

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE

APPLICATION PROCESSING AND CALCULATION

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PERMIT TO CONSTRUCT/OPERATE

(FACILITY ID# 15504)

Applicant Name: SCHLOSSER FORGE COMPANY

Mailing Address: 11711 ARROW ROUTE.
RANCHO CUCAMONGA, CA 91730

Equipment Location: 11711 ARROW ROUTE.
RANCHO CUCAMONGA, CA 91730

EQUIPMENT DESCRIPTIONS:

APPLICATION NO. 548578

NEW: FURNACE, METAL HEATING, GOLD COAST REFRACTORY,
NATURAL GAS, 6.0 MMBTU/HR TOTAL, WITH TWO 3.0 MMBTU/HR
ECLIPSE THERMJET TJ0300 BURNERS.

APPLICATION NO. 548579

NEW: FURNACE, METAL HEATING, GOLD COAST REFRACTORY,
NATURAL GAS, 6.0 MMBTU/HR TOTAL, WITH TWO 3.0 MMBTU/HR
ECLIPSE THERMJET TJ0300 BURNERS.

APPLICATION NO. 548580

NEW: FURNACE, METAL HEATING, GOLD COAST REFRACTORY,
NATURAL GAS, 6.0 MMBTU/HR TOTAL, WITH TWO 3.0 MMBTU/HR
ECLIPSE THERMJET TJ0300 BURNERS.

APPLICATION NO. 550891, 550892

**CHANGE OF CONDITION BY ADDING MONTHLY HOURLY LIMIT AND
ADDING FACILITY-WIDE FOUR TON PM10 EMISSIONS CAP:**

D33: ABRASIVE BLASTING ROOM, GRIT

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**CHANGE OF CONDITION BY ADDING A FACILITY-WIDE FOUR TON
PM10 EMISSIONS CAP:**

**D138: ABRASIVE BLASTING, STEEL SHOT/GRIT, WITH TWO 30-HP
WHEELS**

APPLICATION NO. 550894-550905, 550907

**CHANGE OF CONDITION BY ADDING A FACILITY-WIDE FOUR TON
PM10 EMISSIONS CAP:**

D108: GRINDER BOOTH NO. 1

D110: GRINDER BOOTH NO. 3

D111: GRINDER BOOTH NO. 4

D112: GRINDER BOOTH NO. 5

D113: GRINDER BOOTH NO. 6

D114: GRINDER BOOTH NO. 7

D115: GRINDER BOOTH NO. 8

D116: GRINDER BOOTH NO. 9

D117: GRINDER BOOTH NO. 10

D118: GRINDER BOOTH NO. 11

D119: GRINDER BOOTH NO. 12

D120: GRINDER BOOTH NO. 13

D121: GRINDER BOOTH NO. 14

APPLICATION NO. 548577

TITLE V/RECLAIM REVISION

PERMIT CONDITIONS: (SEE TITLE V PERMIT)

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BACKGROUND:

Schlosser Forge is a Title V/RECLAIM facility. The facility specializes in the forging of seamless rolled rings, primarily for the aerospace industry.

On March 19, 2013, Schlosser Forge Company submitted an application package for the installation of three new metal furnaces to be operated under A/N's 548578-548580. In addition, they submitted a Title V/RECLAIM revision under A/N 548577.

On May 7, 2013, Schlosser Forge Company submitted another application package for a change of permit condition for two abrasive blasting machines and thirteen grinder booths for the purpose of adding a facility wide particulate emissions cap of 4 tons/year. The package was filed under A/N's 550891, 550892, 550894-550905, and 550907. The cap will establish a maximum potential to emit of PM10 for primary and secondary permitted sources, thereby maintaining the PM10 offset exemption allowed pursuant to Rule 1304.

Schlosser Forge proposed to maintain a New Source Review (NSR) balance of 22 lbs/day for PM10 by implementing a facility PM10 emissions cap that would cover all existing affected permitted processes. The new conditions include a proposed natural gas usage limit for all existing and new furnaces. In addition, a new hourly limit condition is added to abrasive blasting equipment (Device D33). All PM10 emission units will also have new conditions specifying how to calculate PM10.

PROCESS DESCRIPTION:

The facility specializes in the forging of seamless rolled rings, primarily for the aerospace industry. The rings are forged from an extensive array of alloys. The metal is pressed, pounded, or squeezed under pressure to create high strength parts. Schlosser Forge operates various natural gas fired furnace units, grinding and abrasive blasting equipment, baghouses, material storage tanks, one diesel fuel fired emergency internal combustion engine and related ancillary equipment.

PERMIT CONDITIONS: (SEE PERMIT)

EMISSION CALCULATIONS

A/N's 548578-548580- Three Metal Heating Furnaces

Process Emissions:

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Process emissions from furnaces are negligible. No metal melting in furnaces.

Combustion Emissions

Furnace Rating: 6.0 MMbtu/hr

Operation: 24 hours, 7 days, 52 weeks

Emission factors (AQMD General Instruction Book Appendix A Table 1):

CO = 35 lb/MMCF

NO_x = 50 PPMV (BACT limit)PM₁₀ = 7.5 lb/MMCF

ROG = 7 lb/MMCF

SO_x = 0.83 lb/MMCF**Emissions Summary for One Metal Heating Furnace**

	<i>VOC</i>	<i>NO_x</i>	<i>SO_x</i>	<i>CO</i>	<i>PM/PM₁₀</i>
Factor (lb/MM BTU)	0.0067	0.0607	0.0008	0.0333	0.0071
lb/hr	0.04	0.36	0.005	0.20	0.04
lb/day					
Max.	0.96	8.74	0.11	4.80	1.03
Avg.	0.96	8.74	0.11	4.80	1.03
lb/yr	349.44	3,181.80	41.43	1,747.20	374.40

The proposed facility fuel limit bubble is 64 MMscf/month.

PM₁₀ Emission Factor: 7.5 lb/MMCF

Maximum PM₁₀ Emissions

64 mmcf/mo x 7.5 lb PM₁₀/mmcf /30 days/mo = 16 lbs/day

A/N 550891: Abrasive Blasting (Process 2: Device 33)

Pre-modification

Previous NSR entry: 6 lbs PM₁₀/day

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Post Modification

Process Weight = 6,223 lb grit/hr

Emission factor = 0.010 lb PM10/ lb grit (Determined by Source Test in ventilation system of uncontrolled indoor blasting operation, SCAQMD 1988)

Baghouse = 98% control efficiency

Maximum Controlled PM10 emissions based on 48 hours/month limit

Lb PM10/day = 1.25 lbs/hr x 48 hr/month / 30 days/mo

= 60 lb/month / 30 days/month

= **2 lbs/day**

Change in Emissions: (post modification – premodification)

2-6 = - 4 lbs/day

Change of Condition will result in a decrease of 4 lbs/day. Facility recordkeeping will be calculated based on emission rate of 1.25 lbs/hour.

A/N 550892: Abrasive Blasting Machine (Process 2: Device D138)

Equipment will maintain operation under 299 hours in any calendar month under existing condition C1.4. Previous Engineering Evaluation and NSR shows **PM10 controlled emissions are 2 lbs/day**. Recordkeeping will be required and calculated based on emission rate of 0.25 lbs/hour.

A/N's 550894-550905, 550907: Thirteen Grinder Booths (Process 7: D108, D110-D121)

Grinding dusts and combined emissions from all grinder booths are limited by condition nos. A433.1 and A433.2. Previous Engineering Evaluation and NSR shows **PM10 controlled emissions are 2 lbs/day**. Recordkeeping will be required and calculated based on source test results for baghouse#1 and #2 (0.17 lbs/hr and 0.08 lbs/hr respectively). During the test, the unit and all associated operating equipment performed without interruptions or incidence. The average velocity measured was at least 200 ft/min for each grinding station. In order to demonstrate the most conservative emission calculation,

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Schlosser Forge has agreed to use 0.17 lbs/hr for each baghouse. Each baghouse has a functional and identical timer that will be powered on whenever the grinders are operating.

NSR PM10 Total = 16 lbs/day (combustion) + 2 lbs/day (Abrasive blasting) + 2 lbs/day (Abrasive blasting) + 2 lbs/day (13 grinder booths) = **22 lbs/day**

NSR PM10 total emissions are 22 lbs/day.

RULES EVALUATION:

RULE 212: (c) (1): This section requires a public notice for all new or modified permit units that emit air contaminants located within 1000 feet from the outer boundary of a school.

The nearest school is not located within 1,000 feet of the facility boundary; therefore, public notice is not required.

(c)(2): This section requires a public notice for all new or modified facilities having onsite emission increases exceeding any of the daily maximums specified in Rule 212(g).

This project is not expected to result to result in increases exceeding daily maximums. Public notice is not necessary.

(c)(3): This section requires a public notice for all new or modified permit unit with increases in emissions of toxic air contaminants listed in Table I of Rule 1401 resulting in MICR greater than 1E-6 per permit unit or greater than IOE-6 per facility.

This project is not expected to result in increased toxic pollutant emissions, therefore, public notice is not required.

(g): Project emissions do not exceed daily max thresholds. Public Notice is not required.

RULE 401: Visible emissions are not expected with proper operation of this equipment.

RULE 402: Nuisance is not expected if equipment is properly operated and maintained.

RULE 403: Fugitive dust is not expected if equipment is properly operated and

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maintained.

RULE 404: Compliance is expected if equipment is properly operated and maintained.

RULE 1303:

OFFSETS: Schlosser Forge proposed a facility-wide PM10 emissions cap that would cover all existing permitted processes. NSR balance for PM10 emissions are capped at 4 tons/year, or 22 lbs/day. The facility PTE for PM10 was previously 21 lbs/day, however the facility also proposed a change of condition for abrasive blaster (D33) lowering the PTE from 21 lbs/day to 17 lbs/day. This requires that A/N's 548577, 548578 and 548579 have a combined NSR entry totaling 5 lbs/day to have a balance of 22 lbs/day. It should be clarified this action is for NSR balancing purposes only. In addition, device conditions are added for each PM10 emitting device showing a formula to calculate PM10 emissions. No offsets are required.

BACT: The three new heating furnaces carry Eclipse Thermjet TJ0300 burners. These burners are guaranteed to have NOx concentration of less than 50 ppmv at 3% O₂, which meets the BACT requirement of 50 ppmv.

MODELING: Modeling for VOC is not required. CO is in attainment. Modeling for CO not required. According to Table A-1 in Rule 1303, allowable PM10 limit is .41 lbs/hr for non-combustion sources. PM10 for new furnaces is .04 lbs/hr. Modeling passes.

RULE 2005: Sufficient NOx allocation has been obtained under provisions of Rule 2005. The furnace units will be considered NOx process units and will be required to comply with all reporting requirements.

REG XXX: Applications for Title V De Minimis require EPA 45-day review.

RULE 1401: Toxics from natural gas combustion expected to be negligible.

CONCLUSIONS AND RECOMMENDATIONS:

Based on the evaluation contained herein, the subject equipment will comply with all of the District's rules and regulations; therefore, I recommend a Title V permit to construct/operate be issued to this equipment as described in this report.

CALCULATIONS:Given:

Maximum Heat Input Rating, MM BTU/hr:	6.0 MM BTU/hr
Fuel:	Natural gas
Equipment Operating Load:	100%
Conversion Factors, ppm @ 3% O ₂ to lb/MM BTU	
NOx	0.00121 [lb/MM BTU]/ppm
CO	0.00074 [lb/MM BTU]/ppm
Operating Schedule:	
hrs/day	24
days/wk	7
weeks/yr	52
NOx Concentration, ppm @ 3% O ₂ (dry)	50

Emission Factors, lb/MM BTU: (Default)

ROG:	0.0067
SOx :	0.0008
CO:	0.0333
PM:	0.0071
PM ₁₀ in total PM:	100%
HHV of natural gas:	1,050 BTU/ft ³

Computations:VOC:

lb/hr	0.0067 lb/MM BTU*6 MM BTU =	0.04 lb/hr
lb/day Max.	0.04 lb/hr*24 hrs/day =	0.96 lb/day Max.
lb/day, Avg	0.04 lb/hr*24 hrs/day*1.00 (Load factor) =	0.96 lb/day, Avg
lb/yr	0.96 lb/day*7 days/wk*52 wks/yr =	349.44 lb/yr

NOx:

lb/MM BTU	0.00121 lb/MM BTU-ppm*50 ppm =	0.0607 lb/MM BTU
lb/hr	0.0607 lb/MM BTU*6 MM BTU/hr =	0.36 lb/hr
lb/day Max.	0.36 lb/hr*24 hrs/day =	8.74 lb/day Max.
lb/day, Avg	0.36 lb/hr*24 hrs/day*1.00 (Load factor) =	8.74 lb/day, Avg
lb/yr	8.74 lb/day*7 days/wk*52 wks/yr =	3181.80 lb/yr

SOx:

lb/hr	0.0008 lb/MM BTU*6 MM BTU =	0.005 lb/hr
lb/day Max.	0.005 lb/hr*24 hrs/day =	0.11 lb/day Max.
lb/day, Avg	0.005 lb/hr*24 hrs/day*1.00 (Load factor) =	0.11 lb/day, Avg
lb/yr	0.11 lb/day*7 days/wk*52 wks/yr =	41.43 lb/yr

CO:

lb/hr $0.0333 \text{ lb/MM BTU} * 6 \text{ MM BTU} = 0.20 \text{ lb/hr}$
 lb/day Max. $0.20 \text{ lb/hr} * 24 \text{ hrs/day} = 4.80 \text{ lb/day Max.}$
 lb/day, Avg $0.20 \text{ lb/hr} * 24 \text{ hrs/day} * 1.00 \text{ (Load factor)} = 4.80 \text{ lb/day, Avg}$
 lb/yr $4.80 \text{ lb/day} * 7 \text{ days/wk} * 52 \text{ wks/yr} = 1747.20 \text{ lb/yr}$

PM/PM10

lb/hr $0.0071 \text{ lb/MM BTU} * 6 \text{ MM BTU} = 0.04 \text{ lb/hr}$
 lb/day Max. $0.04 \text{ lb/hr} * 24 \text{ hrs/day} = 1.03 \text{ lb/day Max.}$
 lb/day, Avg $0.04 \text{ lb/hr} * 24 \text{ hrs/day} * 1.00 \text{ (Load factor)} = 1.03 \text{ lb/day, Avg}$
 lb/yr $1.03 \text{ lb/day} * 7 \text{ days/wk} * 52 \text{ wks/yr} = 374.40 \text{ lb/yr}$

	<i>VOC</i>	<i>NOx</i>	<i>SOx</i>	<i>CO</i>	<i>PM/PM10</i>
Factor (lb/MM BTU)	0.0067	0.0607	0.0008	0.0333	0.0071
lb/hr	0.04	0.36	0.005	0.20	0.04
lb/day					
Max.	0.96	8.74	0.11	4.80	1.03
Avg.	0.96	8.74	0.11	4.80	1.03
lb/yr	349.44	3,181.80	41.43	1,747.20	374.40