APPENDIX A: EMISSION CALCULATIONS

Vessel Contents Analysis Vessel volume (ft3) = 7.3524 R = 998.9 (mmHg)(ft3)/(lbmole)(K)

Assumptions:

1. Each container contents is uniformly representative of the overall waste mixture received at the plant.
2. The overall waste mixture at the plant is characterized by the top organic constituents in waste received for 2007 - 2011.

A	B	C	D	E	F	G	H	I	J
VOC	MW (lb/lbmole)	Weight (lbs)	lbmoles	Xi	Psati	pi	Vapor (lbmoles)	Vapor (lbs)	Comments
acetonitrile	41.05	3,361,228	81,881	0.0100	86.37	0.86	0.00002	0.00087	
acrylonitrile	53.1	804,316	15,147	0.0018	105.83	0.20	4.83E-06	0.00026	
atrazine	215.68	356,148	1,651	0.0002	0.00	0.00	1.44E-15	3.10E-13	
cyanide compounds	27.03	138,879	5,138	0.0006	1.00	0.00	1.55E-08	4.19E-07	
ethylbenzene	106.17	633,274	5,965	0.0007	9.51	0.01	1.71E-07	0.00002	
hydrazine	32.05	180,238	5,624	0.0007	10.00	0.01	1.69E-07	0.00001	
methanol	32.04	6,070,501	189,466	0.0231	126.94	2.93	0.00007	0.00232	
methyl isobutyl ketone	100.16	3,042,483	30,376	0.0037	19.28	0.07	1.77E-06	0.00018	
methyl tert-butyl ether	88.15	405,413	4,599	0.0006	273.71	0.15	3.79E-06	0.00033	
n-butyl alcohol	74.12	1,503,986	20,291	0.0025	6.16	0.02	3.77E-07	0.00003	
n-hexane	86.18	747,614	8,675	0.0011	151.54	0.16	3.96E-06	0.00034	
nitrate compounds	84.99	181,239	2,132	0.0003	0.00	0.00	0.00E+00	0.00E+00	None in vapor
pthalic anhydride	148.1	154,635	1,044	0.0001	0.00	0.00	0.00E+00	0.00E+00	None in vapor
pyridine	79.1	169,554	2,144	0.0003	45.09	0.01	2.91E-07	0.00002	
styrene	104.15	1,915,487	18,392	0.0022	6.18	0.01	3.43E-07	0.00004	
toluene	92.13	8,657,468	93,970	0.0115	28.44	0.33	0.00001	0.00074	
triethylamine	101.2	850,752	8,407	0.0010	67.78	0.07	1.72E-06	0.00017	
xylene	106.17	2,328,688	21,934	0.0027	8.30	0.02	5.49E-07	0.00006	
as ethanol	46.07	93,612,150	2,031,955	0.2479	59.16	14.67	0.00036	0.01669	Avg volatility for smaller amounts VOM in waste
as water	18.02	93,612,150	5,194,903	0.6339	23.69	15.01	0.00037	0.00668	
solids (as lead)	207.2	93,612,150	451,796	0.0551					None in vapor

VOM Emission Factor Calculation for Drum Crusher

Emission Factor = Summation of Pounds VOM from Column J above

= 0.0221 pounds per drum

Maximum rate of crushing = 40 drums per hour

Maximum VOM emission rate = 0.0221 x 40 = 0.8833 pounds VOM per hour

Maximum annual VOM rate = 0.8833 x 8,760 / 2,000 = 3.87 tons VOM per year