	1.18E-03	7.64E-04	1.49E-03	8.41E-04		8.56E-03	3.82E-05
Utility Backup (Atlas Copco) T3 w/DPF			2.85E-03		2.67E-03	1.07E-03	7.30E-03	1.48E-02	5.52E-03	3.56E-03	6.95E-03	3.92E-03		3.99E-02	1.78E-04
Collection Pond Pump (BK699)			2.69E-05		2.52E-05	1.01E-05	6.89E-05	1.39E-04	5.21E-05	3.36E-05	6.55E-05	3.70E-05		3.76E-04	1.68E-06
Carbon Plant Air Compressor (G1015)			1.70E-03		1.59E-03	6.38E-04	4.36E-03	8.82E-03	3.29E-03	2.13E-03	4.14E-03	2.34E-03		2.38E-02	1.06E-04
Wet Plant Backup Generator (NE-800)			4.17E-04		3.91E-04	1.56E-04	1.07E-03	2.16E-03	8.07E-04	5.21E-04	1.02E-03	5.73E-04		5.83E-03	2.60E-05
Control Center Backup Gen. (NE-503)			3.63E-04		3.40E-04	1.36E-04	9.30E-04	1.88E-03	7.03E-04	4.54E-04	8.85E-04	4.99E-04		5.08E-03	2.27E-05
Maintenance Backup Generator (NE-504)			3.90E-04		3.65E-04	1.46E-04	9.99E-04	2.02E-03	7.55E-04	4.87E-04	9.50E-04	5.36E-04		5.46E-03	2.44E-05
R.O. Backup Generator (NE-RO)			5.31E-04		4.98E-04	1.99E-04	1.36E-03	2.75E-03	1.03E-03	6.64E-04	1.29E-03	7.30E-04		7.43E-03	3.32E-05

Table 4 (p.1 of 3)
Hourly Max Emissions (lb/hr)

Device Name (Plant ID)	CAS#	Acetaldehyde	Acrolein	Ammonia	Benzene	1,3-Butadiene	Carbon Monoxide	Chlorine	Diesel Particulate	Ethyl Benzene	Formaldehyde	Hexane	HF	HCl	H ₂ S	H ₂ SO ₄	Propylene	Sulfur Dioxide	Sulfates	Toluene	Xylenes
	75070	107028	7664417	71432	106990	630080	7782505	9901	100414	50000	110543	7664393	7647010	7783064	7664939	115071	7446095	9960	109883	1330207	
Pressure Distillate Tank 550	Acute REL	1.90E-01	3.20E+03	1.30E+03	2.30E+04	2.10E+02				8.95E-09	9.40E+01			2.10E+03	4.20E+01	1.20E+02		6.90E+02	1.20E+02	3.70E+04	2.20E+04
Pressure Distillate Tank 551				8.10E-07						8.95E-09					3.04E-05					2.99E-07	2.24E-06
Crude Oil Storage Tank 900				8.10E-07						8.95E-09					1.02E-05					2.99E-07	2.24E-06
Crude Oil Storage Tank 901				1.65E-05						3.64E-07					3.00E-07					5.66E-06	7.74E-07
Crude Oil Storage Tank 903				1.65E-05						3.64E-07					3.00E-07					5.66E-06	7.74E-07
Gas Oil Tank 900				5.02E-06						3.41E-07										3.66E-06	8.23E-07
Gas Oil Tank 901				5.02E-06						3.41E-07										3.66E-06	8.23E-07
Recovered Oil Storage Tank 100				2.03E-12						6.57E-14				7.03E-12						1.10E-12	1.97E-13
Recovered Oil Storage Tank 101				2.03E-12						6.57E-14				7.03E-12						1.10E-12	1.97E-13
Gland Oil Tank 115				1.30E-11						1.92E-12										1.61E-11	6.01E-12
Wastewater Storage Tanks 822 & 823				4.50E-07																7.90E-07	2.27E-06
Coke Cooling Water Tank 405				6.85E-03																3.44E-02	4.04E-02
Coke Cooling Water Tank 406				6.85E-03																3.44E-02	4.04E-02
Conveyor Segment 1 of 5																					
Conveyor Segment 2 of 5																					
Conveyor Segment 3 of 5																					
Conveyor Segment 4 of 5																					
Conveyor Segment 5 of 5																					
Green Coke Storage Piles																					
Cooling Tower Fugitives								2.37E-03													
Facility Fugitives				1.90E-04											3.28E-03		1.19E-03			4.69E-05	1.64E-04
Oily Water Treatment System				1.37E-04						3.03E-06					6.73E-05					4.72E-05	6.44E-06
Coatings & Solvent Usage				0.00E+00						2.74E-03										8.00E-03	1.41E-02
Tail Gas Treatment (U-3031-K)				2.95E-02																	
Wastewater Area Process Drains				2.71E-03																2.97E-04	2.35E-04
Cooling Towers (E-51, E-79)								4.61E-04													
Crude Heater B2-A (77.0 MMBtu/hr)	1.68E-04	1.46E-04		3.13E-04		4.54E+00				3.73E-04	6.65E-04	2.49E-04					2.86E-02	3.24E-02		1.43E-03	1.06E-03
Crude Heater B2-B (76.2 MMBtu/hr)	1.66E-04	1.44E-04		3.10E-04		4.49E+00				3.69E-04	6.68E-04	2.46E-04					2.83E-02	3.21E-02		1.42E-03	1.05E-03
Vacuum Heater B62-A (16.2 MMBtu/hr)	3.52E-05	3.07E-05		6.60E-05		9.55E-01				7.85E-05	1.40E-04	5.23E-05					6.03E-03	6.82E-03		3.01E-04	2.24E-04
Vacuum Heater B62-B (16.0 MMBtu/hr)	3.48E-05	3.03E-05		6.51E-05		9.43E-01				7.75E-05	1.38E-04	5.17E-05					5.95E-03	6.74E-03		2.98E-04	2.21E-04
Coking Heater B102-A (80.5 MMBtu/hr)	1.75E-04	1.53E-04		3.28E-04		4.75E+00				3.90E-04	6.95E-04	2.60E-04					2.99E-02	3.39E-02		1.50E-03	1.11E-03
Coking Heater B102-B (80.5 MMBtu/hr)	1.75E-04	1.53E-04		3.26E-04		4.75E+00				3.90E-04	6.95E-04	2.60E-04					2.99E-02	3.39E-02		1.50E-03	1.11E-03
Steam Superheater B201-A (3.2 MMBtu/hr)	9.66E-06	6.06E-06		1.80E-05		1.89E-01				2.13E-05	3.82E-05	1.42E-05					1.64E-03	1.35E-03		8.22E-05	6.11E-05
Steam Superheater B201-B (3.2 MMBtu/hr)	9.66E-06	6.06E-06		1.80E-05		1.89E-01				2.13E-05	3.82E-05	1.42E-05					1.64E-03	1.35E-03		8.22E-05	6.11E-05
Boiler B-504 (117 MMBtu/hr)	7.39E-05	6.57E-05		1.40E-04		6.90E+00				1.64E-04	2.96E-04	1.07E-04					1.28E-03	4.93E-02		8.41E-04	4.76E-04
Boiler B-506 (127 MMBtu/hr)	8.02E-05	7.13E-05		1.62E-04		7.49E+00				1.78E-04	3.21E-04	1.16E-04					1.38E-03	5.35E-02		8.95E-04	5.17E-04
Boiler B-505 (100 MMBtu/hr)	6.32E-05	5.62E-05		1.19E-04		5.90E+00				1.40E-04	2.53E-04	9.12E-05					1.09E-03	4.21E-02		5.47E-04	4.07E-04
Boiler B-507 (99.9 MMBtu/hr)	6.31E-05	5.61E-05		1.19E-04		5.89E+00				1.40E-04	2.52E-04	9.12E-05					1.09E-03	4.21E-02		5.47E-04	4.07E-04
Flare (C451)	1.51E-05	3.50E-06		6.67E-05		2.94E-02				5.05E-04	4.09E-04	1.02E-05					8.54E-04	2.10E-04		2.03E-05	1.02E-05
Inclinerator B602-A	7.74E-05	1.80E-05		2.88E-04		1.51E-01				2.60E-03	2.10E-03	5.22E-05					4.39E-03	1.08E-03		1.04E-04	5.22E-05
Inclinerator B602-B	7.74E-05	1.80E-05		2.86E-04		1.51E-01				2.60E-03	2.10E-03	5.22E-05					4.39E-03	1.08E-03		1.04E-04	5.22E-05
Tail Gas Combustor (B-702)	1.68E-05	1.05E-05		3.12E-05		3.28E-01				3.71E-05	6.63E-05	2.46E-05					2.85E-03	2.34E-03		1.43E-04	1.06E-04
Sulfur Pit Vent																		5.42E+00			
Cooling Water Pump (G514) (gas-fired)	4.68E-03	4.42E-03		2.65E-03	1.11E-03	5.89E+00				4.16E-05	3.44E-02							9.87E-04		9.37E-04	3.27E-04
Firewater Booster Pump G515-3	1.29E-02	5.60E-04		3.08E-03	3.59E-03	2.17E+00			7.04E-01	1.80E-04	2.85E-02	4.45E-04		3.08E-03			7.72E-03	1.17E-01	1.76E-01	1.74E-03	7.01E-04
Firewater Booster Pump G515-4	1.31E-02	5.68E-04		3.12E-03	3.64E-03	2.18E+00			7.14E-01	1.83E-04	2.89E-02	4.50E-04		3.12E-03			7.82E-03	1.19E-01	1.78E-01	1.76E-03	7.10E-04
Carbon Pit Water Pump (GE-522) w/DPF	8.60E-03	3.72E-04		2.05E-03	2.39E-03	1.44E+00			1.76E-02	1.20E-04	1.90E-02	2.95E-04		2.05E-03			5.13E-03	7.80E-02	4.39E-03	1.16E-03	4.66E-04
Utility Backup (Atlas Copco) T3 w/DPF	8.93E-03	3.86E-04		2.12E-03	2.48E-03	1.49E+00			1.03E-02	1.24E-04	1.97E-02	3.07E-04		2.12E-03			5.32E-03	8.09E-02	2.57E-03	1.20E-03	4.83E-04
Collection Pond Pump (BK699)	1.32E-02	5.70E-04		3.13E-03	3.65E-03	2.20E+00			1.34E-01	1.83E-04	2.90E-02	4.52E-04		3.13E-03			7.85E-03	1.19E-01	3.36E-02	1.77E-03	7.12E-04
Carbon Plant Air Compressor (G1015)	5.08E-03	2.20E-04		1.21E-03	1.41E-03	8.50E-01			7.64E-02	7.08E-05	1.12E-02	1.75E-04		1.21E-03			3.03E-03	4.61E-02	1.91E-02	6.84E-04	2.75E-04
Wet Plant Backup Generator (NE-800)	1.49E-02	6.44E-04		3.54E-03	4.13E-03	2.49E+00			3.33E-01	2.07E-04	3.28E-02	5.11E-04		3.54E-03			8.86E-03	1.35E-01	8.32E-02	2.00E-03	8.06E-04
Control Center Backup Gen. (NE-503)	1.49E-02	6.46E-04		3.55E-03	4.14E-03	2.50E+00			2.40E-01	2.08E-04	3.29E-02	5.13E-04		3.55E-03			8.90E-03	1.35E-01	6.00E-02	2.01E-03	8.06E-04
Maintenance Backup Generator (NE-504)	1.48E-02	6.40E-04		3.52E-03	4.11E-03	2.47E+00			1.98E-01	2.06E-04	3.26E-02	5.08E-04		3.52E-03			8.82E-03	1.34E-01	4.98E-02	1.99E-03	8.01E-04
R.O. Backup Generator (NE-RO)	1.49E-02	6.43E-04		3.53E-03	4.12E-03	2.48E+00			1.21E-01	2.07E-04	3.27E-02	5.10E-04		3.53E-03			8.85E-03	1.35E-01	3.03E-02	2.00E-03	8.04E-04

Table 4 (p.2 of 3)
Hourly Max Emissions (lb/hr)

Device Name (Plant ID)	CAS#	Naphthalene	Benz(a)anthracene	Benz(a)pyrene	Benz(b)fluoranthene	Benz(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Total PCBs
Acute REL	91203	56553	50328	205992	205823	218019	53703	193395	1336363	
Pressure Distillate Tank 550		3.63E-08								
Pressure Distillate Tank 551		3.63E-08								
Crude Oil Storage Tank 900		9.91E-07								
Crude Oil Storage Tank 901		9.91E-07								
Crude Oil Storage Tank 903		9.91E-07								
Gas Oil Tank 800		5.33E-07								
Gas Oil Tank 801		5.33E-07								
Recovered Oil Storage Tank 100		3.70E-14								
Recovered Oil Storage Tank 101		3.70E-14								
Gland Oil Tank 115		6.99E-13								
Wastewater Storage Tanks 822 & 823										
Coke Cooling Water Tank 405										
Coke Cooling Water Tank 406										
Conveyor Segment 1 of 5										
Conveyor Segment 2 of 6										
Conveyor Segment 3 of 5										
Conveyor Segment 4 of 5										
Conveyor Segment 5 of 5										
Green Coke Storage Piles										
Cooling Tower Fugitives										
Facility Fugitives										
Oily Water Treatment System	8.25E-06									
Coatings & Solvent Usage										
Tail Gas Treatment (U-3031-K)										
Wastewater Area Process Drains										
Cooling Towers (E-51, E-79)										
Crude Heater B2-A (77.0 MMBtu/hr)	3.30E-05	9.73E-08	6.49E-08	9.73E-08	9.73E-08	9.73E-08	6.49E-08	9.73E-08		
Crude Heater B2-B (76.2 MMBtu/hr)	3.26E-05	9.63E-08	6.42E-08	9.63E-08	9.63E-08	9.63E-08	6.42E-08	9.63E-08		
Vacuum Heater B62-A (16.2 MMBtu/hr)	6.94E-06	2.05E-08	1.36E-08	2.05E-08	2.05E-08	2.05E-08	1.36E-08	2.05E-08		
Vacuum Heater B62-B (16.0 MMBtu/hr)	6.85E-06	2.02E-08	1.35E-08	2.02E-08	2.02E-08	2.02E-08	1.35E-08	2.02E-08		
Coking Heater B102-A (80.5 MMBtu/hr)	3.45E-05	1.02E-07	6.78E-08	1.02E-07	1.02E-07	1.02E-07	6.78E-08	1.02E-07		
Coking Heater B102-B (80.5 MMBtu/hr)	3.45E-05	1.02E-07	6.78E-08	1.02E-07	1.02E-07	1.02E-07	6.78E-08	1.02E-07		
Steam Superheater B201-A (3.2 MMBtu/hr)	1.37E-06	4.04E-09	2.70E-09	4.04E-09	4.04E-09	4.04E-09	2.70E-09	4.04E-09		
Steam Superheater B201-B (3.2 MMBtu/hr)	1.37E-06	4.04E-09	2.70E-09	4.04E-09	4.04E-09	4.04E-09	2.70E-09	4.04E-09		
Boiler B-504 (117 MMBtu/hr)	5.01E-05	1.48E-07	9.85E-08	1.48E-07	1.48E-07	1.48E-07	9.85E-08	1.48E-07		
Boiler B-506 (127 MMBtu/hr)	5.44E-05	1.60E-07	1.07E-07	1.60E-07	1.60E-07	1.60E-07	1.07E-07	1.60E-07		
Boiler B-505 (100 MMBtu/hr)	4.28E-05	1.26E-07	8.42E-08	1.26E-07	1.26E-07	1.26E-07	8.42E-08	1.26E-07		
Boiler B-507 (99.9 MMBtu/hr)	4.28E-05	1.26E-07	8.41E-08	1.26E-07	1.26E-07	1.26E-07	8.41E-08	1.26E-07		
Flare (C451)	2.14E-07	6.30E-10	4.20E-10	6.30E-10	6.30E-10	6.30E-10	4.20E-10	6.30E-10		
Incinerator B602-A	1.10E-06	3.24E-09	2.16E-09	3.24E-09	3.24E-09	3.24E-09	2.16E-09	3.24E-09		
Incinerator B602-B	1.10E-06	3.24E-09	2.16E-09	3.24E-09	3.24E-09	3.24E-09	2.16E-09	3.24E-09		
Tail Gas Combustor (B-702)	2.36E-06	7.02E-09	4.68E-09	7.02E-09	7.02E-09	7.02E-09	4.68E-09	7.02E-09		
Sulfur Pit Vent			2.37E-04							
Cooling Water Pump (G51-4) (gas-fired)	1.63E-04									
Firewater Booster Pump G515-3	1.92E-04	3.80E-08	4.26E-07	2.24E-07	3.51E-07	7.99E-07	1.32E-06	8.49E-07		
Firewater Booster Pump G515-4	1.95E-04	3.85E-06	4.31E-07	2.27E-07	3.56E-07	8.10E-07	1.34E-06	8.60E-07		
Carbon Pit Water Pump (GE-522) w/DPF	1.28E-04	2.53E-06	2.83E-07	1.49E-07	2.33E-07	5.31E-07	8.77E-07	5.64E-07		
Utility Backup (Atlas Copco) T3 w/DPF	1.32E-04	2.62E-06	2.94E-07	1.55E-07	2.42E-07	5.51E-07	9.11E-07	5.86E-07		
Collection Pond Pump (BK699)	1.96E-04	3.87E-06	4.33E-07	2.28E-07	3.57E-07	8.12E-07	1.34E-06	8.63E-07		
Carbon Plant Air Compressor (G1015)	7.54E-05	1.49E-06	1.67E-07	8.81E-08	1.38E-07	3.14E-07	5.18E-07	3.33E-07		
Wel Plant Backup Generator (NE-800)	2.21E-04	4.37E-06	4.90E-07	2.58E-07	4.04E-07	9.19E-07	1.52E-06	9.77E-07		
Control Center Backup Gen. (NE-503)	2.21E-04	4.39E-06	4.91E-07	2.59E-07	4.05E-07	9.22E-07	1.52E-06	9.79E-07		
Maintenance Backup Generator (NE-504)	2.19E-04	4.35E-06	4.86E-07	2.56E-07	4.01E-07	9.13E-07	1.51E-06	9.70E-07		
R.O. Backup Generator (NE-RO)	2.20E-04	4.36E-06	4.88E-07	2.57E-07	4.03E-07	9.17E-07	1.51E-06	9.74E-07		

Table 4 (p.3 of 3)
Hourly Max Emissions (lb/hr)

Device Name (Plant ID)	CAS#	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc	Hex. Chrome
Acute REL	7440380	7440382	7440417	7440439	7440473	7440508	7439921	7439965	7439976	7440020	7782492	7440622	7440686	18540299	
Pressure Distillate Tank 550		1.90E-01				1.00E+02			1.80E+00	6.00E+00		3.00E+01			
Pressure Distillate Tank 551															
Crude Oil Storage Tank 900															
Crude Oil Storage Tank 901															
Crude Oil Storage Tank 903															
Gas Oil Tank 800															
Gas Oil Tank 801															
Recovered Oil Storage Tank 100															
Recovered Oil Storage Tank 101															
Gland Oil Tank 115															
Wastewater Storage Tanks 822 & 823															
Coke Cooling Water Tank 405															
Coke Cooling Water Tank 406															
Conveyor Segment 1 of 5	1.27E-08		1.27E-08	1.27E-08	5.09E-08	1.02E-09		1.27E-08		5.09E-06		4.20E-05			
Conveyor Segment 2 of 5	1.27E-08		1.27E-08	1.27E-08	5.09E-08	1.02E-09		1.27E-08		5.09E-06		4.20E-05			
Conveyor Segment 3 of 5	1.27E-08		1.27E-08	1.27E-08	5.09E-08	1.02E-09		1.27E-08		5.09E-06		4.20E-05			
Conveyor Segment 4 of 5	1.27E-08		1.27E-08	1.27E-08	5.09E-08	1.02E-09		1.27E-08		5.09E-06		4.20E-05			
Conveyor Segment 5 of 5	1.27E-08		1.27E-08	1.27E-08	5.09E-08	1.02E-09		1.27E-08		5.09E-06		4.20E-05			
Green Coke Storage Piles	1.83E-07		1.83E-07	1.83E-07	7.31E-07	1.46E-08		1.83E-07		7.31E-05		6.03E-04			
Cooling Tower Fugitives															
Facility Fugitives															
Oily Water Treatment System															
Coatings & Solvent Usage															
Tail Gas Treatment (U-3031-K)															
Wastewater Area Process Drains															
Cooling Towers (E-51, E-79)															
Crude Heater B2-A (77.0 MMBtu/hr)															
Crude Heater B2-B (76.2 MMBtu/hr)															
Vacuum Heater B62-A (16.2 MMBtu/hr)															
Vacuum Heater B62-B (16.0 MMBtu/hr)															
Coking Heater B102-A (80.5 MMBtu/hr)															
Coking Heater B102-B (80.5 MMBtu/hr)															
Steam Superheater B201-A (3.2 MMBtu/hr)															
Steam Superheater B201-B (3.2 MMBtu/hr)															
Boiler B-504 (117 MMBtu/hr)															
Boiler B-506 (127 MMBtu/hr)															
Boiler B-505 (100 MMBtu/hr)															
Boiler B-507 (99.9 MMBtu/hr)															
Flare (C451)															
Incinerator B602-A															
Incinerator B602-B															
Tail Gas Combustor (B-702)															
Sulfur Pit Vent															
Cooling Water Pump (G51-4) (gas-fired)															
Firewater Booster Pump G515-3	2.65E-05		2.48E-05	9.92E-06	6.78E-05	1.37E-04	5.12E-05	3.31E-05	6.45E-05	3.64E-05		3.70E-04	1.65E-06		
Firewater Booster Pump G515-4	2.68E-05		2.51E-05	1.00E-05	6.87E-05	1.39E-04	5.19E-05	3.35E-05	6.53E-05	3.68E-05		3.75E-04	1.67E-06		
Carbon Pit Water Pump (GE-522) w/DPF	1.76E-05		1.65E-05	6.59E-06	4.50E-05	9.12E-05	3.40E-05	2.20E-05	4.28E-05	2.42E-05		2.46E-04	1.10E-06		
Utility Backup (Atlas Copco) T3 w/DPF	1.82E-05		1.71E-05	6.84E-06	4.67E-05	9.46E-05	3.53E-05	2.28E-05	4.45E-05	2.51E-05		2.55E-04	1.14E-06		
Collection Pond Pump (BK699)	2.69E-05		2.52E-05	1.01E-05	6.89E-05	1.39E-04	5.21E-05	3.36E-05	6.55E-05	3.70E-05		3.76E-04	1.68E-06		
Carbon Plant Air Compressor (G1015)	1.04E-05		9.74E-06	3.89E-06	2.66E-05	5.39E-05	2.01E-05	1.30E-05	2.53E-05	1.43E-05		1.46E-04	6.49E-07		
Wet Plant Backup Generator (NE-800)	3.04E-05		2.85E-05	1.14E-05	7.79E-05	1.58E-04	5.89E-05	3.90E-05	7.41E-05	4.18E-05		4.26E-04	1.90E-06		
Control Center Backup Gen. (NE-503)	3.05E-05		2.86E-05	1.14E-05	7.81E-05	1.58E-04	5.91E-05	3.81E-05	7.43E-05	4.19E-05		4.27E-04	1.91E-06		
Maintenance Backup Generator (NE-504)	3.02E-05		2.83E-05	1.13E-05	7.74E-05	1.57E-04	5.85E-05	3.78E-05	7.36E-05	4.15E-05		4.23E-04	1.89E-06		
R.O. Backup Generator (NE-RO)	3.03E-05		2.84E-05	1.14E-05	7.77E-05	1.57E-04	5.88E-05	3.79E-05	7.39E-05	4.17E-05		4.25E-04	1.90E-06		

Table 5
ConocoPhillips Santa Maria Facility
Coatings & Solvents - 2010

Name	VOCs (lb/yr)	EmFac Units	AB2588 Components				
			Benzene	Ethyl Benzene	Iso Propanol	Toluene	Xylenes
Carboguard 890	744	wt. frac.		0.01	0.05	0.05	0.1
Carbothane 134	329	wt. frac.		0.05		0.1	0.15
Loxon Acrylic A24W300	5	no toxic VOCs					
Thermaline 4900	16.9	no toxic VOCs					
Carbozinc	49.8			0.003	0.15		
Thinner #214	1043	no toxic VOCs					
Thinner #26	2	no toxic VOCs					

Weight fractions from MSDS for each coating or solvent, except Latex from CARB VOC Species Profile 717

Name	AB2588 Emissions (lb/yr)				
	Benzene	Ethyl Benzene	Iso Propanol	Toluene	Xylenes
Carbolilne 890		7.44	37.2	37.2	74.4
Carbothane 134		16.45		32.9	49.35
Carbozinc		0.1494	7.47		
TOTAL	0	24.0394	44.67	70.1	123.75

Totals carried to Table 1 under Coatings & Solvent usage

Table 6
ConocoPhillips Santa Maria Facility
Point Source Model Input Data

HARP Stack No.	ID	Description	UTM Coordinates		Height (ft)	Diameter (ft)	Exit Vel. (ft/min)	Temp. (°F)
			E (m)	N (m)				
5	B2A	60 MMBtu/hr crude heater	719860	3880060	145.0	5.00	1,392	577
6	B2B	60 MMBtu/hr crude heater	719946	3879995	145.0	5.00	1,604	561
12	B62A	8 MMBtu/hr vacuum heater	719838	3880045	131.0	3.00	672	750
13	B62B	8 MMBtu/hr vacuum heater	719937	3879966	131.0	3.00	804	765
1	B102A	81 MMBtu/hr coker heater	719820	3880025	147.0	4.92	1,420	506
2	B102B	81 MMBtu/hr coker heater	719920	3879948	147.0	4.92	1,507	491
3	B201A	3 MMBtu/hr steam superheater	719845	3880039	72.0	2.08	471	520
4	B201B	4 MMBtu/hr steam superheater	719929	3879971	72.0	2.08	453	530
7	B504/B506	117 & 100 MMBtu/hr boilers	719800	3880100	123.0	5.00	1,985	260
8	B505	127 MMBtu/hr generator	719705	3880160	100.0	6.00	1,208	411
9	B507	99.9 MMBtu/hr boiler	719805	3880117	55.0	3.30	4,132	547
10	B602A	1 MMBtu/hr sulfur plant incinerator	719710	3880045	151.0	2.67	839	946
11	B602B	1 MMBtu/hr sulfur plant incinerator	719703	3880023	151.0	2.67	839	946
14	B702	5 MMBtu/hr tail gas combustor	719680	3880085	203.0	4.20	1,250	608
15	C-451	Flare stack	719850	3879750	200.0	2.00	15,712	650
19	G51-4	cooling tower pump	720000	3880075	10.0	0.20	31,767	500
20	G513-3	firewater pump	719720	3880140	10.0	0.20	31,767	500
21	G513-4	firewater pump	719720	3880140	10.0	0.20	31,767	500
22	GE-524S	spare air compressor	719795	3880090	10.0	0.20	31,767	500
18	GE-522	water pump	719811	3879517	10.0	0.20	12,955	439
54	BK699	collection pond pump	719575	3879425	10.0	0.20	31,767	500
55	G1015	standby air compressor	719632	3879521	10.0	0.25	9,941	673
57	NE800	wet plant backup generator	719780	3879850	10.0	0.20	31,767	500
58	CCBUG	control center backup gen.	719848	3880127	10.0	0.20	31,767	500
59	MBUG	maintenance backup generator	719706	3880262	10.0	0.20	31,767	500
60	RO	R.O. generator	719786	3880193	10.0	0.20	31,767	500

Table 7
ConocoPhillips Santa Maria Facility
Area Source Model Input Data

HARP Stack No.	ID	Description	UTM - SW Corner		Release Height (ft)	X-Length (ft)	Y-Length (ft)	Angle (°)	Szinit (ft)
			E (m)	N (m)					
25	TK-100	fixed roof, tank 100, recov. oil	720047	3880048	27.9	43.6	43.6	0	0.0
26	TK-101	fixed roof, tank 101, recov. oil	720077	3880028	27.9	43.6	43.6	0	0.0
27	TK-115	gland oil tank - TK115	719909	3880111	20.0	9.8	9.8	0	0.0
28	TK-550	fixed roof, tank 550, naphtha	720096	3880177	60.4	78.4	78.4	0	0.0
29	TK-551	fixed roof, tank 551, naphtha	720145	3880135	60.4	78.4	78.4	0	0.0
30	TK-800	floating roof, 800, gas oil	720045	3880120	44.9	97.4	97.4	0	0.0
31	TK-801	floating roof, 801, gas oil	720095	3880080	44.9	97.4	97.4	0	0.0
32	TK-900	floating roof, 900, crude oil	720237	3880053	36.7	118.8	118.8	0	0.0
33	TK-901	floating roof, 901, crude oil	720300	3880120	36.7	118.8	118.8	0	0.0
34	TK-903	floating roof, 903, crude oil	720360	3880185	36.7	118.8	118.8	0	0.0
35	TK-405	coke cooling water tank 405	719789	3879910	28.9	70.9	70.9	0	0.0
36	TK-406	coke cooling water tank 406	719757	3879930	28.9	70.9	70.9	0	0.0
38	CT	cooling towers	719975	3880105	20.0	150.9	39.4	40	0.0
39	SPV	sulfur pit vents	719703	3880005	3.3	6.6	6.6	40	0.0
40	OWTS	oily water treatment system	719720	3879750	3.3	98.4	124.7	40	0.0
41	SLVNT	solvent usage	719691	3880247	3.3	6.6	6.6	40	0.0
42	FUG	facility fugitives-valves, connectors, etc.	719800	3880030	6.6	508.5	508.5	40	0.0
46	CC1	conveyor segment 1	719820	3879850	4.0	10.0	100.0	12	0.0
47	CC2	conveyor segment 2	719810	3879805	4.0	10.0	100.0	12	0.0
48	CC3	conveyor segment 3	719801	3879760	4.0	10.0	100.0	12	0.0
49	CC4	conveyor segment 4	719791	3879715	4.0	10.0	100.0	12	0.0
50	CC5	conveyor segment 5	719782	3879670	4.0	10.0	100.0	12	0.0
44	GCSP	greencoke storage pile	719628	3879598	9.8	820.2	410.1	35	0.0
67	VWAPD	wastewater area process drains	719680	3879750	9.8	213.3	278.9	40	0.0
68	VWST	wastewater storage tanks 822 & 823	719610	3879845	36.7	131.2	295.3	40	0.0

Table 8
ConocoPhillips Santa Maria Facility
Structures Affecting Downwash

HARP ID	Description	UTM - SW Corner		Height (m)	Width (m)		Rotation Angle (°)
		E (m)	N (m)		E-W	N-S	
1	Maintenance Area - Drafting	719645	3880245	5.49	19.51	58.83	40
2	Maintenance Area - Autoshops	719660	3880215	7.62	9.14	38.10	40
3	Maintenance Area - Purchasing	719610	3880205	5.18	31.70	24.38	40
4	Utility Area - Firehouse	719790	3880200	4.27	19.81	12.19	40
5	Utility Area - Process Eng Trailer	719808	3880185	3.66	3.05	15.24	40
6	Utility Area - Control Center	719820	3880145	5.33	24.99	10.97	40
7	Utility Area - Chemical Stg Warehouse	719720	3880130	9.75	18.29	12.19	40
8	Utility Area - Process Area Supv.	719770	3880085	3.96	25.30	10.36	40
9	Utility Area - Control House	719767	3880108	3.96	6.10	4.88	40
10	Plant Inspection - Maintenance Warehouse	719850	3880200	5.18	48.77	12.19	40
11	Plant Inspection - Secondary Bldg.	719867	3880224	5.49	30.48	12.19	40
12	Cooling Tower - Foam Stg. Shed	719928	3880133	6.10	17.07	10.97	40
13	Coker - Common Building	719895	3880025	4.57	10.97	16.76	40
14	Sulfur Complex - Control House	719720	3880035	3.66	15.24	4.88	40
15	Sulfur Complex - Tail Gas Lab	719670	3880085	3.66	3.66	3.66	40
16	Sulfur Complex - Welding Area	719565	3880125	3.96	6.10	30.48	40
17	Sulfur Complex - Shed	719595	3880115	3.35	6.10	15.24	40
18	Carbon Plant - Control Room	719635	3879515	6.10	14.63	7.01	40
19	Carbon Plant - Maintenance Bldg	719644	3879530	7.01	24.38	12.50	40
20	Carbon Plant - Lab	719685	3879500	2.74	3.66	7.32	40
21	Carbon Plant - Warehouse	719600	3879575	7.01	31.09	12.19	40
22	Carbon Plant - Compressor Bldg	719580	3879495	4.27	5.49	5.49	40
23	Carbon Plant - Product Stg Bldg	719740	3879400	9.14	21.34	55.47	40
24	Carbon Plant - Office	719535	3879590	3.96	25.91	22.86	0
25	TK-822	719705	3879870	11.19	36.21	36.21	40
26	TK-823	719665	3879820	11.19	36.21	36.21	40
27	Cooling tower	719975	3880105	6.10	45.99	12.01	40

Table 9
ConocoPhillips Santa Maria Facility
Property Boundary Segment Endpoints

Endpoint Number	UTME (m)	UTMN (m)
1	722370	3877999
2	722569	3878665
3	720298	3880484
4	720263	3880879
5	719795	3880892
6	719278	3881324
7	719275	3881444
8	719048	3881427
9	718123	3882017
10	717922	3882013
11	718295	3880664
12	718204	3879700
13	719006	3879492
14	719593	3879290
15	720189	3878211
16	720478	3878266
17	720552	3878339
18	720678	3878354
19 = 1 repeated	722370	3877999

Table 9
ConocoPhillips Santa Maria Facility
Property Boundary Segment Endpoints

Endpoint Number	UTME (m)	UTMN (m)
1	722370	3877999
2	722569	3878665
3	720298	3880484
4	720263	3880879
5	719795	3880892
6	719278	3881324
7	719275	3881444
8	719048	3881427
9	718123	3882017
10	717922	3882013
11	718295	3880664
12	718204	3879700
13	719006	3879492
14	719593	3879290
15	720189	3878211
16	720478	3878266
17	720552	3878339
18	720678	3878354
19 = 1 repeated	722370	3877999

Figures 1 through 6

Figure 1
ConocoPhillips Santa Maria Facility
Sources and Building Wake Structures

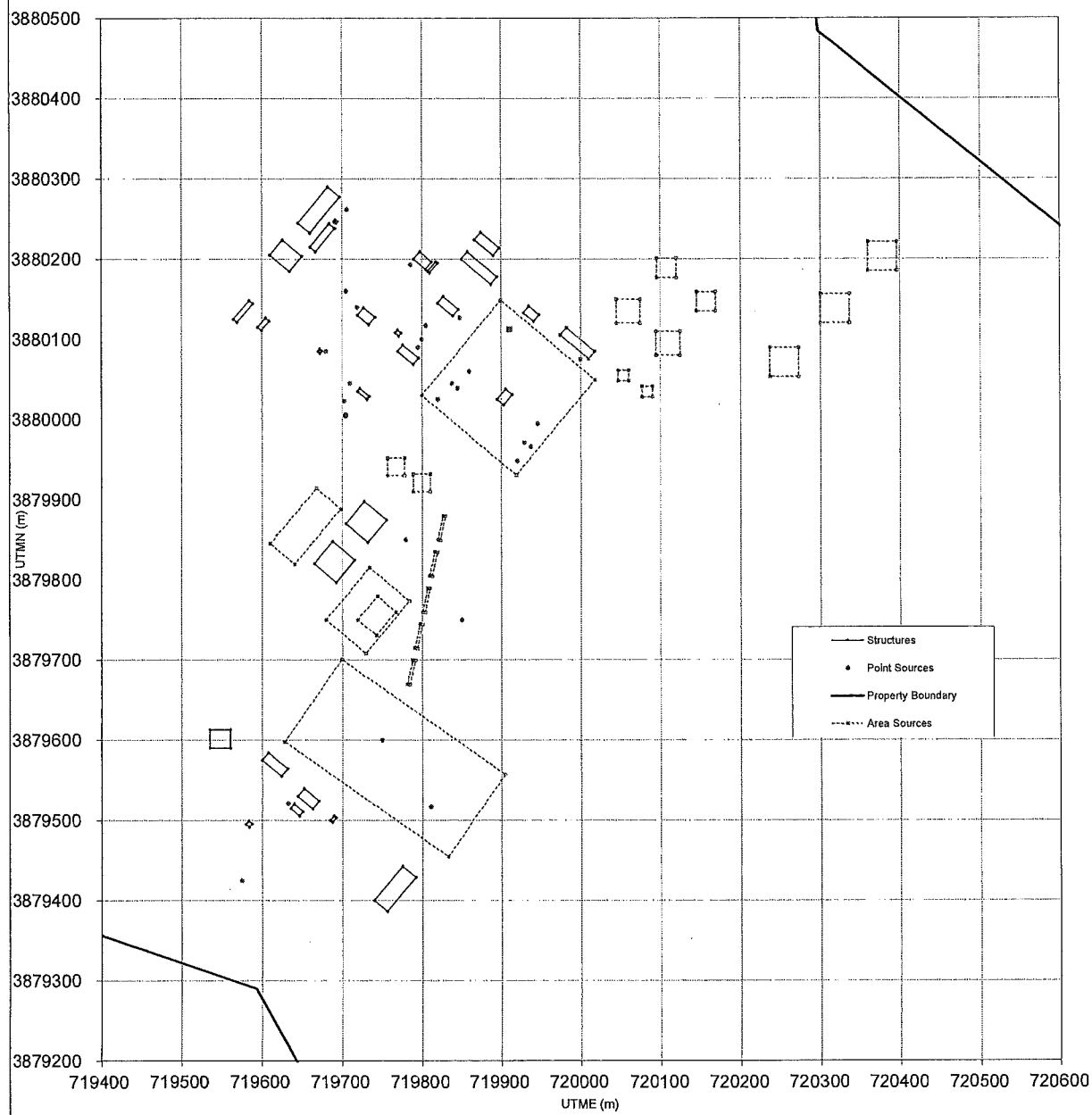
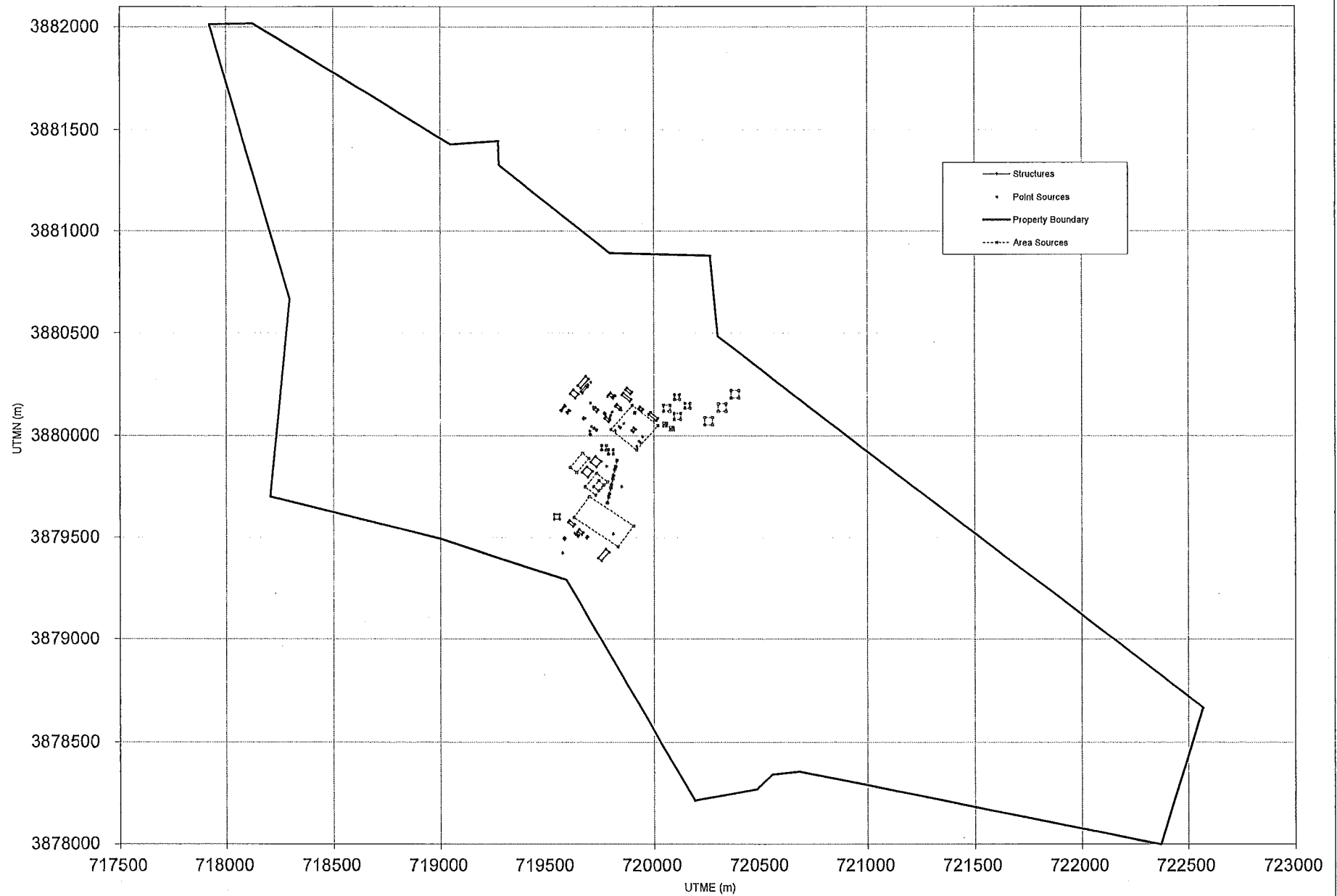


Figure 2
ConocoPhillips Santa Maria Facility
Sources, Buildings, & Property Boundaries



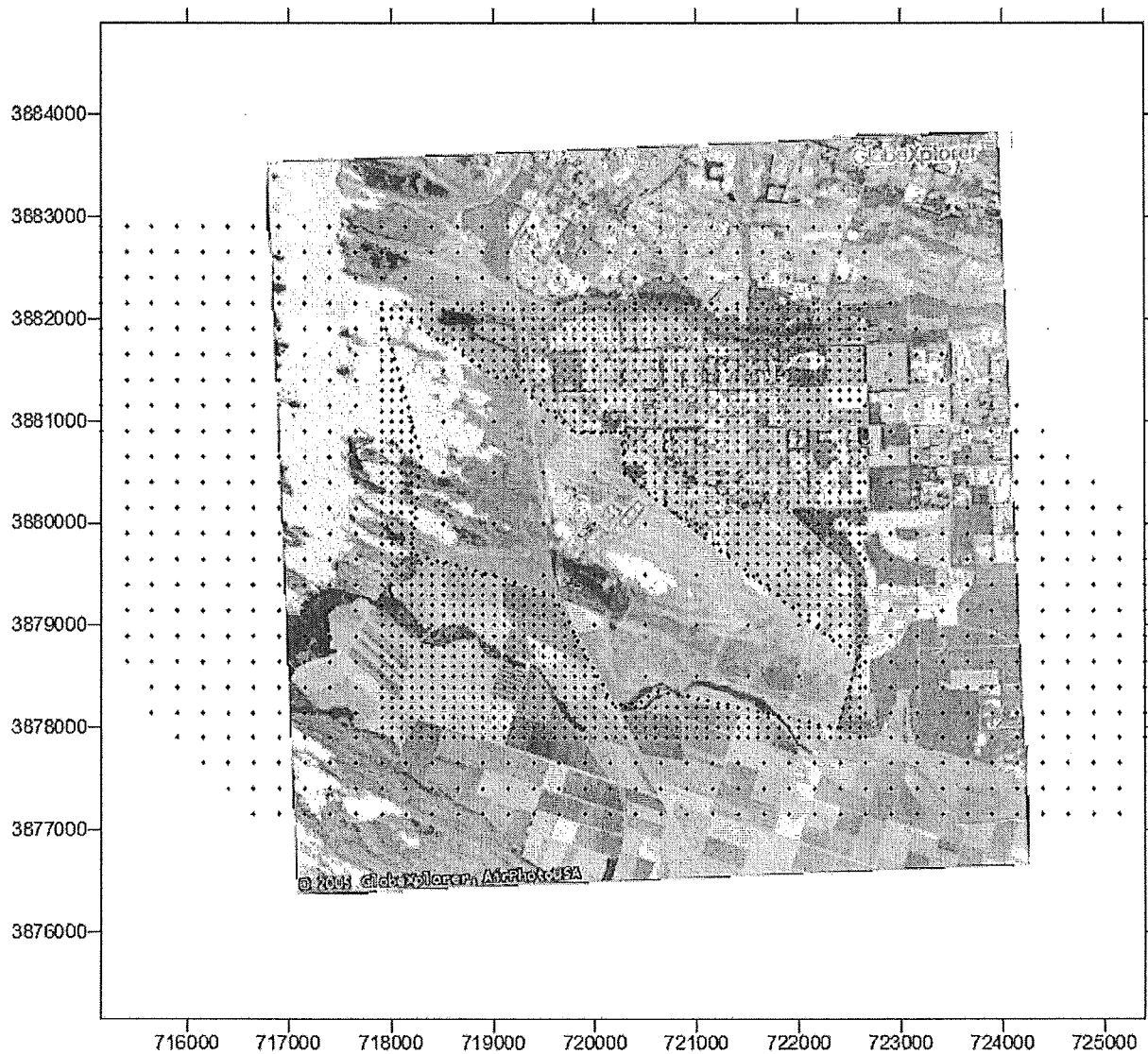


Figure 3 - Model Receptor Grid

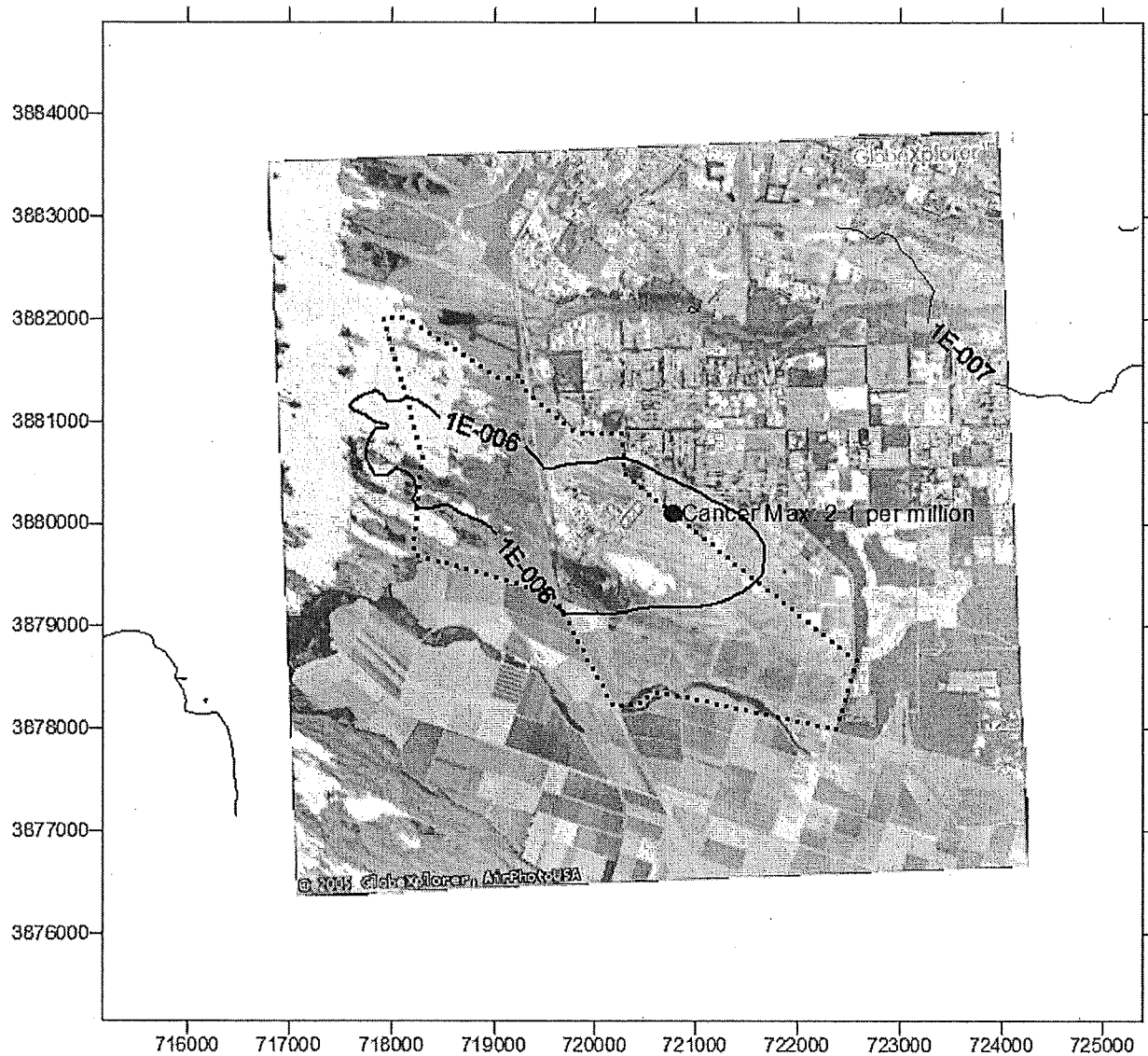


Figure 4 - Cancer Impacts

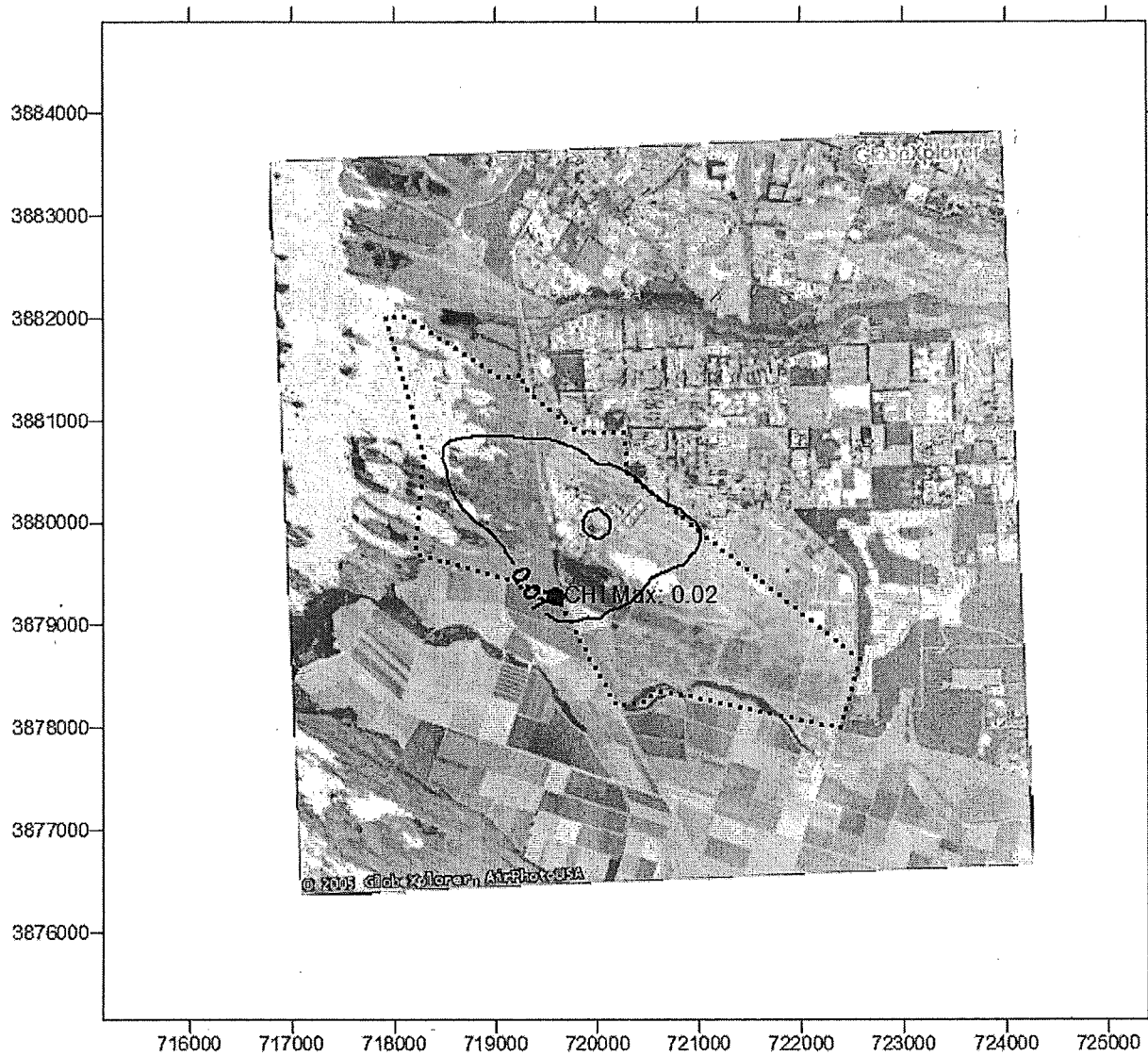


Figure 5 - Chronic Hazard Index (CHI) Impacts

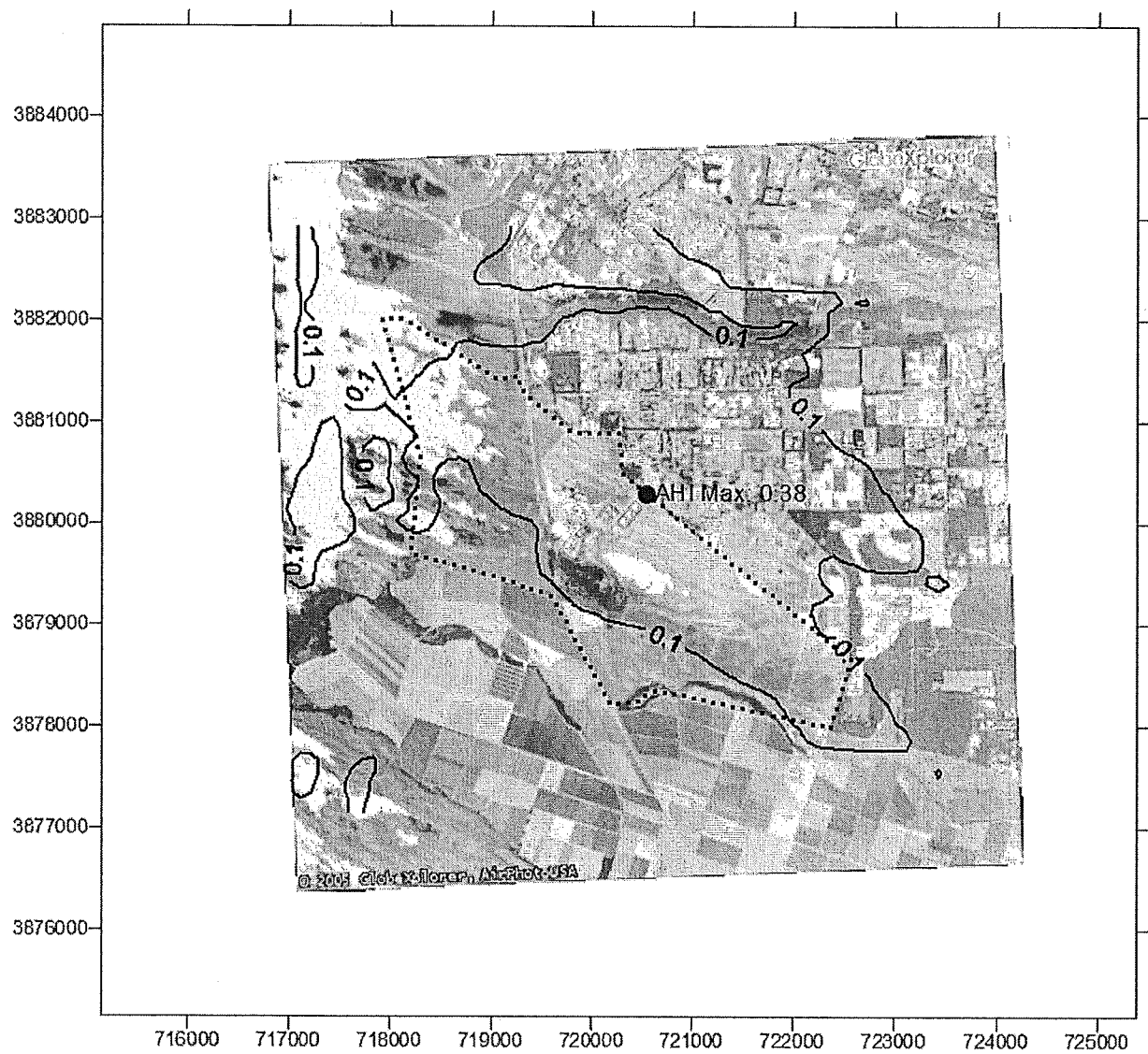


Figure 6 - Acute Hazard Index (AHI) Impacts

Table 3 (p.1 of 3)
Annual Emissions (lb/yr)

Device Name (Plant ID)	CAS#	Acetaldehyde	Acrolein	Ammonia	Benzene	1,3-Butadiene	Carbon Monoxide	Chlorine	Diesel Particulate	Ethyl Benzene	Formaldehyde	Hexane	HF	HCl	H2S	H2SO4	Propylene	Sulfur Dioxide	Sulfates	Toluene	Xylenes	Naphthalene	Benz(a)anthracene	Benzo(a)pyrene
	Mol.Wt.	75070	107028	7664417	71432	106990	630080	7782505	9901	100414	50000	110543	7664393	7647010	7783064	7664939	115071	7446095	9960	108883	1330207	91203	56553	50328
					78.11					106.17					34.08					92.13	106.16	128.18		
Pressure Distillate Tank 550					7.10E-03					7.84E-05					2.66E-01					2.62E-03	1.96E-04	3.09E-04		
Pressure Distillate Tank 551					7.10E-03					7.84E-05					8.90E-02					2.62E-03	1.96E-04	3.09E-04		
Crude Oil Storage Tank 900					1.44E-01					3.19E-03					2.63E-03					4.96E-02	6.78E-03	8.68E-03		
Crude Oil Storage Tank 901					1.44E-01					3.19E-03					2.63E-03					4.96E-02	6.78E-03	8.68E-03		
Crude Oil Storage Tank 903					1.44E-01					3.19E-03					2.63E-03					4.96E-02	6.78E-03	8.68E-03		
Gas Oil Tank 800					4.40E-02					2.99E-03										3.20E-02	7.21E-03	4.67E-03		
Gas Oil Tank 801					4.40E-02					2.99E-03										3.20E-02	7.21E-03	4.67E-03		
Recovered Oil Storage Tank 100					1.78E-08					5.76E-10					6.16E-08					9.66E-09	1.73E-09	3.24E-10		
Recovered Oil Storage Tank 101					1.78E-08					5.76E-10					6.16E-08					9.66E-09	1.73E-09	3.24E-10		
Gland Oil Tank 115					1.14E-07					1.68E-08										1.41E-07	5.27E-08	5.24E-09		
Wastewater Storage Tanks 822 & 823					3.94E-03															6.92E-03	1.99E-02			
Coke Cooling Water Tank 405					6.00E+01															3.01E+02	3.54E+02			
Coke Cooling Water Tank 406					6.00E+01															3.01E+02	3.54E+02			
Conveyor Segment 1 of 5																								
Conveyor Segment 2 of 5																								
Conveyor Segment 3 of 5																								
Conveyor Segment 4 of 5																								
Conveyor Segment 5 of 5																								
Green Coke Storage Piles																								
Cooling Tower Fugitives								2.08E+01																
Facility Fugitives				1.66E+00											2.87E+01		1.04E+01			4.10E-01	1.44E+00			
Oily Water Treatment System				1.20E+00						2.65E-02					5.89E-01					4.13E-01	5.65E-02	7.23E-02		
Coatings & Solvent Usage				0.00E+00						2.40E+01										7.01E+01	1.24E+02			
Tail Gas Treatment (U-3031-K)			2.58E+02																					
Wastewater Area Process Drains				2.37E+01																2.61E+00	2.06E+00			
Cooling Towers (E-51, E-79)								4.04E+00																
Crude Heater B2-A (77.0 MMBtu/hr)	1.17E+00	1.02E+00		2.20E+00			3.18E+04			2.61E+00	4.66E+00	1.74E+00					2.01E+02	2.27E+02		1.00E+01	7.46E+00	2.31E-01	6.82E-04	4.55E-04
Crude Heater B2-B (76.2 MMBtu/hr)	1.14E+00	9.95E-01		2.14E+00			3.10E+04			2.54E+00	4.53E+00	1.70E+00					1.95E+02	2.21E+02		9.77E+00	7.26E+00	2.25E-01	6.64E-04	4.42E-04
Vacuum Heater B62-A (16.2 MMBtu/hr)	1.72E-01	1.50E-01		3.21E-01			4.66E+03			3.82E-01	6.82E-01	2.55E-01					2.94E+01	3.33E+01		1.47E+00	1.09E+00	3.38E-02	9.98E-05	6.65E-05
Vacuum Heater B62-B (16.0 MMBtu/hr)	1.88E-01	1.64E-01		3.51E-01			5.09E+03			4.18E-01	7.45E-01	2.79E-01					3.21E+01	3.63E+01		1.61E+00	1.19E+00	3.70E-02	1.09E-04	7.27E-05
Coking Heater B102-A (80.5 MMBtu/hr)	1.31E+00	1.14E+00		2.45E+00			3.55E+04			2.92E+00	5.20E+00	1.94E+00					2.24E+02	2.54E+02		1.12E+01	8.33E+00	2.58E-01	7.61E-04	5.07E-04
Coking Heater B102-B (80.5 MMBtu/hr)	1.21E+00	1.05E+00		2.27E+00			3.28E+04			2.69E+00	4.80E+00	1.80E+00					2.07E+02	2.34E+02		1.03E+01	7.69E+00	2.38E-01	7.03E-04	4.69E-04
Steam Superheater B201-A (3.2 MMBtu/hr)	8.31E-02	5.22E-02		1.55E-01			1.62E+03			1.84E-01	3.29E-01	1.22E-01					1.41E+01	1.16E+01		7.08E-01	5.26E-01	1.18E-02	3.48E-05	2.32E-05
Steam Superheater B201-B (3.2 MMBtu/hr)	8.31E-02	5.22E-02		1.55E-01			1.62E+03			1.84E-01	3.29E-01	1.22E-01					1.41E+01	1.16E+01		7.08E-01	5.26E-01	1.18E-02	3.48E-05	2.32E-05
Boiler B-504 (117 MMBtu/hr)	3.77E-01	3.35E-01		7.12E-01			3.52E+04			8.38E-01	1.51E+00	5.45E-01					6.51E+00	2.51E+02		3.27E+00	2.43E+00	2.56E-01	7.54E-04	5.03E-04
Boiler B-506 (127 MMBtu/hr)	3.54E-01	3.14E-01		6.68E-01			3.30E+04			7.86E-01	1.42E+00	5.11E-01					6.10E+00	2.36E+02		3.07E+00	2.28E+00	2.40E-01	7.08E-04	4.72E-04
Boiler B-505 (100 MMBtu/hr)	5.31E-01	4.72E-01		1.00E+00			4.96E+04			1.18E+00	2.13E+00	7.67E-01					9.17E+00	3.54E+02		4.60E+00	3.42E+00	3.60E-01	1.06E-03	7.08E-04
Boiler B-507 (99.9 MMBtu/hr)	3.76E-01	3.34E-01		7.10E-01			3.51E+04			8.35E-01	1.50E+00	5.43E-01					6.49E+00	2.51E+02		3.26E+00	2.42E+00	2.55E-01	7.52E-04	5.01E-04
Flare (C451)	2.30E-01	5.34E-02		8.49E-01			4.48E+02			7.71E+00	6.24E+00	1.55E-01					1.30E+01	3.20E+00		3.10E-01	1.55E-01	3.26E-03	9.61E-06	6.41E-06
Incinerator B602-A	8.31E-01	1.93E-01		3.07E+00			1.62E+03			2.79E+01	2.26E+01	5.61E-01					4.72E+01	1.16E+01		1.12E+00	5.61E-01	1.18E-02	3.48E-05	2.32E-05
Incinerator B602-B	8.31E-01	1.93E-01		3.07E+00			1.62E+03			2.79E+01	2.26E+01	5.61E-01					4.72E+01	1.16E+01		1.12E+00	5.61E-01	1.18E-02	3.48E-05	2.32E-05
Tail Gas Combustor (B-702)	1.77E-01	1.11E-01		3.30E-01			3.46E+03			3.92E-01	7.01E-01	2.60E-01					3.01E+01	2.47E+01		1.51E+00	1.12E+00	2.52E-02	7.42E-05	4.95E-05
Sulfur Pit Vent																		4.75E+04						
Cooling Water Pump (G51-4) (gas-fired)	4.85E-01	4.57E-01		2.75E-01	1.15E-01		6.10E+02			4.31E-03	3.56E+00							1.02E-01		9.70E-02	3.39E-02	1.69E-02		2.45E-02
Firewater Booster Pump G515-3	2.43E-01	1.05E-02		5.79E-02	6.76E-02		4.07E+01		1.32E+01	3.39E-03	5.36E-01	8.36E-03		5.79E-02			1.45E-01	2.21E+00	3.31E+00	3.28E-02	1.32E-02	3.61E-03	7.15E-05	8.00E-06
Firewater Booster Pump G515-4	2.01E-01	8.69E-03		4.77E-02	5.57E-02		3.36E+01		1.09E+01	2.79E-03	4.42E-01	6.89E-03		4.77E-02			1.20E-01	1.82E+00	2.73E+00	2.70E-02	1.09E-02	2.98E-03	5.90E-05	6.60E-06
Carbon Pit Water Pump (GE-522) w/DPF	2.99E-01	1.30E-02		7.12E-02	8.31E-02		5.01E+01		6.12E-01	4.17E-03	6.60E-01	1.03E-02		7.12E-02			1.78E-01	2.71E+00	1.53E-01	4.03E-02	1.62E-02	4.44E-03	8.80E-05	9.84E-06
Utility Backup (Atlas Copco) T3 w/DPF	1.39E+00	6.04E-02		3.32E-01	3.87E-01		2.33E+02		1.61E+00	1.94E-02	3.07E+00	4.79E-02		3.32E-01			8.32E-01	1.26E+01	4.02E-01	1.88E-01	7.55E-02	2.07E-02	4.10E-04	4.59E-05
Collection Pond Pump (BK699)	1.32E-02	5.70E-04		3.13E-03	3.65E-03		2.20E+00		1.34E-01	1.83E-04	2.90E-02	4.52E-04		3.13E-03			7.85E-03	1.19E-01	3.36E-02	1.77E-03	7.12E-04	1.95E-04	3.87E-06	4.33E-07
Carbon Plant Air Compressor (G1015)	8.32E-01	3.60E-02		1.98E-01	2.31E-01		1.39E+02		1.25E+01	1.16E-02	1.83E+00	2.86E-02		1.98E-01			4.96E-01	7.54E+00	3.13E+00	1.12E-01	4.51E-02	1.23E-02	2.45E-04	2.74E-05
Wet Plant Backup Generator (NE-800)	2.04E-01	8.83E-03		4.85E-02	5.66E-02		3.41E+01		4.56E+00	2.84E-03	4.49E-01	7.00E-03		4.85E-02			1.22E-01	1.85E+00	1.14E+00	2.74E-02	1.10E-02	3.03E-03	5.99E-05	6.71E-06
Control Center Backup Gen. (NE-503)	1.78E-01	7.69E-03		4.23E-02	4.93E-02		2.97E+01		2.86E+00	2.47E-03	3.91E-01	6.10E-03		4.23E-02			1.06E-01	1.61E+00	7.14E-01	2.39E-02	9.62E-03	2.63E-03	5.22E-05	5.84E-06
Maintenance Backup Generator (NE-504)	1.91E-01	8.26E-03		4.54E-02	5.30E-02		3.19E+01		2.56E+00	2.66E-03	4.20E-01	6.55E-03		4.54E-02			1.14E-01	1.73E+00	6.39E-01	2.57E-02	1.03E-02	2.83E-03	5.61E-05	6.27E-06
R.O. Backup Generator (NE-RO)	2.60E-01	1.12E-02		6.18E-02	7.21E-02		4.35E+01		2.12E+00	3.62E-03	5.73E-01	8.93E-03		6.18E-02			1.55E-01	2.36E+00	5.31E-01	3.50E-02	1.41E-02	3.85E-03	7.64E-05	8.55E-06
Totals		13.37	7.26	258.00	168.78	1.17	305379.86	24.83	51.11	103.65	91.95	11.99	0.00	0.91	29.66	0.00	1095.47	49707.06	12.78	740.87	882.64	2.39	7.64E-03	2.90E-02

Table 3 (p.2 of 3)
Annual Emissions (lb/yr)

Table 3 (p.3 of 3)
Annual Emissions (lb/yr)

Device Name (Plant ID)	CAS# Mol.Wt.	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Total PCBs	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Vanadium	Zinc	Hex. Chrome
		205992	205823	218019	53703	193395	1336363	7440360	7440382	7440417	7440439	7440473	7440508	7439921	7439965	7439976	7440020	7782492	7440622	7440666	18540299
Pressure Distillate Tank 550																					
Pressure Distillate Tank 551																					
Crude Oil Storage Tank 900																					
Crude Oil Storage Tank 901																					
Crude Oil Storage Tank 903																					
Gas Oil Tank 800																					
Gas Oil Tank 801																					
Recovered Oil Storage Tank 100																					
Recovered Oil Storage Tank 101																					
Gland Oil Tank 115																					
Wastewater Storage Tanks 822 & 823																					
Coke Cooling Water Tank 405																					
Coke Cooling Water Tank 406																					
Conveyor Segment 1 of 5								1.11E-04		1.11E-04	1.11E-04	4.46E-04	8.91E-06		1.11E-04		4.46E-02		3.68E-01		
Conveyor Segment 2 of 5								1.11E-04		1.11E-04	1.11E-04	4.46E-04	8.91E-06		1.11E-04		4.46E-02		3.68E-01		
Conveyor Segment 3 of 5								1.11E-04		1.11E-04	1.11E-04	4.46E-04	8.91E-06		1.11E-04		4.46E-02		3.68E-01		
Conveyor Segment 4 of 5								1.11E-04		1.11E-04	1.11E-04	4.46E-04	8.91E-06		1.11E-04		4.46E-02		3.68E-01		
Conveyor Segment 5 of 5								1.11E-04		1.11E-04	1.11E-04	4.46E-04	8.91E-06		1.11E-04		4.46E-02		3.68E-01		
Green Coke Storage Piles								1.60E-03		1.60E-03	1.60E-03	6.40E-03	1.28E-04		1.60E-03		6.40E-01		5.28E+00		
Cooling Tower Fugitives																					
Facility Fugitives																					
Oily Water Treatment System																					
Coatings & Solvent Usage																					
Tail Gas Treatment (U-3031-K)																					
Wastewater Area Process Drains																					
Cooling Towers (E-51, E-79)																					
Crude Heater B2-A (77.0 MMBtu/hr)		6.82E-04	6.82E-04	6.82E-04	4.55E-04	6.82E-04															
Crude Heater B2-B (76.2 MMBtu/hr)		6.64E-04	6.64E-04	6.64E-04	4.42E-04	6.64E-04															
Vacuum Heater B62-A (16.2 MMBtu/hr)		9.98E-05	9.98E-05	9.98E-05	6.65E-05	9.98E-05															
Vacuum Heater B62-B (16.0 MMBtu/hr)		1.09E-04	1.09E-04	1.09E-04	7.27E-05	1.09E-04															
Coking Heater B102-A (80.5 MMBtu/hr)		7.61E-04	7.61E-04	7.61E-04	5.07E-04	7.61E-04															
Coking Heater B102-B (80.5 MMBtu/hr)		7.03E-04	7.03E-04	7.03E-04	4.69E-04	7.03E-04															
Steam Superheater B201-A (3.2 MMBtu/hr)		3.48E-05	3.48E-05	3.48E-05	2.32E-05	3.48E-05															
Steam Superheater B201-B (3.2 MMBtu/hr)		3.48E-05	3.48E-05	3.48E-05	2.32E-05	3.48E-05															
Boiler B-504 (117 MMBtu/hr)		7.54E-04	7.54E-04	7.54E-04	5.03E-04	7.54E-04															
Boiler B-506 (127 MMBtu/hr)		7.08E-04	7.08E-04	7.08E-04	4.72E-04	7.08E-04															
Boiler B-505 (100 MMBtu/hr)		1.06E-03	1.06E-03	1.06E-03	7.08E-04	1.06E-03															
Boiler B-507 (99.9 MMBtu/hr)		7.52E-04	7.52E-04	7.52E-04	5.01E-04	7.52E-04															
Flare (C451)		9.61E-06	9.61E-06	9.61E-06	6.41E-06	9.61E-06															
Incinerator B602-A		3.48E-05	3.48E-05	3.48E-05	2.32E-05	3.48E-05															
Incinerator B602-B		3.48E-05	3.48E-05	3.48E-05	2.32E-05	3.48E-05															
Tail Gas Combustor (B-702)		7.42E-05	7.42E-05	7.42E-05	4.95E-05	7.42E-05															
Sulfur Pit Vent																					
Cooling Water Pump (G51-4) (gas-fired)																					
Firewater Booster Pump G515-3		4.22E-06	6.60E-06	1.50E-05	2.48E-05	1.60E-05			4.97E-04		4.66E-04	1.86E-04	1.27E-03	2.58E-03	9.63E-04	6.22E-04	1.21E-03	6.84E-04		6.96E-03	3.11E-05
Firewater Booster Pump G515-4		3.48E-06	5.44E-06	1.24E-05	2.05E-05	1.32E-05			4.10E-04		3.84E-04	1.54E-04	1.05E-03	2.13E-03	7.94E-04	5.12E-04	9.99E-04	5.64E-04		5.74E-03	2.56E-05
Carbon Pit Water Pump (GE-522) w/DPF		5.19E-06	8.12E-06	1.85E-05	3.05E-05	1.96E-05			6.12E-04		5.73E-04	2.29E-04	1.57E-03	3.17E-03	1.18E-03	7.64E-04	1.49E-03	8.41E-04		8.56E-03	3.82E-05
Utility Backup (Atlas Copco) T3 w/DPF		2.42E-05	3.78E-05	8.61E-05	1.42E-04	9.15E-05			2.85E-03		2.67E-03	1.07E-03	7.30E-03	1.48E-02	5.52E-03	3.56E-03	6.95E-03	3.92E-03		3.99E-02	1.78E-04
Collection Pond Pump (BK699)		2.28E-07	3.57E-07	8.12E-07	1.34E-06	8.63E-07			2.69E-05		2.52E-05	1.01E-05	6.89E-05	1.39E-04	5.21E-05	3.36E-05	6.55E-05	3.70E-05		3.76E-04	1.68E-06
Carbon Plant Air Compressor (G1015)		1.44E-05	2.26E-05	5.14E-05	8.49E-05	5.46E-05			1.70E-03		1.59E-03	6.38E-04	4.36E-03	8.82E-03	3.29E-03	2.13E-03	4.14E-03	2.34E-03		2.38E-02	1.06E-04
Wet Plant Backup Generator (NE-800)		3.54E-06	5.53E-06	1.26E-05	2.08E-05	1.34E-05			4.17E-04		3.91E-04	1.56E-04	1.07E-03	2.16E-03	8.07E-04	5.21E-04	1.02E-03	5.73E-04		5.83E-03	2.60E-05
Control Center Backup Gen. (NE-503)		3.08E-06	4.82E-06	1.10E-05	1.81E-05	1.17E-05			3.63E-04		3.40E-04	1.36E-04	9.30E-04	1.88E-03	7.03E-04	4.54E-04	8.85E-04	4.99E-04		5.08E-03	2.27E-05
Maintenance Backup Generator (NE-504)		3.31E-06	5.17E-06	1.18E-05	1.95E-05	1.25E-05			3.90E-04		3.65E-04	1.46E-04	9.99E-04	2.02E-03	7.55E-04	4.87E-04	9.50E-04	5.36E-04		5.46E-03	2.44E-05
R.O. Backup Generator (NE-RO)		4.50E-06	7.05E-06	1.60E-05	2.65E-05	1.70E-05			5.31E-04		4.98E-04	1.99E-04	1.36E-03	2.75E-03	1.03E-03	6.64E-04	1.29E-03	7.30E-04		7.43E-03	3.32E-05
Totals		6.58E-03	6.62E-03	6.75E-03	4.73E-03	6.77E-03	0.00E+00	2.16E-03	7.80E-03	2.16E-03	9.47E-03	1.16E-02	2.01E-02	4.04E-02	1.73E-02	9.74E-03	8.82E-01	1.07E-02	7.12E+00	1.09E-01	4.87E-04