PERMIT TO CONSTRUCT EVALUATION
(SPRAY BOOTH & AFTERBURNER)

Applicant's Name	**AMERICH CORP.**
Company I.D.	**59225**
Mailing Address	**13152 SATICOY, NORTH HOLLYWOOD, CA 91605**
Equipment Address	**13212 SATICOY, NORTH HOLLYWOOD, CA 91605**

EQUIPMENT DESCRIPTION

APPLICATION NO. 470823 (Previous A/Ns 437777, 437778, 464725)

MODIFICATION TO AIR POLLUTON CONTROL SYSTEM CONSISTING OF:

1) SPRAY BOOTH, SPRAYKING, FLOOR TYPE, MODEL NO. DI 151010, 12'-8" W. X 10-0" L. X 8'-0" H. (INSIDE BOOTH DIMENSIONS), SERIAL NO. 87219-1, WITH TWENTY-EIGHT 20" X 20" EXHAUST FILTERS AND ONE 3 H. P. EXHAUST FAN.

2) SPRAY BOOTH, SPRAYKING, FLOOR TYPE, MODEL NO. DI 1087, 12'-8" W. X 10-0" L. X 8'-0" H. (INSIDE BOOTH DIMENSIONS), SERIAL NO. 87219-2, WITH TWENTY-EIGHT 20" X 20" EXHAUST FILTERS AND ONE 3 H. P. EXHAUST FAN.

3) SPRAY BOOTH, BLEEKER, FLOOR TYPE, 13'-8" W. X 12-0" D. X 8'-0" H. (INSIDE BOOTH DIMENSIONS), SERIAL NO. 33412B, WITH TWENTY-EIGHT 20" X 20" EXHAUST FILTERS AND ONE 3 H. P. EXHAUST FAN.

BY THE ADDITION OF:

1) REGENERATIVE THERMAL OXIDIZER, SHIP AND SHORE ENVIRONMENTAL, MODEL NO. SSE-8.4K-96X-RTO, 14' – 5" W X 32' – 6" L X 7' –0" H, WITH A 2,000,000 BTU/HR ECLIPSE NATURAL GAS-FIRED BURNER, MODEL TJ200-HV, A 1,200,000 BTU/HR NATURAL GAS INJECTION SYSTEM, DUAL CHAMBER, A MULTI LAYERED CERAMIC MEDIA AND A 5 H.P. COMBUSTION BLOWER.

2) EXHAUST SYSTEM WITH A PERMANENT TOTAL ENCLOSURE, 24' – 0" W. X 106' – 6" L. X 18' – 0" H. AND ONE 40 H. P. FAN @ 8400 SCFM VENTING THREE SPRAY BOOTHS.

APPLICATION NO. 470824

TITLE V REVISION

HISTORY

Americh Corp. submitted above permit application with AQMD to modify an existing air pollution control system (consisting of three spray booths) by adding a new regenerative thermal oxidizer unit. The thermal oxidizer unit will control VOC emissions from the three spray booths. The company manufactures fiberglass bath tubs at this location and has three active permits from the District to operate spray booths under I. D. # 059225.

Americh Corp. has a facility-wide VOC emission cap of 2340 lbs/month (78 lbs/day) for all permitted equipment and associated operations. In addition, the three permitted spray booths have individual equipment VOC caps of 39, 39 and 30 pounds per day respectively. These individual VOC emission limits will be removed under this project as the applicant will comply with the BACT requirements by using an air pollution control system on spray coating operations. The applicant has not requested any VOC emission increase under this project on the facility cap or equipment cap. Rules 1162 and 1171 applies to this facility and the above described equipment.

The district database shows one notice to comply issued to this facility to provide usage records, MSDS copies and copies of AER for 2005-06. Since then the notice was disposed as “in compliance” upon follow-up inspection. There are no other notices or complaints on file in the last two years against this facility.

Americh Corp. is a Title V facility. An initial Title V permit was issued to this facility on August 15, 2005. The proposed permit revision is considered as a “de minimis significant permit revision” to the revised Title V permit, as described in Regulation XXX evaluation.

This facility is not located within 1000 feet from any school and there will not be any emission increases exceeding Rule 212 thresholds from this project, hence, this application will not require a public notice.

PROCESS DESCRIPTION

Americh Corp. is in the business of manufacturing polyester resin bath tubs. The operation involves both mechanical and manual coating applications. First a mold is sprayed with gelcoat in one of the spray booths, using an air assisted spray gun. After being air dried, polyester resin and chopped fiberglass is applied in another booth using a non-atomized chopper gun. The resins are hand-rolled to get all the air pockets out that are trapped by the chopper gun operation. The operations are subject to Rules 1162 and 1171.

The applicant will install a permanent total enclosure (PTE) around the resin application operations. Under this project, the VOC-laden air from the enclosure will be routed to a afterburner (RTO) unit with at least 95% destruction efficiency. The coating operations are located in an enclosure which is expected to provide 100% collection of VOC emissions due to its total permanent enclosure status.

This regenerative thermal oxidizer is capable of processing 9,000 SCFM contaminated air for VOC emission control from the polyester resin operations. This equipment is designed to destroy 95% collected VOCs from the contaminated process air. With the collection efficiency of 100% (Total Permanent Enclosure-PTE), overall VOC control efficiency of 95% is expected from this RTO. The equipment initially is heated to about 1500^0 to 1600^0 F by a burner, which supplies heat to the ceramic media. This media is located in two process zones. The process air gets heated above 1500^0 F in the heated bed containing ceramic media. If the incoming air has sufficient concentrations of solvents then it uses VOCs as fuel. The hot air goes to other process bed and transfers the heat to its ceramic media. The thermal energy recovery is 95% in the heat exchanger. The chambers are alternated continuously at about every 2 minutes.

OPERATING HOURS

Average/Maximum: 24 hr/day, 7 day/week, 52 weeks/year

OXIDIZER DESIGN

Total maximum contaminated process flow rate:	9000 scfm
Design capacity of the control equipment:	9000 scfm
Inlet operating temperature	70^0 F
Outlet operating temperature from combustion chamber	1500^0 F
Heat exchanger efficiency:	95%
Heat Input Rating of the burner for initial heating of the media	2 mmBTU/HR
Heat required during the normal working load	nil
Volume of the combustion zone	360 ft^3

Heat required to heat air from 70 ^{0}F to 1600 ^{0}F(worst case)

M = 9000 scfm x 0.075 lb/scf x 60 min/hr = 40,500 lb/hr

Cp_{70} = 0.240 Btu/lb ^{0}F Cp_{1600} =0.275 Btu/lb ^{0}F
Cp_{avg} = 0.258 Btu/lb ^{0}F

Q = MCp ΔT
= 40500 x 0.258 x (1600 - 70)
= 16 MM Btu/hr

After 95% heat recovery

Q= 16 x 0.05 = 0.8 MM Btu/hr

Heat input needed: 0.8 X 1050/615 = 1.36 mm BTU/HR. (Table D7, Page 948, AP 40.)

This being a RTO, no excess air is necessary for most of the time during the combustion. Contaminated airflow is sufficient to provide the necessary air. The applicant will use the burner to start-up the RTO only. The natural gas infusion and the VOCs will maintain the temperature in the combustion chamber. Afterburner will have a burner rated at 2 x 10^6 Btu/hr, which is sufficient to fire-up the afterburner. The permit condition will require a source test upon completion of the installation, which will prove the design capacity. A permit condition will also prohibit the usage of the burner for start-up operation only.

Residence time calculation

Flow rate = 9000 cfm
Flow rate per minute = 9000 cfm / 60 sec/min = 150 cfs
Corrected volume = 150 cfs x 1960/ 530 = 555 cfs (1500 ^{o}F to 70 ^{o}F)
Combustion zone volume = 360 cubic feet
Residence time = 360 / 555 = 0.65 sec (greater than 0.3 sec recommended - OK)

EMISSION CALCULATIONS

The control efficiency of the APC system is expected to be 95% overall. Since the afterburner must be at temperature before the coating operation can begin, and it will take up to one hour to heat up. The gas infusion will maintain the temperature after the start-up operation. The past source test data

indicated no additional NOx emissions spike during gas infusion. For calculation of combustion emissions, one hour will be for average usage and eight hours for the worst casr start-up operations during the day. Afterburner will be equipped with a Eclipse ultra low NOx burner with 50 ppm NOx emissions @ 3% O_2.

COMBUSTION EMISSION CALCULATIONS (RTO)

A/N 470823 Ship and Shore RTO @

	maximum	normal
hr/dy	8	1
dy/wk	7	7
wk/yr	52	52
load	100%	100%

max heat input 2.00E+06 (BTU/hr)

gross heating value 1050 (BTU/scf)

	Emission Factors	MAX (lb/hr)	AVE (lb/hr)	MAX (lb/dy)	30-DAY (lb/dy)	MAX (lb/yr)	MAX (ton/yr)
SO_2 (R1)	0.6	0.001	0.001	0.009	NA	3	0.002
SO_2 (R2)	0.6	0.001	0.001	0.009	0.009	3	0.002
NO_2 (R1)	64.75	0.123	0.123	0.987	NA	359	0.180
NO_2 (R2)	64.75	0.123	0.123	0.987	0.987	359	0.180
CO (R1)	35	0.067	0.067	0.533	NA	194	0.097
CO (R2)	35	0.067	0.067	0.533	0.533	194	0.097
N_2O (R1)	2.2	0.004	0.004	0.034	NA	12	0.006
N_20 (R2)	2.2	0.004	0.004	0.034	0.034	12	0.006
PM, PM_{10} (R1=R2)	7.5	0.014	0.014	0.114	0.114	42	0.021
CO_2(R1=R2)	0.000012	0.000	0.000	0.000	0.000	0	0.000
TOC(R1=R2)	7	0.013	0.013	0.107	0.107	39	0.019
ethyl benzene	0.0095	1.8E-05	1.8E-05	1.4E-04	NA	5.27E-2	2.63E-5
acetaldchyde	0.0043	8.2E-06	8.2E-06	6.6E-05	NA	2.39E-2	1.19E-5
acrolein	0.0027	5.1E-06	5.1E-06	4.1E-05	NA	1.50E-2	7.49E-6
benzene	0.008	1.5E-05	1.5E-05	1.2E-04	NA	4.44E-2	2.22E-5
formaldehyde	0.017	3.2E-05	3.2E-05	2.6E-04	NA	9.43E-2	4.71E-5
napthalene	0.0003	5.7E-07	5.7E-07	4.6E-06	NA	1.66E-3	8.32E-7
PAH's	0.0001	1.9E-07	1.9E-07	1.5E-06	NA	5.55E-4	2.77E-7
toluene	0.0366	7.0E-05	7.0E-05	5.6E-04	NA	2.03E-1	1.02E-4
xylenes	0.0272	5.2E-05	5.2E-05	4.1E-04	NA	1.51E-1	7.54E-5

NO_2 @ 3% excess O_2 ------>>> 49.89 (ppmv)

CO @ 3% excess O_2 ------>>> 44.29 (ppmv)

SO_2 @ 3% excess O_2 ------>>> 0.33 (ppmv)

PM @ 12% CO_2 ------>>> 5.5E-09 (grain/ft^3)

Please refer to attached spreadsheet for HIA, HIC and MICR calculations, which indicates compliance with Rule 1401 requirements.

Emissions from the Polyester Resin Spray Booths

No increase in emissions from the spray booths are expected from the installation of RTO. The following calculations are for informational purposes only. Emissions from this facility are mostly Volatile Organic Compounds (VOC). Overall control efficiency of the VOC control device is assumed to be 95% for these calculations. The applicant has not requested any VOC emissions increases under this project. The facility has 78 lbs/day VOC emission cap for the facility.

The spray booths will be used to apply gelcoat and resin. The styrene content of the vapor suppressed resin (VSR) is 33.5%. Maximum styrene content of the white gelcoat is 30%. The unified emission factors (UEF) from Composite Fabricator Association (CFA) are used for the emission calculations. For the PM emissions, transfer efficiency is assumed at 65% and spray booth filter efficiency is assumed at 90%.

VOC

Resin: Mechanical Non-Atomized with VSR @ 35% styrene: 77 [1 – (0.45 x VSR reduction factor)]
= 77 [1 – (0.45 x 0.84)] = 47.9 lb/ton resin, 0.0239 lb VOC/lb resin

It was assumed that 70% emissions (55 lbs) are from the resin application and rest of the VOC emissions (23 lbs) from the gelcoat application.

Maximum resin allowed @ 55 lb/day VOC:
55 lb/day VOC = R lb resin x 0.0239 lb VOC/lb resin
R_{max} = 2300 lb resin/day

Gelcoat: Application UEF @ 30% styrene: 0.445 x % styrene lb/lb gelcoat
= 0.445 x 0.30 = 0.1335 lb VOC/lb gelcoat

Maximum gelcoat allowed @ 23 lb/day VOC:
23 lb/day VOC = G lb gelcoat x 0.1335 lb VOC/lb gelcoat
G_{max} = 172 lb gelcoat/day

R1 = 64 lbs/hr R2 = 3.2 lbs/hr = 78 lb/day (30 day avg.)

PM_{10}

R1 = 172 lb gelcoat/day x 0.70 lb solids/lb x (1-0.65)(0.50 PM_{10}/PM) = 21.1 lb/day, 0.88 lb/hr
R2 = R1 (1-0.90) = 21.1 (1-0.90) = 2.11 lb/day @ 24hr/day = 0.09 lb/hr

R1=2300 lb resin/day x 0.665 solids x (1-0.65)(0.50 PM_{10}/PM) (0.5 fallout)= 133.8 lb/day, 5.57 lb/hr
R2 = R1 (1-0.90) = 141 (1-0.90) = 13.4 lb/day @ 24hr/day = 0.56 lb/hr

R1 = 0.88 lb/hr + 5.57 lb/hr = 6.45
R2 = R1 (1-0.90) = 6.45 (1-0.90) = 0.65 lb/hr

Emission Summary

A/N	NSR and AEIS					
	VOC R1= R2			PM_{10}		
	Max lb/hr		30-day ave lb/day	Max lb/hr		30-day ave lb/day
	R1	R2		R1	R2	
464725	64	3.2	78	6.45	0.65	16

TOXIC EMISSIONS:

The coatings contain styrene (CAS # 100-42-5, chronic and acute) monomer, which is a Rule 1401 toxic air contaminant. The worst case emissions of 78 lbs/day of styrene with average hours of operation that is 78/24 = 3.9 lbs/hr styrene. The annual maximum styrene emission increases are 78 X 365 = 28,470 lbs/yr. The worst case Tier 1 screening levels at 25 meter receptor are 10.5 lbs/hr and 29,800 lbs/year.

The gelcoat catalyst has a small quantity of MEK (CAS # 78-93-3, acute), also a Rule 1401 toxic. Based on the last AER, 10,823.33 lb of catalyst was used with permitted equipment. The corresponding VOC emissions for this facility were 11 tons/year. The catalyst used for emissions of 30 lb/day VOC is about half of the total reported emissions last year, assuming worst case scenario of all catalyst used was for gelcoat, the maximum catalyst usage would be 5,400 pounds/year, 450 lb/month, 21 lb/day, 2.6 lb/hr. The MEK content is 2% by weight, or 0.05 lb/hr MEK. The worst case Tier 1 screening level at 25 meter receptor is 6.5 lb/hr. Since multiple TAC are present, a Tier 2 screening risk assessment is attached. The HIA and HIC are below 1, thus this spray booth is expected to comply with the Rule 1401 requirements.

RULES/REGULATION EVALUATION

¤ ***RULE 212, PUBLIC NOTIFICATION***

v***SECTION 212(c)(1):***

This section requires a public notice for all new or modified permit units that may emit air contaminants located within 1,000 feet from the outer boundary of a school. This source is not located within 1,000 feet from the outer boundary of a school. Therefore, public notice will not be required by this section.

v ***SECTION 212(c)(2):***

This section requires a public notice for all new or modified facilities which have on-site emission increases exceeding any of the daily maximums as specified in subdivision (g). As shown in the following table, the emission increases from this facility are below the daily maximum limits specified by Rule 212(g). Therefore, these applications will not be subject to this section.

LB/DAY	CO	NOX	PM_{10}	ROG	Lead	SOX
MAX. LIMIT	220	40	30	30	3	60
INCREASES	0	0.9	0	0	0	0

v ***SECTION 212(c)(3):***

Please, see Rule 1401 evaluation section.

v

SECTION 212(g):

This section requires a public notice for all new or modified sources which undergo construction or modifications resulting an emissions increase exceeding any of the daily maximum specified in the table below. As shown in the following table, the emission increases from this project are below the daily maximum limits specified by Rule 212(g). Therefore, public notice will not be required by this section.

LB/DAY	CO	NOX	PM_{10}	ROG	Lead	SOX
MAX. LIMIT	220	40	30	30	3	60
INCREASES	0	0.9	0	0	0	0

¤ ***RULES 401 & 402, VISIBLE EMISSIONS & NUISANCE***

AQMD database has no records of any visible emissions or nuisance violations against this company, except as already noted .in the background.

¤ ***RULE 1162, POLYESTER RESIN OPERATIONS***

(c)(2) MATERIAL REQUIREMENTS

Following material information submitted by the applicant shows compliance with the rule requirements. Also, the applicant will be in compliance with these requirements by using an air pollution control equipment with a sufficient VOC control efficiency (100% collection and 95% destruction).

Resin Material	Rule Limit(Monomer)	Monomer Content As Received	Complaince
Laminating Resin	35%	33.5%	Yes
White Gelcoat	30%	25.3%	Yes

¤ ***RULE 1162, POLYESTER RESIN OPERATIONS***

(c)(5) TRANSFER EFFICIENCY

The applicant will be in compliance with these requirements by using an air pollution control equipment with a sufficient VOC control efficiency (100% collection and 95% destruction).

¤ ***RULE 1171, SOLVENT CLEANING OPERATIONS***

The applicant will be in compliance with these requirements by using an air pollution control equipment with a sufficient VOC control efficiency (100% collection and 95% destruction).

REGULATION XIII

¤ ***RULE 1303(a), BEST AVAILABLE CONTROL TECHNOLOGY (BACT)***

(a) VOC EMISSIONS

VOC emissions from the coating spray booths are vented to an air pollution control system consisting of a RTO with a sufficient VOC control efficiency (100% collection and 95% destruction). This will comply with the provisions of the current BACT requirements.

(a) NOx EMISSIONS

The RTO burner is used for start-up operation only. Thus, NOx emissions are expected to be <1 lb/day. This will comply with the provisions of the current BACT requirements.

¤ ***RULE 1303(b)(1), MODELING***

Modeling is not required for <0.2 lb/hr NOx, <11.0 lb/hr CO and <1.2 lb/hr PM10 emission increases, thus this project complies with modeling requirements.

¤ ***RULE 1303 (b)(2), EMISSION OFFSETS***

There will be reduction in VOC emissions under this project. The combustion emissions are within the threshold limits. Thus, no emission offsets are required.

¤ ***RULE 1401, NEW SOURCE REVIEW OF CARCINOGENIC AIR CONTAMINANTS***

As discussed in this evaluation report, this equipment is expected to comply with the rule requirements.

REGULATION XXX

The proposed project is considered as a "de minimis significant permit revision" to the initial Title V permit issued to this facility on 08/15/2005. Rule 3000(b)(6) defines a "de minimis significant permit revision" as any Title V permit revision where the cumulative emission increases on non-RECLAIM pollutants or hazardous air pollutants (HAP) from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

Air Contaminant	Daily Maximum (lbs/day)
HAP	30
VOC	30
NOx	40
PM10	30
SOx	60
CO	220

Rule 3003(j) specifies that a proposed permit for the initial Title V permit shall be submitted to EPA for review. To determine if a project qualifies for a "de minimis significant permit revision", emission increases resulting from all permit revisions that are made after the submittal of proposed permit to EPA shall be accumulated and compared to the above threshold levels. This is the second permit revision to the Title V Permit. The cumulative emission increases resulting from this proposed permit revision are summarized as follows:

Revision	HAP	VOC	NOx	PM_{10}	SOx	CO
1st Permit Revision. Add and delete devices.	0	0	0	0	0	0
2nd Permit Revision. A/N 470823 RTO	0	0	1	0	0	0
Cumulative Total	0	0	1	0	0	0
Maximum Daily	30	30	40	30	60	220

CONCLUSIONS/RECOMMENDATIONS

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a "de minimis significant permit revision", it is exempt from the public participation requirements under Rule 3006 (b). A proposed permit incorporating this permit

revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j) in conjunction with the Rule 212 public notice. If EPA does not raise any objections within the review period and upon completion of the Rule 212 public notice period, a revised Title V permit will be issued to this facility.

TIER 2 SCREENING RISK ASSESSMENT

Version 7.0, (June 2005 rule amendment)

A/N:	470823
Fac:	Americh

Application deemed complete date:	06/12/07

1. Stack Data

		Units
Hour/Day	8	hr/day
Day/Week	7	day/wk
Week/Year	52	wk/yr
Emission Units (non-combustion only)	lb/hr	
Control Efficiency (other non-combustion only)		fraction range 0-1
Does source have TBACT?	NO	
Point or Volume Source ?	P	p or v
Stack Height	14	feet
Area (For Volume Source Only)		ft^2
Distance-Residential	25	meters
Distance-Commercial	25	meters
Meteorological Station	Burbank	

Source Type:	O - Other	
Screening Mode	NO	

Emission Units	lb/hr	
Source output capacity	n/a	n/a

2. Tier 2 Data

MET Factor	0.57
4 hr	0.94
6 or 7 hrs	0.84

Dispersion Factors

2	3A & 3B For Chronic X/Q
6	For Acute X/Q

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

Receptor	X/Q	X/Qmax
Residential	51.18	2000
Commercial	51.18	2000

Adjustment and Intake Factors

	Afann	DBR	EVF
Residential	1	302	0.96
Worker	3	149	0.38

3. Rule 1401 Compound Data

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
Acetaldehyde	8.20E-06	8.20E-06	1.00E-02	1	1	1	1	9	
Ethyl benzene	1.80E-05	1.80E-05		1	1	1	1	2000	
Acrolein	5.10E-06	5.10E-06		1	1	1	1	0.06	0.19
Benzene (including benzene from gasoline)	1.50E-05	1.50E-05	1.00E-01	1	1	1	1	60	1300
Formaldehyde	3.20E-05	3.20E-05	2.10E-02	1	1	1	1	3	94
Napthalene	5.70E-07	5.70E-07	1.20E-01	1	1	1	1	9	
PolyCyclic Aromatic Hydrocarbon (PAHs)	1.90E-07	1.90E-07	3.90E+00	29.76	14.62107209	1	1		
Toluene (methyl benzene)	7.00E-05	7.00E-05		1	1	1	1	300	37000
Xylenes (isomers and mixtures)	5.20E-05	5.20E-05		1	1	1	1	700	22000
				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	0.0000082	0.0000082	0.0238784	1.19392E-05
Ethyl benzene	0.000018	0.000018	0.052416	0.000026208
Acrolein	0.0000051	0.0000051	0.0148512	7.4256E-06
Benzene (including benzene from gasoline)	0.000015	0.000015	0.04368	0.00002184
Formaldehyde	0.000032	0.000032	0.093184	0.000046592
Napthalene	0.00000057	0.00000057	0.0016598	8.2992E-07
PolyCyclic Aromatic Hydrocarbon (PAHs)	0.00000019	0.00000019	0.0005533	2.7664E-07
Toluene (methyl benzene)	0.00007	0.00007	0.20384	0.00010192
Xylenes (isomers and mixtures)	0.000052	0.000052	0.151424	0.000075712
Total	2.01E-04	2.01E-04	5.85E-01	2.93E-04

A/N:	470823	Date:	06/12/07

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	1.01E-09	5.92E-10
Ethyl benzene		
Acrolein		
Benzene (including benzene from gasoline)	1.84717E-08	1.08E-08
Formaldehyde	8.28E-09	4.85E-09
Napthalene	8.42E-10	4.93E-10
PolyCyclic Aromatic Hydrocarbon (PAHs)	2.72E-07	7.82E-08
Toluene (methyl benzene)		
Xylenes (isomers and mixtures)		
Total	**3.00E-07**	**9.49E-08**
	Pass	**Pass**

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

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

6. Hazard Index

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

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

Target Organs	Acute	Chronic
Cardiovascular or blood system		3.82E-07
Central or peripheral nervous system		
Gastrointestinal system and liver	2.01E-05	3.82E-07
Immune system	2.39E-05	
Kidney	5.44E-02	2.09E-05
Reproductive system	7.01E-04	4.06E-03
Respiratory system	3.78E-06	1.06E-05
Skin	2.39E-05	
Eye	5.44E-02	3.82E-07
Endocrine system		

A/N: 470823 **Date:** 06/12/07

6a. Hazard Index Acute

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

	HIA - Residential									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Acetaldehyde										
Ethyl benzene										
Acrolein				5.37E-02					5.37E-02	
Benzene (including benzene from			2.01E-05		2.01E-05	2.01E-05		2.01E-05		
Formaldehyde				6.81E-04		6.81E-04			6.81E-04	
Napthalene										
PolyCyclic Aromatic Hydrocarbon										
Toluene (methyl benzene)			3.78E-06	3.78E-06			3.78E-06	3.78E-06	3.78E-06	
Xylenes (isomers and mixtures)				4.73E-06					4.73E-06	
Total			2.39E-05	5.44E-02	2.01E-05	7.01E-04	3.78E-06	2.39E-05	5.44E-02	

	HIA - Commercial									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Acetaldehyde										
Ethyl benzene										
Acrolein				5.37E-02					5.37E-02	
Benzene (including benzene from			2.01E-05		2.01E-05	2.01E-05		2.01E-05		
Formaldehyde				6.81E-04		6.81E-04			6.81E-04	
Napthalene										
PolyCyclic Aromatic Hydrocarbon										
Toluene (methyl benzene)			3.78E-06	3.78E-06			3.78E-06	3.78E-06	3.78E-06	
Xylenes (isomers and mixtures)				4.73E-06					4.73E-06	
Total			2.39E-05	5.44E-02	2.01E-05	7.01E-04	3.78E-06	2.39E-05	5.44E-02	

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
Acetaldehyde												3.87E-05
Ethyl benzene	3.82E-07			3.82E-07	3.82E-07				3.82E-07			
Acrolein						3.61E-03						3.61E-03
Benzene (including benzene from				1.06E-05			1.06E-05			1.06E-05		
Formaldehyde						4.53E-04						4.53E-04
Napthalene												2.69E-06
PolyCyclic Aromatic Hydrocarbon												
Toluene (methyl benzene)				9.91E-06						9.91E-06		9.91E-06
Xylenes (isomers and mixtures)										3.16E-06		3.16E-06
Total	3.82E-07			2.09E-05	3.82E-07	4.06E-03	1.06E-05		3.82E-07	2.37E-05		4.12E-03

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	HIC - Commercial											
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP
Acetaldehyde												3.87E-05
Ethyl benzene	3.82E-07			3.82E-07	3.82E-07				3.82E-07			
Acrolein						3.61E-03						3.61E-03
Benzene (including benzene from				1.06E-05			1.06E-05			1.06E-05		
Formaldehyde						4.53E-04						4.53E-04
Napthalene												2.69E-06
PolyCyclic Aromatic Hydrocarbon												
Toluene (methyl benzene)				9.91E-06						9.91E-06		9.91E-06
Xylenes (isomers and mixtures)										3.16E-06		3.16E-06
Total	3.82E-07			2.09E-05	3.82E-07	4.06E-03	1.06E-05		3.82E-07	2.37E-05		4.12E-03