TIER 2 SCREENING RISK ASSESSMENT

A/N:	485178-485183	Application deemed complete date:	07/30/08
Fac:	Carlton Forge Works		

2. Tier 2 Data

MET Factor	0.60
4 hr	0.92
6 or 7 hrs	0.67

Dispersion Factors

3	3A & 3B For Chronic X/Q
6	For Acute X/Q

Dilution Factors (ug/m3)/(tons/yr)

Receptor	X/Q	X/Qmax
Residential	5.54	271.78
Commercial	12.5	577.9

Adjustment and Intake Factors

	Afann	DBR	EVF
Residential	1	302	0.96
Worker	1	149	0.38

3. Rule 1401 Compound Data

Code	Compound	R1 - uncontrolled (lbs/hr)	R2 - controlled (lbs/hr)	CP	MP MICR Resident	MP MICR Worker	MP Chronic Resident	MP Chronic Worker	REL Chronic	REL Acute
a1	Acetaldehyde	1.23E-05	1.23E-05	1.00E-02	1	1	1	1	9	
a3	Acrolein	7.71E-05	7.71E-05		1	1	1	1	0.06	0.19
b1	Benzene (including benzene from gasoline)	2.29E-05	2.29E-05	1.00E-01	1	1	1	1	60	1300
e4	Ethyl benzene	2.71E-05	2.71E-05		1	1	1	1	2000	
f3	Formaldehyde	4.86E-04	4.86E-04	2.10E-02	1	1	1	1	3	94
h8	Hexane (n-)	1.80E-05	1.80E-05		1	1	1	1	7000	
p30	Napthalene	8.57E-07	8.57E-07	1.20E-01	1	1	1	1	9	
p9	PolyCyclic Aromatic Hydrocarbon (PAHs)	2.86E-07	2.86E-07	3.90E+00	29.76	14.62107	1	1		
a9	Ammonia	5.14E-02	5.14E-02		1	1	1	1	200	3200
t3	Toluene (methyl benzene)	1.05E-04	1.05E-04		1	1	1	1	300	37000
x1	Xylenes (isomers and mixtures)	7.77E-05	7.77E-05		1	1	1	1	700	22000
					1	1	1	1		
					1	1	1	1		
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					1	1	1	1		
					1	1	1	1		

4. Emission Calculations

Compound	uncontrolled R1-lb/hr	controlled R2-lb/hr	R2-lb/yr	R2-ton/yr
Acetaldehyde	1.23E-05	1.23E-05	0.1073279	5.366E-05
Acrolein	7.71E-05	7.71E-05	0.6739204	0.000337
Benzene (including benzene from gasoline)	2.29E-05	2.29E-05	0.1996788	9.984E-05
Ethyl benzene	2.71E-05	2.71E-05	0.2371204	0.0001186
Formaldehyde	4.86E-04	4.86E-04	4.2431975	0.0021216
Hexane (n-)	1.80E-05	1.80E-05	0.157248	7.862E-05
Napthalene	8.57E-07	8.57E-07	0.007488	3.744E-06
PolyCyclic Aromatic Hydrocarbon (PAHs)	2.86E-07	2.86E-07	0.002496	1.248E-06
Ammonia	5.14E-02	5.14E-02	449.28	0.22464
Toluene (methyl benzene)	1.05E-04	1.05E-04	0.9135323	0.0004568
Xylenes (isomers and mixtures)	7.77E-05	7.77E-05	0.6789121	0.0003395
Total	5.23E-02	5.23E-02	4.57E+02	2.28E-01

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TIER 2 RESULTS

5. MICR

MICR = CP (mg/(kg-day))^-1 * Q (ton/yr) * (X/Q) * Afann * Met * DBR * EVF * 1.E-6 * MP

Compound	Residential	Commercial
Acetaldehyde	5.17E-10	2.28E-10
Acrolein		
Benzene (including benzene from gasoline)	9.62E-09	4.24E-09
Ethyl benzene		
Formaldehyde	4.29E-08	1.89E-08
Hexane (n-)		
Napthalene	4.33E-10	1.91E-10
PolyCyclic Aromatic Hydrocarbon (PAHs)	1.40E-07	3.02E-08
Ammonia		
Toluene (methyl benzene)		
Xylenes (isomers and mixtures)		
Total	**1.93E-07**	**5.38E-08**
	Pass	**Pass**

No Cancer Burden, MICR<1.E=-6

5a. Cancer Burden			no
X/Q for one-in-a-million:			
Distance (meter			no data
Area (km2):			
Population:			
Cancer Burden:			

6. Hazard Index

HIA = [Q(lb/hr) * (X/Q)max] * AF / Acute REL

HIC = [Q(ton/yr) * (X/Q) * MET * MP] / Chronic REL

Target Organs	Acute	Chronic
Alimentary system (liver) - AL		4.45E-07
Bones and teeth - BN		
Cardiovascular system - CV		
Developmental - DEV	8.85E-06	2.43E-05
Endocrine system - END		4.45E-07
Eye	2.47E-01	4.74E-02
Hematopoietic system - HEM	7.21E-06	1.25E-05
Immune system - IMM	2.99E-03	
Kidney - KID		4.45E-07
Nervous system - NS	1.63E-06	2.76E-05
Reproductive system - REP	8.85E-06	
Respiratory system - RES	2.47E-01	5.59E-02
Skin		

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6a. Hazard Index Acute HIA = [Q(lb/hr) * (X/Q)max] *AF/ Acute REL

	HIA - Residential									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Acetaldehyde										
Acrolein				1.10E-01					1.10E-01	
Benzene (including benzene			3.39E-06		3.39E-06	3.39E-06		3.39E-06		
Ethyl benzene										
Formaldehyde				1.40E-03		1.40E-03			1.40E-03	
Hexane (n-)										
Napthalene										
PolyCyclic Aromatic Hydroc										
Ammonia				4.37E-03					4.37E-03	
Toluene (methyl benzene)			7.68E-07	7.68E-07			7.68E-07	7.68E-07	7.68E-07	
Xylenes (isomers and mixtur				9.60E-07					9.60E-07	
Total			4.16E-06	1.16E-01	3.39E-06	1.41E-03	7.68E-07	4.16E-06	1.16E-01	

	HIA - Commercial									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Acetaldehyde										
Acrolein				2.35E-01					2.35E-01	
Benzene (including benzene			7.21E-06		7.21E-06	7.21E-06		7.21E-06		
Ethyl benzene										
Formaldehyde				2.99E-03		2.99E-03			2.99E-03	
Hexane (n-)										
Napthalene										
PolyCyclic Aromatic Hydroc										
Ammonia				9.29E-03					9.29E-03	
Toluene (methyl benzene)			1.63E-06	1.63E-06			1.63E-06	1.63E-06	1.63E-06	
Xylenes (isomers and mixtur				2.04E-06					2.04E-06	
Total			8.85E-06	2.47E-01	7.21E-06	2.99E-03	1.63E-06	8.85E-06	2.47E-01	

6b. Hazard Index Chronic

HIC = [Q(ton/yr) * (X/Q) * MET * MP] / Chronic REL

	HIC - Residential												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Acetaldehyde												1.98E-05	
Acrolein						1.87E-02						1.87E-02	
Benzene (including benzene				5.53E-06			5.53E-06			5.53E-06			
Ethyl benzene	1.97E-07			1.97E-07	1.97E-07				1.97E-07				
Formaldehyde						2.35E-03						2.35E-03	
Hexane (n-)										3.73E-08			
Napthalene												1.38E-06	
PolyCyclic Aromatic Hydroc													
Ammonia												3.73E-03	
Toluene (methyl benzene)				5.06E-06						5.06E-06		5.06E-06	
Xylenes (isomers and mixtur										1.61E-06		1.61E-06	
Total	1.97E-07			1.08E-05	1.97E-07	2.10E-02	5.53E-06		1.97E-07	1.22E-05		2.48E-02	

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	HIC - Commercial												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Acetaldehyde												4.47E-05	
Acrolein						4.21E-02						4.21E-02	
Benzene (including benzene				1.25E-05			1.25E-05			1.25E-05			
Ethyl benzene	4.45E-07			4.45E-07	4.45E-07				4.45E-07				
Formaldehyde						5.30E-03						5.30E-03	
Hexane (n-)										8.42E-08			
Napthalene												3.12E-06	
PolyCyclic Aromatic Hydroc													
Ammonia												8.42E-03	
Toluene (methyl benzene)				1.14E-05						1.14E-05		1.14E-05	
Xylenes (isomers and mixtur										3.64E-06		3.64E-06	
Total	4.45E-07			2.43E-05	4.45E-07	4.74E-02	1.25E-05		4.45E-07	2.76E-05		5.59E-02	