

**HUNTS POINT WPCP
FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS)**

Appendix 8
Criteria Air Pollutants

Hunts Point Air Quality Analysis for Criteria Air Pollutants

Provided in this attachment is the methodology for the annual impacts modeling analysis of the criteria pollutants from the plant’s combustion sources and summary tables providing the maximum impacts from the Proposed Project.

Annual modeling analysis

For the annual modeling analysis, actual projected utilization of the combustion equipment was used. The degree to which the boilers and waste gas burners would be utilized depends on the plant’s heat load, which varies throughout the year. The average annual plant operating conditions from the previous Phase I and II analyses were based on monthly projected utilization of combustion equipment. The natural gas and digester gas equipment utilization, and activity status for combustion sources—annual impacts modeling, are presented in Tables 8-1 and 8-2.

Table 8-1
Natural Gas and Digester Gas Equipment Utilization

A	B	C	D	E	F	G
Month	Heat provided by dig. Gas (10⁶ Btu/mo)	Heat provided by natural gas (10⁶ Btu/mo)	Digester gas flared (10⁶ Btu/mo)	Number of boilers on digester gas	Number of boilers on natural gas	Number of flares operating
January	18,770	55,200	0	0.85	2.21	0
February	16,953	47,068	0	0.85	2.21	0
March	18,770	35,119	0	0.85	1.50	0
April	18,164	6,716	0	0.85	0.30	0
May	4,423	0	14,399	0.20	0.00	0.81
June	4,280	0	13,934	0.20	0.00	0.81
July	4,423	0	14,399	0.20	0.00	0.81
August	4,423	0	14,399	0.20	0.00	0.81
September	4,280	0	13,934	0.20	0.00	0.81
October	11,204	0	7,624	0.51	0.00	0.43
November	18,164	20,533	0	0.85	0.91	0
December	18,770	47,477	0	0.85	2.21	0

The four main building boilers were configured as ten emission sources (MB1 through MB10). The sources MB1 through MB3 (representing Boiler 1) operate with digester gas while sources MB4 through MB10 (representing Boilers 2, 3, and 4) operate on natural gas. To account for variability in the heating load and the corresponding emissions, some sources were assumed to be on or off during various months. The activity status of these sources is presented in Table 8-6. Boilers 1 and 2 and 3 and 4 share common flues. Thus, exhaust conditions in a flue change depending on whether one or two boilers are operating. For the purpose of modeling, it was assumed that, as demand increases, boilers would be fired in the order: Boiler 1, Boiler 3, Boiler 2, and Boiler 4. This order of firing reduces flue sharing and results in overall lower stack exit velocities and is therefore more conservative.

All the heating requirements for the dewatering boiler are satisfied by one of the two 400 horsepower (hP) boilers, with the other boiler serving as back-up. The boiler typically operates for seven months a year at approximately 60 percent load on average. Both boilers are capable of burning natural gas and No. 2 fuel oil but they operate almost exclusively on natural gas. For the purposes of the annual impact modeling, the dewatering building boiler was assumed to be operating for seven months of the year at 62 percent utilization rate (used 62% of the time during seven months of the year), firing distillate oil.

Table 8-2
Activity Status for Combustion Sources - Annual Impacts Modeling

Modeling scenario		Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Source	Fuel / equipment utilization factor) ¹												
Digester gas													
MB1	Boiler 1 (0.85)	+	+	+	+							+	+
MB2	Boiler 1 (0.20)					+	+	+	+	+			
MB3	Boiler 1 (0.51)										+		
Natural gas													
MB4	Boiler 4 (0.21)	+	+										+
MB5	Boiler 2 (1.00)	+	+										+
MB6	Boiler 3 (1.00)	+	+										+
MB7	Boiler 3 (1.00)			+									
MB8	Boiler 2 (0.50)			+									
MB9	Boiler 3 (0.30)				+								
MB10	Boiler 3 (0.91)											+	
Fuel oil No. 2													
DB	Boiler (0.62)	+	+	+	+						+	+	+
Digester gas													
FL1	Flare 1 (0.81)					+	+	+	+	+			
FL2	Flare 2 (0.43)										+		
Diesel fuel													
EG	Diesel generators 1-6	+	+	+	+	+	+	+	+	+	+	+	+
Notes:													
1. Equipment is assumed to be operating at 100% capacity, except for the 6 - 2000 kW emergency generators which are assumed to be operating at 75% load. Equipment utilization factor represents a fraction of time equipment is assumed to be in operation during a given month. Utilization factors are in Table 8-5.													

Model Impacts

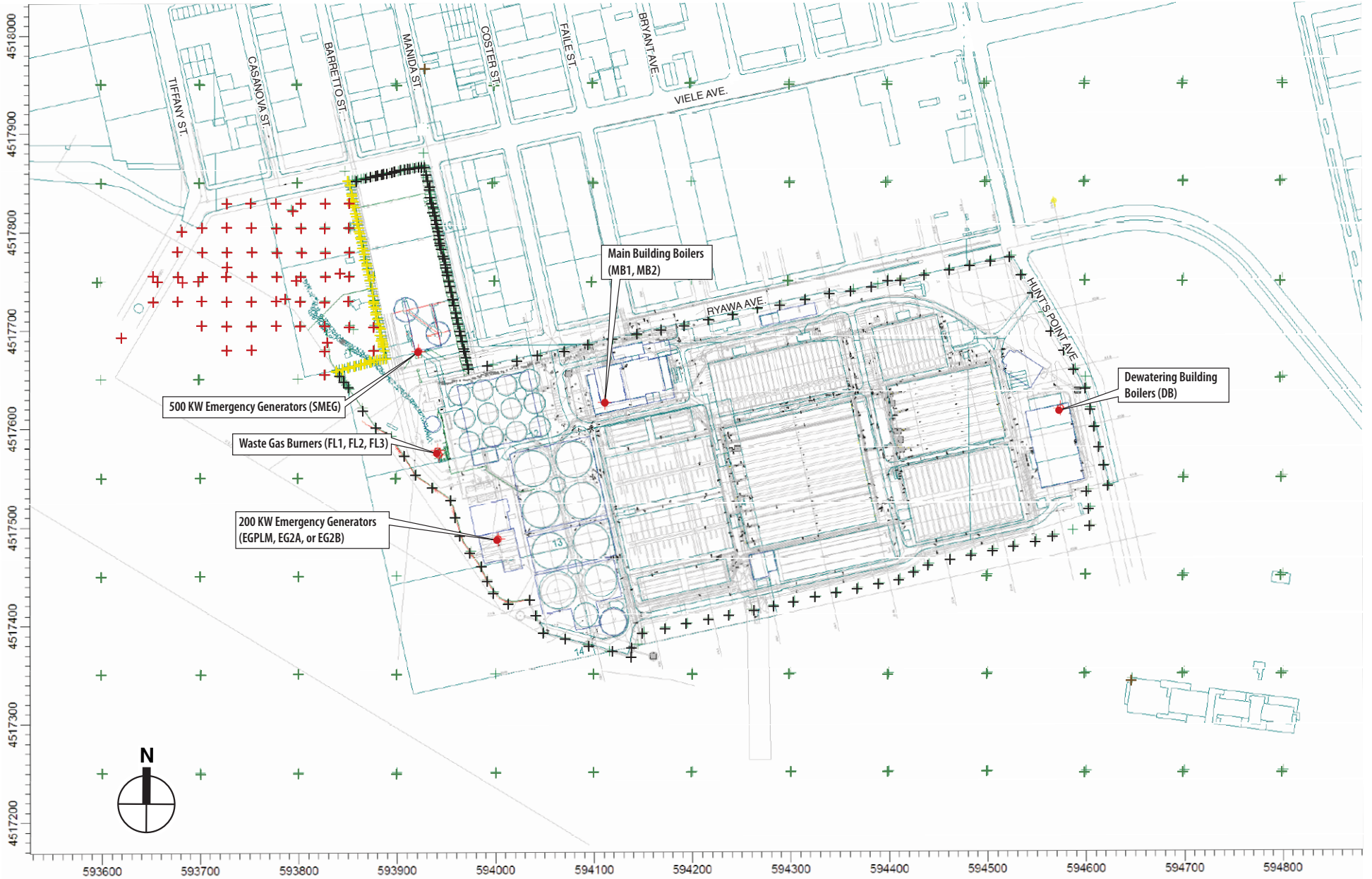
Exhibit 8-1 is a site map presenting the locations of the combustion sources and receptors used in the criteria pollutant modeling analysis. Table 8-3 provides a summary of the maximum impacts from NO_x, SO₂, CO, and PM₁₀ compared to the NAAQS. Table 8-4 provides a summary of the maximum 24-hour and annual impacts from PM_{2.5} compared to the interim guidance thresholds.

Hunts Point Air Quality Analysis for Criteria Air Pollutants

Pollutant	Averaging Period	Scenario	Facility Impacts			Monitored Background Concentration ($\mu\text{g}/\text{m}^3$)	Facility + Background Impacts			NAAQS
			Maximum Total Impact	Maximum at Park	Maximum at other Sensitive Receptors		Maximum Total Impact	Maximum at Park	Maximum at other Sensitive Receptors	
NOx	ANNUAL	---	3.12	0.61	0.51	60	63.12	60.61	60.51	100
CO	1 HR	PLM	340.52	340.52	92.39	6,857	7,198	7,198	6,949	40,000
		S2A	383.17	383.17	107.81	6,857	7,240	7,240	6,965	
		S2B	383.17	383.17	107.81	6,857	7,240	7,240	6,965	
	8 HR	PLM	125.28	125.28	22.16	5,600	5,725	5,725	5,622	10,000
		S2A	123.74	123.74	24.59	5,600	5,724	5,724	5,625	
		S2B	123.74	123.74	24.59	5,600	5,724	5,724	5,625	
PM10	24 HR	PLM	11.74	4.58	1.74	46	57.74	50.58	47.74	150
		S2A	5.97	2.68	1.13	46	51.97	48.68	47.13	
		S2B	3.78	2.59	1.14	46	49.78	48.59	47.14	
	ANNUAL	---	0.19	0.06	0.05	20.3	20.49	20.36	20.35	50
SO2	3 HR	PLM	280.32	70.99	26.50	233	513.32	303.99	259.50	1300
		S2A	190.57	60.43	16.44	233	423.57	293.43	249.44	
		S2B	114.45	56.50	12.80	233	347.45	289.50	245.80	
	24 HR	PLM	48.33	26.70	7.52	134	182.33	160.70	141.52	365
		S2A	28.20	21.48	4.96	134	162.20	155.48	138.96	
		S2B	28.20	21.36	4.54	134	162.20	155.36	138.54	
ANNUAL	---	2.47	0.39	0.34	34	36.47	34.39	34.34	80	

Pollutant	Averaging Period	Scenario	Maximum Total Impact	Maximum at Park	Maximum at Nearest Residential Receptor	Maximum at other Sensitive Receptors	Threshold Concentration ($\mu\text{g}/\text{m}^3$)
PM2.5	24 HR	PLM	<u>6.26</u>	<u>1.80</u>	<u>0.62</u>	<u>0.48</u>	<u>2/5</u>
		S2A	<u>2.76</u>	<u>1.50</u>	<u>0.80</u>	<u>0.61</u>	<u>2/5</u>
		S2B	<u>2.00</u>	<u>1.43</u>	<u>0.72</u>	<u>0.55</u>	<u>2/5</u>
		No Generators	<u>1.78</u>	<u>0.79</u>	<u>0.63</u>	<u>0.54</u>	<u>2/5</u>
	ANNUAL Microscale	-	0.15	0.06	0.03	0.05	0.3
	Total Impact						Threshold Concentration ($\mu\text{g}/\text{m}^3$)
	ANNUAL Neighborhood	0.044					

12.19.06



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|---|--|---|---------------------|
| + | Barretto Point Park and Tiffany Pier Receptors | + | Grid Receptors |
| + | Park Border Receptors | + | Sensitive Receptors |
| + | Plants' Fenceline Receptors | | |