PERMIT TO CONSTRUCT ANALYSIS

FACILITY MAILING ADDRESS

California Steel Industries, Inc.
14000 San Bernardino Avenue
Fontana, California 92335

(ID#: 046268 - NOx RECLAIM Cycle 1 - Title V)

EQUIPMENT LOCATION:

SAME AS ABOVE

EQUIPMENT DESCRIPTION

APPLICATION NO: 469829 - FACILITY PERMIT REVISION

APPLICATION NO: 469831 - NEW CONSTRUCTION
PROCESS 3: STEEL ANNEALING OPERATION

C209 AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. SELECTIVE CATALYTIC REDUCTION UNIT, ENVIRON-KINETICS, CUSTOM BUILT WITH A FIXED BED REACTOR, USING HALDOR TOPSOE DNX-930 HONEYCOMB CATALYST, 743 FT^3.
2. CATALYST HANDLING SYSTEM
3. HEAT EXCHANGER, HEAT RECOVERY STEAM GENERATOR
4. EXHAUST SYSTEM VENTING REHEAT FURNACE NO. 5.

APPLICATION NO: 469832 - NEW CONSTRUCTION
PROCESS 3: STEEL ANNEALING OPERATION

D202 FURNACE, SLAB NO. 5, STEEL REHEAT, CORE FURNACE SYSTEM, WITH 89 NATURAL GAS FIRED BURNERS, TECHINT TECHNOLOGIES, LOW NOx TYPE, 529,440,000 BTU PER HOUR TOTAL AND THREE COMBUSTION AIR BLOWERS, 450 HP EACH, CONSISTING OF:

1. BURNER, TOP PREHEAT ZONE, SIX TECHINT TECHNOLOGIES LOW NOx BURNERS, MODEL TSN 18, 15,750,000 BTU PER HOUR EACH, NATURAL GAS FIRED.
2. BURNER, BOTTOM PREHEAT ZONE, SIX TECHINT TECHNOLOGIES LOW NOx BURNERS, MODEL TSN 18, 18,500,000 BTU PER HOUR EACH, NATURAL GAS FIRED.
3. BURNER, TOP HEAT ZONE, EIGHT TECHINT TECHNOLOGIES LOW NOx BURNERS, MODEL TSN 14, 8,250,000 BTU PER HOUR EACH, NATURAL GAS FIRED.
4. BURNER, BOTTOM HEAT ZONE, EIGHT TECHINT TECHNOLOGIES LOW NOx BURNERS, MODEL TSN 14, 9,560,000 BTU PER HOUR EACH, NATURAL GAS FIRED.
5. BURNER, TOP HEAT ZONE 2, TEN TECHINT TECHNOLOGIES LOW NOx BURNERS, MODEL TSN 12, 4,500,000 BTU PER HOUR EACH, NATURAL GAS FIRED.
6. BURNER, BOTTOM HEAT ZONE 2, TEN TECHINT TECHNOLOGIES LOW NOx BURNERS, MODEL TSN 12, 5,550,000 BTU PER HOUR EACH, NATURAL GAS FIRED.
7. BURNER, TOP SOAK ZONE, THIRTY TECHINT TECHNOLOGIES LOW NOx BURNERS, MODEL TRX 4, 1,100,000 BTU PER HOUR EACH, NATURAL GAS FIRED.
8. BURNER, BOTTOM SOAK ZONE, ELEVEN TECHINT TECHNOLOGIES LOW NOx BURNERS, MODEL TSN 10, 4,360,000 BTU PER HOUR EACH, NATURAL GAS FIRED.

APPLICATION NO: 473323 - CHANGE OF CONDITION
PROCESS 3: STEEL ANNEALING OPERATION

D133 FURNACE, SLAB NO. 4, STEEL REHEAT, CHUGAI RO CO. LTD., WITH 74 NATUAL GAS FIRED LOW NOx BURNERS, 533,000,000 BTU PER HR TOTAL, MODEL FHC-IAH-40-G, AIR PREHEATER AND A 600 HP COMBUSTION AIR BLOWER.

BACKGROUND

Application No. 469829 was filed as a RECLAIM Facility Permit modification on June 7, 2007. Application Nos. 469831 and 469832 were filed on June 7, 2007, as class I applications for permits to construct. Application No. 473323 was filed on August 31, 2007, for an administrative change in permit condition to operate both reheat/slab furnaces under a combined

fuel limit equal to amount currently allowed for Reheat 4 (365.49 mmcf/mo) plus and additional 59.52 mmbtu/hr.

The proposed project involves the excavation, construction, installation and operation of Reheat Furnace #5 (RF5) which will be vented to a 743 ft^3 Selective Catalytic Reduction (SCR) system. RF5 will be constructed on a 0.75 acre area within the existing hot strip mill. The overall excavation-to-construction phase is expected to last up to 16 months. Upon completion of the construction phase, RF5 will go through a commissioning period of about 90 days. CSI has included a graphic timeline of all expected phases for the RF5 and SCR construction and installation.

For about ten days, the furnace will go through a weight and pacing test. Cold slabs are walked through the furnace. This establishes that the furnace can manage slabs of the intended size and weight. It also establishes the appropriate pacing of the heating process specific to the furnace. For the next ten days, the furnace will go through a heat up and dry out phase. For this, the furnace is slowly brought up to temperature to dry out and temper the refractory. For another ten days, the furnace will go though a hot slab test. This test establishes that the optimal internal temperatures are reached within the slabs; the slabs will have thermocouples embedded in them. The last phase of the commissioning period is to begin limited operations. This step is essential to integrate the RF5 into the existing operations of the hot strip mill. During this last phase, process inefficiencies and problems are expected to be identified and corrected to optimize the operation of the furnace. This last phase is expected to take at most two months.

No compliance activity found in District records (CLASS database) for the past 2 years.

PROCESS DESCRIPTION

California Steel Industries, Inc. (CSI) is a steel rolling mill that produces hot rolled, cold rolled, pickled and oiled, and galvanized steel products; they also produce electric resistance welded pipe. The steel manufacturing process begins in the hot strip mill, where thick steel slabs are heated in large furnaces and then hot rolled to produce steel ribbon or coil. The existing steel rolling capacity of the hot strip mill is 475 tons per hour. CSI is currently manufacturing approximately 1,640,000 tons of steel products annually.

For RH5, steel slabs, 6 to 10 inches thick, 24 to 75 inches wide, 158 to 441 inches long and weighing up to 37.5 tons each will be the raw material for the hot strip mill. A large magnetic crane will move the slabs to a roller based conveyor system, delivering slabs, long edge first to the furnace as frequent as every 90 seconds.

A six-ton hydraulic ram will drive four internally cooled steel walking beams in a square motion advancing the slabs through the furnace. The walking beams will raise the slabs off six stationary internally cooled steel skids, move the slabs slightly forward, lower them back onto the skids further "downstream," and return to their starting position. Slabs will be heated as they are walked through the furnace during a heating interval of 2 to 2.5 hours. The heated slabs will exit the furnace and a table roll will transport them to the slab rolling process.

RH5 will consist of 89 low NOx natural gas burners that will heat the furnace to an internal temperature of 2,280 °F. The burners receive natural gas from a high-pressure steel gas pipeline. Three combustion fans will supply combustion air to the burners and will circulate the hot flue gases though the furnace. Brick and ceramic refractory will insulate the furnace.

The furnace flue gas will pass through a selective catalytic reduction (SCR) reactor. Ammonia will be added to the flue gas and, in the presence of the vanadia/titania reactor catalyst, will reduce the nitrogen dioxide (NOx) to nitrogen. The SCR system's nominal maximum ammonia (19% aqueous solution) feed rate is 13.2 gal/hr; has a reactor volume of 743 ft^3 and is designed to obtain a NOx reduction efficiency between 70%-80%.

The SCR reactor has a maximum operating temperature of 800°F and the furnace flue gas has a maximum temperature of 1,030°F. Dilution air will be added upstream of the SCR reactor at a maximum flow rate of 50,000 scfm and will quench the furnace flue gas to 750°F before entering the SCR.

A Heat Recovery Steam Generator (HRSG) will be installed downstream to the SCR. The HRSG unit will consist of an exhaust gas boiler, rated at 30,000 to 40,000 lb/hr of 100 psi saturated steam production with an exhaust temperature around 350°F. The HRSG unit will also have a circulation system consisting of pumps, steam generators, pressure regulators and control valves; and a feed water system consisting of pumps, a holding tank and water conditioning equipment. The steam produced by the HRSG unit will be piped to the Tin Mill, which will reduce the use of the existing fire tube boiler in the Tin Mill.

A 1000 hp exhaust fan creates a vacuum in the exhaust stack, drawing the hot exhaust from the furnace through the recuperator, SCR and HRSG. The exhaust fan flow rate is expected to be approximately 735,000 acfm.

RF5 will be operated up to 24 hours per day, 7 days per week and 50 weeks per year. The furnace will be weekly removed from service for a 16-hour inspection and routine "hot maintenance" duties. In addition, twice yearly the furnace will be removed from service for a seven day period, during which all major routine maintenance activities will be conducted.

Burner Capacity/Rating Discussion
Core Furnace Systems is designing and building RF5 for CSI. The furnace will have 8 heating zones with a total burner count of 89. Within each zone, the rating will be the same for each burner. Each burner has its ceramic baffle designed and cast with specific size holes that act as an orifice to limit flow of air into the burner. Each burner will have its rating stamped on the burner nameplate. See letter dated September 14, 2007, from Michael Peterson, Vice President of Core Furnace Systems with regard to burner capacity design. The same information was re-iterated by Guiseppe Facco, Core Furnaces' contact person for Reheat Furnaces during a telephone conversation (412) 262-2240 x2317.

EVALUATION
Given (per applicant) - Reheat Furnace 5

Operating schedule:	24 hrs/day, 7 days/wk, and 50 wks/yr. Furnace will be inactive for 16 hrs/wk for "hot maintenance".
Design heat input rate:	529.44 MMBtu/hr, natural gas fired
Steel production:	325 tons/hr max
Flue gas temperature:	1,030 °F
Flue gas flow rate:	89,800 dscfm @ 3% Oxygen
Quenching airflow rate:	50,000 scfm
SCR operating temperature:	750 ºF
SCR reactor volume:	743 ft^3
Ammonia (19% solution) feed rate:	13.2 gal/hr or 104.7 lb/hr, max.
SCR NOx control efficiency:	70-80% **Efficiency to be verified by a conditioned source test.**
Exhaust fan airflow rate:	735,000 acfm
Exhaust temperature:	350 °F max.
Stack height:	138 feet
Stack diameter:	8 feet
NOx emission rate:	0.06 lb/MMBtu (See Techint data sheets) 49 ppm (uncontrolled) 14.75 ppm (controlled @ 70%)
PM_{10} emission rate:	0.006 lb/MMBtu (Based on averages from 3 tests on RH4 and District default, copies of tests are included). **Factor to be verified by a conditioned source test.**
Combustion Emissions:	District default factors from 2006-2007 AER program.
CO	35 lb/mmcf
ROG	7.0 lb/mmcf
SOx	0.6 lb/mmcf

TAC Emission Factors: Based on 2006-2007 AER Program for External Combustion Equipment rated >100MMBtu/hr.

Benzene	0.0017 lb/mmcf
Formaldehyde	0.0036 lb/mmcf
PAHs	0.0004 lb/mmcf

EMISSIONS COMPUTATION

NOx Emissions

R1 = 529.44 MMBtu/hr x 0.06 lb/MMBtu = 31.7664 lb/hr

R2 = 31.766 lbs/hr x (1 – 0.70) = 9.53 lbs/hr

R2 = 9.53 lbs/hr x 24 hrs/day = 228.7 lbs/day

9.53 lb/hr x 656 hr/mo. = 6,252 lbs/mo (208 lbs/day – 30 Day Average)

PM_{10} emission (R1 = R2)

R1 = 529.44 MMBtu/hr x 0.006 lb/MMBtu = 3.17664 lb/hr

Ammonia Emissions

10 ppm x 10E-06 x 89800 dscfm x 60/379 x 17 (mw of NH_3) = 2.417 lb/hr

2.417 lb/hr x 7600 hr/yr = 18369.2 lbs/yr

Combustion Emissions Summary

Criteria Pollutant	Emission Factor	Max Hourly Lb/hr	Max Daily Lb/day	Max Monthly Lb/mo	Max Yearly Lb/yr
CO	35 lb/mmcf	17.648	423.550	12,706.6	152,479
NO_{XR1}	0.06 lb/MMBtu	31.7664	762.4		
NO_{XR2} @ 70%eff		9.53	228.4	6,861.54	82,339
PM_{10}	0.006 lb/MMBtu	3.17664	76.24	2,287	27,446
ROG	7.0 lb/mmcf	3.5296	84.710	2,541.3	30,496
SOx	0.6 lb/mmcf	0.3025	7.2609	217.83	2,614

Maximum Proposed TAC Emissions

TAC	Emission Factor	Maximum Proposed (pounds/hour)	Emissions (pounds/year)
Benzene	0.0017 lb/mmcf	0.0008571	6.51
Formaldehyde	0.0036 lb/mmcf	0.0018152	13.8
PAH's	0.0004 lb/mmcf	0.00020	1.53
Ammonia	10 ppm	2.417	18,369

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) REQUIREMENTS

San Bernardino County (SBC) is the lead agency for this project. They prepared a Notice of Preparation/Initial Study which was circulated for a 30-day public review and comment period from July 19, 2000 to August 17, 2000. A Draft Environmental Impact Report (EIR) was then prepared and circulated by SBC for a 45-day public review and comment period from October 31, 2001 to December 17, 2001. A Final EIR was then prepared and circulated from February 11, 2002 to February 20, 2002. On March 4, 2002, the project was approved by SBC and a Notice of Determination was filed with the State of California. CSI has been granted an extension of the Conditional Use Permit by SBC to March 27, 2008, by this time construction is to begin on RH5.

Since CEQA documents had been previously evaluated for a 533 MMBtu/hr furnace, this current air quality permit request does not change the proposed environmental impacts, no further CEQA evaluation is necessary, warranted or required. Included in the application submittal is the letter from SBC granting CSI an extension until March 2008. Michael Krause of the CEQA Section has completed a CEQA Prescreening Form; it is included within the permit application.

Given - Reheat Furnace 4

Operating schedule: 24 hr/day, 7 days/wk, and 52 weeks/yr
Heat input rate: 533 MMBtu/hr, Natural Gas Fired
Steel Production: 475 tons/hr
NOx emission rate: 213 lb/mmcf (District/RECLAIM Default for this type of equipment)
PM_{10} emission rate: 6.3 lb/mmcf (Highest rate from 3 source tests conducted on RH4 January 17 &18, February 14& 15 and April 26, 2007) Previously 12.88 lb/mmcf
SOx emission rate: 1.47 lb/mmcf
Monthly Fuel Usage: 365.49 mmcf/mo

The proposed change of condition does not increase emissions from RH4, it has no operational constraints. The use of the new PM_{10} emission rate will decrease PM_{10} emissions for RH4.

Combustion Emissions Summary

Criteria Pollutant	Emission Factor	Max Hourly Lb/hr	Max Daily Lb/day	Max Monthly Lb/mo	Max Yearly Lb/yr
CO	35 lb/mmcf	17.766	426.4	12,792	153,504
NO_X	213 lb/mmcf	108.12	2594.95	77,848	934,176
PM_{10}	6.3 lb/mmcf	3.198	76.8	2,304	27,648
ROG	7.0 lb/mmcf	3.55	85.28	2,558.4	30,700.8
SOx	1.47 lb/mmcf	0.746	17.91	537.3	6447

RULES COMPLIANCE

RULE 212: The proposed project qualifies as a significant project because the emission increases exceed the daily maximums specified in subdivision (g) of this rule. A public notice to all addresses within a ¼-mile radius of this project is required.

RULE 401: Compliance is expected. Visible emissions are not expected from proper operation of this equipment. Applicant is currently operating similar equipment without incidence.

RULE 402: Compliance is expected. Nuisance is not expected if equipment is properly operated and maintained. Applicant is currently operating similar equipment without nuisance.

RULE 404: In compliance, based on PM emission from natural gas burning only. The particulate matter concentration (PMC) calculated (0.004 gr/dscf) for the exhaust stack complies with the rule limit of 0.0349 gr/dscf.
PMC = (3.18 lb/hr x 7,000 gr/lb)/(89,800 dscfm x 60 min/hr) = 0.004 gr/dscf.

RULE 405: In compliance. For process weight of 325 tons/hr, the allowable discharge rate is 26.1 lb/hr.

RULE 407: Compliance is expected. CO and SOx emissions are expected to be below the rule limit of 2000 ppm and 500 ppm respectively, since natural gas is the sole source of these two contaminants.

RULE 1401: T-BACT this furnace is natural gas firing. The combined MICR is less than ten in a million; the residential risk is calculated at 8.09 in a million and the commercial risk is calculated at 0.255 in a million. See attached R1401 calculation sheets.

REG XIII/XX: **BACT** for CO, PM_{10}, ROG, and SOx is natural gas firing. The furnace is in compliance.
CSI will be subject to the BACT limit for Ammonia slip in the SCR of 10 ppm. Current achieved in practice BACT for a metal heating furnace is natural gas combustion with low NOx burners ≤ 50 ppmvd @ 3% O_2, dry. The SCR is expected to achieve NOx emissions less than 25 ppm (@70%), thus the low SCR efficiency should be allowed in this application.

Modeling

The CO and PM_{10} emission rates for the RF5 are below the screening levels found on Table A-1 of Rule 1303. No further analysis is required, even though the table is for combustion sources 40 MMBtu/hr or less and RF5 is almost 530 MMBtu/hr.

Table A-1 of Rule 2005 has NOx screening limit of 1.31 lb/hr combustion equipment up to 40 MMBtu/hr. RF5 emission rate is above the screening limit, a

SCREEN3 modeling analysis was performed for NOx. The results of the analysis were added to the highest background concentration found within the South Coast Basin (SCB) for the last three years available (2004, 2005 and 2006). 2004 had the highest NOx concentration in the SCB for 1-hour and annual averaging, 0.16 ppm and 0.0332 ppm respectively. To covert ppmv to $\mu g/m^3$ the following formula was used: $\mu g/m^3 = \{(ppmv \times MW) \div (24.104)\} \times 10^3$

Background NOx is: $(0.16 \text{ ppm} \times 46 \div 24.104) \times 10^3 = 305.34\ \mu g/m^3$
NOx per SCREEN3 is: $2.178\ \mu g/m^3$

The combined calculated concentration of $307.518\ \mu g/m^3$ for NOx, Background plus RF5, is below the Most Stringent Standard of $500\ \mu g/m^3$. The increase in NOx emissions from this furnace does not cause a significant change in the 1-hr air quality concentration, no further modeling is required.

Emission Offsets
Rule 1303 (b)(2) specifies that and applicant must provide emission reduction credits (ERCs) at an offset ratio of 1.2:1.0 of the emission increase. Rule 1306(d) specifies that a new equipment requiring a permit, emissions are calculated per 1306(b). Rule 1306(b) states than emission increases are to be calculated using calendar monthly emissions divided by 30 and on a pound per day basis from permit conditions limiting emissions.

CSI's PTE is above the exemption threshold limit for all the Criteria Pollutants. **Offsets** are required for emission increases as noted in the table above prior to permit issuance. CSI possesses sufficient RECLAIM Trading Credits to accommodate the increase in NOx emissions. For CO offsets will not be required, EPA has re-designated the South Coast Air Basin in attainment with CO National Ambient Air Quality Standards.

In 2002, CSI tried to purchase emission offsets to operate RH5 without limiting conditions. However, sufficient PM_{10} offsets were not available at the time and put the project on hold. Sufficient PM_{10} offsets are still not available, and because of the unavailability of PM_{10} ERCs, CSI wishes to operate RH5 under a combined natural gas usage limit with RH4 of 425.01 mmcf/mo. 425.01 mmcf is a usage increase of 59.52 mmcf from what RH4 is allowed. CSI has found and purchased 15 pounds of PM_{10} ERCs to offset the natural gas usage increase; they are also aware that they will need to purchase ERC offsets for ROG and SOx as noted below:

Criteria Pollutant	Emission Factor	Monthly Increase (lb)	30 Day Ave (lb/day)	ERC Rate	ERCs Required
CO	35 lb/mmcf	2083.2	69 (69.44)	N/A	-
NO_{XR2}	18.9 lb/mmcf	1124.93	37 (37.498)	N/A	-
PM_{10}	6.3 lb/mmcf	374.98	12 (12.499)	1.2	14 (14.4)
ROG	7.0 lb/mmcf	416.64	14 (13.888)	1.2	17 (16.8)
SOx	0.6 lb/mmcf	35.71	1 (1.19)	1.2	1 (1.2)

REG XXX/Title V – The addition of Reheat Furnace 5 is considered a de minimis significant permit revision. EPA 45-day review is required.

RECOMMENDATION

Approve permit to construct as described in the facility permit and this report once the required ERCs are provided.

TIER 3 SCREENING RISK ASSESSMENT

A/N:	469832	Application deemed complete date:	06/15/07
Fac:	California Steel Industries		

2. Tier 2 Data

MET Factor	1.00
4 hr	0.92
6 or 7 hrs	0.78

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	0.28456621	15.58
Commercial	0.092968037	5.09

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
b1	Benzene (including benzene from gasoline)	8.57E-04	8.57E-04	1.00E-01	1	1	1	1	60	1300
f3	Formaldehyde	1.82E-03	1.82E-03	2.10E-02	1	1	1	1	3	94
p9	PolyCyclic Aromatic Hydrocarbon (PAHs)	2.00E-04	2.00E-04	3.90E+00	29.76	14.62107	1	1		
					1	1	1	1		
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4. Emission Calculations

Compound	uncontrolled R1-lb/hr	controlled R2-lb/hr	R2-lb/yr	R2-ton/yr
Benzene (including benzene from gasoline)	8.57E-04	8.57E-04	7.19964	0.0035998
Formaldehyde	1.82E-03	1.82E-03	15.24768	0.0076238
PolyCyclic Aromatic Hydrocarbon (PAHs)	2.00E-04	2.00E-04	1.68	0.00084
Total	2.87E-03	2.87E-03	2.41E+01	1.21E-02

A/N: 469832 **Date:** 06/15/07

TIER 3 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
Benzene (including benzene from gasoline)	2.97E-08	1.89E-09
Formaldehyde	1.32E-08	8.43E-10
PolyCyclic Aromatic Hydrocarbon (PAHs)	8.04E-06	2.52E-07
Total	**8.09E-06**	**2.55E-07**
	Pass	**Pass**

5a. Cancer Burden			yes
X/Q for one-in-a-million:			0.04
Distance (meter			89.98
Area (km2):			0.03
Population:			178
Cancer Burden:			**1.44E-03**

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		
Bones and teeth - BN		
Cardiovascular system - CV		
Developmental - DEV	8.63E-06	1.71E-05
Endocrine system - END		
Eye	3.01E-04	7.23E-04
Hematopoietic system - HEM	8.63E-06	1.71E-05
Immune system - IMM	3.09E-04	
Kidney - KID		
Nervous system - NS		1.71E-05
Reproductive system - REP	8.63E-06	
Respiratory system - RES	3.01E-04	7.23E-04
Skin		

A/N: 469832 **Date:** 06/15/07

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
Benzene (including benzene			8.63E-06		8.63E-06	8.63E-06		8.63E-06		
Formaldehyde				3.01E-04		3.01E-04			3.01E-04	
PolyCyclic Aromatic Hydroc										
Total			8.63E-06	3.01E-04	8.63E-06	3.09E-04		8.63E-06	3.01E-04	

	HIA - Commercial									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Benzene (including benzene			2.82E-06		2.82E-06	2.82E-06		2.82E-06		
Formaldehyde				9.83E-05		9.83E-05			9.83E-05	
PolyCyclic Aromatic Hydroc										
Total			2.82E-06	9.83E-05	2.82E-06	1.01E-04		2.82E-06	9.83E-05	

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
Benzene (including benzene				1.71E-05			1.71E-05			1.71E-05			
Formaldehyde						7.23E-04						7.23E-04	
PolyCyclic Aromatic Hydroc													
Total				1.71E-05		7.23E-04	1.71E-05			1.71E-05		7.23E-04	

A/N: 469832 **Date:** 06/15/07

	HIC - Commercial												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Benzene (including benzene				5.58E-06			5.58E-06			5.58E-06			
Formaldehyde						2.36E-04						2.36E-04	
PolyCyclic Aromatic Hydroc													
Total				5.58E-06		2.36E-04	5.58E-06			5.58E-06		2.36E-04	

TIER 1 SCREENING RISK ASSESSMENT

Receptor Distance (actual)	920
Receptor Distance (for X/Q lookup)	100

Tier 1 Results	
Cancer/Chronic ASI	**Acute ASI**
3.93E-01	2.82E-01
passed	passed

APPLICATION SCREENING INDEX CALCULATION

Code	Compound	Average Annual Emission Rate (lbs/yr)	Max Hourly Emission Rate (lbs/hr)	Cancer / Chronic Pollutant Screening Level (lbs/yr)	Acute Pollutant Screening Level (lbs/hr)	Cancer / Chronic Pollutant Screening Index (PSI)	Acute Pollutant Screening Index (PSI)
a9	Ammonia	2.03E+04	2.42E+00	5.17E+04	8.57E+00	3.93E-01	2.82E-01
	TOTAL (APPLICATION SCREENING INDEX)					**3.93E-01**	**2.82E-01**

10/06/07
12:22:29

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 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Reheat Furnace 5 (A/N 469832)

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE            =        POINT
   EMISSION RATE (G/S)    =      1.20076
   STACK HEIGHT (M)       =      42.0624
   STK INSIDE DIAM (M)    =       2.4384
   STK EXIT VELOCITY (M/S)=      74.2816
   STK GAS EXIT TEMP (K)  =     449.8167
   AMBIENT AIR TEMP (K)   =     293.0000
   RECEPTOR HEIGHT (M)    =        .0000
   URBAN/RURAL OPTION     =        URBAN
   BUILDING HEIGHT (M)    =        .0000
   MIN HORIZ BLDG DIM (M) =        .0000
   MAX HORIZ BLDG DIM (M) =        .0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

   STACK EXIT VELOCITY WAS CALCULATED FROM
   VOLUME FLOW RATE =   735000.00     (ACFM)

BUOY. FLUX =  377.474 M**4/S**3;  MOM. FLUX = 5342.497 M**4/S**2.

*** FULL METEOROLOGY ***

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*** SCREEN AUTOMATED DISTANCES ***
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*** TERRAIN HEIGHT OF    0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***
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DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
25.	.5513E-06	6	1.0	1.5	10000.0	196.46	31.15	31.10	NO
100.	.7947E-02	6	1.0	1.5	10000.0	196.46	45.41	44.74	NO
200.	.7994E-01	4	20.0	28.6	6400.0	89.59	31.15	27.60	NO
300.	.6285	4	20.0	28.6	6400.0	89.59	45.65	40.56	NO
400.	1.020	4	20.0	28.6	6400.0	89.59	59.75	53.28	NO
500.	1.092	4	20.0	28.6	6400.0	89.59	73.39	65.68	NO
600.	1.054	4	15.0	21.5	4800.0	105.43	86.90	78.10	NO
700.	.9977	4	15.0	21.5	4800.0	105.43	99.73	89.91	NO
800.	.9405	4	10.0	14.3	3200.0	137.12	113.17	102.52	NO
900.	.9056	4	10.0	14.3	3200.0	137.12	125.34	113.86	NO
1000.	.8527	4	10.0	14.3	3200.0	137.12	137.18	124.94	NO
1100.	.8155	4	8.0	11.5	2560.0	160.88	149.85	137.02	NO
1200.	.8152	6	2.5	3.8	10000.0	155.82	113.27	65.94	NO
1300.	.9191	6	2.0	3.1	10000.0	164.61	121.16	69.95	NO
1400.	1.022	6	2.0	3.1	10000.0	164.61	128.17	72.61	NO
1500.	1.123	6	1.5	2.3	10000.0	176.94	136.02	76.91	NO
1600.	1.220	6	1.5	2.3	10000.0	176.94	142.73	79.40	NO

1700.	1.312	6	1.0	1.5	10000.0	196.46	150.87	84.59	NO
1800.	1.411	6	1.0	1.5	10000.0	196.46	157.29	86.89	NO
1900.	1.502	6	1.0	1.5	10000.0	196.46	163.60	89.15	NO
2000.	1.586	6	1.0	1.5	10000.0	196.46	169.81	91.36	NO
2100.	1.662	6	1.0	1.5	10000.0	196.46	175.92	93.53	NO
2200.	1.732	6	1.0	1.5	10000.0	196.46	181.93	95.65	NO
2300.	1.795	6	1.0	1.5	10000.0	196.46	187.84	97.75	NO
2400.	1.851	6	1.0	1.5	10000.0	196.46	193.66	99.80	NO
2500.	1.902	6	1.0	1.5	10000.0	196.46	199.40	101.82	NO
2600.	1.947	6	1.0	1.5	10000.0	196.46	205.04	103.80	NO
2700.	1.986	6	1.0	1.5	10000.0	196.46	210.60	105.76	NO
2800.	2.021	6	1.0	1.5	10000.0	196.46	216.09	107.68	NO
2900.	2.051	6	1.0	1.5	10000.0	196.46	221.49	109.57	NO
3000.	2.077	6	1.0	1.5	10000.0	196.46	226.82	111.44	NO
3500.	2.158	6	1.0	1.5	10000.0	196.46	252.40	120.37	NO
4000.	2.179	6	1.0	1.5	10000.0	196.46	276.42	128.74	NO
4500.	2.162	6	1.0	1.5	10000.0	196.46	299.09	136.63	NO
5000.	2.123	6	1.0	1.5	10000.0	196.46	320.59	144.12	NO
5500.	2.071	6	1.0	1.5	10000.0	196.46	341.07	151.25	NO
6000.	2.013	6	1.0	1.5	10000.0	196.46	360.64	158.07	NO
6500.	1.951	6	1.0	1.5	10000.0	196.46	379.41	164.62	NO
7000.	1.889	6	1.0	1.5	10000.0	196.46	397.46	170.93	NO
7500.	1.827	6	1.0	1.5	10000.0	196.46	414.85	177.01	NO
8000.	1.767	6	1.0	1.5	10000.0	196.46	431.66	182.90	NO
8500.	1.709	6	1.0	1.5	10000.0	196.46	447.92	188.61	NO
9000.	1.654	6	1.0	1.5	10000.0	196.46	463.69	194.16	NO
9500.	1.601	6	1.0	1.5	10000.0	196.46	479.01	199.55	NO
10000.	1.550	6	1.0	1.5	10000.0	196.46	493.91	204.81	NO
15000.	1.164	6	1.0	1.5	10000.0	196.46	625.20	251.44	NO
20000.	.9256	6	1.0	1.5	10000.0	196.46	734.66	290.73	NO
25000.	.7663	6	1.0	1.5	10000.0	196.46	830.33	325.33	NO
30000.	.6531	6	1.0	1.5	10000.0	196.46	916.32	356.60	NO
40000.	.5037	6	1.0	1.5	10000.0	196.46	1068.07	412.09	NO
50000.	.4097	6	1.0	1.5	10000.0	196.46	1201.01	460.95	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 25. M:

3983.	2.179	6	1.0	1.5	10000.0	196.46	275.58	128.45	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

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*** SCREEN DISCRETE DISTANCES ***
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*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
920.	.8960	4	10.0	14.3	3200.0	137.12	127.73	116.09	NO
1873.	1.478	6	1.0	1.5	10000.0	196.46	161.91	88.54	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)

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 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

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     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ***************************************

 CALCULATION        MAX CONC    DIST TO   TERRAIN
  PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
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SIMPLE TERRAIN      2.179         3983.        0.


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** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
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