The following estimates of R.E. Darling's potential-to-emit for VOC and HAPS were derived from information supplied in Bruce Hillman's letter of April 29, 2003, permit application dated May 14, 2008 and source comments dated 06/09/2016.

PERMIT # 1618

Product/Constituent	Density (lb/gal)	% by weight	Use (lbs/yr)	VOC (tpy)	HAPs (tpy)	Gal Used	MSDS VOC (tpy)	
Chemlock 205	7.81		1300			166.5		VOC = 5.87lb/gal Calculated
methyl isobutyl ketone		60		0.39000	0.39000			VOC = 6.06lb/gal EPA Method 24
xylene		15		0.09750	0.09750			
ethylbenzene		5		0.03250	0.03250			
totals		80		0.52000	0.52000		0.50	
Chemlock 205A	7.78		670			86.1		VOC = 5.91lb/gal (Calculated)
formaldehyde		1						
methyl isobutyl ketone		70		0.23450	0.23450			
propylene glycol monomethyl		4		0.01340				
totals		75		0.24790	0.23450		0.25	
Chemlock 220	9.06		30			3.3		VOC = 5.76lb/gal Calculated
ethylbenzene		15		0.00225	0.00225			VOC = 6.17lb/gal EPA Method 24
tetrachloroethylene		20		0.00300	0.00300			
xylene		50		0.00750	0.00750			
totals		85		0.01275	0.01275		0.01	
Chemlock 234B	8.95		2270			253.6		VOC = 6.59lb/gal Calculated
xylene		40		0.45400	0.45400			
trichloroethylene		30		0.34050	0.34050			
ethylbenzene		10		0.11350	0.11350			
1,2 butylene oxide		1		0.01135				
totals		81		0.91935	0.90800		0.84	
Chemlock 234X	8.00		5400			675.0		VOC = 6.2lb/gal Calculated
xylene		70		0.79450	0.79450			
ethylbenzene		20		0.22700	0.22700			
totals		90		1.02150	1.02150		2.09	
Chemlock 238	7.67		1300			169.5		VOC = 6.28lb/gal Calculated
ethylbenzene		20		0.13000	0.13000			
xylene		70		0.45500	0.45500			
totals		90		0.58500	0.58500		0.53	
Chemlock 607	6.93		1670			241.0		VOC = 5.98lb/gal Calculated
methanol		80		0.66800	0.66800			VOC = 6.65lb/gal EPA Method 24
totals		80		0.66800	0.66800		0.80	
Chemglaze Z001	7.78		20			2.6		VOC = 5lb/gal Calculated
xylene		35		0.00350	0.00350			
methyl isobutyl ketone		15		0.00150	0.00150			
toluene		10		0.00100	0.00100			
ethylbenzene		10		0.00100	0.00100			
ester solvent		5		0.00050				
diphenylmethane diisocyanate		5		0.00050				
totals		80		0.00800	0.00700		0.01	
Chemlock 402	10.08		20			2.0		VOC = 8.58lb/gal Calculated
trichloroethylene		60		0.00600	0.00600			
xylene		25		0.00250	0.00250			
ethylbenzene		5		0.00050	0.00050			
aromatic polyiscyanate		5		0.00050	0.00050			
4,4' diphenylmethane diisocyanate		5		0.00050	0.00050			
butylene oxide		1		0.00010	0.00010			
2,4 diphenylmethane diisocyanate		1		0.00010	0.00010			
totals		102		0.01020	0.01020		0.01	
Methanol	6.61	100	2500	1.25000	1.25000	378.2		
Toluene	7.26	100	6900	3.45000	3.45000	950.4		
Trichloroethylene	12.18	100	19800	9.90000	9.90000	1625.6		Individual HAP < 10 tons = Area Source
Xylene	7.19	100	278	0.13900	0.13900	38.7		HAPs (excluding TCE) 23.98423

Plant totals @ 4836 hours per year (actual plant hours) = Synthetic Minor Limitation	18.73170	18.70595	(<25 = Area Source)
Plant totals @ 8760 hours per year (potential 24/7)	**33.93087**	**33.88423**	(>25 = Major Source. Source has voluntarily accepted an operational hour limitation to avoid major source applicability)

Estimates of PM_{10} emissions (tpy) from abrasive blasting operations were derived from the Bruce Hillman letter dated April 29, 2003. The letter indicated that the applicant would use several different blasting media. For simplicity, and to provide a "worse case" scenario, we decided to use the emission factor for silica sand for all abrasive blasting since it represents the highest emission factor for the various media we researched (see, for example, AP-42, Section 13.2.6). Emission factors ranged from 20 - 100 lb/ton. Since there was such a wide range of E.F. We decided to use 100 lb/ton as the worst case scenario E.F. The permit shall most likely specify that the Permittee capture all abrasive blasting emissions and control them with the baghouse already installed.

Abrasive Blasting	Media (tpy)	E.F. (lb/ton)	PM10 (tpy) Uncontrolled	PM10 (tpy) Controlled
Missile Bodies	98.5	100	4.925	0.04925

ESTIMATED Potential to Emit PTE - (tons/yr) Non-fugitive							
PM2.5	PM10	PM	CO	NO_x	SO_2	VOCs	HAPS
0.14	0.14	0.14	1.53	1.82	0.01	0.1	0.03

Other	PM2.5	PM10	PM	CO	NOx	SO2	VOC's	HAP's
0.0	0.14	0.14	0.14	1.53	1.82	0.01	0.1	0.03

Notes			Source	Capacity / Hours		Uniirs	Emission Factors (EF)	Pollutants (Source)	EF Units	Other	PM2.5	PM10	PM	CO	NOx	SO2	VOC's	HAP's
	Uncotrolled	Stack (Point)	CI ICE > 600 hp	Power	0	hp	7.00E-04	PM10	lbs/hp-hr		0.00	0.00	0.00					
	Max		Generators (L-x)	Usage	0.00	hrs/yr	5.50E-03	CO	lbs/hp-hr					0.000				
Use these rows to estimate			AP-42, Table 3.4-1				2.40E-02	NOx	lbs/hp-hr						0.00			
uncontrolled PTE per AP-42			HAPs from AP-42, Table 3.3-2	0.5% wt Sulfur			4.05E-03	SOx	lbs/hp-hr							0.00		
to determine if sythetic							7.05E-04	TOC (Exhaust)	lbs/hp-hr								0.00	
limitations are needed							4.41E-05	TOC (Crankcase)	lbs/hp-hr								0.000	
							1.25E-05	HAPS	lbs/hp-hr									0.00E+00
							0%	Control Efficiency										
	Uncotrolled	Stack (Point)	CI ICE < 600 hp															
	Max		Generators (L-x)	Power	0	hp	2.20E-03	PM10	lbs/hp-hr		0.00	0.00	0.00					
Use these rows to estimate			AP-42, Table 3.4-1	Usage	0.00	hrs/yr	6.70E-03	CO	lbs/hp-hr					0.000				
uncontrolled PTE per AP-42			HAPs from AP-42, Table 3.3-2				3.10E-02	NOx	lbs/hp-hr						0.00			
to determine if sythetic				0.5% wt Sulfur			4.05E-03	SOx	lbs/hp-hr							0.00		
limitations are needed							2.50E-03	TOC (Exhaust)	lbs/hp-hr								0.00	
							4.41E-05	TOC (Crankcase)	lbs/ho-hr								0.000	
							1.25E-05	HAPS	lbs/hp-hr									0.00E+00
							0%	Control Efficiency										
	Uncotrolled	Stack (Point)	Natural Gas ICE (Unknown Type 2/4 stroke Rich/lean Burn)															
	Max		Generators (L-x)	Power	0	hp	2.68E-04	PM10	lbs/hp-hr		0.00	0.00	0.00					
Use these rows to estimate			AP-42, Table 3.4-1	Usage	0.00	hrs/yr	2.60E-02	CO	lbs/hp-hr					0.000				
uncontrolled PTE per AP-42			HAPs from AP-42, Table 3.3-2				2.86E-02	NOx	lbs/hp-hr						0.00			
to determine if sythetic				Natural Gas S			4.12E-06	SOx	lbs/hp-hr							0.00		
limitations are needed							8.40E-04	TOC (Exhaust)	lbs/hp-hr								0.00	
							4.41E-05	TOC (Crankcase)	lbs/ho-hr								0.000	
							4.89E-04	HAPS	lbs/hp-hr									0.00E+00
							0%	Control Efficiency										
	Uncotrolled	Stack (Point)	NG ICE (4 stroke rich burn)															
	Max		Generators (L-x)	Power	0	hp	6.65E-05	PM10	lbs/hp-hr		0.00	0.00	0.00					
Use these rows to estimate			AP-42, Table 3.4-1	Usage	0.00	hrs/yr	2.60E-02	CO	lbs/hp-hr					0.000				
uncontrolled PTE per AP-42			HAPs from AP-42, Table 3.3-2				1.55E-02	NOx	lbs/hp-hr						0.00			
to determine if sythetic				Natural Gas S			4.12E-06	SOx	lbs/hp-hr							0.00		
limitations are needed			Uncontrolled				2.07E-04	TOC (Exhaust)	lbs/hp-hr								0.00	
							4.41E-05	TOC (Crankcase)	lbs/ho-hr								0.000	
							2.27E-04	HAPS	lbs/hp-hr									0.00E+00
							0%	Control Efficiency										
	Uncotrolled	Stack (Point)	Boilers (Diesel)	Boilers (Total)	0	MMBtu	2.41E-02	PM	lb/MMbtu		0.00	0.00	0.00					
	Max			Heating	0.00	hrs/yr	3.65E-02	CO	lb/MMbtu					0.00				
			AP-42, Table 1.3-1,2 ,6,8				1.46E-01	NOx	lb/MMbtu						0.00			
			(PM10, CO, Nox, Sox & VOC)	AP-42			9.46E-01	SOx	lb/MMbtu							0.00		
Use these rows to estimate			AP-42, Table 1.4-3 (HAPS)	(.9159%S)			4.06E-03	VOC	lb/MMbtu								0.00	
uncontrolled PTE per AP-42							1.85E-03	HAPS	lb/MMbtu									0.00
to determine if sythetic							0%	Control Efficiency										
limitations are needed																		
	Uncotrolled	Stack (Point)	Boilers (Dual Fired)	Boilers (Total)	0	MMBtu	2.41E-02	PM	lb/MMbtu		0.00	0.00	0.00					
	Max			Heating	0.00	hrs/yr	8.23E-02	CO	lb/MMbtu					0.00				
			AP-42, Table 1.3-1,2 ,6,8				1.46E-01	NOx	lb/MMbtu						0.00			
			(PM10, CO, Nox, Sox & VOC)	AP-42			9.46E-01	SOx	lb/MMbtu							0.00		
Use these rows to estimate			AP-42, Table 1.4-3 (HAPS)	(.9159%S)			5.39E-03	VOC	lb/MMbtu								0.00	
uncontrolled PTE per AP-42							1.85E-03	HAPS	lb/MMbtu									0.00
to determine if sythetic							0%	Control Efficiency										
limitations are needed																		
	Uncotrolled	Stack (Point)	Boilers (Natural Gas)	Boilers (Total)	7.69	MMBtu	7.45E-03	PM	lb/MMbtu		0.14	0.14	0.14					
	Max			Heating	4,836.00	hrs/yr	8.23E-02	CO	lb/MMbtu					1.53				
			AP-42, Table 1.3-1,2 ,6,8				9.80E-02	NOx	lb/MMbtu						1.82			
			(PM10, CO, Nox, Sox & VOC)	AP-42			5.88E-04	SOx	lb/MMbtu							0.01		
Use these rows to estimate			AP-42, Table 1.4-3 (HAPS)				5.39E-03	VOC	lb/MMbtu								0.10	
uncontrolled PTE per AP-42							1.85E-03	HAPS	lb/MMbtu									0.03
to determine if sythetic							0%	Control Efficiency										
limitations are needed																		

Natural Gas Fired Equipment

Description	MFR/Model Model	Serial Number/ Unique ID	Maximum Rated Capacity BTU
Boiler	Parker 40 HP	28524	1,680,000
Boiler	Parker 70 HP	26543	1,940,000
Boiler	Parker 75 HP	49158	3,150,000
Evaporator	Encon N33V1-18	37497	220,000
Oven	Wisconsin	47670298	700,000

TOTAL 7,690,000 Btu

7.69 MMBtu