Latest PTE Emissions and Stack Parameters for Modeling - Solvay

3/12/2012

PTEs have been checked/entered

GHG calculations; Placeholder - AirSci ultimately needs facilty-wide GHG PTEs;

Stirkethrough means the sources is removed with the boiler project.

Sources were run in AERMAP on 6/25/2010 and all elevations were updated.

KEY: Emissions are from the following sources.

PTE Emissions

Emission Point ID	Source Name	Combustion/Gaseous Source?	Annual Ops. (hrs/year)	PM10 (lb/hr)	SO2 (lb/hr)	NOx (lb/hr)	CO (lb/hr)	VOC (lb/hr)	CO2 (lb/hr)	CH4 (lb/hr)	N2O (lb/hr)	PM10 (TPY)	SO2 (TPY)	NOx (TPY)	CO (TPY)	VOC (TPY)	CO2 (TPY)	CH4 (TPY)	N2O (TPY)
---	New 250 MMBtu/hr Gas-fired Boiler #1	X	8760	1.86	0.15	8.75	16.66	1.35	29222	0.55	0.06	8.16	0.64	38.33	72.95	5.90	127992.24	2.41	0.24
2A	Ore Crusher Bldg. Baghouse #1		8760	1.6								7.01							
6A	Product Silo Top Baghouse #1		8760	0.3								1.31							
6B	Product Silo Reclaim Baghouse #1		8760	0.51								2.23							
7	Product Loadout Baghouse #1		8760	1.2								5.26							
10	Coal Crushing & Storage Baghouse		8760	0.3								1.31							
11	Coal Transfer Station Baghouse		8760	0.2								0.88							
14	Boiler Coal Bunker Baghouse		8760	0.4								1.75							
15	DR-1 & 2 Product Dryers Scrubber	X	8760	3.0		1.8			130,747			13.14		7.88			572673.78		
16	Dryer Area Housekeeping Baghouse		8760	0.9								3.94							
17	"A" & "B" Gas Fired Ore Calciners	X	8760	30	0	116.0	1263.2	619.6	400,365	17.49	2.54384	131.40		508.08	5532.82	2713.85	1753598.36	76.60	11.14
18	#1 Coal Boiler Scrubber & Prcptr	X	8760	5.0	70.0	245.0	17.5	0.5	297,463	33.73	4.9056	21.90	306.60	1073.10	76.65	2.19	1302889.34	147.72	21.49
19	#2 Coal Boiler Scrubber & Prcptr	X	8760	5.0	70.0	245.0	17.5	0.5	297,463	33.73	4.9056	21.90	306.60	1073.10	76.65	2.19	1302889.34	147.72	21.49
24	Boiler Fly Ash Silo Vent Baghouse		8760	0.3								1.31							
25	Alkaten Crushing Area Baghouse		8760	1								4.38							
26	DR-3 Alkaten Product Dryer Baghouse	X	8760	0.55	0	0.25	0.07	0.01	35,887	0.02	0.0022776	2.41		1.10	0.31	0.04	157186.97	0.10	0.01
27	Alkaten Product Bagging Baghouse		8760	0.5								2.19							
30	Caustic #1 Lime Bin Baghouse		8760	0.2								0.88							
31	Caustic #2 Lime Bin Baghouse		8760	0.2								0.88							
33	Sulfur Burner (Scrubber)	X	8760	0	0.4	0.3	N/A	N/A	1,429	0.03	0.002600208	0.00	1.75	1.31	N/A	N/A	6260.26	0.11	0.01
35	Sulfite Product Dryer Scrubber		8760	1.4								6.13							
36	Sulfite #1 Product Bin Baghouse		8760	0.1								0.44							
37	Sulfite #2 Product Bin Baghouse		8760	0.1								0.44							
38	Sulfite #3 Product Bin Baghouse		8760	0.1								0.44							
44	Caustic Lime Delivery Baghouse		4380	0.18								0.39							
45	SOURCE REMOVED	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
46	#2 Ore Transfer Baghouse		8760	0.71								3.11							
48	"C" Ore Calciner Precipitator	X	8760	8.0	0	15.0	762	388	269,947	2.19	0.219024	35.04		65.70	3337.56	1699.44	1182368.03	9.59	0.96
50	"C" Train Dryer Area Baghouse		8760	0.7								3.07		0.00	0.00	0.00	0.00	0.00	0.00
51	DR-5 Product Dryer Precipitator	X	8760	2.4	N/A	18	225	0.28	188,854	1.31	0.131352	10.51	N/A	78.84	985.50	1.23	827179.33	5.75	0.58
52	Product Silo Top Baghouse #2		8760	0.5								2.19							
53	Product Silo Reclaim Baghouse #2		8760	0.45								1.97							
54	T-200 Product Storage Baghouse		8760	0.19								0.83							
55	SOURCE REMOVED	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
62	Activated Carbon Bin Vent		8760	0.13								0.57							
63	Perlite Bin Vent Baghouse		8760	0.14								0.61							
64	Sulfite Blending #2 Baghouse		8760	0.08								0.35							
65	Sulfite Blending #1 Baghouse		8760	0.07								0.31							
66	Carbon/Perlite Additive Scrubber		8760	0.58								2.54							
67	Bottom Ash Baghouse		8760	0.47								2.06							
68	Trona Silo/Bagging Machine Baghouse		8760	0.36								1.58							
70	Sulfite Silo/Bagging Machine Baghouse		8760	0.27								1.18							
71	MBS Silo/Bagging Machine Baghouse		8760	0.27								1.18							
72	MBS Soda Ash Feed Bin Vent Filter		8760	0.07								0.31							
73	MBS Product Dryer	X	8760	0.90	0.77	0.25	N/A	N/A	586	0.01	0.00110552	3.94	3.37	1.10	N/A	N/A	2567.32	0.05	0.00
76	"D" Train Primary Ore Screening Baghouse		8760	2.45								10.73							
79	Ore Transfer Point Baghouse		8760	0.84								3.68							
80	"D" Ore Calciner Precipitator	X	8760	10.0	0	20	1048	534	398,122	2.79	0.279448	43.80		87.60	4590.24	2338.92	1743772.90	12.24	1.22
81	"D" Train Dryer Area Baghouse		8760	0.5								2.19							0.00
82	DR-6 Product Dryer Precipitator	X	8760	3.45	N/A	30	300	0.27	216,738	1.75	0.17524	15.11	N/A	131.40	1314.00	1.18	949311.40	7.68	0.77
86	SOURCE REMOVED	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
88	Trona Products Transloading #2		8760	0.2								0.88							
88b	Trona Products Transloading #3		8760	0.2								0.88							
89	Bisulfite Loadout Facility (Scrubber)	X	2500		0.07							0.00	0.31						
90	Blending Bag Dump #1		8760	0.05								0.22							
91	Blending Bag Dump #2		8760	0.05								0.22							
92	Trona Products Bin #2		8760	0.3								1.31							
93	Trona Products Rail Loadout		8760	0.17								0.74							
94	Sulfite Loadout		8760	0.3								1.31							
95	Trona Products Loadout Bin		8760	0.1								0.44							
96	TPX Bin #1 Baghouse		8760	0.2								0.88							
97	TPX Bin #2 Baghouse		8760	0.1								0.44							
98	TPX Area Baghouse		8760	0.4								1.75							
99	Crusher Baghouse #2		8760	3.2								14.02							
100	Calciner Coal Bunker Baghouse		8760	0.2								0.88							
101	T-200 Dryer #7 Baghouse	X	8760	2.0	N/A	0.5	0.2	N/A	23,994	0.06	0.005512	8.76	N/A	2.19	0.88	N/A	105092.69	0.24	0.02
102	T-200 Rail Loadout		8760	0.6								2.63							
103	East Ore Reclaim Baghouse		8760	0.33								1.45							
104	West Ore Reclaim Baghouse		8760	0.27								1.18							
SAS-300 Sources																			
105	S-300 Dryer #1		8760	1.3	N/A	N/A	N/A	N/A	26,954	N/A	N/A	5.69	N/A	N/A	N/A	N/A	118057.25	N/A	N/A
106	S-300 Silo BH #1		8760	0.1								0.44							
107	S-300 Dryer #2		8760	1.3	N/A	N/A	N/A	N/A	26,954	N/A	N/A	5.69	N/A	N/A	N/A	N/A	118057.25	N/A	N/A
108	S-300 Silo BH #2		8760	0.1								0.44							

Emission Point ID	Stack Height (ft)	Stack Height (m)	Exit Temperature (F)	Exit Temperature (K)	Exit Velocity (ft/s)	Exit Velocity (m/s)	Exit Diameter (ft)	Exit Diameter (m)	KEY: PM10	KEY: SO2	KEY: NOx	KEY: CO	KEY: VOC	UTM X (m)	UTM Y (m)	Base Elevation (m)	Listed in Draft Title V (2011)?
---	180	54.86	320	433	51.4	15.7	5.75	1.75	AirSci/Solvay	AirSci/Solvay	AirSci/Solvay	AirSci/Solvay	AirSci/Solvay	Have location on plot plan, AirSci to determine coordinates			NO
2A	23	7.01	67.7	293	52	15.85	3.5	1.06	Title V					603,677	4,594,992	1900	Yes
6A	133	40.54	96.5	309	82	24.99	2.1	0.64	Title V					603,893	4,594,835	1905	Yes
6B	20.5	6.24	74.9	297	33	10.06	2.2	0.67	Title V					603,922	4,594,848	1904	Yes
7	82	24.99	67.7	293	64	19.51	2.5	0.75	Title V					604,037	4,594,848	1904	Yes
10	13.3	4.05	67.7	293	18	5.49	2	0.6	Title V					603,874	4,594,983	1901	Yes
11	35.3	10.76	67.7	293	21	6.4	1.8	0.55	Title V					603,872	4,594,811	1905	Yes
14	125	38.1	67.7	293	57	17.37	1.4	0.43	Title V					603,770	4,594,807	1904	Yes
15	180	54.86	164.9	347	49	14.94	6	1.83	Title V		Title V			603,721	4,594,807	1903	Yes
16	126	38.4	204.5	369	42	12.8	3.5	1.07	Title V					603,721	4,594,816	1903	Yes
17	180	54.86	400	478	95.6	29.15	12	3.66	Title V	Solvay	Title V	Solvay	Solvay	603,687	4,594,807	1903	Yes
18	180	54.86	125.3	325	58	17.68	7.3	2.21	Title V	Title V	Title V	Title V	Solvay	603,842	4,594,804	1905	Yes
19	180	54.86	119.9	322	60	18.29	7.3	2.21	Title V	Title V	Title V	Title V	Solvay	603,842	4,594,792	1905	Yes
24	25	7.62	83.9	302	41	12.5	1	0.3	Title V					603,804	4,594,780	1905	Yes
25	76	23.16	67.7	293	48	14.63	2.4	0.73	Title V					603,694	4,595,017	1899	Yes
26	67	20.42	100.1	311	58	17.68	2.4	0.73	Title V	Solvay	Solvay	Solvay	Solvay	603,679	4,594,992	1900	Yes
27	60	18.29	67.7	293	62	18.9	1.6	0.48	Title V					603,712	4,594,998	1900	Yes
30	88	26.82	67.7	293	59	17.98	0.7	0.2	Title V					603,939	4,594,757	1906	Yes
31	88	26.82	67.7	293	59	17.98	0.7	0.2	Title V					603,939	4,594,747	1906	Yes
33	100	30.48	150	338.7	34.5	10.52	2	0.61	Title V	Title V	Title V	Solvay	Solvay	Have location on plot plan, AirSci to determine coordinates			Yes
35	103	31.39	128.9	327	48	14.63	2.3	0.7	Title V					603,931	4,594,712	1906	Yes
36	60	18.29	148.7	338	84.9	25.88	0.5	0.15	Title V					603,960	4,594,712	1906	Yes
37	60	18.29	148.7	338	84.9	25.88	0.5	0.15	Title V					603,967	4,594,712	1906	Yes
38	60	18.29	148.7	338	84.9	25.88	0.5	0.15	Title V					603,974	4,594,712	1906	Yes
44	63	19.2	67.7	293	56	17.07	1	0.3	Title V					604,005	4,594,752	1905	Yes
45	---	---	---	---	---	---	---	---	---					---	---	---	---
46	12.5	3.81	67.7	293	46	14.02	2.2	0.67	Title V					603,765	4,595,011	1900	Yes
48	180	54.86	350.3	450	32	9.75	10.5	3.2	Title V	Solvay	Title V	Solvay	Solvay	603,687	4,594,848	1902	Yes
50	180	54.86	199.1	366	27	8.23	4.5	1.37	Title V					603,725	4,594,848	1903	Yes
51	180	54.86	299.9	422	33	10.06	8	2.44	Title V	Solvay	Title V	Solvay	Solvay	603,752	4,594,829	1904	Yes
52	141	42.98	67.7	293	50	15.24	1.5	0.46	Title V					603,901	4,594,864	1904	Yes
53	30	9.14	67.7	293	36	10.97	2.8	0.85	Title V					603,901	4,594,848	1905	Yes
54	64.2	19.57	67.7	293	79	24.08	0.6	0.18	Title V					603,694	4,594,986	1900	Yes
55	---	---	---	---	---	---	---	---	---					---	---	---	---
62	91	27.74	67.7	293	110	33.53	0.5	0.15	Title V					603,657	4,594,740	1900	Yes
63	58	17.68	67.7	293	117	35.66	0.5	0.15	Title V					603,652	4,594,740	1902	Yes
64	~~29~~	~~8.84~~	~~67.7~~	~~293~~	~~96~~	~~29.26~~	~~0.5~~	~~0.15~~	~~Title V~~					~~603,981~~	~~4,594,700~~	~~1903~~	~~Yes~~
65	~~8~~	~~2.44~~	~~67.7~~	~~293~~	~~38~~	~~11.58~~	~~0.8~~	~~0.23~~	~~Title V~~					~~603,962~~	~~4,594,700~~	~~1904~~	~~Yes~~
66	20	6.1	67.7	293	75	22.86	1	0.3	Title V					603,701	4,594,758	1904	Yes
67	125	38.1	100.1	311	33	10.06	1.5	0.46	Title V					603,634	4,594,808	1905	Yes
68	82	24.99	67.7	293	77	23.47	1.2	0.37	Title V					603,933	4,594,829	1900	Yes
70	82	24.99	67.7	293	49	14.94	1.3	0.4	Title V					603,933	4,594,817	1905	Yes
71	82	24.99	67.7	293	49	14.94	1.3	0.4	Title V					603,928	4,594,817	1905	Yes
72	~~60.7~~	~~18.49~~	~~199.1~~	~~366~~	~~53~~	~~16.15~~	~~0.7~~	~~0.2~~	~~Title V~~					~~603,910~~	~~4,594,706~~	~~1907~~	~~Yes~~
73	95	28.96	89.3	305	56	17.07	2	0.61	Title V	Title V	Title V	Solvay	Solvay	603,894	4,594,705	1907	Yes
76	110	33.53	67.7	293	56.5	17.22	3.7	1.12	Title V					603,598	4,595,004	1899	Yes
79	68	20.73	67.7	293	59.9	18.26	2.1	0.63	Title V					603,491	4,595,006	1899	Yes
80	180	54.86	305.3	425	50.8	15.49	10.5	3.2	Title V	Solvay	Title V	Solvay	Solvay	603,685	4,594,882	1902	Yes
81	120	36.58	249.5	394	76.4	23.29	1.7	0.51	Title V					603,786	4,594,848	1904	Yes
82	180	54.86	298.1	421	43.1	13.15	8	2.44	Title V	Solvay	Title V	Solvay	Solvay	603,760	4,594,829	1904	Yes
86	---	---	---	---	---	---	---	---	---					---	---	---	---
88	11	3.35	67.7	293	64	19.51	1	0.3	Title V		Title V			604,030	4,594,877	1904	Yes
88b	11	3.35	68.0	293.2	63.7	19.40	1	0.3	Title V					Need location on a map.			Yes
89	~~Removed with project so will not model.~~									~~Title V~~				~~Have location on plot plan, AirSci to determine coordinates~~			~~Yes~~
90	~~23~~	~~7.01~~	~~67.7~~	~~293~~	~~63~~	~~19.2~~	~~0.5~~	~~0.15~~	~~Title V~~					~~603,965~~	~~4,594,700~~	~~1907~~	~~Yes~~
91	~~24~~	~~7.32~~	~~67.7~~	~~293~~	~~63~~	~~19.2~~	~~0.5~~	~~0.15~~	~~Title V~~					~~603,960~~	~~4,594,700~~	~~1907~~	~~Yes~~
92	64	19.51	67.7	293	85	25.91	1	0.32	Title V					603,983	4,594,712	1906	Yes
93	70	21.34	67.7	293	53	16.15	1	0.3	Title V					603,992	4,594,712	1906	Yes
94	90	27.43	67.7	293	85	25.91	1	0.32	Title V					603,984	4,594,719	1906	Yes
95	90	27.43	67.7	293	85	25.91	0.5	0.15	Title V					603,988	4,594,712	1906	Yes
96	82	25	67.7	293	72	21.94	0.8	0.25	Title V					603,943	4,594,733	1906	Yes
97	82	25	67.7	293	72	21.94	0.7	0.2	Title V					603,942	4,594,735	1906	Yes
98	82	25	67.7	293	56	17.07	1.5	0.46	Title V					603,942	4,594,737	1906	Yes
99	125	38.1	67.7	293	50	15.24	4.5	1.37	Title V					603,663	4,595,000	1899	Yes
100	126	38.4	68.1	293	63.7	19.4	1	0.3	Title V					603,681	4,594,817	1903	Yes
101	120	36.57	120	322	64	19.51	3.3	0.99	Title V	Solvay	Solvay	Solvay	Solvay	603,700	4,595,003	1900	Yes
102	120	36.57	68	293	59	17.98	1.8	0.53	Title V					604,041	4,594,858	1905	Yes
103	38	11.58	68	293	91	27.74	1.1	0.33	Title V					603,752	4,595,000	1900	Yes
104	64	19.51	68	293	50	15.24	1.3	0.4	Title V					603,618	4,595,010	1899	Yes
SAS-300 Sources																	
105	200	60.96	154.1	341	60	18.29	3.0	0.91	Title V					603,940	4,594,705	1907	Yes
106	167	50.90	143.3	335	15	4.572	2.0	0.61	Title V					604,046	4,594,714	1906	Yes
107	200	60.96	154.0	341	60	18.29	3.0	0.91	Title V					603,940	4,594,699	1907	Yes
108	172	52.43	144.0	335	15	4.572	2.0	0.61	Title V					604,035	4,594,723	1906	Yes

Other Sources From Title V Equipment Listing - Draft 2011																																		
E3	Waukesha F18G2S (GVFH compressor)	X	8760	N/A	N/A	0.60	0.90	0.40	1560.64	0.03	0.00	N/A	N/A	2.63	3.94	1.75	6835.62	0.13	0.01	25.5	7.77	1116	875.4	45.6	13.9	1.37	0.36	Solvay	Solvay	Title V	Title V	Title V	Need location on a map.	Yes
E4	GM 8.1L (GVFH Pump)	X	8760	N/A	N/A	0.30	0.50	0.20	Unable to Predict			N/A	N/A	1.31	2.19	0.88	Unable to Predict			10.8	5.29	850	727.6	Need to Estimate	#VALUE!	0.24	0.07	Solvay	Solvay	Title V	Title V	Title V	Need location on a map.	Yes
E5	GM 4.3L (GVFH Pump)	X	8760	N/A	N/A	0.20	0.30	0.10	Unable to Predict			N/A	N/A	0.88	1.31	0.44	Unable to Predict			10.8	5.29	Need to Estimate	#VALUE!	Need to Estimate	#VALUE!	0.24	0.07	Solvay	Solvay	Title V	Title V	Title V	Need location on a map.	Yes
EG-3	Caterpillar 3456 (Emergency Shell Generator)	X	100	0.6	0.3	10.5	12.9	1.5	3007.51	0.12	0.02	0.03	0.02	0.55	0.45	0.06	13172.89	0.55	0.11	8.0	2.44	900	755.4	36.0	11.0	0.42	0.13	Solvay	Solvay	Title V	Title V	Solvay	Need location on a map.	Yes
EG-4a	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	X	100	0.2	0.2	4.0	3.3	0.3	2724.06	0.11	0.02	0.02	0.01	0.20	0.18	0.02	11931.38	0.48	0.10	6.8	2.08	975	797.0	236.8	72.18	0.50	0.15	Solvay	Solvay	Title V	Title V	Solvay	Need location on a map.	Yes
EG-4b	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	X	100	0.2	0.2	4.0	3.3	0.3	2724.06	0.11	0.02	0.02	0.01	0.20	0.18	0.02	11931.38	0.48	0.10	6.8	2.08	975	797.0	236.8	72.18	0.50	0.15	Solvay	Solvay	Title V	Title V	Solvay	Need location on a map.	Yes
EG-4c	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	X	100	0.2	0.2	4.0	3.3	0.3	2724.06	0.11	0.02	0.01	0.01	0.20	0.18	0.02	11931.38	0.48	0.10	6.8	2.08	975	797.0	236.8	72.18	0.50	0.15	Solvay	Solvay	Title V	Title V	Solvay	Need location on a map.	Yes
GND	Generator Engine <C/S Plant (diesel)	X	100	0.35	0.55	4.94	1.06	0.48	42.02	0.00	0.00	0.02	0.02	0.25	0.05	0.02	184.06	0.05	0.00	10.0	3.05	300	533.2	73.4	22.4	0.17	0.05	Solvay	Solvay	Solvay	Solvay	Solvay	Have location on plot plan, AirSci to determine coordinates	Yes
GNS-1	Steam Plant Generator Engine #1 (diesel)	X	100	2.35	0.01	75.3	20.0	2.1	882.47	0.04	0.01	0.17	0.02	3.76	1.00	0.11	3865.22	0.15	0.03	15.0	4.57	500	533.2	176.7	53.8	1.17	0.36	Solvay	Solvay	Solvay	Solvay	Solvay	Have location on plot plan, AirSci to determine coordinates	Yes
GNS-2	Steam Plant Generator Engine #2 (diesel)	X	100	2.35	0.01	75.3	20.0	2.1	882.47	0.04	0.01	0.12	0.01	3.76	1.00	0.11	3865.22	0.15	0.03	15.0	4.57	500	533.2	176.7	53.8	1.17	0.36	Solvay	Solvay	Solvay	Solvay	Solvay	Have location on plot plan, AirSci to determine coordinates	Yes
FFP	Emergency Fire Pump Engine (diesel)	X	100	0.03	0.59	6.95	1.95	0.87	76.17	0.00	0.00	0.01	0.01	0.45	0.10	0.04	333.61	0.01	0.00	10.0	3.05	300	533.2	76.4	23.3	0.25	0.08	Solvay	Solvay	Solvay	Solvay	Solvay	Have location on plot plan, AirSci to determine coordinates	Yes
PB	Emergency Pony Boiler	X	500	2.7	1.51	8.1	0.96	0.35	1,054	0.04053	0.000106	0.68	0.38	2.05	0.24	0.09	4440.40	0.18	0.04	12.0	3.66	300	533.2	77.6	23.5	0.83	0.25	Title V	Solvay	Title V	Solvay	Solvay	Have location on plot plan, AirSci to determine coordinates	Yes
None	DECA Melt Tank/Slumber System		8,760	N/A	N/A	N/A	N/A	N/A	No GHGs			N/A	N/A	N/A	N/A	N/A	No GHGs			3/2/2012-e-mail from Solvay. Don't model. No criteria pollutant emissions.								Solvay	Solvay	Solvay	Solvay	Solvay	Need location on a map.	Yes
None	DECA Stockpile		8,760	0.0811								0.00								Dimensions of the pile are 100' by 150' by no more than 10' high. Discussion with T. Brown, Solvay - 3/22/2012								Solvay					Need location on a map.	Yes
None	Deca Haul Roads		8,760	2.4000								10.51																						
None	Gob Vent Borehole (GVB Vent(s)		8,760						Unable to Predict								Unable to Predict			Vents to E3, E4, and E5 (T. Martin has details).								Solvay	Solvay	Solvay	Solvay	Solvay	Need location(s) on a map.	Not listed - mentioned in permit conditions
MV	Mine Vent	X	8760	N/A	N/A	N/A	7.80	107.80	483995.80	N/A	N/A	N/A	N/A	N/A	38.16	472.16	2111132.80	N/A	N/A	8.5	2.59	68	295.2	110.1	33.6	17	5.18	Solvay	Solvay	Solvay	Solvay	Solvay	Need location on a map.	Yes
Other Sources in 2010 Actuals Emission Inventory to DEQ, but not listed in the Title V												0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00															
	Gas Incinerator (GVB Flare)	X	8,760	N/A	N/A	5.9	5.4	0.8	Unable to Predict			N/A	N/A	25.07	14.95	5.59	Unable to Predict			25	6.71	1800	1220.4	52.9	16.1	8.5	2.59	Solvay	Solvay	Solvay	Solvay	Solvay	Need location on a map.	NO - WDEQ reports
901	Cooling Tower - High Flow (CT-1)		8760	17.1								24.00								15	4.57	Ambient	#VALUE!	N/A	#VALUE!	27	8.23	Solvay					Have location on plot plan, AirSci to determine coordinates	NO - WDEQ reports
902	Cooling Tower - Low Flow (CT-501)		8760	6.3								37.59								6	1.83	Ambient	#VALUE!	N/A	#VALUE!	18	5.49	Solvay					Have location on plot plan, AirSci to determine coordinates	NO - WDEQ reports
E1	(E1) Diesel Pump		Don't model - removed with permit MD-10561 (7/13/10)																														Don't model - removed with permit MD-10561 (7/13/10)	
E3	(E1) Caterpillar 3306 (GVBH2)		Don't model - removed with permit MD-10561 (7/13/10)																														Don't model - removed with permit MD-10561 (7/13/10)	
E2	(E2) Zenith 520-4		Don't model - removed with permit MD-10561 (7/13/10)																														Don't model - removed with permit MD-10561 (7/13/10)	
Additional contemporaneous Sources not listed above																																		
---	TEG Dehydration Unit	X?	8760	N/A	N/A	N/A	N/A	N/A				N/A	N/A	N/A	N/A	N/A				No criteria pollutants will not model.								Solvay	Solvay	Solvay	Solvay	Solvay		
---	Two (2) Reboiler Heaters	X	8760	N/A - insig.	N/A	0.1	0.1	0.137				N/A - insig.	N/A	0.44	0.44	0.60006	0.01	0.00	0.00	0.53	0.10	Need to Estimate	#VALUE!	Need to Estimate	#VALUE!	0.35	0.17	Solvay	Solvay	Solvay	Solvay	Solvay		
---	GM 5.7L	X	8760			0.1	0.2	0.1						0.44	0.88	0.44																		
---	GM 8.7L	X	8760			0.1	0.2	0.1						0.44	0.88	0.44																		

Nearby Increment Consuming Sources from General Chemical																																		
FIN017			0.24																	4	1.22	55.1	286	87.7	26.73	0.7	0.2	SAS		603,742	4,605,237	1,902		
GEIQ			1.51																	118	35.96	154.1	341	44.1	13.44	3	0.91	SAS		603,476	4,605,127	1,902		
Nearby Increment Consuming Sources from FMC - Westvaco																																		
BC3			3.02																	93	28.35	170.3	350	61.1	18.63	2.5	0.76	SAS		599,153	4,608,435	1,896		
BC2			1.67																	91	27.74	103.7	313	34	10.35	2.5	0.76	SAS		599,153	4,608,484	1,896		
MONO51			3.02																	25	7.62	64.1	291	67.9	20.7	2.5	0.76	SAS		599,323	4,607,941	1,896		
MONO52			1.75																	60	18.29	69.5	294	56.6	17.25	3	0.91	SAS		599,331	4,608,374	1,896		
MP03			0.24																	130	39.62	150.5	339	60.3	18.38	6.5	1.98	SAS		599,058	4,608,059	1,896		
RA29			0.32																	80	24.38	179.3	355	96.8	29.51	4	1.22	SAS		598,812	4,608,511	1,896		

Source	Stack Height (ft)	Exhaust Temp. (degrees F)	Inside Stack Diameter (ft)	Exit Velocity (ft/s)	Stack Area (ft^2)	FLow Rate (ACFM)
33	100	150	2	34.5	3.14	6508
88b	11	68	1	63.7	0.79	3000
E3	25.5	1116	1.17	45.6		
E4	10.8	850	0.24	Need to Estimate		
E5	10.8	Need to Estimate	0.24	Need to Estimate		
EG-3	8	900	0.42	36	0.14	
EG-4a	6.83	975	0.5	236.8	0.20	2790
EG-4b	6.83	975	0.5	236.8	0.20	2790
EG-4c	6.83	975	0.5	236.8	0.20	2790
GND	10	500	0.17	73.4	0.02	100
GNS-1	15	500	1.17	176.7	1.08	11400
GNS-2	15	500	1.17	176.7	1.08	11400
FRP	10	500	0.25	76.4	0.05	225
PB	12	500	0.83	77.0	0.54	2500
CTH	15	Ambient	27	N/A	572.56	
CTL	6	Ambient	18	N/A	254.47	
Mine Vent	8.5	68	17	110.1	226.98	1,500,000
Katolight Generator (E6)	11	Need to Estimate	0.25	Need to Estimate	0.05	
Reboiler Heaters	0.33	Need to Estimate	0.55	Need to Estimate	0.24	
Gas incinerator	22	1800	8.5	52.9	56.75	180328

AirSci Calculations Check

Source	Stack Inside Dia. (ft)	Stack Inside Dia. (m)	Exhaust Flow Rate (acfm)	Exit Velocity (ft/s)	Exit Velocity (m/s)
33	2.00	0.61	6,508	34.5	10.5
88b	1.00	0.30	3,000	63.7	19.4
EG-4a	0.50	0.15	2,790	236.8	72.2
EG-4b	0.50	0.15	2,790	236.8	72.2
EG-4c	0.50	0.15	2,790	236.8	72.2
GND	0.17	0.05	100	73.4	22.4
GNS-1	1.17	0.36	11400	176.7	53.9
GNS-2	1.17	0.36	11400	176.7	53.9
FRP	0.25	0.08	225	76.4	23.3
PB	0.83	0.25	2500	77.0	23.5
Mine Vent	17	5.18	1,500,000	110.1	33.6

Air Sciences Inc.	PROJECT TITLE: Solvay Package Boiler	BY: T. Martin		
	PROJECT NO: 170-12-2	PAGE: 1	OF: 5	SHEET: Contemp.
ENGINEERING CALCULATIONS	SUBJECT: Emissions Inventory	DATE: March 1, 2012		

LIST OF PERMIT ACTIONS DURING CONTEMPORANEOUS PERIOD

WDEQ Reference	Date	WDEQ Source ID	Source Description	New or Existing Source? [1]
Waiver AP-7468	03/25/08	102	T-200 Rail Loadout	Existing
Waiver AP-7574	04/22/08	N/A	Temporary DECA pile	New
Waiver AP-7507	04/24/08	N/A	"B" Calciner Drag Conveyor	Existing
Waiver AP-7556	05/05/08	15	DR-1 & 2 Product Dryers Scrubber	Existing
		82	DR-6 Product Dryer Precipitator	Existing
MD-7431	09/02/08	105	S-300 Dryer #1	New
		106	S-300 Silo BH #1	New
		107	S-300 Dryer #2	New
		108	S-300 Silo BH #2	New
		15	DR-1 & 2 Product Dryers Scrubber	Existing
		17	"A" & "B" Gas Fired Ore Calciners	Existing
		48	"C" Ore Calciner Precipitator	Existing
		80	"D" Ore Calciner Precipitator	Existing
Waiver AP-8430	10/24/08	88b	Trona Products Transloading #3	New
MD-8929	05/26/09	N/A	DECA excavation	New
		N/A	DECA stockpiling	New
		N/A	DECA haul road activity	New
		N/A	Tier III diesel engine, ≤ 175 hp	New
		N/A	DECA Melt Tank	New
MD-7431A	06/29/09	106, 108	S-300 Silo BH #1, #2	Changes to 9/2/08 action
Waiver AP-9390	07/10/09	E1	Engines to remove CH4 from active mining	New
		E2	Engines to remove CH4 from active mining	New
Waiver wv-10100	11/06/09	N/A	Temporary Trona stockpile	New
Waiver wv-10115	02/19/10	88	Trona Products Transloading #2	Existing
		98	TPX Area Baghouse	Existing
MD-10253	03/24/10	E3	Waukesha F20GSI (GVBH compressor)	New
		GVBH V	GVB Borehole Venting	Existing
		GVBH Fl	GVB Flare	New
MD-10561	07/13/10	E4	GM 8.2L (GVBH Pump)	New
		E5	GM 4.3L (GVBH Pump)	New
Waiver wv-10696	08/31/10	N/A	DECA Melt Tank	---
		N/A	DECA Stamler System	New - modification to 5/26/09
Division letter, Re AP-10381	09/15/10	33	Sulfur Burner	Existing
		35	Sulfite Dryer	Existing
		36	Sulfite #1 Product Bin Baghouse	Existing
		37	Sulfite #2 Product Bin Baghouse	Existing
		38	Sulfite #3 Product Bin Baghouse	Existing
		64	Sulfite Blending #2 Baghouse	Existing
		65	Sulfite Blending #1 Baghouse	Existing
		70	Sulfite Silo/Bagging Machine Baghouse	Existing
		90	Blending Bag Dump #1	Existing
		91	Blending Bag Dump #2	Existing
		94	Sulfite Loadout	Existing
MD-11024	11/29/10	GVBH V	GVB Borehole Venting	Existing
MD-11835	06/21/11	EG-3	Caterpillar 3456 (Emergency Shaft Generator)	New
		EG-4a	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	New
		EG-4b	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	New
		EG-4c	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	New
Waiver wv-11853	04/14/11	N/A	TEG Dehydration Unit	New
		N/A	Two (2) Reboilers Heaters	New
Waiver wv-11822	04/29/11	N/A	Katolight SENL80FGC4 NG-fired Generator	New (Temporary)
Waiver wv-12090	06/13/11	N/A	Temporary Trona stockpile	New
Division letter, Re AP-11995	09/14/11	N/A	Diversion of material/clarification for DR-7	Existing

[1] Relative to the contemporaneous period which begins on the date 5 years before construction commences on the proposed modification and ends on the date the emissions increase from the particular change occurs (i.e., 2008 until first emissions from boiler project).

NON-CREDITABLE PERMIT ACTIONS/EMISSIONS DURING CONTEMPORANEOUS PERIOD

WDEQ Reference	Date(s)	WDEQ Source ID	Source Description	Source New or Existing? [1]	Source(s) Currently Permitted?	Reason Not Creditable
Waiver AP-7468	03/25/08	102	T-200 Rail Loadout	Existing	Yes	No emission changes.
Waiver AP-7574	04/22/08	N/A	Temporary DECA pile	New	No	Source was temporary and is no longer permitted.
Waiver AP-7507	04/24/08	4	"B" Calciner Drag Conveyor	Existing	Yes	No emission changes.
Waiver AP-7556	05/05/08	15 82	DR-1 & 2 Product Dryers Scrubber DR-6 Product Dryer Precipitator	Existing	Yes	Temporary project no longer permitted; project resulted in net decrease in all pollutants.
MD-7431	09/02/08	15 17 48 80	DR-1 & 2 Product Dryers Scrubber "A" & "B" Gas Fired Ore Calciners "C" Ore Calciner Precipitator "D" Ore Calciner Precipitator	Existing	Yes	Non-creditable reduction. [2]
MD-8929, wv-10696	05/26/09, 8/31/2010	N/A	Tier III diesel engine, ≤ 175 hp	New	No: removed under wv-10696	Source permitted and removed during contemporaneous period. Source no longer permitted.
Waiver wv-10100	11/06/09	N/A	Temporary Trona stockpile	New	No: waiver expired 7/15/2010	Source was temporary and is no longer permitted.
Waiver wv-10115	02/19/10	88 98	Trona Products Transloading #2 TPX Area Baghouse	Existing	Yes	No modification to either source. Project had insignificant changes to PM emissions.
Waiver AP-9390, MD-10561	7/10/09, 7/13/10	E1 E2	Engines to remove CH_4 from active mining	New	No: removed under MD-10561	Sources permitted and removed during contemporaneous period. Sources no longer permitted.
MD-11024 supersedes MD-10253	11/29/10	GVBH V	GVB Borehole Venting	Existing	No	No emissions changes. [3]
Waiver wv-12090	06/13/11	N/A	Temporary Trona stockpile	New	No: waiver expired 11/1/2011	Source was temporary and is no longer permitted.
Division letter, Re AP-11995	09/14/11	N/A	Diversion of material/clarification for DR-7	Existing	Yes	No emissions increases associated with diversion of material or clarification of DR-7 feed rate: permit not required.

[1] Relative to the contemporaneous period.

[2] PTE PM emissions levels for these sources were reduced, but the old level of actual emissions does not exceed the new level of actual emissions as required for emissions to be creditable. See WDEQ regulations Chapter 6, Section 4, part (vii)(A) - definition of "net emissions increase".

[3] In MD-10253, source was considered new, but given information in MD-11024, the source is considered existing as it has been demonstrated that the gas vented through the GVBs would otherwise be vented uncontrolled from the main mine ventilation system; thus the GVBs don't increase mine emissions.

CREDITABLE EMISSION INCREASES AT EXISTING SOURCES DURING CONTEMPORANEOUS PERIOD

PM_{10} Increases

WDEQ Source ID	Source Description	Hours	BAE (tpy)	PTE (lb/hr)	PTE (tpy)	Net Increase (tpy)
33	Sulfur Burner	8760	---	---	---	---
35	Sulfite Dryer	8760	3.24	1.4	6.13	2.89
36	Sulfite #1 Product Bin Baghouse	8760	0.13	0.1	0.44	0.31
37	Sulfite #2 Product Bin Baghouse	8760	0.13	0.1	0.44	0.31
38	Sulfite #3 Product Bin Baghouse	8760	0.13	0.1	0.44	0.31
64	Sulfite Blending #2 Baghouse	8760	0.01	0.08	0.35	0.34
65	Sulfite Blending #1 Baghouse	8760	0.02	0.07	0.31	0.29
70	Sulfite Silo/Bagging Machine Baghouse	8760	0.06	0.27	1.18	1.12
90	Blending Bag Dump #1	8760	0.02	0.05	0.22	0.20
91	Blending Bag Dump #2	8760	0.0	0.05	0.22	0.22
94	Sulfite Loadout	8760	0.08	0.3	1.31	1.23
	Subtotal >	---	3.8	---	11.0	7.2

NOx Increases

WDEQ Source ID	Source Description	Hours	BAE (tpy)	PTE (lb/hr)	PTE (tpy)	Net Increase (tpy)
33	Sulfur Burner	8760	0.2	0.3	1.3	1.1
	Subtotal >	---	0.2	---	1.3	1.1

SO_2 Increases

WDEQ Source ID	Source Description	Hours	BAE (tpy)	PTE (lb/hr)	PTE (tpy)	Net Increase (tpy)
33	Sulfur Burner	8760	0.4	0.4	1.8	1.4
	Subtotal >	---	0.4	---	1.8	1.4

* Division letter, Re AP-10381, 09/15/2010

CREDITABLE EMISSION INCREASES AT NEW SOURCES DURING CONTEMPORANEOUS PERIOD

List of New Sources and Related Permitting Information

WDEQ Source ID	Source Description	WDEQ Reference	Date(s)
105	S-300 Dryer #1	MD-7431	9/2/08
106	S-300 Silo BH #1	MD-7431, MD-7431A	9/2/08, 6/29/09
107	S-300 Dryer #2	MD-7431	9/2/08
108	S-300 Silo BH #2	MD-7431, MD-7431A	9/2/08, 6/29/09
88b	Trona Products Transloading #3	Waiver AP-8430	10/24/08
N/A	DECA excavation	MD-8929	5/26/09
N/A	DECA stockpiling	MD-8929	5/26/09
N/A	DECA haul road activity	MD-8929	5/26/09
N/A	DECA melt tank	MD-8929	5/26/09
E3	Waukesha F20GSI (GVBH compressor)	MD-10253, MD-11024	3/24/10, 11/29/10
E4	GM 8.2L (GVBH pump)	MD-10561	07/13/10
E5	GM 4.3L (GVBH pump)	MD-10561	07/13/10
N/A	DECA Stamler System	Waiver wv-10696, modifies MD-8929	08/31/10
GVBH Fl	GVB Flare	MD-11024 supersedes MD-10253	11/29/10
EG-3	Caterpillar 3456 (Emergency Shaft Generator)	MD-11835	06/21/11
EG-4a	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	MD-11835	06/21/11
EG-4b	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	MD-11835	06/21/11
EG-4c	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	MD-11835	06/21/11
N/A	TEG Dehydration Unit	Waiver wv-11853	04/14/11
N/A	Two (2) Reboilers Heaters	Waiver wv-11853	04/14/11
N/A	Katolight SENL80FGC4 NG-fired Generator	Waiver wv-11822	04/29/11

CREDITABLE EMISSION INCREASES AT NEW SOURCES DURING CONTEMPORANEOUS PERIOD, CONTD.

PTE Emissions for New Sources

WDEQ Source ID	Source Description	Operating Hours	PM_{10} (lb/hr)	PM_{10} (tons/yr)	NOx (lb/hr)	NOx (tons/yr)	CO (lb/hr)	CO (tons/yr)
105	S-300 Dryer #1	8760	1.3	5.6	---	---	---	---
106	S-300 Silo BH #1	8760	0.1	0.3	---	---	---	---
107	S-300 Dryer #2	8760	1.3	5.6	---	---	---	---
108	S-300 Silo BH #2	8760	0.1	0.3	---	---	---	---
88b	Trona Products Transloading #3	8760	0.2	0.9	---	---	---	---
N/A	DECA excavation	---	< 0.1 tpy; insignificant		---	---	---	---
N/A	DECA stockpiling	---	< 0.1 tpy; insignificant		---	---	---	---
N/A	DECA haul road activity	8760	2.0	8.9	---	---	---	---
N/A	DECA melt tank	---	---	---	---	---	---	---
E3	Waukesha F20GSI (GVBH compressor)	8760	---	---	0.6	2.7	0.9	3.9
E4	GM 8.2L (GVBH pump)	8760	---	---	0.3	1.4	0.5	2.0
E5	GM 4.3L (GVBH pump)	8760	---	---	0.2	0.8	0.3	1.2
N/A	DECA Stamler System	---	---	---	---	---	---	---
GVBH Fl	GVB Flare	8760	---	---	5.9	25.7	3.4	15.0
EG-3	Caterpillar 3456 (Emergency Shaft Generator)	500	0.6	0.2	10.5	2.6	12.9	3.2
EG-4a	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	500	0.2	0.1	4.0	1.0	3.5	0.9
EG-4b	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	500	0.2	0.1	4.0	1.0	3.5	0.9
EG-4c	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	500	0.2	0.1	4.0	1.0	3.5	0.9
N/A	TEG Dehydration Unit	8760	---	---	---	---	---	---
N/A	Two (2) Reboilers Heaters	8760	< 0.1 tpy; insignificant		0.02	0.1	0.02	0.1
N/A	Katolight SENL80FGC4 NG-fired Generator	8760	---	---	0.3	1.2	0.3	1.2
	Subtotal >	---	---	22.1	---	37.5	---	29.3

PTE Emissions for New Sources

WDEQ Source ID	Source Description	Operating Hours	SO_2 (lb/hr)	SO_2 (tons/yr)	VOC (lb/hr)	VOC (tons/yr)
105	S-300 Dryer #1	8760	---	---	---	---
106	S-300 Silo BH #1	8760	---	---	---	---
107	S-300 Dryer #2	8760	---	---	---	---
108	S-300 Silo BH #2	8760	---	---	---	---
88b	Trona Products Transloading #3	8760	---	---	---	---
N/A	DECA excavation	---	---	---	---	---
N/A	DECA stockpiling	---	---	---	---	---
N/A	DECA haul road activity	8760	---	---	---	---
N/A	DECA melt tank	---	---	---	---	---
E3	Waukesha F20GSI (GVBH compressor)	8760	---	---	0.4	1.9
E4	GM 8.2L (GVBH pump)	8760	---	---	0.2	1.0
E5	GM 4.3L (GVBH pump)	8760	---	---	0.1	0.6
N/A	DECA Stamler System	---	---	---	---	---
GVBH Fl	GVB Flare	8760	---	---	0.8	3.6
EG-3	Caterpillar 3456 (Emergency Shaft Generator)	500	0.3	0.1	1.5	0.4
EG-4a	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	500	0.2	0.1	0.3	0.1
EG-4b	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	500	0.2	0.1	0.3	0.1
EG-4c	Volvo TAD1353 GE (Main Shaft Emer. Gen.)	500	0.2	0.1	0.3	0.1
N/A	TEG Dehydration Unit	8760	---	---	---	0.6
N/A	Two (2) Reboilers Heaters	8760	---	---	< 0.1 tpy; insignificant	
N/A	Katolight SENL80FGC4 NG-fired Generator	8760	---	---	0.2	0.8
	Subtotal >	---	---	0.4	---	9.2