



# South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178  
(909) 396-2000 • www.aqmd.gov

November 18, 2014

Mr. Gerardo C. Rios  
Chief of Permit Operation  
U. S. EPA, Region IX, AIR 3  
75 Hawthorne Street  
San Francisco, CA 94105-3901

Dear Mr. Rios:

Sierra Aluminum Company (ID 54402) has proposed to revise their Title V Permit by the addition of a new billet oven. This is an aluminum melting/aluminum extrusion facility (NAICS Code 331316) located at 2345 Fleetwood Drive, Riverside CA 92509. This proposed permit revision is considered a "de minimus significant" permit revision to their Title V permit. Attached for your review are the evaluation and permit for the proposed permit revision. With your anticipated receipt of the proposed Title V permit revision today, we will note that the EPA 45-day review period begins on November 18, 2014.

If you have any questions or need additional information regarding the proposed permit revision, please call Monica Fernandez-Neild at 909.396.2202.

Very truly yours,

A handwritten signature in black ink that reads "Mohan Balagopalan". The signature is fluid and cursive.

Mohan Balagopalan  
Senior Manager  
Chemical, Mechanical and Port Permitting

MB:mfn

Attachments

## FACILITY PERMIT TO OPERATE SIERRA ALUMINUM COMPANY

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
<b>Process 2: HEAT TREATING</b>					
<b>System 2: BILLET FURNACES</b>					
OVEN, HEAT TREATING, ALUMINUM BILLET NO. 4, NATURAL GAS, GRANCO CLARK, 5.43 MMBTU/HR WITH A/N:  BURNER, NATURAL GAS, GRANCO CLARK, MODEL 69-35-3 HOT-JET, WITH LOW NOX BURNER, FLUE GAS RECIRCULATION, 5.43 MMBTU/HR	D46		NOX: PROCESS UNIT**	CO: 2000 PPMV (5) [RULE 407, 4-2-1982]; NOX: 30 PPMV NATURAL GAS (3) [RULE 2012, 5-6-2005]; NOX: 50 PPMV NATURAL GAS (4) [RULE 2005, 6-3-2011]; PM: (9) [RULE 404, 2-7-1986]; PM: 0.1 GRAINS/SCF (5) [RULE 409, 8-7-1981]	C1.4, C6.3, D29.1, D29.4, D323.1, I297.1

- \* (1) (1A) (1B) Denotes RECLAIM emission factor
  - (3) Denotes RECLAIM concentration limit
  - (5) (5A) (5B) Denotes command and control emission limit
  - (7) Denotes NSR applicability limit
  - (9) See App B for Emission Limits
  - (2) (2A) (2B) Denotes RECLAIM emission rate
  - (4) Denotes BACT emission limit
  - (6) Denotes air toxic control rule limit
  - (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
  - (10) See section J for NESHAP/MACT requirements
- \*\* Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

**FACILITY PERMIT TO OPERATE  
SIERRA ALUMINUM COMPANY**

**SECTION H: DEVICE ID INDEX**

**The following sub-section provides an index  
to the devices that make up the facility  
description sorted by device ID.**

**FACILITY PERMIT TO OPERATE  
SIERRA ALUMINUM COMPANY**

**SECTION H: DEVICE ID INDEX**

<b>Device Index For Section H</b>			
<b>Device ID</b>	<b>Section H Page No.</b>	<b>Process</b>	<b>System</b>
D46	1	2	2

## FACILITY PERMIT TO OPERATE SIERRA ALUMINUM COMPANY

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

#### DEVICE CONDITIONS

##### C. Throughput or Operating Parameter Limits

C1.4 The operator shall limit the fuel usage to no more than 4.3 MM cubic feet in any one calendar month.

To comply with this condition, the operator shall install and maintain a(n) non-resettable totalizing fuel meter to accurately indicate the fuel usage in the fuel supply line.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

This limit shall be based on the total combined limit for equipment device D7, D8, D28 and D46.

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition : D46]

C6.3 The operator shall use this equipment in such a manner that the temperature being monitored, as indicated below, does not exceed 1000 Deg F.

To comply with this condition, the operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the Aluminum Billet Log.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition : D46]

##### D. Monitoring/Testing Requirements

## FACILITY PERMIT TO OPERATE SIERRA ALUMINUM COMPANY

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

D29.1 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NOX emissions	Approved District method	District-approved averaging time	Outlet

The test shall be conducted every five-year period, with the first five-year period ending June 30, 2014.

[RULE 2012, 5-6-2005]

[Devices subject to this condition : D46]

D29.4 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
CO emissions	Approved District method	District-approved averaging time	Outlet
NOX emissions	Approved District method	District-approved averaging time	Outlet

## **FACILITY PERMIT TO OPERATE SIERRA ALUMINUM COMPANY**

### **SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE**

#### **The operator shall comply with the terms and conditions set forth below:**

In addition to the source test requirements of Section E of this facility permit, notify the District of the date and time of the test at least 10 days prior to the test.

The test(s) shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up.

The test shall be conducted to demonstrate compliance with the NO<sub>x</sub> BACT limit of 50 ppmv at 3 percent Oxygen.

Notwithstanding the requirements of Section E conditions, the source test results shall be submitted to the District no later than 60 days after the source test was conducted.

Mail completed source test report to SCAQMD, P.O. Box 4941, Diamond Bar CA 91765.

**[RULE 2005, 5-6-2005; RULE 2012, 5-6-2005]**

[Devices subject to this condition : D46]

## FACILITY PERMIT TO OPERATE SIERRA ALUMINUM COMPANY

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

**The operator shall comply with the terms and conditions set forth below:**

D323.1 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on a semi-annual basis, at least, unless the equipment did not operate during the entire semi-annual period. The routine semi-annual inspection shall be conducted while the equipment is in operation and during daylight hours.

If any visible emissions (not including condensed water vapor) are detected that last more than three minutes in any one hour, the operator shall verify and certify within 24 hours that the equipment causing the emission and any associated air pollution control equipment are operating normally according to their design and standard procedures and under the same conditions under which compliance was achieved in the past, and either:

- 1). Take corrective action(s) that eliminates the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit; or
- 2). Have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual "Visible Emission Evaluation", within three business days and report any deviations to AQMD.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records:

- 1). Stack or emission point identification;
- 2). Description of any corrective actions taken to abate visible emissions;
- 3). Date and time visible emission was abated; and
- 4). All visible emission observation records by operator or a certified smoke reader.

**[RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]**

## FACILITY PERMIT TO OPERATE SIERRA ALUMINUM COMPANY

### SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

[Devices subject to this condition : D46]

#### I. Administrative

- I297.1 This equipment shall not be operated unless the facility holds 1703 pounds of NO<sub>x</sub> RTCs in its allocation account to offset the annual emissions increase for the first year of operation. RTCs held to satisfy this condition may be transferred only after one year from the initial start of operation. If the hold amount is partially satisfied by holding RTCs that expire midway through the hold period, those RTCs may be transferred upon their respective expiration dates. This hold amount is in addition to any other amount of RTCs required to be held under other condition(s) stated in this permit.

[RULE 2005, 6-3-2011]

[Devices subject to this condition : D46]

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**PERMIT TO CONSTRUCT ANALYSIS**

**FACILITY MAILING ADDRESS**

Sierra Aluminum Company  
2345 Fleetwood Drive  
Riverside, CA 92509

(ID: 054402 NOx RECLAIM Cycle 2 - TITLE V)

**EQUIPMENT LOCATION**

Same

**EQUIPMENT DESCRIPTION**

**APPLICATION NO. 569498 - NEW CONSTRUCTION**

PROCESS 4: HEAT TREATING

SYSTEM 2: BILLET FURNACES

OVEN, (NEW), BILLET, GRANCO-CLARK, MODEL NO. 69-35-3, HOT-JET  
RECUPERATION, ONE 20'-0" PRE-HEATING CHAMBER, ONE 30'-0" DIRECT  
FIRE HEATING CHAMBER, 5,430,000 BTU/HR, LOW NOX, FLUE GAS  
RECIRCULATION, NATURAL GAS BURNER WITH ONE 7.5 HP COMBUSTION  
BLOWER.

**APPLICATION NO. 569499 - FACILITY PERMIT MODIFICATION**

**HISTORY**

Application No. 569498 was filed on October 29, 2014, for a Class I Permit to Construct.  
Application No. 569499 was filed on October 29, 2014, for a Facility Permit Modification.

**Complaints** There were no complaints credited to Sierra Aluminum during the past 2 years.

**Notice to Comply**

E12233, 12/20/12 to conduct all RECLAIM Large and Process Unit Source Tests within the 3-yr or 5-yr periods specified by Rule 2012. 2) Report emissions for Large, Process and Rule 219 equipment using all available record identifiers.  
NOV issued, see below.

**Notices of Violation**

P57817, 12/31/13 for failure to report electronic emissions for Large Sources, Process Units and Rule 219 equipment using all available record identifiers.

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**PROCESS DESCRIPTION**

Sierra Aluminum has both a Casting House (Foundry) and an Extrusion Building at this location. Within the Casting House Aluminum Ingot and clean aluminum scrap is melted in the Reverberatory Furnaces. Once the aluminum is melted it is treated in the Degasser Unit and filtered in the Filtering Unit. The molted aluminum is then cast into billets in the Billet Ovens. After casting, the billets are treated in the Heat Treating Furnaces (aka Homogenizing Ovens) to stabilize the billets. The billets then leave the Casting House and go to the Extrusion Building to be extruded. After extrusion, the parts enter the aging ovens to stress relieve the metal.

**EVALUATION**

Sierra Aluminum has proposed to replace the existing No. 2 Aluminum Billet Oven (#2 ABO), Device ID D8, with a new similarly rated one. The New Billet Oven (#4 ABO) will be rated slightly less than the current oven 5.43 mmbtu/hr vs. 5.47 mmbtu/hr. Currently the #2 ABO has a combined monthly fuel limit of 4.3 mmcf with the #1 ABO and #3. Due to the combined monthly fuel limit, the Facility wide emissions are expected to be unchanged. Maximum monthly Criteria Pollutant emissions are expected to be identical.

<b>New Billet Oven</b>	<b>D46</b>	<b>A/N 569498</b>
Operating Schedule:	24 hrs/day, 6 days/wk, 50 wks/yr (Maximum)	
Maximum Heat Input:	5.43 MMBtu/hr	
Monthly Fuel Limit:	4.3 mmcf (Combined for D7, D28 & D46)	
Aluminum Operating Temperatures:	Zone 1-680°F; Zone 2-800°F; Zone 3-950°F	
Maximum Aluminum Temperature:	1000°F (See condition C6.3)	
NOx Emissions:	30 ppmv (Manufacturer's guarantee, to be verified by conditioned source test.)	

See **Attachment 1** for the Maximum Criteria Pollutant Emission Calculations for the New Aluminum Billet Oven. Maximum yearly NOx emissions will be used for RECLAIM holding requirement (See I297.1). This oven is part of a fuel usage bubble, 30-day average emissions shall be brought forward from previous permit.

**RULES COMPLIANCE**

**RULE 212** Public Notification  
**Paragraph 212 (c)(1)** 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. According to the website geodistance.com the closest school, Patricia Beatty Elementary School is

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over 4,500 feet from Sierra Aluminum's property line. A 30-Day Public Notice is not required under this paragraph.

**Paragraph 212(c)(2)** The equipment will not result in on-site emission increase exceeding the daily maximums as specified in the table in Rule 212(g). Therefore, a 30-day public notice period will not be required under this paragraph.

**Paragraph 212(c)(3)** Public notice will not be required under this paragraph. See Rule 1401 evaluation section.

- RULE 401** Visible emissions are not expected with proper operation and maintenance of this equipment.
- RULE 402** Nuisance is not expected with proper operation and maintenance of this equipment.
- RULE 404** The oven is in compliance with this rule. Natural gas combustion is the only source of PM contaminants. The maximum expected PM concentration of 0.0029 gr/dscf is well below the allowable limit of 0.158 gr/dscf (see Table 404(a)) for an oven discharge of 1,560 dscfm.
- $$PM = \frac{0.0388 \text{ lb/hr} \times 7000 \text{ gr/lb}}{1560 \text{ scfm} \times 60 \text{ min/hr}} = 0.0029 \text{ gr/scf}$$
- RULE 405** The ovens are in compliance. For process weight of 6,800 lbs/hr, the allowable discharge rate is 6.95 lb/hr.
- RULE 407:** Compliance is expected. CO is expected to be below 2000 ppm. Burner manufacturer has source test results on record for similar equipment with CO emissions averaging less than 400 ppm @ 3% O<sub>2</sub>.
- RULE 1147:** Sierra Aluminum is in NOx RECLAIM and thus is not subject to Rule 1147.

**REG XIII/XX: BACT**

Small Source BACT for Metal Heat Treating Furnaces is natural gas combustion with Low NOx burner  $\leq$  50 ppmvd. The applicant has requested the NOx concentration limit for RECLAIM reporting to be 30 ppmv for the new Aluminum Billet Oven. Compliance with the limit is expected and will be verified with a source test. See Condition D29.4

**Modeling**

Heat Input Range mmbtu/hr	NOx Lbs/hr	CO Lbs/hr	PM <sub>10</sub> Lbs/hr
>5 < 10	0.47	25.9	2.8
Billet Oven D46 5.43	0.1971	0.1810	0.0388

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Criteria Pollutants are below the screening level of Table A-1. No further modeling is required.

**Offsets**

Sierra Aluminum is in NOx RECLAIM. Sierra Aluminum holds enough NOx RTCs to offset the increase associated with these proposed applications. See condition I297.1 for NOx RTC hold requirement per Rule 2005.

Offsets are not required for the other Criteria Pollutants, ROG, SOx, CO and PM<sub>10</sub> are below the offset threshold. See NSR PTE summary included in application folder.

**RULE 1401** The Billet Oven is in compliance with Tier II Screening, maximum monthly emissions used in calculation. See attached Rule 1401 calculation sheets.

**RULE 1407** Not applicable, metal melting does not occur in this oven.

**REG XXX** This is a de minimus significant permit revision; a 45-day EPA review is required.

**RECOMMENDATION**

Issue Permits to Construct for the following equipment as described in this evaluation and noted in the Facility Permit.

**APPLICATION NO. 569498 - NEW CONSTRUCTION**

OVEN, (NEW), BILLET, GRANCO-CLARK, MODEL NO. 69-35-3, HOT-JET RECUPERATION, ONE 20'-0" PRE-HEATING CHAMBER, ONE 15'-0" DIRECT FIRE HEATING CHAMBER, 5,430,000 BTU/HR, LOW NOX, FLUE GAS RECIRCULATION, NATURAL GAS BURNER WITH ONE 7.5 HP COMBUSTION BLOWER.

**Conditions:**

**C1.4** THE OPERATOR SHALL LIMIT THE FUEL USAGE TO NO MORE THAN 4.3 MM CUBIC FEET IN ANY ONE CALENDAR MONTH.

To comply with this condition, the operator shall install and maintain a non-resettable totalizing fuel meter to accurately indicate the fuel usage in the fuel supply line.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

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This limit shall be based on the total combined limit for equipment device D7, D8 D28 and D46.

**C6.3 THE OPERATOR SHALL USE THIS EQUIPMENT IN SUCH A MANNER THAT THE TEMPERATURE BEING MONITORED, AS INDICATED BELOW, DOES NOT EXCEED 1000 DEG F.**

To comply with this condition, the operator shall install and maintain a(n) temperature gauge to accurately indicate the temperature of the Aluminum Billet Log.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

**D29.1 THE OPERATOR SHALL CONDUCT SOURCE TEST(S) FOR THE POLLUTANT(S) IDENTIFIED BELOW.**

POLLUTANT(S) TO BE TESTED	REQUIRED TEST METHOD(S)	AVERAGING TIME	TEST LOCATION
NOX EMISSIONS	APPROVED DISTRICT METHOD	DISTRICT-APPROVED AVERAGING TIME	OUTLET

The test shall be conducted every five period, with the first five year period ending June 30, 2014.

**D29.4 THE OPERATOR SHALL CONDUCT SOURCE TEST(S) FOR THE POLLUTANT(S) IDENTIFIED BELOW.**

POLLUTANT(S) TO BE TESTED	REQUIRED TEST METHOD(S)	AVERAGING TIME	TEST LOCATION
NOX EMISSIONS	APPROVED DISTRICT METHOD	DISTRICT APPROVED	OUTLET
CO EMISSIONS	APPROVED DISTRICT METHOD	DISTRICT APPROVED	OUTLET

In addition to the source test requirements of Section E of this facility permit, notify the District of the date and time of the test at least 10 days prior to the test.

The test(s) shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up.

The test shall be conducted to demonstrate compliance with the BACT limit of 50 ppmv at 3 percent oxygen for NOx.

Notwithstanding the requirements of Section E conditions, the source test results shall be submitted to the District no later than 30 days after the source test was conducted.

Mail completed source test report to SCAQMD, P.O. Box 4941, Diamond Bar, CA 91765.

**D323.1 THE OPERATOR SHALL CONDUCT AN INSPECTION FOR VISIBLE EMISSIONS FROM ALL STACKS AND OTHER EMISSION POINTS OF THIS**

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EQUIPMENT WHENEVER THERE IS A PUBLIC COMPLAINT OF VISIBLE EMISSIONS, WHENEVER VISIBLE EMISSIONS ARE OBSERVED, AND ON A SEMI-ANNUAL BASIS, AT LEAST, UNLESS THE EQUIPMENT DID NOT OPERATE DURING THE ENTIRE SEMI-ANNUAL PERIOD. THE ROUTINE SEMI-ANNUAL INSPECTION SHALL BE CONDUCTED WHILE THE EQUIPMENT IS IN OPERATION AND DURING DAYLIGHT HOURS.

IF ANY VISIBLE EMISSIONS (NOT INCLUDING CONDENSED WATER VAPOR) ARE DETECTED THAT LAST MORE THAN THREE MINUTES IN ANY ONE HOUR, THE OPERATOR SHALL VERIFY AND CERTIFY WITHIN 24 HOURS THAT THE EQUIPMENT CAUSING THE EMISSION AND ANY ASSOCIATED AIR POLLUTION CONTROL EQUIPMENT ARE OPERATING NORMALLY ACCORDING TO THEIR DESIGN AND STANDARD PROCEDURES AND UNDER THE SAME CONDITIONS UNDER WHICH COMPLIANCE WAS ACHIEVED IN THE PAST, AND EITHER:

- 1). TAKE CORRECTIVE ACTION(S) THAT ELIMINATES THE VISIBLE EMISSIONS WITHIN 24 HOURS AND REPORT THE VISIBLE EMISSIONS AS A POTENTIAL DEVIATION IN ACCORDANCE WITH THE REPORTING REQUIREMENTS IN SECTION K OF THIS PERMIT;  
OR
- 2). HAVE A CARB-CERTIFIED SMOKE READER DETERMINE COMPLIANCE WITH THE OPACITY STANDARD, USING EPA METHOD 9 OR THE PROCEDURES IN THE CARB MANUAL "VISIBLE EMISSION EVALUATION", WITHIN THREE BUSINESS DAYS AND REPORT ANY DEVIATIONS TO AQMD.

THE OPERATOR SHALL KEEP THE RECORDS IN ACCORDANCE WITH THE RECORDKEEPING REQUIREMENTS IN SECTION K OF THIS PERMIT AND THE FOLLOWING RECORDS:

- 1). STACK OR EMISSION POINT IDENTIFICATION;
- 2). DESCRIPTION OF ANY CORRECTIVE ACTIONS TAKEN TO ABATE VISIBLE EMISSIONS;
- 3). DATE AND TIME VISIBLE EMISSION WAS ABATED; AND
- 4). ALL VISIBLE EMISSION OBSERVATION RECORDS BY OPERATOR OR A CERTIFIED SMOKE READER.

**1297.1** THIS EQUIPMENT SHALL NOT BE OPERATED UNLESS THE FACILITY HOLDS 1703 POUNDS OF NOX RTCS IN ITS ALLOCATION ACCOUNT TO OFFSET THE ANNUAL EMISSIONS INCREASE FOR THE FIRST YEAR OF

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OPERATION. RTCS HELD TO SATISFY THIS CONDITION MAY BE TRANSFERRED ONLY AFTER ONE YEAR FROM THE INITIAL START OF OPERATION. IF THE HOLD AMOUNT IS PARTIALLY SATISFIED BY HOLDING RTCS THAT EXPIRE MIDWAY THROUGH THE HOLD PERIOD, THOSE RTCS MAY BE TRANSFERRED UPON THEIR RESPECTIVE EXPIRATION DATES. THIS HOLD AMOUNT IS IN ADDITION TO ANY OTHER AMOUNT OF RTCS REQUIRED TO BE HELD UNDER OTHER CONDITION(S) STATED IN THIS PERMIT.

EMISSIONS FOR FIRING ON NATURAL GAS  
(OVENS, FURNACES, HEATERS, ETC.)

Emission factors are from form B-1  
Except NOx which is calculated from the ppm of NOx

Maximum Burner Rating in BTU/hr =	5,430,000 BTU/hr
Average Operating Schedule =	18 hr/day
Maximum Operating Schedule =	24 hr/day
Expected emission of NOx=	30 ppm
Average Loading=	75.0%
Maximum Loading =	100.0%
Maximum operating days per month =	30 days

## AVERAGE EMISSIONS

RHC =	0.0272 lb/hr	0.4887 lb/day
NOx =	0.1478 lb/hr	2.6610 lb/day
SO2 =	0.0023 lb/hr	0.0419 lb/day
CO =	0.1358 lb/hr	2.4435 lb/day
PART =	0.0291 lb/hr	0.5236 lb/day

## MAXIMUM EMISSIONS

RHC =	0.0362 lb/hr	0.8688 lb/day
NOx =	0.1971 lb/hr	4.7306 lb/day
SO2 =	0.0031 lb/hr	0.0745 lb/day
CO =	0.1810 lb/hr	4.3440 lb/day
PART =	0.0388 lb/hr	0.9309 lb/day

## Thirty day average and yearly emissions

RHC =	0.87 lb/dy	313 lb/yr	26.06 lb/mo
NOx =	4.73 lb/dy	1703 lb/yr	141.92 lb/mo
SO2 =	0.07 lb/dy	27 lb/yr	2.23 lb/mo
CO =	4.34 lb/dy	1564 lb/yr	130.32 lb/mo
PART =	0.93 lb/dy	335 lb/yr	27.93 lb/mo

# Sierra Aluminum

# Aluminum Billet Ovens

## EMISSIONS FOR FIRING ON NATURAL GAS (OVENS, FURNACES, HEATERS, ETC.)

Emission factors are from form B-1  
Except NOx which is calculated from the ppm of NOx

Maximum Burner Rating in BTU/hr =	18,100,000 BTU/hr	D7+D28+D46
Max conditioned fuel usage =	4,300,000 CF/mo	
Previously conditioned fuel usage =	4,300,000 CF/mo	
Average Operating Schedule =	18 hr/day	
Maximum Operating Schedule =	24 hr/day	
Expected emission of NOx=	30 ppm	
Average Loading=	75.0%	
Maximum Loading =	100.0%	
Maximum operating days per month =	30 days	

### AVERAGE EMISSIONS

RHC =	0.0905 lb/hr	1.6290 lb/day
NOx =	0.4928 lb/hr	8.8699 lb/day
SO2 =	0.0078 lb/hr	0.1396 lb/day
CO =	0.4525 lb/hr	8.1450 lb/day
PART =	0.0970 lb/hr	1.7454 lb/day

### MAXIMUM EMISSIONS

RHC =	0.1207 lb/hr	2.8960 lb/day
NOx =	0.6570 lb/hr	15.7687 lb/day
SO2 =	0.0103 lb/hr	0.2482 lb/day
CO =	0.6033 lb/hr	14.4800 lb/day
PART =	0.1293 lb/hr	3.1029 lb/day

### Thirty day average emissions

RHC =	1.003 lb/dy	361.2 lb/yr
NOx =	5.504 lb/dy	1981.4 lb/yr
SO2 =	0.086 lb/dy	31.0 lb/yr
CO =	5.017 lb/dy	1806.0 lb/yr
PART =	1.075 lb/dy	387.0 lb/yr

### Monthly Emissions

RHC =	30.10 lb/mo
NOx =	165.12 lb/mo
SO2 =	2.58 lb/mo
CO =	150.50 lb/mo
PART =	32.25 lb/mo



# TIER 1 SCREENING RISK ASSESSMENT REPORT

Receptor Distance (actual)	100
Receptor Distance (for X/Q LOOKUP)	100

Tier 1 Results	
Cancer/Chronic ASI	Acute ASI
1.99E+00	2.54E-03
<b>FAILED</b>	<b>PASSED</b>

## APPLICATION SCREENING INDEX CALCULATION

Compound	Average Annual Emission Rate	Max Hourly Emission Rate (lbs/hr)	Cancer / Chronic Pollutant Screening Level (lbs/yr)	Acute Pollutant Screening Level (lbs/hr)	Cancer / Chronic Pollutant Screening Index	Acute Pollutant Screening Index (PSI)
Benzene (including benzene from gasoline)	2.98E-01	4.14E-05	8.92E+00	3.96E+00	3.34E-02	1.05E-05
Formaldehyde	6.33E-01	8.79E-05	4.25E+01	1.47E-01	1.49E-02	5.98E-04
PolyCyclic Aromatic Hydrocarbon (PAHs)	1.49E-02	2.07E-06	7.69E-03		1.94E+00	
Ammonia	1.19E+02	1.65E-02	5.17E+04	8.57E+00	2.31E-03	1.93E-03
<b>TOTAL (APPLICATION SCREENING INDEX)</b>					<b>1.99E+00</b>	<b>2.54E-03</b>

TIER 2 SCREENING RISK ASSESSMENT REPORT

A/N:   
 Fac:

569498
54402

Application deemed complete date: 10/29/14

2. Tier 2 Data

MEI Factor	0.81
4 hr	0.81
6 or 7 hrs	0.83

Dispersion Factors tables

3	For Chronic X/Q
6	For Acute X/Q

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

Receptor	X/Q	X/Qmax
Residential	0.3104	19.52
Commercial	5.32	295.2

Adjustment and Intake Factors

	AFarm	DBR	EVE
Residential	1	302	0.96
Worker	1.166666667	149	0.38





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**TIER 2 RESULTS**

**5a. MICR**  
 $MICR = CP \text{ (mg/(kg-day))}^{-1} * Q \text{ (ton/yr)} * (X/Q) * AFann * MET * DBR * EVF * 1E-6 * MP$

Compound	Residential	Commercial
Benzene (including benzene from gasoline)	1.09E-09	4.24E-09
Formaldehyde	4.84E-10	1.89E-09
PolyCyclic Aromatic Hydrocarbon (PAHs)	6.30E-08	1.21E-07
Ammonia		
<b>Total</b>	<b>6.46E-08</b>	<b>1.27E-07</b>
	<b>PASS</b>	<b>PASS</b>

No Cancer Burden, MICR < 1.0E-6

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

**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	Acute Pass/Fail	Chronic Pass/Fail
Alimentary system (liver) - AL			Pass	Pass
Bones and teeth - BN			Pass	Pass
Cardiovascular system - CV			Pass	Pass
Developmental - DEV	9.39E-06	1.07E-05	Pass	Pass
Endocrine system - END			Pass	Pass
Eye	2.00E-03		Pass	Pass
Hematopoietic system - HEM	9.39E-06	1.07E-05	Pass	Pass
Immune system - IMM	9.39E-06		Pass	Pass
Kidney - KID			Pass	Pass
Nervous system - NS		1.07E-05	Pass	Pass
Reproductive system - REP	9.39E-06		Pass	Pass
Respiratory system - RES	1.53E-03	1.44E-03	Pass	Pass
Skin			Pass	Pass

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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 from gasoline)			6.21E-07	3.12E-05	6.21E-07	6.21E-07		6.21E-07	1.01E-04	
formaldehyde				1.01E-04						
Polycyclic Aromatic Hydrocarbon (PAHs)										
ammonia										
<b>Total</b>			6.21E-07	1.32E-04	6.21E-07	6.21E-07		6.21E-07	1.01E-04	

Compound	HIA - Commercial									
	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Benzene (including benzene from gasoline)			9.39E-06	4.72E-04	9.39E-06	9.39E-06		9.39E-06		
Formaldehyde				1.53E-03					1.53E-03	
PolyCyclic Aromatic Hydrocarbon (PAHs)										
Ammonia										
<b>Total</b>			9.39E-06	2.00E-03	9.39E-06	9.39E-06		9.39E-06	1.53E-03	

b. Hazard Index Chronic

$$HIC = [Q(\text{ton/yr}) * (X/Q) * MET * MP] / \text{Chronic REL}$$

Compound	HIC - Residential												
	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
benzene (including benzene from gasoline)				6.24E-07			6.24E-07			6.24E-07			
formaldehyde												8.84E-06	
Polycyclic Aromatic Hydrocarbon (PAHs)												7.49E-05	
Ammonia													
<b>Total</b>				6.24E-07			6.24E-07			6.24E-07		8.37E-05	

6b. Hazard Index Chronic (cont.)

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Compound	HIC - Commercial												
	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Benzene (including benzene from gasoline)				1.07E-05			1.07E-05			1.07E-05			
Formaldehyde												1.52E-04	
PolyCyclic Aromatic Hydrocarbon (PAHs)													1.28E-03
Ammonia													
<b>Total</b>				1.07E-05			1.07E-05			1.07E-05		1.44E-03	