

# **Statement of Basis**

**Permit to Construct No. P-2017.0043  
Project ID 61928**

**Western Trailer Co. – S. Federal Way  
Boise, Idaho**

**Facility ID 001-00349**

**Final**

**October 25, 2017  
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Permit Writer**

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01. et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

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## ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
BMP	best management practices
Btu	British thermal units
BRC	Below Regulatory Concern
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS No.	Chemical Abstracts Service registry number
CBP	concrete batch plant
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CMS	continuous monitoring systems
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	CO <sub>2</sub> equivalent emissions
COMS	continuous opacity monitoring systems
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
FEC	Facility Emissions Cap
GHG	greenhouse gases
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HHV	higher heating value
HMA	hot mix asphalt
hp	horsepower
hr/yr	hours per consecutive 12 calendar month period
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
iwg	inches of water gauge
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
MC1	Metal Cutter 1
MC2	Metal Cutter 2
mg/dscm	milligrams per dry standard cubic meter
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants

NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
O <sub>2</sub>	oxygen
PAH	polyaromatic hydrocarbons
PC	Permit Condition
PC1	Plasma Cutter 1
PC2	Plasma Cutter 2
PCB	polychlorinated biphenyl
PERF	Portable Equipment Relocation Form
PM	particulate matter
PM <sub>2.5</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POM	polycyclic organic matter
ppm	parts per million
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
PW	process weight rate
RAP	recycled asphalt pavement
RFO	reprocessed fuel oil
RICE	reciprocating internal combustion engines
<i>Rules</i>	<i>Rules for the Control of Air Pollution in Idaho</i>
scf	standard cubic feet
SCL	significant contribution limits
SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
TEQ	toxicity equivalent
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compounds
yd <sup>3</sup>	cubic yards
µg/m <sup>3</sup>	micrograms per cubic meter

## **FACILITY INFORMATION**

### ***Description***

Western Trailer Company is located at 8623 S Federal Way, Boise Idaho 83716. They manufacture and assemble truck trailers. There is no welding or painting at this facility. The large warehouse houses five Modine heaters and thirteen Re-Verber-Ray infrared heaters, all are indirect-fired natural gas heaters. The office houses one Bryant indirect-fired natural gas furnace.

Three different kinds of metals are used to manufacture trailers, mild steel substrate, stainless steel, and aluminum. The type of metal determines which machine will be used to cut the material. Mild steel substrate and stainless steel are cut on the two plasma machines, while aluminum is cut on the metal cutting machines.

The plasma cutters have throughput limits of 150,000 lbs. of mild steel and 5,640 lbs. of stainless steel kerf material removed per year. Plasma Cutting Machine 1 is a Kinetic machine with a hypertherm torch. Plasma Cutting Machine 2 is a Komatsu machine. The Kinetic machine was installed in 2014, the Komatsu machine was installed in 2015, and both have control units to decrease emissions produced from the cutting process, which were also installed in September 2014 and 2015, and replaced in 2017.

The control units for the plasma machine are a Torit Cartridge Filter System with a control efficiency of 99.97% or greater. This control efficiency has an integral role in preventing 585, 586 Toxic Air Pollutants from exceeding the screening emission levels (EL) and in maintaining PM<sub>10</sub> and PM<sub>2.5</sub> Below Regulatory Concern (BRC).

There are two metal cutting machines which only cut aluminum. One metal cutting machine is manufactured by CMS, installed in September 2014, and the other is manufactured by Elumatec, installed in September of 2015. The CMS metal cutting machine does not have an emissions control unit. The Elumatec cutting machine has a 99.00% or greater efficiency particulate control filter to capture suspended particles.

The trailers are assembled on site, however if a part needs to be painted or welded it is sent off site for that process to be completed.

### ***Permitting History***

This is the initial PTC for an existing facility that was constructed in September, 2014 without a PTC thus there is no permitting history.

### ***Application Scope***

This permit is the initial PTC for this facility. The applicant has submitted a PTC application for the truck trailer manufacturing facility.

### ***Application Chronology***

August 2, 2017	DEQ received an application and an application fee.
August 14 – August 29, 2017	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
August 14, 2017	DEQ determined the application was complete.
September 20, 2017	DEQ made available the draft permit and statement of basis for peer and regional office review.
September 28, 2017	DEQ made available the draft permit and statement of basis for applicant review.
October 17, 2017	DEQ received the permit processing fee.
October 25, 2017	DEQ issued the final permit and statement of basis.

# TECHNICAL ANALYSIS

## Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION <sup>1</sup>

Source ID No.	Sources	Control Equipment
EU1-EU5	<u>Unit Heater- Five Identical Heaters</u> Each with the following parameters: Manufacturer: Modine Model: PDP300AE0130 Max. production rate (each unit): 300,000 Btu/hr Allowable fuel type: Natural Gas Date of Construction: September 2014	None
IR1-IR13	<u>Unit Heater- 13 Identical Heaters</u> Each with the following parameters: Manufacturer : Re-Verber-Ray Model: DR160 Max. production rate (each unit): 160,000 Btu/hr Allowable fuel type: Natural Gas Date of Construction: September 2014	None
OH1	<u>Office Furnace</u> Manufacturer: Bryant Model: 915SA42060S17A Maximum production rate: 60,000 Btu/hr Allowable fuel type: natural gas Date of Construction: September 2014	None
PC1	<u>Plasma Cutting 1</u> Manufacturer: Kinetic with Hypertherm Torch Model: Kinetic 2500 and Hypertherm HPR260XD Date of Construction: September 2014	Cartridge Filter System (F1) Manufacturer: Torit Model: Kinetic DFE3-12 Two Stage Filtrations System: MERV 11 Pre- filters and HEPA Filters Control Efficiency: 99.97% or greater for PM <sub>10</sub> and PM <sub>2.5</sub>
PC2	<u>Plasma Cutting 2</u> Manufacturer: Komatsu Model: Razor Rev II Date of Construction: September 2015	Cartridge Filter System (F2) Manufacturer: Torit Model: Kinetic DFO3-12 Two Stage Filtrations System: MERV 11 Pre- filters and HEPA Filters Control Efficiency: 99.97% or greater for PM <sub>10</sub> and PM <sub>2.5</sub>
MC1	<u>Metal Cutting</u> Manufacturer: CMS Model: NC-Pentax4.5/T-PX5+GF Date of Construction: September 2014	None
MC2	<u>Metal Cutting</u> Manufacturer: Elumatec Model: SBZ 151 Date of Construction: September 2015	Particulate Control Filter Manufacturer: Elumatec Control Efficiency: 99.00% or greater for PM <sub>10</sub> and PM <sub>2.5</sub>

## Emissions Inventories

### Potential to Emit

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

Using this definition of Potential to Emit an emission inventory was developed for the nineteen natural gas heaters, two plasma cutters, and two metal cutter operations at the facility, (see Appendix A) associated with this proposed project. Emissions estimates of criteria pollutant, HAP, TAP, and PTE were based on emission factors from AP-42 chapter 1, section 1.4 “Natural Gas Combustion” (7/98), Chapter 12, other emission factors document “Emission of fume, nitrogen oxides and noise in plasma cutting of stainless and mild steel” by Broman B et al March 1994, and South Coast Air Quality Management District page 1 of 9, APP. Numbers 480171/2, coating, printing, aerospace and chemical operations team Jul-08. Operations of 4,704 hours per year for the unit heaters UH1-UH5 and IR1-IR13, 8,760 hours per year for the office furnace. Plasma Cutter 1 and 2 are limited to 150,000 pounds per year of mild steel cuttings and 5,640 pounds per year of stainless steel cuttings. More details can be found in the application. (2017AAG1572)

### Uncontrolled Potential to Emit

Using the definition of Potential to Emit, uncontrolled Potential to Emit is then defined as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall **not** be treated as part of its design **since** the limitation or the effect it would have on emissions **is not** state or federally enforceable.

The uncontrolled Potential to Emit is used to determine if a facility is a “Synthetic Minor” source of emissions. Synthetic Minor sources are facilities that have an uncontrolled Potential to Emit for regulated air pollutants or HAP above the applicable Major Source threshold without permit limits.

The following table presents the uncontrolled Potential to Emit for regulated air pollutants as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. For this truck trailer manufacturing operation, uncontrolled Potential to Emit is based upon a worst-case for operation of the facility of 8,760 hr/yr and without controls.

**Table 2 UNCONTROLLED POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS**

Source	PM <sub>10</sub> /PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC	CO <sub>2</sub> e
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
<b>Point Sources</b>						
Unit Heaters (UH1-UH5)	4.90E-02	3.86E-03	6.44E-01	5.41E-01	3.54E-02	6.97E+02
Infrared Heaters (IR1-IR13)	6.79E-02	5.36E-03	8.93E-01	7.50E-01	4.91E-02	9.67E+02
Office Furnace	1.96E-03	1.55E-04	2.58E-02	2.16E-02	1.42E-03	0.00
Plasma Cutter 1 (PC1)	6.65E+00	0.00	5.52E+00	0.00	0.00	0.00
Plasma Cutter 2 (PC2)	6.65E+00	0.00	5.51E+00	0.00	0.00	0.00
Metal Cutter (MC1)	2.08E-01	0.00	0.00	0.00	0.00	0.00
Metal Cutter (MC2)	3.12E-01	0.00	0.00	0.00	0.00	0.00
<b>Total, Point Sources</b>	<b>13.94</b>	<b>0.01</b>	<b>12.59</b>	<b>1.31</b>	<b>0.09</b>	<b>1664.00</b>

The following table presents the uncontrolled Potential to Emit for HAP pollutants as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions

used to determine emissions for each emissions unit. For this trailer fabrication uncontrolled Potential to Emit is based upon a worst-case for operation of the facility of 8,760 hr/yr and without controls.

**Table 3 UNCONTROLLED POTENTIAL TO EMIT FOR HAZARDOUS AIR POLLUTANTS**

<b>Hazardous Air Pollutants</b>	<b>PTE (T/yr)</b>
Arsenic	3.13E-06
Benzene	3.28E-05
Beryllium	1.88E-07
Cadmium	1.72E-05
Chromium	1.43E-01
Chromium +6	4.63E-04
Cobalt	1.31E-06
Dichlorobenzene	1.88E-05
Formaldehyde	1.17E-03
Hexane	2.81E-02
Lead	0.00E+00
Manganese	5.94E-06
Mercury	4.06E-06
Naphthalene	9.53E-06
Nickel	8.63E-02
Phosphorus	3.94E-03
Polycyclic Organics (PAH max.)	2.02E-05
Selenium	1.16E-03
Toluene	5.31E-05
<b>Total</b>	<b>0.26</b>

**Pre-Project Potential to Emit**

Pre-project Potential to Emit is used to establish the change in emissions at a facility as a result of this project.

This is an existing facility. However, since this is the first time the facility is receiving a permit, pre-project emissions are set to zero for all criteria pollutants.

**Post Project Potential to Emit**

Post project Potential to Emit is used to establish the change in emissions at a facility and to determine the facility's classification as a result of this project. Post project Potential to Emit includes all permit limits resulting from this project.

The following table presents the post project Potential to Emit for criteria pollutants from all emissions units at the facility as provided by the applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

**Table 4 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS**

Source	PM <sub>10</sub> /PM <sub>2.5</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC	
	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>
Unit Heaters (UH1-UH5)	1.12E-02	2.63E-02	8.82E-04	2.08E-03	1.47E-01	3.46E-01	1.24E-01	2.91E-01	8.09E-03	1.90E-02
Infrared Heaters (IR1-IR13)	1.55E-02	3.65E-02	1.22E-03	2.88E-03	2.04E-01	4.80E-01	1.71E-01	4.03E-01	1.12E-02	2.64E-02
Office Furnace	1.02E-04	4.47E-04	3.53E-05	1.55E-04	5.88E-03	2.58E-02	4.94E-03	2.16E-02	3.24E-04	1.42E-03
Plasma Cutter 1 (PC1)	4.55E-04	9.47E-04	N/A	N/A	1.26E+0.00	2.62E+00	N/A	N/A	N/A	N/A
Plasma Cutter 2 (PC2)	1.14E-04	2.37E-04	N/A	N/A	1.26E+0.00	4.87E-01	N/A	N/A	N/A	N/A
Metal Cutter (MC1)	4.75E-02	2.08E-01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Metal Cutter (MC2)	7.13E-04	3.12E-03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Post Project Totals</b>	<b>0.08</b>	<b>0.28</b>	<b>0.002</b>	<b>0.01</b>	<b>2.87</b>	<b>3.96</b>	<b>0.30</b>	<b>0.72</b>	<b>0.02</b>	<b>0.05</b>

- a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.  
 b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.

**Change in Potential to Emit**

The change in facility-wide potential to emit is used to determine if a public comment period may be required and to determine the processing fee per IDAPA 58.01.01.225. The following table presents the facility-wide change in the potential to emit for criteria pollutants.

**Table 5 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS**

Source	PM <sub>10</sub> /PM <sub>2.5</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		CO <sub>2</sub> e
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	T/yr
Pre-Project Potential to Emit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Post Project Potential to Emit	0.08	0.28	0.002	5.11E-03	2.87	3.96	0.30	0.72	0.02	0.05	921.00
<b>Changes in Potential to Emit</b>	<b>0.08</b>	<b>0.28</b>	<b>0.002</b>	<b>0.01</b>	<b>2.87</b>	<b>3.96</b>	<b>0.30</b>	<b>0.72</b>	<b>0.02</b>	<b>0.05</b>	<b>921.00</b>

### Non-Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of non-carcinogenic toxic air pollutants (TAP), Pre- and post-project, as well as the change in, non-carcinogenic TAP emissions are presented in the following table:

**Table 6 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS**

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Aluminum	0.00E-03	4.82E-02	4.82E-02	6.67E-01	No
Antimony	0.00E-03	0.00E+00	0.00E+00	3.30E-02	No
Barium	0.00E-03	1.54E-05	1.54E-05	3.30E-02	No
Boron	0.00E-03	9.77E-10	9.77E-10	6.67E-01	No
Calcium	0.00E-03	0.00E+00	0.00E+00	1.33E-01	No
Chromium Total	0.00E-03	1.04E-05	1.04E-05	3.30E-02	No
Cobalt	0.00E-03	2.95E-07	2.95E-07	3.30E-03	No
Copper	0.00E-03	3.19E-06	3.19E-06	6.70E-02	No
o-Dichlorobenzene	0.00E-03	4.21E-06	4.21E-06	2.00E+01	No
Hexane	0.00E-03	6.32E-03	6.32E-03	1.20E+01	No
Iron	0.00E-03	5.04E-04	5.04E-04	3.33E-01	No
Magnesium	0.00E-03	0.00E+00	0.00E+00	6.67E-01	No
Manganese	0.00E-03	1.81E-05	1.81E-05	3.33E-01	No
Molybdenum	0.00E-03	2.84E-05	2.84E-05	3.33E-01	No
Pentane	0.00E-03	9.13E-03	9.13E-03	1.18E+02	No
Phosphorus	0.00E-03	1.56E-07	1.56E-07	7.00E-03	No
Selenium	0.00E-03	1.56E-07	1.56E-07	1.30E-02	No
Silicon	0.00E-03	2.57E-07	2.57E-07	6.67E-01	No
Tantalum	0.00E-03	1.29E-06	1.29E-06	3.33E-01	No
Tellurium	0.00E-03	0.00E+00	0.00E+00	7.00E-03	No
Tin	0.00E-03	0.00E+00	0.00E+00	1.33E-01	No
Toluene	0.00E-03	1.19E-05	1.19E-05	2.50E+01	No
Tungsten	0.00E-03	0.00E+00	0.00E+00	6.70E-02	No
Vanadium	0.00E-03	8.27E-06	8.27E-06	3.00E-03	No
Zinc	0.00E-03	1.02E-04	1.02E-04	3.33E-01	No

None of the PTEs for non-carcinogenic TAP exceeds the respective screening emission levels (EL) as a result of this project. Therefore, modeling is not required for any non-carcinogenic TAP because none of the 24-hour average non-carcinogenic screening ELs identified in IDAPA 58.01.01.585 were exceeded.

### Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of carcinogenic toxic air pollutants (TAP) is provided in the following table.

**Table 7 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR CARCINOGENIC TOXIC AIR POLLUTANTS**

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
3-Methylchloranthene	0.00E-03	2.8E-09	2.8E-09	2.5E-06	No
Arsenic	0.00E-03	3.8E-07	3.8E-07	1.5E-06	No
Benzene	0.00E-03	4.0E-06	4.0E-06	8.0E-04	No
Benzo(a)pyrene	0.00E-03	2.3E-09	2.3E-09	2.0E-06	No
Beryllium	0.00E-03	2.3E-08	2.3E-08	2.8E-05	No
Cadmium	0.00E-03	2.1E-06	2.1E-06	3.7E-06	No
Cr+6	0.00E-03	9.4E-09	9.4E-09	5.6E-07	No
Formaldehyde	0.00E-03	1.4E-04	1.4E-04	5.1E-04	No
Nickel	0.00E-03	5.8E-06	5.8E-06	2.7E-05	No
Polyaromatic Hydrocarbon (Max)	0.00E-03	5.6E-06	5.6E-06	9.1E-05	No
Polycyclic Organics: 7-PAH Group	0.00E-03	9.7E-08	9.7E-08	2.0E-06	No

a) Polycyclic Organic Matter (POM) is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. The total is compared to benzo(a)pyrene.

None of the PTEs for carcinogenic TAP exceeds the respective ELs as a result of this project. Therefore, modeling is not required for any carcinogenic TAP because none of the annual average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

### Post Project HAP Emissions

The following table presents the post project potential to emit for HAP pollutants from all emissions units at the facility as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

**Table 8 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY**

Hazardous Air Pollutants	PTE (T/yr)
Arsenic	1.7E-06
Benzene	1.8E-05
Beryllium	1.0E-07
Cadmium	9.4E-06
Chromium	2.5E-05
Chromium +6	NA
Cobalt	7.2E-07
Dichlorobenzene	1.0E-05
Formaldehyde	6.4E-04
Hexane	1.53E-02
Lead	0.0E+00
Manganese	4.2E-05
Mercury	2.2E-06
Naphthalene	5.2E-06
Nickel	2.6E-05
Phosphorous	3.6E-07
Polycyclic Organic Matter (PAH max.)	1.1E-05
Selenium	3.7E-07
Toluene	2.9E-05
<b>Totals</b>	<b>0.02</b>

### ***Ambient Air Quality Impact Analyses***

The estimated emission rates of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, VOC, and TAP from this project were below applicable EL and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline<sup>1</sup>. Refer to the Emissions Inventories section for additional information concerning the emission inventories. Therefore, modeling is not required for this project.

## **REGULATORY ANALYSIS**

### ***Attainment Designation (40 CFR 81.313)***

The facility is located in Ada County, which is designated as attainment for PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>2</sub>, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

### ***Facility Classification***

The AIRS/AFS facility classification codes are as follows:

For HAPs (Hazardous Air Pollutants) Only:

- A = Use when any one HAP has actual or potential emissions  $\geq 10$  T/yr or if the aggregate of all HAPS (Total HAPs) has actual or potential emissions  $\geq 25$  T/yr
- SM80 = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the permit sets limits  $\geq 8$  T/yr of a single HAP or  $\geq 20$  T/yr of THAP.
- SM = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the potential HAP emissions are limited to  $< 8$  T/yr of a single HAP and/or  $< 20$  T/yr of THAP.

<sup>1</sup> Criteria pollutant thresholds in Table 2, State of Idaho Guideline for Performing Air Quality Impact Analyses, Doc ID AQ-011, September 2013.

- B = Use when the potential to emit without permit restrictions is below the 10 and 25 T/yr major source threshold
- UNK = Class is unknown

For All Other Pollutants:

- A = Actual or potential emissions of a pollutant are  $\geq 100$  T/yr
- SM80 = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are  $\geq 80$  T/yr
- SM = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are  $< 80$  T/yr
- B = Actual and potential emissions are  $< 100$  T/yr without permit restrictions.
- UNK = Class is unknown.

**Table 9 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION**

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	27.8	<100	100	B
PM <sub>10</sub>	13.9	<100	100	B
PM <sub>2.5</sub>	13.9	<100	100	B
SO <sub>2</sub>	9.38E-03	<100	100	B
NO <sub>x</sub>	11.7	<100	100	B
CO	1.31	<100	100	B
VOC	0.08	<100	100	B
HAP (single)	0.01	<10	10	B
HAP (total)	0.01	<25	25	B
Pb	7.82E-06	<100	100	B

**Permit to Construct (IDAPA 58.01.01.201)**

IDAPA 58.01.01.201 .....Permit to Construct Required

The permittee has requested that a PTC be issued to the facility for the proposed existing emissions sources. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Because the uncontrolled emissions of three toxic air pollutants, iron, chromium VI, and nickel exceed the respective ELs and because the facility did not model the emissions to show their impacts are less than the respective acceptable ambient concentrations (AAC/AACC), the facility does not qualify for an exemption and is required to obtain a PTC.

**Tier II Operating Permit (IDAPA 58.01.01.401)**

IDAPA 58.01.01.401 .....Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400-410 are not applicable to this permitting action.

**Visible Emissions (IDAPA 58.01.01.625)**

IDAPA 58.01.01.625 .....Visible Emissions

The sources of PM emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Conditions 2.4.

**Standards for New Sources (IDAPA 58.01.01.677)**

IDAPA 58.01.01.676 .....Standards for Minor and Existing Sources

The fuel burning equipment located at this facility, with a maximum rated input of less than ten (10) million BTU per hour, are subject to a particulate matter limitation of 0.015 gr/dscf of effluent gas corrected to 3% oxygen by volume when combusting gaseous fuels. Fuel-Burning Equipment is defined as any furnace, boiler, apparatus, stack and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer. There are five unit heaters, thirteen infrared heaters, and one office furnace at this facility that meets this criterion. This requirement is assured by the natural gas combustion equipment.

**Particulate Matter – New Equipment Process Weight Limitations (IDAPA 58.01.01.701)**

IDAPA 58.01.01.701 .....Particulate Matter – New Equipment Process Weight Limitations

IDAPA 58.01.01.700 through 703 set PM emission limits for process equipment based on when the piece of equipment commenced operation and the piece of equipment’s process weight (PW) in pounds per hour (lb/hr).

The calculation of the emission rate is not a concern due to the amount of material being processed by each plasma cutter. Plasma Cutters 1 and 2 are limited to 150,000 lbs. of mild steel substrate and 5,640 lbs. of stainless steel substrate per year, respectively. Due to the high process weight of the process, the allowable limit is very high. The extremely low emissions from the process will never reach the allowable limit or surpass the allowable limit; therefore the calculation of this analysis is unnecessary.

**Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)**

IDAPA 58.01.01.301 .....Requirement to Obtain Tier I Operating Permit

Post project facility-wide emissions from this facility do not have a potential to emit greater than 100 tons per year for PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, VOC, or 10 tons per year for any single HAP or 25 tons per year for all HAP combined as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006, and the requirements of IDAPA 58.01.01.301 do not apply.

**PSD Classification (40 CFR 52.21)**

40 CFR 52.21 .....Prevention of Significant Deterioration of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore in accordance with 40 CFR 52.21(a)(2), PSD requirements are not applicable to this permitting action. The facility is not a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a), and does not have facility-wide emissions of any criteria pollutant that exceed 250 T/yr

**NSPS Applicability (40 CFR 60)**

The facility is not subject to any NSPS requirements 40 CFR Part 60. Please refer to Appendix B for details.

**NESHAP Applicability (40 CFR 61)**

The facility is not subject to any NESHAP requirements in 40 CFR 61.

**MACT Applicability (40 CFR 63)**

The facility is not subject to any MACT requirements in 40 CFR 63. Please refer to Appendix B for details.

**Permit Conditions Review**

This section describes the permit conditions for this initial permit.

#### Initial Permit Condition 1.1

Permit Condition 1.1 states the purpose of the permit.

#### Table 1.1

Table 1.1 lists all sources regulated in this permit.

#### Initial Permit Condition 2.2

Establish control devices for the two plasma cutting machines (PC1 and PC2), and one metal cutting machine (MC2). Details of the control devices can be found in Table 2.1 of the permit.

#### Initial Permit Condition 2.3

Establish emission limits for the two plasma cutting machines, eighteen unit heaters, one office furnace, and two metal cutting machines. NO<sub>2</sub> will exceed the level of Below Regulatory Concern (BRC). The facility chose not to model the ambient concentrations, and applied for a PTC with control devices bringing the six criteria pollutants Below Regulatory Concern. The limit on Natural Gas usage is necessary to keep NO<sub>2</sub> levels Below Regulatory Concern.

#### Initial Permit Condition 2.4

Establish opacity limit.

#### Initial Permit Condition 2.5

Establish the fuel type for all heaters and office furnace to ensure compliance with the grain loading standard for fuel burning equipment in IDAPA 58.01.01.676.

#### Initial Permit Condition 2.6

Establish the annual Natural Gas usage limit for all heaters and office furnace to ensure compliance with the emission limits for the heaters in Permit Condition 2.3.

#### Initial Permit Condition 2.7

Establish the material type for plasma cutting, of which the emission inventory is based upon.

#### Initial Permit Condition 2.8

Specify the type, and amount of kerf material to be removed per year in Plasma Machines, (PC1) and (PC2) to ensure compliance with the emission limits listed in Table 2.2 in Permit Condition 2.3. Without these limits the Toxic Air Pollutants Nickel, Chromium VI, and Iron will exceed EL's.

#### Initial Permit Condition 2.9

Establish the filter system, and efficiency requirement for the plasma machines, (PC1) and (PC2), any efficiency below 99.61% will cause specific TAP's to exceed EL's.

#### Initial Permit Condition 2.10

Establish the material type for metal cutting in metal cutting machines (MC1) and (MC2) to ensure compliance with the emission limits listed in Table 2.2 in Permit Condition 2.3.

#### Initial Permit Condition 2.11

Establish the filter system, and efficiency of 99.0% or greater for the metal cutting machine.

#### Initial Permit Condition 2.12

Establish the procedure to develop a document to inspect and operate the cartridge filter system for the plasma machines and the particulate control filter system for the metal cutting machine.

#### Initial Permit Condition 2.13

Establish monitoring requirements to demonstrate annual natural gas usage for unit heaters UH1-UH5, IR1-IR13, and one office furnace.

Initial Permit Condition 2.14

Establish monitoring requirements to demonstrate material type compliance with the plasma, and metal cutting machines.

Initial Permit Condition 2.15

Establish monitoring requirements to demonstrate annual plasma cutting throughput limits.

Initial Permit Condition 2.16

Establish recordkeeping requirements to demonstrate emission compliance for the cartridge filter system required for the plasma machines.

Initial Permit Condition 2.17

Establish recordkeeping requirements to demonstrate emission compliance for the particulate control filter system required for the metal cutting machine (MC2).

Initial Permit Condition 3.1

The duty to comply general compliance provision requires that the permittee comply with all of the permit terms and conditions pursuant to Idaho Code §39-101.

Initial Permit Condition 3.2, 3.10, 3.16

The maintenance and operation general compliance provision requires that the permittee maintain and operate all treatment and control facilities at the facility in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 3.3

The obligation to comply general compliance provision specifies that no permit condition is intended to relieve or exempt the permittee from compliance with applicable state and federal requirements, in accordance with IDAPA 58.01.01.212.01.

Initial Permit Condition 3.4

The inspection and entry provision requires that the permittee allow DEQ inspection and entry pursuant to Idaho Code §39-108.

Initial Permit Condition 3.5

The permit expiration construction and operation provision specifies that the permit expires if construction has not begun within two years of permit issuance or if construction has been suspended for a year in accordance with IDAPA 58.01.01.211.02.

Initial Permit Condition 3.6

The notification of construction and operation provision requires that the permittee notify DEQ of the dates of construction and operation, in accordance with IDAPA 58.01.01.211.03.

Initial Permit Condition 3.7

The performance testing notification of intent provision requires that the permittee notify DEQ at least 15 days prior to any performance test to provide DEQ the option to have an observer present, in accordance with IDAPA 58.01.01.157.03.

Initial Permit Condition 3.8

The performance test protocol provision requires that any performance testing be conducted in accordance with the procedures of IDAPA 58.01.01.157, and encourages the permittee to submit a protocol to DEQ for approval prior to testing.

Initial Permit Condition 3.9

The performance test report provision requires that the permittee report any performance test results to DEQ within 60 days of completion, in accordance with IDAPA 58.01.01.157.04-05.

Initial Permit Condition 3.10

The monitoring and recordkeeping provision requires that the permittee maintain sufficient records to ensure compliance with permit conditions, in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 3.11

The excess emissions provision requires that the permittee follow the procedures required for excess emissions events, in accordance with IDAPA 58.01.01.130-136.

Initial Permit Condition 3.12

The certification provision requires that a responsible official certify all documents submitted to DEQ, in accordance with IDAPA 58.01.01.123.

Initial Permit Condition 3.13

The false statement provision requires that no person make false statements, representations, or certifications, in accordance with IDAPA 58.01.01.125.

Initial Permit Condition 3.14

The tampering provision requires that no person render inaccurate any required monitoring device or method, in accordance with IDAPA 58.01.01.126.

Initial Permit Condition 3.15

The transferability provision specifies that this permit to construct is transferable, in accordance with the procedures of IDAPA 58.01.01.209.06.

Initial Permit Condition 3.16

The severability provision specifies that permit conditions are severable, in accordance with IDAPA 58.01.01.211.

## **PUBLIC REVIEW**

### ***Public Comment Opportunity***

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c or IDAPA 58.01.01.404.01.c. During this time, there were no comments on the application and there was not a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

## **APPENDIX A – EMISSIONS INVENTORIES**

**Table 3-6:  
Facility-Wide Hazardous Air Pollutant Emissions**

Hazardous Air Pollutant	CAS	Potential to Emit (tons/yr)	Potential to Emit (lbs./yr)
Arsenic	7440-38-2	1.7E-06	3.4E-03
Benzene	71-43-2	1.8E-05	3.6E-02
Beryllium	7440-41-7	1.0E-07	2.0E-04
Cadmium	7440-43-9	9.4E-06	1.9E-02
Chromium	7440-47-3	2.5E-05	4.9E-02
Chromium +6	7440-47-3	NA	NA
Cobalt	7440-48-4	7.2E-07	1.4E-03
Dichlorobenzene	95-50-1	1.0E-05	2.0E-02
Formaldehyde	50-00-0	6.4E-04	1.3E+00
Hexane	110-54-3	1.53E-02	3.1E+01
Lead	7439-92-1	0.0E+00	0.0E+00
Manganese	7439-96-5	4.2E-05	8.4E-02
Mercury	7439-97-6	2.2E-06	4.4E-03
Naphthalene	91-20-3	5.2E-06	1.0E-02
Nickel	7440-02-0	2.6E-05	5.1E-02
Phosphorous	7723-14-0	3.4E-07	6.7E-04
Polycyclic Organic Matter (PAH max.)		1.1E-05	2.2E-02
Selenium	7782-49-2	2.0E-07	4.1E-04
Toluene	108-88-3	2.9E-05	5.8E-02
TOTAL =		1.6E-02	3.2E+01

Methyl Ethyl Ketone, 78-93-3 - delisted 2005
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Table 2-1: Unit Heater Indirect Combustion Emissions

Source Name/Model Modine PDP300AE0130  
 Indirect Fired No. of units 5  
 Input Duty 1 MBH=1,000 BTU/h  
 MBH 300 Btu/hr 300,000 Unit MMBtu/hr 0.3 MMBtu/hr  
 Total MMBtu/hr 1.5 MMBtu/hr Fuel Use: 0.035  
 6.918

Heater Duty = 1.5 MMBtu/hr + 1,020 MMBtu/MMsc 1.47E-03 MMscf/hr  
 Operating Assumptions: 24 hr/day  
 4,704 hr/yr<sup>3</sup> 53.7% 55%= 7 months, 7 days/week, 24 hr/d

Criteria Air Pollutants	Emission Factor <sup>1</sup> lb/MMscf	Emissions	
		lb/hr	T/yr
NO <sub>2</sub>	100	0.15	0.35
CO	84	0.12	0.29
PM <sub>10</sub>	7.6	0.011	0.026
PM <sub>2.5</sub>	7.6	0.011	0.026
SO <sub>2</sub>	0.6	8.8E-04	2.1E-03
VOC	5.5	8.1E-03	1.9E-02
Lead	0.0005	7.4E-07	1.7E-06
		5.3E-04	lb/month
<b>Total Criteria Emissions (ton/yr) =</b>		<b>0.68</b>	

Greenhouse Gas Emissions	
CO <sub>2</sub> =	1 X 10 <sup>3</sup> * MMBTU Gas * 53.06 kg CO <sub>2</sub> /MMBTU 374 Metric Tons/year
CH <sub>4</sub> =	1 X 10 <sup>3</sup> * MMBTU Gas * 0.001 kg CH <sub>4</sub> /MMBTU 0.007 Metric Tons/year
N <sub>2</sub> O =	1 X 10 <sup>3</sup> * MMBTU Gas * 0.0001 kg N <sub>2</sub> O/MMBTU 0.001 Metric Tons/year
Total CO <sub>2</sub> e = CO <sub>2</sub> + (CH <sub>4</sub> * 25) * (N <sub>2</sub> O * 298)	
CO <sub>2</sub> e =	374 Metric Tons/year

Hazardous & Toxic Air Pollutants (HAP & TAP)	Emission Factor <sup>1</sup> lb/MMscf	Emissions		Modeling Threshold TAP Screening Emission	Modeling Required?
		lb/hr <sup>2</sup>	T/yr		
<b>PAH HAPs</b>					
2-Methylnaphthalene	2.40E-05	1.90E-08	8.3E-08	9.1E-05 lb/hr	No
3-Methylchloranthrene	1.80E-06	1.42E-09	6.2E-09	2.5E-06 lb/hr	No
Acenaphthene	1.80E-06	1.42E-09	6.2E-09	9.1E-05 lb/hr	No
Acenaphthylene	1.80E-06	1.42E-09	6.2E-09	9.1E-05 lb/hr	No
Anthracene	2.40E-06	1.90E-09	8.3E-09	9.1E-05 lb/hr	No
Benzo(a)anthracene	1.80E-06	1.42E-09	6.2E-09		See POM
Benzo(a)pyrene	1.20E-06	9.48E-10	4.2E-09	2.0E-06 lb/hr	See POM
Benzo(b)fluoranthene	1.80E-06	1.42E-09	6.2E-09		See POM
Benzo(g,h,i)perylene	1.20E-06	9.48E-10	4.2E-09	9.1E-05 lb/hr	No
Benzo(k)fluoranthene	1.80E-06	1.42E-09	6.2E-09		See POM
Chrysene	1.80E-06	1.42E-09	6.2E-09		See POM
Dibenzo(a,h)anthracene	1.20E-06	9.48E-10	4.2E-09		See POM
Fluoranthene	3.00E-06	2.37E-09	1.0E-08	9.1E-05 lb/hr	No
Fluorene	2.80E-06	2.21E-09	9.7E-09	9.1E-05 lb/hr	No
Indeno(1,2,3-cd)pyrene	1.80E-06	1.42E-09	6.2E-09		See POM
Naphthalene	6.10E-04	8.97E-07	2.1E-06	3.33 lb/hr	No
Naphthalene	6.10E-04	4.82E-07	2.1E-06	9.1E-05 lb/hr	No
Phenanthrene	1.70E-05	1.34E-08	5.9E-08	9.1E-05 lb/hr	No
Pyrene	5.00E-06	3.95E-09	1.7E-08	9.1E-05 lb/hr	No
PAH, Max		1.44E-06	4.47E-06	2.0E-06 lb/hr	No
Polycyclic Org. Matter (POM, 7-PAH Group)		9.00E-09	3.9E-08	2.0E-06 lb/hr	No
<b>Non-PAH HAPs</b>					
Benzene	2.10E-03	1.66E-06	7.3E-06	8.0E-04 lb/hr	No
Dichlorobenzene	1.20E-03	1.76E-06	4.2E-06	20 lb/hr	No
Formaldehyde	7.50E-02	5.92E-05	2.6E-04	5.1E-04 lb/hr	No
Hexane	1.80E+00	2.65E-03	6.2E-03	12 lb/hr	No
Toluene	3.40E-03	5.00E-06	1.2E-05	25 lb/hr	No
<b>Non-HAP Organic Compounds</b>					
7,12-Dimethylbenz(a)ar	1.60E-05	2.35E-08	5.5E-08		
Butane	2.10E+00	3.09E-03	7.3E-03		
Ethane	3.10E+00	4.56E-03	1.1E-02		
Pentane	2.60E+00	3.82E-03	9.0E-03	118 lb/hr	No
Propane	1.60E+00	2.35E-03	5.5E-03		
<b>Metals (HAPs)</b>					
Arsenic	2.00E-04	1.58E-07	6.9E-07	1.5E-06 lb/hr	No
Barium	4.40E-03	6.47E-06	1.5E-05	0.033 lb/hr	No
Beryllium	1.20E-05	9.48E-09	4.2E-08	2.8E-05 lb/hr	No
Cadmium	1.10E-03	8.69E-07	3.8E-06	3.7E-06 lb/hr	No
Chromium	1.40E-03	2.06E-06	4.8E-06	0.033 lb/hr	No
Cobalt	8.40E-05	1.24E-07	2.9E-07	0.0033 lb/hr	No
Copper	8.50E-04	1.25E-06	2.9E-06	0.013 lb/hr	No
Manganese	3.80E-04	5.59E-07	1.3E-06	0.067 lb/hr	No
Mercury	2.60E-04	3.82E-07	9.0E-07	0.003 lb/hr	No
Molybdenum	1.10E-03	1.62E-06	3.8E-06	0.333 lb/hr	No
Nickel	2.10E-03	1.66E-06	7.3E-06	2.7E-05 lb/hr	No
Selenium	2.40E-05	3.53E-08	8.3E-08	0.013 lb/hr	No
Vanadium	2.30E-03	3.38E-06	8.0E-06	0.003 lb/hr	No
Zinc	2.90E-02	4.26E-05	1.0E-04	0.667 lb/hr	No
<b>Total HAP Emissions (ton/yr) =</b>		<b>0.007</b>			

Notes:  
 1. Emission factors taken from AP-42, Section 1.4 Natural Gas Combustion (7/98)  
 2. TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.  
 3. Heater used in Winter Months; emission estimates includes summer months to avoid restrictions

Table 2-2: Re-Verber Ray Heaters Combustion Emissions

Source Name/Model: Re-Verber-Ray DR-160  
 No. of units: 13  
 Input Duty: 160 MBH, 160,000 Btu/hr, 0.16 MMBtu/hr  
 1 MBH=1,000 BTU/h  
 Total MMBtu/hr: 2.08 MMBtu/hr  
 Fuel Use: 0.049, 9.593

Heater Duty = 2.08 MMBtu/hr + 1,020 MMBtu/MMsc 2.04E-03 MMscf/hr  
 Operating Assumptions: 24 hr/day  
 4,704 hr/yr<sup>3</sup> 53.7% 55%= 7 months, 7 days/week, 24 hr

Criteria Air Pollutants	Emission Factor <sup>1</sup> lb/MMscf	Emissions	
		lb/hr	T/yr
NO <sub>2</sub>	100	0.20	0.48
CO	84	0.17	0.40
PM <sub>10</sub>	7.6	0.015	0.036
PM <sub>2.5</sub>	7.6	0.015	0.036
SO <sub>2</sub>	0.6	1.2E-03	2.9E-03
VOC	5.5	1.1E-02	2.6E-02
Lead	0.0005	1.0E-06	2.4E-06
Total Criteria Emissions (ton/yr) =		7.3E-04 lb/month	0.95

Greenhouse Gas Emissions	
CO <sub>2</sub> =	1 X 10 <sup>3</sup> * MMBTU Gas * 53.06 kg CO <sub>2</sub> /MMBTU 519 Metric Tons/year
CH <sub>4</sub> =	1 X 10 <sup>3</sup> * MMBTU Gas * 0.001 kg CH <sub>4</sub> /MMBTU 0.010 Metric Tons/year
N <sub>2</sub> O =	1 X 10 <sup>3</sup> * MMBTU Gas * 0.0001 kg N <sub>2</sub> O/MMBTU 0.001 Metric Tons/year
Total CO <sub>2</sub> e = CO <sub>2</sub> + (CH <sub>4</sub> * 25) * (N <sub>2</sub> O * 298)	
CO <sub>2</sub> e =	519 Metric Tons/year

Hazardous & Toxic Air Pollutants (HAP & TAP)	Emission Factor <sup>1</sup> lb/MMscf	Emissions		Modeling Threshold TAP Screening	Modeling Required?
		lb/hr <sup>2</sup>	T/yr		
<b>PAH HAPs</b>					
2-Methylnaphthalene	2.40E-05	<b>2.63E-08</b>	1.2E-07	9.1E-05 lb/hr	No
3-Methylchloranthrene	1.80E-06	<b>1.97E-09</b>	8.6E-09	2.5E-06 lb/hr	No
Acenaphthene	1.80E-06	<b>1.97E-09</b>	8.6E-09	9.1E-05 lb/hr	No
Acenaphthylene	1.80E-06	<b>1.97E-09</b>	8.6E-09	9.1E-05 lb/hr	No
Anthracene	2.40E-06	<b>2.63E-09</b>	1.2E-08	9.1E-05 lb/hr	No
Benzo(a)anthracene	1.80E-06	<b>1.97E-09</b>	8.6E-09		See POM
Benzo(a)pyrene	1.20E-06	<b>1.31E-09</b>	5.8E-09	2.0E-06 lb/hr	See POM
Benzo(b)fluoranthene	1.80E-06	<b>1.97E-09</b>	8.6E-09		See POM
Benzo(g,h,i)perylene	1.20E-06	<b>1.31E-09</b>	5.8E-09	9.1E-05 lb/hr	No
Benzo(k)fluoranthene	1.80E-06	<b>1.97E-09</b>	8.6E-09		See POM
Chrysene	1.80E-06	<b>1.97E-09</b>	8.6E-09		See POM
Dibenzo(a,h)anthracene	1.20E-06	<b>1.31E-09</b>	5.8E-09		See POM
Fluoranthene	3.00E-06	<b>3.29E-09</b>	1.4E-08	9.1E-05 lb/hr	No
Fluorene	2.80E-06	<b>3.07E-09</b>	1.3E-08	9.1E-05 lb/hr	No
Indeno(1,2,3-cd)pyrene	1.80E-06	<b>1.97E-09</b>	8.6E-09		See POM
Naphthalene	6.10E-04	1.24E-06	2.9E-06	3.33 lb/hr	No
Naphthalene	6.10E-04	<b>6.68E-07</b>	2.9E-06	9.1E-05 lb/hr	No
Phenanthrene	1.70E-05	<b>1.86E-08</b>	8.2E-08	9.1E-05 lb/hr	No
Pyrene	5.00E-06	<b>5.48E-09</b>	2.4E-08	9.1E-05 lb/hr	No
PAH, Max		<b>1.99E-06</b>	6.20E-06	2.0E-06 lb/hr	No
Polycyclic Org. Matter (POM, 7-PAH Group)		<b>1.25E-08</b>	<b>5.5E-08</b>	2.0E-06 lb/hr	No
<b>Non-PAH HAPs</b>					
Benzene	2.10E-03	<b>2.30E-06</b>	1.0E-05	8.0E-04 lb/hr	No
Dichlorobenzene	1.20E-03	2.45E-06	5.8E-06	20 lb/hr	No
Formaldehyde	7.50E-02	<b>8.21E-05</b>	3.6E-04	5.1E-04 lb/hr	No
Hexane	1.80E+00	3.67E-03	8.6E-03	12 lb/hr	No
Toluene	3.40E-03	6.93E-06	1.6E-05	25 lb/hr	No
<b>Non-HAP Organic Compounds</b>					
7,12-Dimethylbenz(a)anti	1.60E-05	3.26E-08	7.7E-08		
Butane	2.10E+00	4.28E-03	1.0E-02		
Ethane	3.10E+00	6.32E-03	1.5E-02		
Pentane	2.60E+00	5.30E-03	1.2E-02	118 lb/hr	No
Propane	1.60E+00	3.26E-03	7.7E-03		
<b>Metals (HAPs)</b>					
Arsenic	2.00E-04	<b>2.19E-07</b>	9.6E-07	1.5E-06 lb/hr	No
Barium	4.40E-03	8.97E-06	2.1E-05	0.033 lb/hr	No
Beryllium	1.20E-05	<b>1.31E-08</b>	5.8E-08	2.8E-05 lb/hr	No
Cadmium	1.10E-03	<b>1.20E-06</b>	5.3E-06	3.7E-06 lb/hr	No
Chromium	1.40E-03	2.85E-06	6.7E-06	0.033 lb/hr	No
Cobalt	8.40E-05	1.71E-07	4.0E-07	0.0033 lb/hr	No
Copper	8.50E-04	1.73E-06	4.1E-06	0.013 lb/hr	No
Manganese	3.80E-04	7.75E-07	1.8E-06	0.067 lb/hr	No
Mercury	2.60E-04	5.30E-07	1.2E-06	0.003 lb/hr	No
Molybdenum	1.10E-03	2.24E-06	5.3E-06	0.333 lb/hr	No
Nickel	2.10E-03	<b>2.30E-06</b>	1.0E-05	2.7E-05 lb/hr	No
Selenium	2.40E-05	4.89E-08	1.2E-07	0.013 lb/hr	No
Vanadium	2.30E-03	4.69E-06	1.1E-05	0.003 lb/hr	No
Zinc	2.90E-02	5.91E-05	1.4E-04	0.667 lb/hr	No
Total HAP Emissions (ton/yr) =		0.009			

Notes:  
 1. Emission factors taken from AP-42, Section 1.4 Natural Gas Combustion (7/98)  
 2. TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.  
 3. Booth Make-up Air heater is used only during cold weather, so actual on-line rating is significantly less.

Table 2-3: Office Furnace Combustion Emissions

Source Name/Model  
 Bryant 9155A42060517A  
 Indirect-fired

No. of units  
 1

Input Duty  
 1 MBH=1,000 BTU/h  
 MBH Btu/hr: MMBtu/hr  
 60 60,000 0.06 MMBtu/hr

Total MMBtu/hr  
 0.06 MMBtu/hr Fuel Use:  
 0.001  
 0.515

Heater Duty =  
 0.06 MMBtu/hr +  
 1,020 MMBtu/MMsc  
 24 hr/day  
 8,760 hr/yr<sup>3</sup>

Operating Assumptions:  
 5.88E-05 MMscf/hr  
 100%

Criteria Air Pollutants	Emission Factor <sup>1</sup> lb/MMscf	Emissions	
		lb/hr	T/yr
NO <sub>2</sub>	100	0.01	0.03
CO	84	0.005	0.02
PM <sub>10</sub>	7.6	0.0004	0.002
PM <sub>2.5</sub>	7.6	0.0004	0.002
SO <sub>2</sub>	0.6	3.5E-05	1.5E-04
VOC	5.5	3.2E-04	1.4E-03
Lead	0.0005	2.9E-08	1.3E-07
		2.1E-05 lb/month	
<b>Total Criteria Emissions (ton/yr) =</b>		<b>0.05</b>	

Greenhouse Gas Emissions	
CO <sub>2</sub>	= 1 X 10 <sup>3</sup> * MMBTU Gas * 53.06 kg CO <sub>2</sub> /MMBTU
CO <sub>2</sub>	= 28 Metric Tons/year
CH <sub>4</sub>	= 1 X 10 <sup>3</sup> * MMBTU Gas * 0.001 kg CH <sub>4</sub> /MMBTU
CH <sub>4</sub>	= 0.001 Metric Tons/year
N <sub>2</sub> O	= 1 X 10 <sup>3</sup> * MMBTU Gas * 0.0001 kg N <sub>2</sub> O/MMBTU
N <sub>2</sub> O	= 0.000 Metric Tons/year
Total CO <sub>2</sub> e = CO <sub>2</sub> + (CH <sub>4</sub> * 25) * (N <sub>2</sub> O * 298)	
CO <sub>2</sub> e	= 28 Metric Tons/year

Hazardous & Toxic Air Pollutants (HAP & TAP)	Emission Factor <sup>1</sup> lb/MMscf	Emissions		Modeling Threshold TAP Screening	Modeling Required?
		lb/hr <sup>2</sup>	T/yr		
<b>PAH HAPs</b>					
2-Methylnaphthalene	2.40E-05	<b>1.41E-09</b>	6.2E-09	9.1E-05 lb/hr	No
3-Methylchloranthrene	1.80E-06	<b>1.06E-10</b>	4.6E-10	2.5E-06 lb/hr	No
Acenaphthene	1.80E-06	<b>1.06E-10</b>	4.6E-10	9.1E-05 lb/hr	No
Acenaphthylene	1.80E-06	<b>1.06E-10</b>	4.6E-10	9.1E-05 lb/hr	No
Anthracene	2.40E-06	<b>1.41E-10</b>	6.2E-10	9.1E-05 lb/hr	No
Benzo(a)anthracene	1.80E-06	<b>1.06E-10</b>	4.6E-10		See POM
Benzo(a)pyrene	1.20E-06	<b>7.06E-11</b>	3.1E-10	2.0E-06 lb/hr	See POM
Benzo(b)fluoranthene	1.80E-06	<b>1.06E-10</b>	4.6E-10		See POM
Benzo(g,h,i)perylene	1.20E-06	<b>7.06E-11</b>	3.1E-10	9.1E-05 lb/hr	No
Benzo(k)fluoranthene	1.80E-06	<b>1.06E-10</b>	4.6E-10		See POM
Chrysene	1.80E-06	<b>1.06E-10</b>	4.6E-10		See POM
Dibenzo(a,h)anthracene	1.20E-06	<b>7.06E-11</b>	3.1E-10		See POM
Fluoranthene	3.00E-06	<b>1.76E-10</b>	7.7E-10	9.1E-05 lb/hr	No
Fluorene	2.80E-06	<b>1.65E-10</b>	7.2E-10	9.1E-05 lb/hr	No
Indeno(1,2,3-cd)pyrene	1.80E-06	<b>1.06E-10</b>	4.6E-10		See POM
Naphthalene	6.10E-04	3.59E-08	1.6E-07	3.33 lb/hr	No
Naphthalene	6.10E-04	<b>3.59E-08</b>	1.6E-07	9.1E-05 lb/hr	No
Phenanthrene	1.70E-05	<b>1.00E-09</b>	4.4E-09	9.1E-05 lb/hr	No
Pyrene	5.00E-06	<b>2.94E-10</b>	1.3E-09	9.1E-05 lb/hr	No
PAH, Max		<b>7.60E-08</b>	3.33E-07	2.0E-06 lb/hr	No
Polycyclic Org. Matter (POM, 7-PAH Group)		<b>6.71E-10</b>	<b>2.9E-09</b>	2.0E-06 lb/hr	No
<b>Non-PAH HAPs</b>					
Benzene	2.10E-03	<b>1.24E-07</b>	5.4E-07	8.0E-04 lb/hr	No
Dichlorobenzene	1.20E-03	7.06E-08	3.1E-07	20 lb/hr	No
Formaldehyde	7.50E-02	<b>4.41E-06</b>	1.9E-05	5.1E-04 lb/hr	No
Hexane	1.80E+00	1.06E-04	4.6E-04	12 lb/hr	No
Toluene	3.40E-03	2.00E-07	8.8E-07	25 lb/hr	No
<b>Non-HAP Organic Compounds</b>					
7,12-Dimethylbenz(a)anth	1.60E-05	9.41E-10	4.1E-09		
Butane	2.10E+00	1.24E-04	5.4E-04		
Ethane	3.10E+00	1.82E-04	8.0E-04		
Pentane	2.60E+00	1.53E-04	6.7E-04	118 lb/hr	No
Propane	1.60E+00	9.41E-05	4.1E-04		
<b>Metals (HAPs)</b>					
Arsenic	2.00E-04	<b>1.18E-08</b>	5.2E-08	1.5E-06 lb/hr	No
Barium	4.40E-03	2.59E-07	1.1E-06	0.033 lb/hr	No
Beryllium	1.20E-05	<b>7.06E-10</b>	3.1E-09	2.8E-05 lb/hr	No
Cadmium	1.10E-03	<b>6.47E-08</b>	2.8E-07	3.7E-06 lb/hr	No
Chromium	1.40E-03	8.24E-08	3.6E-07	0.033 lb/hr	No
Cobalt	8.40E-05	4.94E-09	2.2E-08	0.0033 lb/hr	No
Copper	8.50E-04	5.00E-08	2.2E-07	0.013 lb/hr	No
Manganese	3.80E-04	2.24E-08	9.8E-08	0.067 lb/hr	No
Mercury	2.60E-04	1.53E-08	6.7E-08	0.003 lb/hr	No
Molybdenum	1.10E-03	6.47E-08	2.8E-07	0.333 lb/hr	No
Nickel	2.10E-03	<b>1.24E-07</b>	5.4E-07	2.7E-05 lb/hr	No
Selenium	2.40E-05	1.41E-09	6.2E-09	0.013 lb/hr	No
Vanadium	2.30E-03	1.35E-07	5.9E-07	0.003 lb/hr	No
Zinc	2.90E-02	1.71E-06	7.5E-06	0.667 lb/hr	No
<b>Total HAP Emissions (ton/yr) =</b>		<b>0.000</b>			

Notes:  
 1. Emission factors taken from AP-42, Section 1.4 Natural Gas Combustion (7/98)  
 2. TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.  
 3. Booth Make-up Air heater is used only during cold weather, so actual on-line rating is significantly less.

Table 2-5: Plasma 1 Cutting Emissions

Federal Way Plasma Cutting

Material	Estimated Max Unrestricted Kerf <sup>1</sup> No Agglomeration		Estimated Max Restricted Kerf <sup>2</sup> No Agglomeration		Constituents <sup>3</sup>	CAS Number	Constituent Concentration (max wt%)	Emission Factor (% of kerf) <sup>4</sup>	Unrestricted Uncontrolled Emissions		Restricted Uncontrolled Emissions		Cyclone Efficiency (%) <sup>5</sup>	Control Equipment Efficiency (%) <sup>6</sup>	Unrestricted Controlled Emissions		Restricted Controlled Emissions								
	lb/hr	lb/yr	lb/hr	lb/yr					lb/hr	lb/yr	lb/hr	lb/yr			lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr			
																							lb/hr	lb/yr	lb/hr
Substrate Steel	54.84	252,892.31	26.04	120,000	Aluminum	7429-90-5	0.09%	5%	2.4E-03	10.9	1.1E-03	5.16	0%	99.97%	7.1E-07	3.3E-03	3.4E-07	1.9E-03							
					Antimony	7440-38-0	Not Reported																		
					Arsenic	7440-38-2	Not Reported																		
					Beryllium	7440-41-7	Not Reported																		
					Bismuth	7440-89-9	Not Reported																		
					Boron	7440-42-8	0.002%																		
					Cadmium	7440-43-9	Not Reported									5.5E-06	0.03	2.6E-06	0.0			1.6E-09	7.6E-06	7.8E-10	3.9E-06
					Calcium	1305-78-6	ND																		
					Carbon	7440-44-0	0.1%									3.3E-03	15.2	1.6E-03	7.20			5.9E-07	4.5E-03	4.7E-07	2.2E-03
					Chromium Total	7440-47-3	0.08%									2.2E-03	10.1	1.0E-03	4.8			6.8E-07	3.0E-03	3.1E-07	1.4E-03
					Chromiumsulf <sup>7</sup>	Not Reported										5.1E-06	0.0445	2.4E-06	0.02			1.5E-09	1.3E-05	7.2E-10	6.3E-06
					Cobalt	7440-48-4	Not Reported																		
					Copper	7440-50-8	0.03%									5.5E-04	2.5	2.6E-04	1.20			1.6E-07	7.6E-04	7.8E-08	3.9E-04
					Iron	7439-89-6	99%									2.7E+00	12508.3	1.3E+00	5940.0			8.1E-04	3.8E+00	3.9E-04	1.8E+00
					Lead	7439-92-1	Not Reported																		
					Magnesium	7439-95-4	Not Reported																		
					Manganese	7439-96-5	3.37%									9.1E-02	419.5	4.3E-02	199.2			2.7E-05	1.3E-01	1.3E-05	8.0E-02
					Molybdenum	7439-98-7	5%									1.4E-01	631.7	6.5E-02	300.0			4.1E-06	1.9E-01	2.0E-06	9.0E-02
					Nickel	7440-02-0	0.13%									1.9E-03	16.4	8.9E-04	7.80			5.6E-07	4.9E-03	2.7E-07	2.3E-03
					Niobium	7440-03-1	0.12%									3.3E-03	15.4	1.9E-03	7.3			1.0E-09	4.9E-03	4.9E-07	2.9E-03
					Phosphorus	7723-14-0	0.03%									9.2E-04	3.8	3.9E-04	1.8			2.5E-07	1.1E-03	1.2E-07	5.4E-04
					Selenium	7782-49-2	Not Reported																		
					Silicon	7440-21-3	0.1%																		
					Sulfur	7446-08-05	0.004%									1.1E-04	0.5	5.2E-05	0.2			3.3E-08	1.5E-04	1.6E-08	7.2E-05
					Tantalum	7440-25-7	Not Reported																		
					Tellurium	13494-80-9	Not Reported																		
					Tin	7440-31-5	Not Reported																		
					Titanium	7440-32-6	0.24%									6.6E-03	30.3	3.1E-03	14.4			2.0E-06	9.1E-03	9.4E-07	4.3E-03
Tungsten	7440-33-7	Not Reported																							
Vanadium	7440-62-2	0.04%						1.1E-03	5.1	5.2E-04	2.4			3.3E-07	1.5E-03	1.6E-07	7.2E-04								
Zinc	7440-66-6	Not Reported																							
Substrate Stainless Steel	2.08	9,501.23	0.98	4,512	Aluminum	7429-90-5	2%	7%	2.9E-03	13.3	1.4E-03	6.32	0%	99.97%	8.7E-07	4.0E-03	4.1E-07	1.9E-03							
					Antimony	7440-38-0	Not Reported																		
					Arsenic	7440-38-2	Not Reported																		
					Beryllium	7440-41-7	Not Reported																		
					Bismuth	7440-89-9	Not Reported																		
					Boron	7440-42-8	Not Reported																		
					Cadmium	7440-43-9	Not Reported																		
					Calcium	1305-78-6	Not Reported																		
					Carbon	7440-44-0	0.00%									1.2E-04	0.5	5.5E-05	0.25			3.5E-08	1.6E-04	1.6E-08	7.8E-05
					Chromium Total	7440-47-3	20%									2.8E-02	133.0	1.4E-02	63.2			8.7E-06	4.0E-02	4.1E-06	1.9E-02
					Chromiumsulf <sup>7</sup>	Not Reported										4.8E-05	4.2E-01	2.3E-05	2.0E-01			1.4E-08	1.3E-04	6.8E-09	6.0E-05
					Cobalt	7440-48-4	Not Reported																		
					Copper	7440-50-8	0.41%									5.9E-04	2.7	2.8E-04	1.28			1.8E-07	8.2E-04	8.4E-08	3.9E-04
					Iron	7439-89-6	81%									1.2E-01	538.7	5.6E-02	255.83			3.5E-05	1.6E-01	1.7E-05	7.7E-02
					Lead	7439-92-1	Not Reported																		
					Magnesium	7439-95-4	Not Reported																		
					Manganese	7439-96-5	2%									2.8E-03	13.3	1.4E-03	6.32			8.7E-07	4.0E-03	4.1E-07	1.9E-03
					Molybdenum	7439-98-7	0.30%									4.3E-04	2.0	2.1E-04	0.95			1.3E-07	6.0E-04	5.2E-08	2.8E-04
					Nickel	7440-02-0	10.5%									9.0E-03	69.8	3.8E-03	33.2			2.4E-06	2.1E-02	1.1E-06	9.9E-03
					Niobium	7440-03-1	5%									7.2E-03	33.3	3.4E-03	15.79			2.2E-06	1.0E-02	1.0E-06	4.7E-03
					Phosphorus	7723-14-0	0.045%																		
					Selenium	7782-49-2	0.35%																		
					Silicon	7440-21-3	1%									1.4E-03	6.7	6.9E-04	3.16			4.3E-07	2.0E-03	2.1E-07	9.5E-04
					Sulfur	7446-08-05	0.03%									4.3E-05	0.2	2.1E-05	0.09			1.3E-08	6.0E-05	6.2E-09	2.8E-05
					Tantalum	7440-25-7	5%									7.2E-03	33.3	3.4E-03	15.79			2.2E-06	1.0E-02	1.0E-06	4.7E-03
					Tellurium	13494-80-9	Not Reported																		
					Tin	7440-31-5	Not Reported																		
					Titanium	7440-32-6	0.7%									1.0E-03	4.7	4.8E-04	2.21			3.0E-07	1.4E-03	1.4E-07	6.6E-04
Tungsten	7440-33-7	Not Reported																							
Vanadium	7440-62-2	Not Reported																							
Zinc	7440-66-6	Not Reported																							

Table 2-5: Plasma 1 Cutting Emissions

Totals	Constituents	CAS Number	Unrestricted	Unrestricted	Restricted	Restricted	Cyclone Efficiency (%)	Control	Unrestricted Controlled		Restricted Controlled		
			Uncontrolled	Uncontrolled	Uncontrolled	Uncontrolled		Equipment	Emissions	Emissions	Emissions	Emissions	
			Emissions	Emissions	Emissions	Emissions		Efficiency (%)	Ib/hr	Ib/yr	Ib/hr	Ib/yr	
	Aluminum	7429-90-5	5.2E+03	24.2	2.5E-03	11.5	0%	99.97%	1.6E-06	7.3E-03	7.5E-07	3.4E-03	
	Antimony	7440-36-0	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Arsenic	7440-38-2	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Beryllium	7440-41-7	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Bismuth	7440-58-6	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Boron	7440-42-8	5.5E-06	0.025	2.6E-06	0.0			1.6E-09	7.6E-06	7.8E-10	3.6E-06	
	Cadmium	7440-43-9	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Calcium	1305-78-8	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Carbon	7440-44-0	3.4E+03	15.7	1.6E-03	7.5			1.0E-06	4.7E-03	4.9E-07	2.2E-03	
	Chromium Total	7440-47-3	3.1E+02	143.1	1.5E-02	68.0			9.3E-06	4.3E-02	4.4E-06	2.0E-02	
	Chromium +6		5.3E+05	0.46	2.5E-05	0.2198			1.6E-08	1.4E-04	7.5E-09	6.6E-05	
	Cobalt	7440-48-4	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Copper	7440-50-8	1.1E+03	5.3	5.4E-04	2.5			3.4E-07	1.6E-03	1.6E-07	7.5E-04	
	Iron	7439-89-6	2.8E+00	13047.0	1.3E+00	6195.8			9.5E-04	3.9E+00	4.0E-04	1.9E+00	
	Lead	7439-92-1	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Magnesium	7439-95-4	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Manganese	7439-96-5	9.4E-02	432.8	4.5E-02	205.5			2.8E-05	1.3E-01	1.3E-05	6.2E-02	
	Molybdenum	7439-98-7	1.4E-01	633.7	6.5E-02	300.9			4.1E-05	1.9E-01	2.0E-05	9.0E-02	
	Nickel	7440-02-0	9.9E+03	86.3	4.7E-03	41.0			3.0E-06	2.6E-02	1.4E-06	1.2E-02	
	Niobium	7440-03-1	1.1E+02	48.7	5.0E-03	23.1			3.2E-06	1.5E-02	1.5E-06	6.9E-03	
	Phosphorus	7723-14-0	6.2E+04	3.8	3.9E-04	1.8			2.5E-07	1.1E-03	1.2E-07	5.4E-04	
	Selenium	7782-49-2	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Silicon	7440-21-3	1.4E+03	6.7	6.9E-04	3.2			4.3E-07	2.0E-03	2.1E-07	9.5E-04	
	Sulfur	7448-69-03	1.5E+04	0.7	7.3E-05	0.3			4.6E-06	2.1E-04	2.2E-06	1.0E-04	
	Tantalum	7440-25-7	7.2E+03	33.3	3.4E-03	15.8			2.2E-06	1.0E-02	1.0E-06	4.7E-03	
	Tellurium	13494-80-9	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Tin	7440-31-5	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Titanium	7440-32-6	7.6E+03	35.0	3.6E-03	16.8			2.3E-06	1.0E-02	1.1E-06	5.0E-03	
	Tungsten	7440-33-7	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
	Vanadium	7440-62-2	1.1E+03	5.1	5.2E-04	2.4			3.3E-07	1.5E-03	1.6E-07	7.2E-04	
	Zinc	7440-65-6	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

TAP Emissions Summary	TAP Type (24 hr or Annual Avgd EL)	EL	Unrestricted Uncontrolled Emissions (lb/hr)	Restricted Uncontrolled Emissions (lb/hr)	Restricted Controlled Emissions (lb/hr)	Restricted Controlled Emissions (lb/yr)	Restricted Uncontrolled % of EL	Restricted Controlled % of EL	HAP Emissions Summary	Restricted Controlled Emissions (lb/yr)	Restricted Controlled Emissions (tons/yr)
Aluminum	585 (24 hr)	6.67E-01	5.2E+03	2.5E-03	7.5E-07	3.4E-03	0.37%	0.0001%	Antimony	0.0E+00	0.0E+00
Antimony	585 (24 hr)	3.30E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00			Arsenic	0.0E+00	0.0E+00
Arsenic	586 (Annual)	1.50E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00			Beryllium	0.0E+00	0.0E+00
Beryllium	586 (Annual)	2.80E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00			Cadmium	0.0E+00	0.0E+00
Boron	585 (24 hr)	6.67E-01	5.5E-06	2.6E-06	7.4E-10	3.6E-06	0.0004%	0.0000001%	Cobalt	0.0E+00	0.0E+00
Cadmium	586 (Annual)	3.70E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00			Chromium	2.0E-02	1.0E-05
Calcium	585 (24 hr)	1.33E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00			Lead	0.0E+00	0.0E+00
Chromium	585 (24 hr)	3.30E-02	3.1E-02	4.4E-06	2.0E-07	6.6E-05	4477.5%	1.34%	Magnesium	6.2E-02	3.1E-05
Chromium+6	586 (Annual)	5.60E-07	5.3E-05	2.5E-05	6.6E-05	6.6E-05			Nickel	1.2E-02	6.1E-06
Cobalt	585 (24 hr)	3.30E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00			Phosphorus	5.4E-04	2.7E-07
Copper	585 (24 hr)	7.0E-02	1.1E+03	5.4E-04	1.6E-07	7.5E-04	80.8%	0.0002%	Selenium	0.0E+00	0.0E+00
Iron	585 (24 hr)	3.33E-01	2.8E+00	1.3E+00	4.0E-04	1.8E+00	401.6%	0.121%			
Magnesium	585 (24 hr)	6.67E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00					
Manganese	585 (24 hr)	3.33E-01	9.4E-02	4.5E-02	1.3E-05	6.2E-02	13.99%	0.004%			
Molybdenum	585 (24 hr)	3.33E-01	1.4E-01	6.5E-02	2.0E-05	9.0E-02	19.61%	0.006%			
Nickel	586 (Annual)	2.75E-05	9.9E+03	4.7E-03	1.4E-08	1.2E-02	17004.2%	3.1%			
Phosphorus	585 (24 hr)	7.00E-03	8.2E-04	3.9E-04	1.2E-07	5.4E-04	5.6%	0.0017%			
Selenium	585 (24 hr)	1.30E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00					
Silicon	585 (24 hr)	6.67E-01	1.4E+03	6.9E-04	2.1E-07	9.5E-04	0.1%	0.00003%	PM <sub>2.5</sub> NO <sub>x</sub>	6.6	4.11E-04
Tantalum	585 (24 hr)	3.33E-01	7.2E+03	3.4E-03	1.0E-06	4.7E-03	1.0%	0.0003%	NO <sub>x</sub>	5.5	1.3
Tellurium	585 (24 hr)	7.00E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00					
Tin	585 (24 hr)	1.33E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00					
Tungsten	585 (24 hr)	6.70E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00					
Vanadium	585 (24 hr)	3.00E-03	1.1E+03	5.2E-04	1.6E-07	7.2E-04	17.4%	0.01%			
Zinc	585 (24 hr)	3.33E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00					

NOx Calculations:			
Gas	density	specific grav air	
NO <sub>2</sub>	1.58	1.58	
Air	1.205 kg/m <sup>3</sup>	1.00	
sp. Grav gas = pGas/pAir			
(X) / 1.205 = 1.58 1.58 * 1.205 = X = 1.904 kg/m <sup>3</sup> NO <sub>2</sub>			
1.904 kg NO <sub>2</sub> /m <sup>3</sup> = 0.00419756 lbs NO <sub>2</sub> /liter			
Emission Factor <sup>2</sup> 4.4-5.5 liters NO <sub>2</sub> /minute dry steel and stainless steel 8 mm			
@5 l/min NO <sub>x</sub> (5 liters/min) X (4.19756E-3 lbs NO <sub>2</sub> /liter) = 0.02099 lbs NO <sub>2</sub> /min			
assume NO <sub>x</sub> =NO <sub>2</sub>			
2.1E-2 lbs NO <sub>2</sub> /min X 60 min/hr = 1.26 lbs NO <sub>2</sub> /hr			
NO <sub>x</sub> lb/hr	lb/yr @760 hr/yr	tons/yr @8760 hr/yr	lb/yr @4160 hr/yr
1.26	11037.6	5.5	5241.6
			2.6
			% of BRC
			66%

lbs. cuttings/hr. (24-hour average) =

$$= (10,000 \text{ lbs. cuttings/month}) / (4 \text{ weeks/month} \times 4 \text{ days/week} \times 24 \text{ hrs./day}) = 26.0 \text{ lbs. cuttings/hour}$$

Assume all emissions are smaller than 2.5 microns in diameter.

$$\text{PM lbs./hr.} = (\text{steel cuttings lbs./hr.} \times \text{Emission Factor X control factor}) + (\text{stainless steel cuttings lbs./hr.} \times \text{Emission Factor X control factor}) \\ = (2.0 \text{ lbs. cuttings/hr.} \times 5\% \times (100\% - 99.97\%)) + (0.9 \text{ lbs. cuttings/hr.} \times 7\% \times (100\% - 99.97\%)) \\ = 4.9E-5 \text{ lbs. PM/hr.}$$

$$\text{PM lbs./yr.} = (\text{steel cuttings lbs./yr.} \times \text{Emission Factor X control factor}) + (\text{stainless steel cuttings lbs./yr.} \times \text{Emission Factor X control factor}) \\ = (120,000 \text{ lbs. steel cuttings/yr.} \times 5\% \times (100\% - 99.97\%)) + (4512 \text{ lbs. cuttings/yr.} \times 7\% \times (100\% - 99.97\%)) \\ = 1.9E \text{ lbs. PM/yr.}$$

$$\text{PM tons./yr.} = \text{lbs. PM/yr.} / 2000 = 0.00094 \text{ tons PM/yr}$$

Aluminum content steel 0.09% (certificate);

Aluminum content stainless steel 2.0% (MSDS).

Restricted uncontrolled Aluminum (S85 TAP) emissions (lbs./hr.) =

$$= \text{restricted uncontrolled steel cuttings (lbs./hour)} \times \text{Emission Factor X constituent (}\% \text{)} + \\ \text{restricted uncontrolled stainless steel cuttings (lbs./hour)} \times \text{Emission Factor X constituent (}\% \text{)} \\ = [(26.0 \text{ lbs./hr.} \times 5\%) \times (0.09\%)] + [(0.9 \text{ lbs./hr.} \times 7\%) \times 2\%] = 0.00117 \text{ lbs. steel aluminum/hr.} + 0.00137 \text{ lbs. stainless steel aluminum/hr.} \\ = 0.00254 \text{ lbs. aluminum/hr.}$$

Restricted controlled cuttings = aluminum emissions (lbs./hr.) X (100-Control Efficiency)

$$= 0.00254 \text{ lbs. aluminum/hr.} \times (100\% - 99.97\%) = 7.6 \text{ E-7 lbs. aluminum/hr.}$$

Nickel content steel 0.13% (certificate);

Nickel content stainless steel 10.5% (certificate).

Restricted uncontrolled Nickel (S86 TAP) emissions (lbs./hr.) =

$$= \text{restricted uncontrolled steel cuttings (lbs./yr.)/[8760 hrs./yr.]} \times \text{Emission Factor X constituent (}\% \text{)} + \text{restricted uncontrolled stainless steel cuttings (lbs./yr.)/[8760 hrs./yr.]} \times \text{Emission Factor X const. (}\% \text{)} \\ = [(120,000 \text{ lbs./yr.}/[8760 \text{ hrs./yr.}]) \times (5\%) \times (0.13\%)] + \\ [(4512 \text{ lbs./yr.}/[8760 \text{ hrs./yr.}]) \times (7\%) \times (10.5\%)] \\ = 0.0047 \text{ lbs. nickel/hr.}$$

Restricted controlled cuttings = (steel nickel emissions (lbs./hr.) X (100-Control Efficiency)) +

(stainless steel nickel emissions (lbs./hr.) X (100-Control Efficiency))

$$= [(0.0047 \text{ lbs. nickel/hr.} \times (100\% - 99.97\%))] + [(0.0047 \text{ lbs. nickel/hr.} \times (100\% - 99.97\%))] \\ = 1.4E-6 \text{ lbs. nickel/hr.}$$

#### Note

Plasma Cutter placed into service September 2014 at Federal Way.

1. Uncontrolled media usage based on medium actual use rate prorated from 20 hrs/day, 4 days/week, 52 weeks/yr (4160 hrs/yr) to 24 hrs/day, 7 days/week, 52 weeks/yr (8760 hrs/yr) Dry Cutting.

2. 2016 Kerf Weight Data: March & June = max months = 5000 lbs Steel/month; use +100% = 10,000 lbs steel/month; 168 lbs SS/month = max use +100% = 376 lbs SS/month

Assumes emissions are restricted to a 20 hours/day, 4 days/week, 52 weeks/year (4160 hours/year). Sometimes work Fridays but usually drilling rails on the plasma not cutting.

3. Constituents based on MSDS and Certificates. Email Tom Hogan 11/16/15 Re materials cut: Domex 100 Steel and Hardox Steel (primarily Domex 100). Constituent concentrations based on

Domex 100 and Hardox steel and Pacific Metal stainless steel certifications are highlighted. Values for Ni and Cr highest in survey of multiple steel certificates. Other highlighted constituent values 200% of 1 test certificate.

4. EPA AP-42, Chapter 12, Other Emission Factor Documents, "Emission of fume, nitrogen oxides and noise in plasma cutting of stainless and mild steel", Bronssen B, et al, The Swedish Institute of Production Engineering Research, March, 1994, <http://www.epa.gov/ttn/chie/ef/docs/welding.pdf>

5. Media reclaim sorting equipment-not applicable.

6. Tom Hogan, 7/25/16 Torri Model DF03-12, 7000 CFM, 6-24x24x2 PWG-205 Merv 11 prefilters and 6-24x24x11.5 MC2000-501 HEPA filters 99.97% @ 3 microns manufactured by Donaldson.

7. Emission Factor 0.00222 lbs Cr+6/lbs per lb Cr, From SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, PAGE 1 of 9, APP. NUMBERS 48017/2, Coating, Printing, Aerospace and Chemical Operations Team.

Reviewed by APPLICATION PROCESSING AND CALCULATIONS DATE 07/30/08, AMERICAN SECURITY PRODUCTS, INC., Jul-08.

Table 2-6: Plasma 2 Cutting Emissions

Federal Way Plasma Cutting

Material	Estimated Max Unrestricted Kerf <sup>1</sup> No Agglomeration		Estimated Max Restricted Kerf <sup>2</sup> No Agglomeration		Constituents <sup>3</sup>	CAS Number	Constituent Concentration (max wt%)	Emission Factor (% of kerf) <sup>4</sup>	Unrestricted Uncontrolled Emissions		Restricted Uncontrolled Emissions		Cyclone Efficiency (%) <sup>5</sup>	Control Equipment Efficiency (%) <sup>6</sup>	Unrestricted Controlled Emissions		Restricted Controlled Emissions									
	lb/hr	lb/yr	lb/hr	lb/yr					lb/hr	lb/yr	lb/hr	lb/yr			lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr				
																							lb/hr	lb/yr	lb/hr	lb/yr
Substrate Steel	54.84	252,692.31	6.51	30,000	Aluminum	7429-90-5	0.09%	5%	2.4E-03	10.9	2.8E-04	1.28	0%	99.97%	7.1E-07	3.3E-03	8.4E-08	3.9E-04								
					Antimony	7440-35-0	Not Reported																			
					Arsenic	7440-38-2	Not Reported																			
					Beryllium	7440-41-7	Not Reported																			
					Bismuth	7440-49-9	Not Reported																			
					Boron	7440-42-8	0.002%									5.5E-06	0.0	6.5E-07	0.00			1.6E-09	7.6E-06	2.0E-10	9.0E-07	
					Cadmium	7440-43-0	Not Reported																			
					Calcium	1305-78-8	ND																			
					Carbon	7440-44-0	0.1%									3.3E-03	15.2	3.9E-04	1.80			9.9E-07	4.5E-03	1.2E-07	5.4E-04	
					Chromium Total	7440-47-3	0.09%									2.2E-03	10.1	2.6E-04	1.20			6.6E-07	3.0E-03	7.8E-08	3.6E-04	
					Chromium(VI)	Not Reported										5.1E-06	0.0445	6.0E-07	0.01			1.5E-09	1.3E-05	1.8E-10	1.6E-06	
					Cobalt	7440-49-4	Not Reported																			
					Copper	7440-50-8	0.02%									5.5E-04	2.5	6.5E-05	0.30			1.6E-07	7.6E-04	2.0E-08	9.0E-05	
					Iron	7439-89-6	99%									2.7E+00	12508.3	3.2E-01	1485.00			8.1E-04	3.6E+00	9.7E-05	4.5E-01	
					Lead	7439-92-1	Not Reported																			
					Magnesium	7439-95-4	Not Reported																			
					Manganese	7439-96-5	3.0%									9.1E-02	419.5	1.1E-02	49.80			2.7E-05	1.3E-01	3.2E-08	1.5E-02	
					Molybdenum	7439-98-7	5%									1.4E-01	631.7	1.6E-02	75.00			4.1E-05	1.9E-01	4.9E-06	2.2E-02	
					Nickel	7440-02-0	0.13%									1.9E-03	16.4	2.2E-04	1.95			5.6E-07	4.9E-03	6.7E-08	5.8E-04	
					Niobium	7440-03-1	0.12%									3.3E-03	15.4	4.0E-04	1.83			1.0E-06	4.6E-03	1.2E-07	5.5E-04	
					Phosphorus	7723-14-0	0.03%									9.2E-04	3.9	9.8E-05	0.45			2.5E-07	1.1E-03	2.6E-08	1.3E-04	
					Selenium	7782-49-2	Not Reported																			
					Silicon	7440-21-3	0.1%																			
					Sulfur	7446-09-05	0.034%									1.1E-04	0.5	1.3E-05	0.06			3.3E-08	1.5E-04	3.8E-08	1.8E-05	
					Tantalum	7440-25-7	Not Reported																			
					Tellurium	13494-90-9	Not Reported																			
					Tin	7440-31-5	Not Reported																			
					Titanium	7440-32-6	0.24%									6.6E-03	30.3	7.8E-04	3.60			2.0E-06	9.1E-03	2.3E-07	1.1E-03	
					Tungsten	7440-33-7	Not Reported																			
					Vanadium	7440-42-2	0.04%									1.1E-03	5.1	1.3E-04	0.60			3.3E-07	1.5E-03	3.9E-08	1.6E-04	
Zinc	7440-68-6	Not Reported																								
Substrate Stainless Steel	2.08	9,501.23	0.24	1,128	Aluminum	7429-90-5	2%	7%	2.9E-03	13.3	3.4E-04	1.58	0%	99.97%	8.7E-07	4.0E-03	1.0E-07	4.7E-04								
					Antimony	7440-35-0	Not Reported																			
					Arsenic	7440-38-2	Not Reported																			
					Beryllium	7440-41-7	Not Reported																			
					Bismuth	7440-49-9	Not Reported																			
					Boron	7440-42-8	Not Reported																			
					Cadmium	7440-43-0	Not Reported																			
					Calcium	1305-78-8	Not Reported																			
					Carbon	7440-44-0	0.06%									1.2E-04	0.5	1.4E-05	0.06			3.5E-08	1.6E-04	4.1E-09	1.9E-05	
					Chromium Total	7440-47-3	20%									2.9E-02	133.0	3.4E-03	15.79			8.7E-06	4.0E-02	1.0E-06	4.7E-03	
					Chromium(VI)	Not Reported										4.8E-05	4.2E-01	5.7E-06	5.0E-02			1.4E-08	1.3E-04	1.7E-09	1.5E-05	
					Cobalt	7440-49-4	Not Reported																			
					Copper	7440-50-8	0.11%									5.5E-04	2.7	7.0E-05	0.32			1.6E-07	8.2E-04	2.1E-08	9.7E-05	
					Iron	7439-89-6	81%									1.2E-01	539.7	1.4E-02	63.96			3.5E-05	1.6E-01	4.2E-06	1.9E-02	
					Lead	7439-92-1	Not Reported																			
					Magnesium	7439-95-4	Not Reported																			
					Manganese	7439-96-5	2%									2.9E-03	13.3	3.4E-04	1.58			8.7E-07	4.0E-03	1.0E-07	4.7E-04	
					Molybdenum	7439-98-7	0.30%									4.3E-04	2.0	5.1E-05	0.24			1.3E-07	6.0E-04	1.5E-08	7.1E-05	
					Nickel	7440-02-0	10.5%									9.0E-03	69.8	9.5E-04	6.3			2.4E-06	2.1E-02	2.8E-07	2.5E-03	
					Niobium	7440-03-1	5%									7.2E-03	33.3	8.6E-04	3.95			2.2E-06	1.0E-02	2.6E-07	1.2E-03	
					Phosphorus	7723-14-0	0.045%																			
					Selenium	7782-49-2	0.35%																			
					Silicon	7440-21-3	1%									1.4E-03	6.7	1.7E-04	0.79			4.3E-07	2.0E-03	5.1E-08	2.4E-04	
					Sulfur	7446-09-05	0.03%									4.3E-05	0.2	5.1E-06	0.02			1.3E-08	6.0E-05	1.5E-09	7.1E-06	
					Tantalum	7440-25-7	Not Reported									7.2E-03	33.3	8.6E-04	3.95			2.2E-06	1.0E-02	2.6E-07	1.2E-03	
					Tellurium	13494-90-9	Not Reported																			
					Tin	7440-31-5	Not Reported																			
					Titanium	7440-32-6	0.7%									1.0E-03	4.7	1.2E-04	0.55			3.0E-07	1.4E-03	3.6E-08	1.7E-04	
					Tungsten	7440-33-7	Not Reported																			
					Vanadium	7440-42-2	Not Reported																			
Zinc	7440-68-6	Not Reported																								

Table 2-6: Plasma 2 Cutting Emissions

Totals	Constituents	CAS Number	Unrestricted	Unrestricted	Restricted	Restricted	Cyclone Efficiency (%) <sup>1</sup>	Control Equipment Efficiency (%) <sup>2</sup>	Unrestricted Controlled Emissions		Restricted Controlled Emissions	
			Uncontrolled Emissions	Uncontrolled Emissions	Uncontrolled Emissions	Uncontrolled Emissions			Ib/hr	Ib/yr	Ib/hr	Ib/yr
			Ib/hr	Ib/yr	Ib/hr	Ib/yr						
Aluminum	7429-90-5	5.2E-03	24.2	6.2E-04	2.9			1.6E-06	7.3E-03	1.9E-07	8.6E-04	
Antimony	7440-36-0	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Arsenic	7440-38-2	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Beryllium	7440-41-7	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Bismuth	7440-49-9	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Boron	7440-42-8	5.5E-06	0.025	8.5E-07	0.0			1.6E-09	7.6E-06	2.0E-10	9.0E-07	
Cadmium	7440-43-9	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Calcium	1305-76-8	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Carbon	7440-44-0	3.4E-03	15.7	4.0E-04	1.9			1.0E-08	4.7E-03	1.2E-07	5.9E-04	
Chromium Total	7440-47-3	3.1E-02	143.1	3.7E-03	17.0			9.3E-06	4.3E-02	1.1E-06	5.1E-03	
Chromium #6		5.3E-05	0.46	6.5E-06	0.0549			1.6E-08	1.4E-04	1.9E-09	1.6E-05	
Cobalt	7440-48-4	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Copper	7440-50-8	1.1E-03	5.3	1.4E-04	0.6			3.4E-07	1.6E-03	4.1E-08	1.9E-04	
Iron	7439-89-6	2.8E+00	13047.0	3.4E-01	1549.0			8.5E-04	3.9E+00	1.0E-04	4.6E-01	
Lead	7439-92-1	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Magnesium	7439-95-4	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Manganese	7439-96-5	9.4E-02	432.8	1.1E-02	51.4			2.8E-05	1.3E-01	3.3E-06	1.5E-02	
Molybdenum	7439-98-7	1.4E-01	633.7	1.6E-02	75.2			4.1E-05	1.9E-01	4.9E-06	2.3E-02	
Nickel	7440-02-0	9.8E-03	86.3	1.2E-03	10.2			3.0E-06	2.6E-02	3.5E-07	3.1E-03	
Niobium	7440-03-1	1.1E-02	49.7	1.3E-03	5.8			3.2E-06	1.5E-02	3.8E-07	1.7E-03	
Phosphorus	7723-14-0	8.2E-04	3.8	9.8E-05	0.5			2.5E-07	1.1E-03	2.9E-08	1.3E-04	
Selenium	7782-49-2	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Silicon	7440-21-3	1.4E-03	6.7	1.7E-04	0.8			4.3E-07	2.0E-03	5.1E-08	2.4E-04	
Sulfur	7446-09-05	1.5E-04	0.7	1.8E-05	0.1			4.6E-08	2.1E-04	5.4E-09	2.5E-05	
Tantalum	7440-01-7	7.2E-03	33.3	8.6E-04	3.9			2.2E-06	1.0E-02	2.6E-07	1.2E-03	
Tellurium	13494-80-9	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Tin	7440-31-5	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Titanium	7440-32-6	7.8E-03	35.0	9.0E-04	4.2			2.3E-06	1.0E-02	2.7E-07	1.2E-03	
Tungsten	7440-33-7	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Vanadium	7440-62-2	1.1E-03	5.1	1.3E-04	0.6			3.3E-07	1.5E-03	3.9E-08	1.8E-04	
Zinc	7440-66-6	0.0E+00	0.0	0.0E+00	0.0			0.0E+00	0.0E+00	0.0E+00	0.0E+00	

TAP Emissions Summary	TAP Type (24 hr or Annual Avgd EL)	EL	Unrestricted Uncontrolled Emissions (Ib/hr)	Restricted Uncontrolled Emissions (Ib/hr)	Restricted Controlled Emissions (Ib/hr)	Restricted Controlled Emissions (Ib/yr)	Restricted Uncontrolled % of EL	Restricted Controlled % of EL	HAP Emissions Summary	Restricted Controlled Emissions (Ib/yr)	Restricted Controlled Emissions (ton/yr)	
Aluminum	585 (24 hr)	6.67E-01	5.2E-03	6.2E-04	1.3E-07	8.6E-04	0.09%	0.00%	Antimony	0.0E+00	0.0E+00	
Antimony	585 (24 hr)	3.30E-03	0.0E+00	0.0	0.0E+00	0.0E+00			Arsenic	0.0E+00	0.0E+00	
Arsenic	586 (Annual)	1.50E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00			Beryllium	0.0E+00	0.0E+00	
Beryllium	586 (Annual)	2.80E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00			Cadmium	0.0E+00	0.0E+00	
Boron	585 (24 hr)	6.97E-01	5.5E-06	8.5E-07	2.0E-10	9.0E-07	0.0001%	0.0000%	Cobalt	0.0E+00	0.0E+00	
Cadmium	586 (Annual)	3.70E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00			Chromium	5.1E-03	2.5E-06	
Calcium	585 (24 hr)	1.33E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00			Lead	0.0E+00	0.0E+00	
Chromium	585 (24 hr)	3.30E-02	3.1E-02	1.1E-08	5.1E-03				Manganese	1.5E-02	7.7E-06	
Chromium #6	586 (Annual)	5.80E-07	5.3E-05	6.3E-06	1.9E-09	1.9E-06	1119.4%	0.3%	Nickel	3.1E-03	1.5E-06	
Cobalt	585 (24 hr)	3.30E-03	0.0E+00	0.0E+00	0.0E+00				Phosphorus	1.3E-04	6.7E-08	
Copper	585 (24 hr)	6.70E-02	1.1E-03	1.4E-04	4.1E-08	1.9E-04	20.2%	0.0001%	Selenium	0.0E+00	0.0E+00	
Iron	585 (24 hr)	3.33E-01	2.8E+00	3.4E-01	1.0E-04	4.8E-01	100.0%	0.0%				
Magnesium	585 (24 hr)	6.67E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00						
Manganese	585 (24 hr)	3.33E-01	9.4E-02	1.1E-02	3.3E-06	1.5E-02	3.30%	0.00%	Criteria Pollutant Emissions Summary	Unrestricted Emissions (ton/yr)	Restricted Emissions (Ib/hr)	Restricted Controlled Emissions (ton/yr)
Molybdenum	585 (24 hr)	3.33E-01	1.4E-01	1.6E-02	4.5E-06	2.3E-02	4.90%	0.001%				
Nickel	586 (Annual)	2.75E-05	9.8E-03	1.2E-03	3.5E-07	3.1E-03	4251.1%	1.3%				
Phosphorus	585 (24 hr)	7.00E-03	8.2E-04	9.8E-05	2.9E-08	1.3E-04	1.4%	0.0%				
Selenium	585 (24 hr)	1.30E-02	0.0E+00	0.0E+00	0.0E+00							
Silicon	585 (24 hr)	6.67E-01	1.4E-03	1.7E-04	5.1E-08	2.4E-04	0.03%	0.00%	PM <sub>2.5</sub>	8.6	1.03E-04	2.4E-04
Tantalum	585 (24 hr)	3.33E-01	7.2E-03	8.6E-04	2.6E-07	1.2E-03	0.3%	0.0%	NOx	5.5	1.3	0.5
Tellurium	585 (24 hr)	7.00E-03	0.0E+00	0.0E+00	0.0E+00							
Tin	585 (24 hr)	1.33E-01	0.0E+00	0.0E+00	0.0E+00							
Tungsten	585 (24 hr)	6.70E-02	0.0E+00	0.0E+00	0.0E+00							
Vanadium	585 (24 hr)	3.00E-03	1.1E-03	1.3E-04	3.5E-08	1.8E-04	4.3%	0.0%				
Zinc	585 (24 hr)	3.33E-01	0.0E+00	0.0E+00	0.0E+00							

**NOx Calculations:**

Gas density x specific grav air

NO2 X 1.58

sp. Grav gas = p/Gas/Air (X) 1.205 = 1.58 X 1.205 = X = 1.904 kg/m<sup>3</sup> NO2

1.904 kg NO2/m<sup>3</sup> = 0.004189 lbs NO2/liter

Emission Factor<sup>2</sup> 4.4-5.5 liters NO<sub>x</sub>/minute dry steel and stainless steel 8 mm

(5 l/min NO<sub>x</sub>) (5 liters/min.) X (4.189E-3 lbs NO<sub>2</sub>/liter) = 0.0209 lbs NO<sub>2</sub>/min

assume NO=NO<sub>2</sub> 2.1E-2 lbs NO<sub>2</sub>/min X 60 min/hr = 1.257 lbs NO<sub>2</sub>/hr

NOx Ibs/hr	Ibs/yr @ 8760 hrs/yr	Ibs/yr @ 8760 hrs/yr	Ibs/yr @ 775 hrs/yr	Ibs/yr @ 775 hrs/yr	% of BRC
1.257	11011.3	6.6	974.2	0.5	12%

Ibs. cuttings/hr. (24-hour average) =

$$= (10,000 \text{ lbs. cuttings/month}) / (4 \text{ weeks/month} \times 4 \text{ days/week} \times 24 \text{ hrs./day}) = 26.0 \text{ lbs. cuttings/hour}$$

Assume all emissions are smaller than 2.5 microns in diameter.

$$\begin{aligned} \text{PM lbs./hr.} &= (\text{steel cuttings lbs./hr.} \times \text{emission factor} \times \text{control factor}) + (\text{stainless steel cuttings lbs./hr.} \times \text{emission factor} \times \text{control factor}) \\ &= (2.0 \text{ lbs. cuttings/hr.} \times 5\% \times (100\% - 99.97\%)) + (0.3 \text{ lbs. cuttings/hr.} \times 7\% \times (100\% - 99.97\%)) \\ &= 4.9E-5 \text{ lbs. PM/hr.} \end{aligned}$$

$$\begin{aligned} \text{PM lbs./yr.} &= (\text{steel cuttings lbs./yr.} \times \text{emission factor} \times \text{control factor}) + (\text{stainless steel cuttings lbs./yr.} \times \text{emission factor} \times \text{control factor}) \\ &= (120,000 \text{ lbs. steel cuttings/yr.} \times 5\% \times (100\% - 99.97\%)) + (4512 \text{ lbs. cuttings/yr.} \times 7\% \times (100\% - 99.97\%)) \\ &= 1.9E \text{ lbs. PM/yr.} \end{aligned}$$

$$\text{PM tons./yr.} = \text{lbs. PM/yr.} / 2000 = 0.00094 \text{ tons PM/yr}$$

Aluminum content steel 0.09% (certificate);

Aluminum content stainless steel 2.5% (MSDS).

$$\begin{aligned} \text{Restricted uncontrolled Aluminum (SDS TAP) emissions (lbs./hr.)} &= \\ &= \text{restricted uncontrolled steel cuttings (lbs./hour)} \times \text{Emission Factor} \times \text{constituent (\%)} + \\ &= \text{restricted uncontrolled stainless steel cuttings (lbs./hour)} \times \text{Emission Factor} \times \text{constituent (\%)} \\ &= (26.0 \text{ lbs./hr.} \times 5\%) \times (0.09\%) + (0.98 \text{ lbs./hr.} \times 7\%) \times (2\%) = 0.00117 \text{ lbs. steel aluminum/hr.} + 0.00137 \text{ lbs. stainless steel aluminum/hr.} \\ &= 0.00254 \text{ lbs. aluminum/hr.} \end{aligned}$$

$$\begin{aligned} \text{Restricted controlled cuttings} &= \text{aluminum emissions (lbs./hr.)} \times (100 - \text{Control Efficiency}) \\ &= 0.00254 \text{ lbs. aluminum/hr.} \times (100\% - 99.97\%) = 7.6 \text{ E-7 lbs. aluminum/hr.} \end{aligned}$$

Nickel content steel 0.13% (certificate);

Nickel content stainless steel 10.5% (certificate).

$$\begin{aligned} \text{Restricted uncontrolled Nickel (SDS TAP) emissions (lbs./hr.)} &= \\ &= \text{restricted uncontrolled steel cuttings (lbs./hr.)} / (8760 \text{ hrs./yr.}) \times \text{Emission Factor} \times \text{constituent (\%)} + \text{restricted uncontrolled stainless steel cuttings (lbs./hr.)} / (8760 \text{ hrs./yr.}) \times \text{Emission Factor} \times \text{const. (\%)} \\ &= ((120,000 \text{ lbs./yr.}) / (8760 \text{ hrs./yr.})) \times (5\%) \times (0.13\%) + \\ &= ((4512 \text{ lbs./yr.}) / (8760 \text{ hrs./yr.})) \times (7\%) \times (10.5\%) \\ &= 0.0047 \text{ lbs. nickel/hr.} \end{aligned}$$

$$\begin{aligned} \text{Restricted controlled cuttings} &= (\text{steel nickel emissions (lbs./hr.)} \times (100 - \text{Control Efficiency})) + \\ &= (\text{stainless steel nickel emissions (lbs./hr.)} \times (100 - \text{Control Efficiency})) \\ &= (0.00089 \text{ lbs. nickel/hr.} \times (100\% - 99.97\%)) + (0.00379 \text{ lbs. nickel/hr.} \times (100\% - 99.97\%)) \\ &= 1.4E-6 \text{ lbs. nickel/hr.} \end{aligned}$$

#### Notes

Plasma Cutter to be placed into service 2017 at Federal Way.

1. Uncontrolled media usage based on 25% uncontrolled rate for Plasma Cutter 1.

2. Assume Kerf Weight at 20 hrs./week proportional to Plasma1 at 80 hrs./week.

3. Constituents based on MSDS and Certificates. Email Tom Hogan 11/16/15 Re materials cut: Domex 100 Steel and Hardox Steel (primarily Domex 100). Constituent concentrations based on

Domex 100 and Hardox steel and Pacific Metal stainless steel certifications are highlighted. Values for Ni and Cr highest in survey of multiple steel certificates. Other highlighted constituent values 200% of 1 test certificate.

4. EPA AP-42, Chapter 12, Other Emission Factor Documents, "Emission of fume, nitrogen oxides and noise in plasma cutting of stainless and mild steel", Bromsen B. et al. The Swedish Institute of Production Engineering Research, March, 1994. <http://www.epa.gov/tr/trchief/efdocs/welding.pdf>

5. Media reclaim sorting equipment not applicable.

6. Tom Hogan, 7/25/18; Torit Model DFE3-12, 7000 CFM, 6-24x24x2 PWG-205 Merv 11 prefilters and 6-24x24x11.5 MC2000-501 HEPA filters 99.97% @ 3 microns manufactured by Donaldson.

7. Emission Factor 0.00022 lbs C+Hlbs per lb Cr. From SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, PAGE 1 of 9, APP. NUMBERS 4801712, Coating, Printing, Aerospace and Chemical Operations Team.

Reviewed by APPLICATION PROCESSING AND CALCULATIONS DATE 07/28/2018, AMERICAN SECURITY PRODUCTS, INC., Jul-08.

Table 2-8: Pentax Metal Cutting Emissions

Federal Way		Router discharges Al cuttings into the room; shavings are collected by sweeping. Growth Multiplier = 4160 hrs. adjusted to 8760 hrs.															
Source	Material Name	density (lbs/in <sup>3</sup> )	operating hours	kerf (in) <sup>1</sup>	thickness (in) <sup>2</sup>	lbs/hr <sup>2</sup>	Estimated avg. length based on lbs. collected/hr. study (in/hr)	length/10-hr day (in/day)	length/20-hr day (in/day)	kerf lbs/10-hr day	kerf lbs/20-hr day	lbs/40-hr week	lbs/80-hr week	lbs/year 2080 hrs/yr	lbs/year 4160 hrs/yr	lbs/year 8760 hrs/yr	tons/year 8760 hrs/yr
Pentax	Aluminum	0.10	1	0.25	0.25	0.95	152	1520	3040	9.5	19	38	76	1976	3952	8322	4.161

  

Router Criteria Air Pollutants	Maximum Restricted Cutting Rate		Fraction <10 microns <sup>5</sup>	Potential to Emit		Cyclone and Bag Filter Efficiency <sup>6</sup>	Controlled Emissions	
	lb/hr <sup>3</sup> 24-hr. avg.	ton/yr <sup>4</sup>	%	lb/hr	ton/yr	%	lb/hr	ton/yr
PM <sub>10</sub>	0.95	4.16	5%	0.05	0.21	0.00%	0.05	0.21
PM <sub>2.5</sub>	0.95	4.16	5%	0.05	0.21	0.00%	0.05	0.21

Unrestricted Uncontrolled PM10 Emissions (tons/yr)

0.2

Aluminum PM10/2.5 ( lbs/hr)

0.05 Aluminum% EL

Aluminum TAP EL (lbs/hr)

0.667 7%

Notes

<sup>1</sup> Email Tom Hogan, 4/13/15: minimum kerf width .187 inches, it could increase to .5 inch. Material thickness would commonly be .187 inches to .25 inches.

<sup>2</sup> Tom Hogan 9/15/15 Pentax cutting estimate 0.95 lbs/hr based on estimated volume of cuttings in each 4-bar set, 16 sets/ current 40-hr week; scale up to 1.9 lbs/hr for 80-hour week.

<sup>3</sup> Increased maximum restricted cutting rate 300% to accommodate potential growth and/or additional machine.

<sup>4</sup> Based on 80-hr week, 300% growth factor.

<sup>5</sup> Tom Hogan, 9/25/15, Komo (surrogate for Pentax) 1 lb cutting study; calculated cut weight was .95lbs (430.912 grams), the weight of collected chips was 430 grams.

0.912 grams was either not collected or turned into particles. That equals 2 tenths of a percent or at least 99.98% are large chips; 95% is applied. 100%-95% = 5% fine particle fraction is applied.

<sup>6</sup> No control present.

Table 2-9: Elumatec Cutting Emissions

Federal Way Elumatec discharges Al cuttings into the cutting enclosure; heavy PM falls to bottom of machine, fine PM treated by filter.																	
nservative lbs/hr higher than Pentax 150%																	
Source	Material Name	density (lbs/in <sup>3</sup> )	operating hours	kerf (in) <sup>1</sup>	thickness (in) <sup>1</sup>	lbs/hr	Max. length (in/hr)	length/10-hr day (in/day)	length/20-hr day (in/day)	kerf lbs/10-hr day	kerf lbs/20-hr day	lbs/40-hr week	lbs/80-hr week	lbs/year 2080 hrs/yr	lbs/year 4160 hrs/yr	lbs/year 8760 hrs/yr	lbs/year 8760 tons/yr
Eulmatec SBZ151	Aluminum	0.10	1	0.25	0.25	1.43	228	2280	4560	14.25	28.5	57	114	2964	5928	12,483	6.2

  

Router Criteria Air Pollutants	Maximum Restricted Cutting Rate		Fraction <10 microns <sup>5</sup>	Potential to Emit		Filter Efficiency <sup>6</sup>	Controlled Emissions		Modeling Threshold	Level I Modeling Required?
	lb/hr <sup>3</sup> 24-hr. avg.	ton/yr <sup>4</sup>		lb/hr	ton/yr		lb/hr	ton/yr		
PM <sub>10</sub>	1.43	6.24	5%	0.07	0.31	99.00%	0.0007	0.0031	0.22 lb/hr	No
PM <sub>2.5</sub>	1.43	6.24	5%	0.07	0.31	99.00%	0.0007	0.0031	0.054 lb/hr	No
									0.35 T/yr	No

Unrestricted Uncontrolled PM10 (tons/yr)	Restricted Controlled	Aluminum% EL
0.3	0.003	
Aluminum PM10/2.5 ( lbs/hr)	0.0007	Aluminum% EL
Aluminum TAP EL (lbs/hr)	0.667	0.1%

Notes

- <sup>1</sup> Email Tom Hogan, 4/13/15: minimum kerf width .187 inches, it could increase to .5 inch. Material thickness would commonly be .187 inches to .25 inches.
- <sup>2</sup> Tom Hogan 9/15/15 Pentax cutting estimate 0.95 lbs/hr based on estimated volume of cuttings in each 4-bar set, 16 sets/ current 40-hr week; scale up to 1.9 lbs/hr for 80-hour week; Elumatec cutting rate conservative potential increase 150% since although cutting rate anticipated similar, no data for Elumatec.
- <sup>3</sup> Increased maximum restricted cutting rate 300% to accommodate potential growth and/or additional machine.
- <sup>4</sup> Based on 80-hr week, 300% growth factor.
- <sup>5</sup> Tom Hogan, 9/25/15, Komo (surrogate for Pentax) 1 lb cutting study; calculated cut weight was .95lbs (430,912 grams), the weight of collected chips was 430 grams. 0.912 grams was either not collected or turned into particles. That equals 2 tenths of a percent or at least 99.98% are large chips; 95% is applied. 100%-95% = 5% fine particle fraction is applied.
- <sup>6</sup> HEPA filter rated 99.97%; 99% efficiency applied.

**Tables 3-1a to 3-1c:  
Facility-Wide Unrestricted Uncontrolled NSR Regulated Pollutant Emissions**

Table 5-1a: Pre-Project Potential to Emit

Emissions Unit	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO	VOC	Lead
	tons/yr						
Unit Heater 1-5	0	0	0	0	0	0	0
IR Heater 1-13	0	0	0	0	0	0	0
Office Furnace Heater	0	0	0	0	0	0	0
Plasma Cutter1	0	0	0	0	0	0	0
Plasma Cutter2	0	0	0	0	0	0	0
EU2 Metal Router	0	0	0	0	0	0	0
EU3 Metal Router	0	0	0	0	0	0	0
<b>Total =</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 5-1b: Post-Project Potential to Emit (based on maximum continuous operations)

Emissions Unit	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO	VOC	Lead
	tons/yr						
Unit Heater 1-5	4.90E-02	4.90E-02	3.86E-03	6.44E-01	5.41E-01	3.54E-02	3.22E-06
IR Heater 1-13	6.79E-02	6.79E-02	5.36E-03	4.80E-02	7.50E-01	4.91E-02	4.47E-06
Office Furnace Heater	1.96E-03	1.96E-03	1.55E-04	2.58E-02	2.16E-02	1.42E-03	1.29E-07
EU1 Plasma Cutting1	6.65E+00	6.65E+00	0.00E+00	5.52E+00	0.00E+00	0.00E+00	0.00E+00
EU1 Plasma Cutting2	6.65E+00	6.65E+00	0.00E+00	5.51E+00	0.00E+00	0.00E+00	0.00E+00
EU2 Metal Router	2.08E-01	2.08E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EU3 Metal Router	3.12E-01	3.12E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Total =</b>	<b>1.39E+01</b>	<b>1.39E+01</b>	<b>9.38E-03</b>	<b>1.17E+01</b>	<b>1.31E+00</b>	<b>8.60E-02</b>	<b>7.82E-06</b>

Table 5-1c: Changes in Potential to Emit (based on maximum continuous operations)

Emissions Unit	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO	VOC	Lead
	tons/yr						
Unit Heater 1-5	4.90E-02	4.90E-02	3.86E-03	6.44E-01	5.41E-01	3.54E-02	3.22E-06
IR Heater 1-13	6.79E-02	6.79E-02	5.36E-03	4.80E-02	7.50E-01	4.91E-02	4.47E-06
Office Furnace Heater	1.96E-03	1.96E-03	1.55E-04	2.58E-02	2.16E-02	1.42E-03	1.29E-07
EU1 Plasma Cutting1	6.65E+00	6.65E+00	0.00E+00	5.52E+00	0.00E+00	0.00E+00	0.00E+00
EU1 Plasma Cutting2	6.65E+00	6.65E+00	0.00E+00	5.51E+00	0.00E+00	0.00E+00	0.00E+00
EU2 Metal Router	2.08E-01	2.08E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EU3 Metal Router	3.12E-01	3.12E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Total =</b>	<b>1.39E+01</b>	<b>1.39E+01</b>	<b>9.38E-03</b>	<b>1.17E+01</b>	<b>1.31E+00</b>	<b>8.60E-02</b>	<b>7.82E-06</b>

**Tables 3-1a to 3-1c:  
Facility-Wide Restricted Controlled NSR Regulated Pollutant Emissions**

Table 5-2a: Pre-Project Potential to Emit

Emissions Unit	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO	VOC	Lead
	tons/yr						
Unit Heater 1-5	0	0	0	0	0	0	0
IR Heater 1-13	0	0	0	0	0	0	0
Office Furnace Heater	0	0	0	0	0	0	0
Plasma Cutter1	0	0	0	0	0	0	0
Plasma Cutter2	0	0	0	0	0	0	0
EU2 Metal Router	0	0	0	0	0	0	0
EU3 Metal Router	0	0	0	0	0	0	0
<b>Total =</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 5-2b: Post-Project Potential to Emit (based on maximum continuous operations)

Emissions Unit	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO	VOC	Lead
	tons/yr						
Unit Heater 1-5	2.63E-02	2.63E-02	2.08E-03	3.46E-01	2.91E-01	1.90E-02	1.73E-06
IR Heater 1-13	3.65E-02	3.65E-02	2.88E-03	4.80E-01	4.03E-01	2.64E-02	2.40E-06
Office Furnace Heater	4.47E-04	4.47E-04	1.55E-04	2.58E-02	2.16E-02	1.42E-03	1.29E-07
EU1 Plasma Cutting1	9.47E-04	9.47E-04	0.00E+00	2.62E+00	0.00E+00	0.00E+00	0.00E+00
EU1 Plasma Cutting2	2.37E-04	2.37E-04	0.00E+00	4.87E-01	0.00E+00	0.00E+00	0.00E+00
EU2 Metal Router	2.08E-01	2.08E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EU3 Metal Router	3.12E-03	3.12E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Total =</b>	<b>2.76E-01</b>	<b>2.76E-01</b>	<b>5.11E-03</b>	<b>3.96E+00</b>	<b>7.15E-01</b>	<b>4.68E-02</b>	<b>4.26E-06</b>

Table 5-2c: Changes in Potential to Emit (based on maximum continuous operations)

Emissions Unit	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO	VOC	Lead
	tons/yr						
Unit Heater 1-5	2.63E-02	2.63E-02	2.08E-03	3.46E-01	2.91E-01	1.90E-02	1.73E-06
IR Heater 1-13	3.65E-02	3.65E-02	2.88E-03	4.80E-01	4.03E-01	2.64E-02	2.40E-06
Office Furnace Heater	4.47E-04	4.47E-04	1.55E-04	2.58E-02	2.16E-02	1.42E-03	1.29E-07
EU1 Plasma Cutting1	9.47E-04	9.47E-04	0.00E+00	2.62E+00	0.00E+00	0.00E+00	0.00E+00
EU1 Plasma Cutting2	2.37E-04	2.37E-04	0.00E+00	4.87E-01	0.00E+00	0.00E+00	0.00E+00
EU2 Metal Router	2.08E-01	2.08E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EU3 Metal Router	3.12E-03	3.12E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>Total =</b>	<b>2.76E-01</b>	<b>2.76E-01</b>	<b>5.11E-03</b>	<b>3.96E+00</b>	<b>7.15E-01</b>	<b>4.68E-02</b>	<b>4.26E-06</b>

**Western Trailer Table 3-3: Facility-Wide Criteria Pollutant Emission Summary**

Criteria Air Pollutants <sup>1</sup>	PTE Emissions	
	lb/hr	T/yr
NO <sub>2</sub>	2.87	3.96
CO	0.30	0.72
PM <sub>10</sub>	0.08	0.28
PM <sub>2.5</sub>	0.08	0.28
SO <sub>2</sub>	0.0021	5.0E-03
VOC	0.019	0.05
Lead	1.8E-06	4.1E-06
	1.3E-03	lb/month
<b>Total Criteria Emissions (ton/yr) =</b>		<b>5.00</b>

Significance Threshold	
T/yr	Exceed?
40	No
100	No
15	No
10	No
40	No
40	No
0.6	No

Below Regulatory Concern	
T/yr	Exceed?
4	No
10	No
1.5	No
1	No
4	No
4	No
0.06	No

**Table 3-4:  
Facility-Wide Uncontrolled Toxic Air Pollutant Emission Summary**

Non-Carcinogenic Toxic Air Pollutant (24 hr Average)	CAS	Restricted UnControlled Hourly Emissions <sup>1</sup>		Emission Change (lb/hr)	Screening Emission Level (lb/hr)	Exceeds Screening Emission Level?	% Screening Emission Level
		Pre-Project (lb/hr)	Post Project (lb/hr)				
Aluminum	7429-90-5	0	1.22E-01	1.22E-01	6.67E-01	No	18.3%
Antimony	7440-36-0	0	0.00E+00	0.00E+00	3.30E-02	No	0.0%
Barium	7440-39-3	0	1.54E-05	1.54E-05	3.30E-02	No	0.0%
Boron	7440-42-8	0	3.26E-06	3.26E-06	6.67E-01	No	0.0%
Calcium	1305-78-8	0	0.00E+00	0.00E+00	1.33E-01	No	0.0%
Chromium Total	7440-47-3	0	4.91E-06	4.91E-06	3.30E-02	No	0.0%
Cobalt	7440-48-4	0	2.95E-07	2.95E-07	3.30E-03	No	0.0%
Copper	7440-50-8	0	6.80E-04	6.80E-04	6.70E-02	No	1.0%
o-Dichlorobenzene	95-50-1	0	4.21E-06	4.21E-06	2.00E+01	No	0.0%
Hexane	110-54-3	0	6.32E-03	6.32E-03	1.20E+01	No	0.1%
Iron	7439-89-6	0	1.68E+00	1.68E+00	3.33E-01	Yes	505%
Lead	7439-92-1	0		0.00E+00		No	
Magnesium	7439-95-4	0	0.00E+00	0.00E+00	6.67E-01	No	0.0%
Manganese	7439-96-5	0	5.58E-02	5.58E-02	3.33E-01	No	16.7%
Molybdenum	7439-98-7	0	8.16E-02	8.16E-02	3.33E-01	No	24.5%
Pentane	109-66-0	0	9.13E-03	9.13E-03	1.08E+02	No	0.0%
Phosphorus	7723-14-0	0	4.88E-04	4.88E-04	7.00E-03	No	7.0%
Selenium	7782-49-2	0	8.42E-08	8.42E-08	1.30E-02	No	0.0%
Silicon	7440-21-3	0	8.57E-04	8.57E-04	6.67E-01	No	0.1%
Tantalum	7440-25-7	0	4.28E-03	4.28E-03	3.33E-01	No	1.3%
Tellurium	13494-80-9	0	0.00E+00	0.00E+00	7.00E-03	No	0.0%
Tin	7440-31-5	0	0.00E+00	0.00E+00	1.33E-01	No	0.0%
Toluene	108-88-3	0	1.19E-05	1.19E-05	2.50E+01	No	0.0%
Tungsten	7440-33-7	0	0.00E+00	0.00E+00	6.70E-02	No	0.0%
Vanadium	7440-62-2	0	6.59E-04	6.59E-04	3.00E-03	No	22.0%
Zinc	7440-66-6	0	1.02E-04	1.02E-04	3.33E-01	No	0.0%
Carcinogenic Toxic Air Pollutant (Annual Average)	CAS	Restricted UnControlled Hourly Emissions <sup>1</sup>		Emission Change (lb/hr)	Screening Emission Level (lb/hr)	Exceeds Screening Emission Level?	% Exceeding Screening Emission Level
		Pre-Project (lb/hr)	Post Project (lb/hr)				
3-Methylchloranthene	56-49-5	0	3.4E-09	3.4E-09	2.5E-06	No	0.1%
Arsenic	7440-38-2	0	3.8E-07	3.8E-07	1.5E-06	No	25.1%
Benzene	71-43-2	0	4.0E-06	4.0E-06	8.0E-04	No	0.5%
Benzo(a)pyrene	50-32-8	0	2.3E-09	2.3E-09	2.0E-06	No	0.1%
Beryllium	7440-41-7	0	2.3E-08	2.3E-08	2.8E-05	No	0.1%
Cadmium	7440-43-9	0	2.1E-06	2.1E-06	3.7E-06	No	56.0%
Cr+6	18540-29-9	0	3.1E-05	3.1E-05	5.6E-07	Yes	5596.9%
Formaldehyde	50-00-0	0	1.4E-04	1.4E-04	5.1E-04	No	27.7%
Nickel	7440-02-0	0	5.8E-03	5.8E-03	2.7E-05	Yes	21663.6%
Polyaromatic Hydrocarbon (Max)		0	1.1E-07	1.1E-07	9.1E-05	No	0.1%
Polycyclic Organics: 7-PAH Group		0	2.1E-08	2.1E-08	2.0E-06	No	1.1%

<sup>1</sup> IDAPA 58.01.01.210.05

TAPS and HAPS from Natural-gas Combustion estimated at 8760 hrs/yr

TAPS and HAPS from Plasma Cutting estimated at 4160 hrs/yr

**Table 3-5:  
Facility-Wide Controlled Toxic Air Pollutant Emission Summary**

Non-Carcinogenic Toxic Air Pollutant (24 hr Average)	CAS	Restricted Controlled Hourly Emissions <sup>1</sup>		Emission Change (lb/hr)	Screening Emission Level (lb/hr)	Exceeds Screening Emission Level?	% Screening Emission Level
		Pre-Project (lb/hr)	Post Project (lb/hr)				
Aluminum	7429-90-5	0	4.82E-02	4.82E-02	6.67E-01	No	7.2%
Antimony	7440-36-0	0	0.00E+00	0.00E+00	3.30E-02	No	0.0%
Barium	7440-39-3	0	1.54E-05	1.54E-05	3.30E-02	No	0.0%
Boron	7440-42-8	0	9.77E-10	9.77E-10	6.67E-01	No	0.0%
Calcium	1305-78-8	0	0.00E+00	0.00E+00	1.33E-01	No	0.0%
Chromium Total	7440-47-3	0	1.04E-05	1.04E-05	3.30E-02	No	0.0%
Cobalt	7440-48-4	0	2.95E-07	2.95E-07	3.30E-03	No	0.0%
Copper	7440-50-8	0	3.19E-06	3.19E-06	6.70E-02	No	0.0%
o-Dichlorobenzene	95-50-1	0	4.21E-06	4.21E-06	2.00E+01	No	0.0%
Hexane	110-54-3	0	6.32E-03	6.32E-03	1.20E+01	No	0.1%
Iron	7439-89-6	0	5.04E-04	5.04E-04	3.33E-01	No	0%
Lead	7439-92-1	0		0.00E+00		No	
Magnesium	7439-95-4	0	0.00E+00	0.00E+00	6.67E-01	No	0.0%
Manganese	7439-96-5	0	1.81E-05	1.81E-05	3.33E-01	No	0.0%
Molybdenum	7439-98-7	0	2.84E-05	2.84E-05	3.33E-01	No	0.0%
Pentane	109-66-0	0	9.13E-03	9.13E-03	1.08E+02	No	0.0%
Phosphorus	7723-14-0	0	0.00E+00	0.00E+00	7.00E-03	No	0.0%
Selenium	7782-49-2	0	8.42E-08	8.42E-08	1.30E-02	No	0.0%
Silicon	7440-21-3	0	2.57E-07	2.57E-07	6.67E-01	No	0.0%
Tantalum	7440-25-7	0	1.29E-06	1.29E-06	3.33E-01	No	0.0%
Tellurium	13494-80-9	0	0.00E+00	0.00E+00	7.00E-03	No	0.0%
Tin	7440-31-5	0	0.00E+00	0.00E+00	1.33E-01	No	0.0%
Toluene	108-88-3	0	1.19E-05	1.19E-05	2.50E+01	No	0.0%
Tungsten	7440-33-7	0	0.00E+00	0.00E+00	6.70E-02	No	0.0%
Vanadium	7440-62-2	0	8.27E-06	8.27E-06	3.00E-03	No	0.3%
Zinc	7440-66-6	0	1.02E-04	1.02E-04	3.33E-01	No	0.0%
Carcinogenic Toxic Air Pollutant (Annual Average)	CAS	Restricted Controlled Hourly Emissions <sup>1</sup>		Emission Change (lb/hr)	Screening Emission Level (lb/hr)	Exceeds Screening Emission Level?	% Exceeding Screening Emission Level
		Pre-Project (lb/hr)	Post Project (lb/hr)				
3-Methylchloranthene	56-49-5	0	2.8E-09	2.8E-09	2.5E-06	No	0.1%
Arsenic	7440-38-2	0	3.8E-07	3.8E-07	1.5E-06	No	25.1%
Benzene	71-43-2	0	4.0E-06	4.0E-06	8.0E-04	No	0.5%
Benzo(a)pyrene	50-32-8	0	2.3E-09	2.3E-09	2.0E-06	No	0.1%
Beryllium	7440-41-7	0	2.3E-08	2.3E-08	2.8E-05	No	0.1%
Cadmium	7440-43-9	0	2.1E-06	2.1E-06	3.7E-06	No	56.0%
Cr+6	18540-29-9	0	9.4E-09	9.4E-09	5.6E-07	No	1.7%
Formaldehyde	50-00-0	0	1.4E-04	1.4E-04	5.1E-04	No	27.7%
Nickel	7440-02-0	0	5.8E-06	5.8E-06	2.7E-05	No	21.6%
Polyaromatic Hydrocarbon (Max)		0	5.6E-06	5.6E-06	9.1E-05	No	6.1%
Polycyclic Organics: 7-PAH Group		0	9.7E-08	9.7E-08	2.0E-06	No	4.9%

<sup>1</sup> IDAPA 58.01.01.210.05

TAPs and HAPS from Natural-gas Combustion estimated at 8760 hrs/yr  
TAPS and HAPS from Plasma Cutting estimated at 4160 hrs/yr

Table 5 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	PM <sub>10</sub> /PM <sub>2.5</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		CO <sub>2</sub> e
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	T/yr
Pre-Project Potential to Emit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Post-Project Potential to Emit	0.08	0.28	0.004	5.11E-03	2.87	3.96	0.30	0.72	0.02	0.05	921.00
<b>Changes in Potential to Emit</b>	0.08	0.28	0.004	0.01	2.87	3.96	0.30	0.72	0.02	0.05	921.00

**Table 3-6:  
Facility-Wide Hazardous Air Pollutant Emissions**

Hazardous Air Pollutant	CAS	Potential to Emit (tons/yr)	Potential to Emit (lbs./yr)
Arsenic	7440-38-2	1.7E-06	3.4E-03
Benzene	71-43-2	1.8E-05	3.6E-02
Beryllium	7440-41-7	1.0E-07	2.0E-04
Cadmium	7440-43-9	9.4E-06	1.9E-02
Chromium	7440-47-3	2.5E-05	4.9E-02
Chromium +6	7440-47-3	NA	NA
Cobalt	7440-48-4	7.2E-07	1.4E-03
Dichlorobenzene	95-50-1	1.0E-05	2.0E-02
Formaldehyde	50-00-0	6.4E-04	1.3E+00
Hexane	110-54-3	1.53E-02	3.1E+01
Lead	7439-92-1	0.0E+00	0.0E+00
Manganese	7439-96-5	4.2E-05	8.4E-02
Mercury	7439-97-6	2.2E-06	4.4E-03
Naphthalene	91-20-3	5.2E-06	1.0E-02
Nickel	7440-02-0	2.6E-05	5.1E-02
Phosphorous	7723-14-0	3.4E-07	6.7E-04
Polycyclic Organic Matter (PAH max.)		1.1E-05	2.2E-02
Selenium	7782-49-2	2.0E-07	4.1E-04
Toluene	108-88-3	2.9E-05	5.8E-02
TOTAL =		1.6E-02	3.2E+01

Methyl Ethyl Ketone, 78-93-3 - delisted 2005
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Tables 3-1a to 3-1c:  
Facility-Wide Unrestricted Uncontrolled NSR Regulated Pollutant Emissions

Table 5-1a: Pre-Project Potential to Emit

Emissions Unit	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO	VOC	Lead	HAPs	Total <sup>1</sup>	Greenhouse Gases
	tons/yr									
Unit Heater 1-5	0	0	0	0	0	0	0	0	0	0
IR Heater 1-13	0	0	0	0	0	0	0	0	0	0
Office Furnace Heater	0	0	0	0	0	0	0	0	0	0
Plasma Cutter1	0	0	0	0	0	0	0	0	0	0
Plasma Cutter2	0	0	0	0	0	0	0	0	0	0
EU2 Metal Router	0	0	0	0	0	0	0	0	0	0
EU3 Metal Router	0	0	0	0	0	0	0	0	0	0
<b>Total =</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 5-1b: Post-Project Potential to Emit (based on maximum continuous operations)

Emissions Unit	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO	VOC	Lead	HAPs	Total <sup>1</sup>	Greenhouse Gases	
	tons/yr										
Unit Heater 1-5	4.90E-02	4.90E-02	3.86E-03	6.44E-01	5.41E-01	3.54E-02	3.22E-06	1.22E-02	2.82E+01	6.97E+02	
IR Heater 1-13	6.79E-02	6.79E-02	5.36E-03	8.93E-01	7.50E-01	4.91E-02	4.47E-06	1.69E-02		9.67E+02	
Office Furnace Heater	1.96E-03	1.96E-03	1.55E-04	2.58E-02	2.16E-02	1.42E-03	1.29E-07	4.87E-04		0.00E+00	
EU1 Plasma Cutting1	6.65E+00	6.65E+00	0.00E+00	5.52E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-01		0.00E+00	
EU1 Plasma Cutting2	6.65E+00	6.65E+00	0.00E+00	5.51E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-01		0.00E+00	
EU2 Metal Router	2.08E-01	2.08E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	
EU3 Metal Router	3.12E-01	3.12E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	
<b>Total =</b>	<b>1.39E+01</b>	<b>1.39E+01</b>	<b>9.38E-03</b>	<b>1.26E+01</b>	<b>1.31E+00</b>	<b>8.60E-02</b>	<b>7.82E-06</b>	<b>2.59E-01</b>		<b>2.82E+01</b>	<b>1.66E+03</b>

Table 5-1c: Changes in Potential to Emit (based on maximum continuous operations)

Emissions Unit	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO	VOC	Lead	HAPs	Total <sup>1</sup>	Greenhouse Gases	
	tons/yr										
Unit Heater 1-5	4.90E-02	4.90E-02	3.86E-03	6.44E-01	5.41E-01	3.54E-02	3.22E-06	1.22E-02	2.82E+01	6.97E+02	
IR Heater 1-13	6.79E-02	6.79E-02	5.36E-03	8.93E-01	7.50E-01	4.91E-02	4.47E-06	1.69E-02		9.67E+02	
Office Furnace Heater	1.96E-03	1.96E-03	1.55E-04	2.58E-02	2.16E-02	1.42E-03	1.29E-07	4.87E-04		0.00E+00	
EU1 Plasma Cutting1	6.65E+00	6.65E+00	0.00E+00	5.52E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-01		0.00E+00	
EU1 Plasma Cutting2	6.65E+00	6.65E+00	0.00E+00	5.51E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-01		0.00E+00	
EU2 Metal Router	2.08E-01	2.08E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	
EU3 Metal Router	3.12E-01	3.12E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	
<b>Total =</b>	<b>1.39E+01</b>	<b>1.39E+01</b>	<b>9.38E-03</b>	<b>1.26E+01</b>	<b>1.31E+00</b>	<b>8.60E-02</b>	<b>7.82E-06</b>	<b>2.59E-01</b>		<b>2.82E+01</b>	<b>1.66E+03</b>

Grand Total<sup>1</sup> Does not include greenhouse gases

**Table 3-6:  
Facility-Wide Hazardous Air Pollutant Emissions**

Hazardous Air Pollutant	CAS	Unrestricted Uncontrolled (tons/yr)	Restricted Controlled (tons/yr)	Restricted Controlled (lbs./yr)
Arsenic	7440-38-2	3.13E-06	1.7E-06	3.4E-03
Benzene	71-43-2	3.28E-05	1.8E-05	3.6E-02
Beryllium	7440-41-7	1.88E-07	1.0E-07	2.0E-04
Cadmium	7440-43-9	1.72E-05	9.4E-06	1.9E-02
Chromium	7440-47-3	1.43E-01	2.5E-05	4.9E-02
Chromium +6	7440-47-3	4.63E-04	NA	NA
Cobalt	7440-48-4	1.31E-06	7.2E-07	1.4E-03
Dichlorobenzene	95-50-1	1.88E-05	1.0E-05	2.0E-02
Formaldehyde	50-00-0	1.17E-03	6.4E-04	1.3E+00
Hexane	110-54-3	2.81E-02	1.53E-02	3.1E+01
Lead	7439-92-1	0.00E+00	0.0E+00	0.0E+00
Manganese	7439-96-5	5.94E-06	4.2E-05	8.4E-02
Mercury	7439-97-6	4.06E-06	2.2E-06	4.4E-03
Naphthalene	91-20-3	9.53E-06	5.2E-06	1.0E-02
Nickel	7440-02-0	8.63E-02	2.6E-05	5.1E-02
Phosphorous	7723-14-0	3.94E-03	3.6E-07	7.2E-04
Polycyclic Organic Matter (PAH max.)		2.02E-05	1.1E-05	2.2E-02
Selenium	7782-49-2	1.16E-03	3.7E-07	7.4E-04
Toluene	108-88-3	5.31E-05	2.9E-05	5.8E-02
TOTAL =		2.6E-01	1.6E-02	3.2E+01

Methyl Ethyl Ketone, 78-93-3 - delisted 2005
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**Tables 3-1a to 3-1c:  
Facility-Wide Unrestricted Uncontrolled NSR Regulated Pollutant Emissions**

**Table 5-1a: Pre-Project Potential to Emit**

Emissions Unit	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO	VOC	Lead	HAPs	Total <sup>1</sup>	Greenhouse Gases
	tons/yr									
Unit Heater 1-5	0	0	0	0	0	0	0	0	0	0
IR Heater 1-13	0	0	0	0	0	0	0	0	0	0
Office Furnace Heater	0	0	0	0	0	0	0	0	0	0
Plasma Cutter1	0	0	0	0	0	0	0	0	0	0
Plasma Cutter2	0	0	0	0	0	0	0	0	0	0
EU2 Metal Router	0	0	0	0	0	0	0	0	0	0
EU3 Metal Router	0	0	0	0	0	0	0	0	0	0
<b>Total =</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Table 5-1b: Post-Project Potential to Emit (based on maximum continuous operations)**

Emissions Unit	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO	VOC	Lead	HAPs	Total <sup>1</sup>	Greenhouse Gases
	tons/yr									
Unit Heater 1-5	4.90E-02	4.90E-02	3.86E-03	6.44E-01	5.41E-01	3.54E-02	3.22E-06	1.22E-02		6.97E+02
IR Heater 1-13	6.79E-02	6.79E-02	5.36E-03	8.93E-01	7.50E-01	4.91E-02	4.47E-06	1.69E-02		9.67E+02
Office Furnace Heater	1.96E-03	1.96E-03	1.55E-04	2.58E-02	2.16E-02	1.42E-03	1.29E-07	4.87E-04		0.00E+00
EU1 Plasma Cutting1	6.65E+00	6.65E+00	0.00E+00	5.52E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-01		0.00E+00
EU1 Plasma Cutting2	6.65E+00	6.65E+00	0.00E+00	5.51E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-01		0.00E+00
EU2 Metal Router	2.08E-01	2.08E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00
EU3 Metal Router	3.12E-01	3.12E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00
<b>Total =</b>	<b>1.39E+01</b>	<b>1.39E+01</b>	<b>9.38E-03</b>	<b>1.26E+01</b>	<b>1.31E+00</b>	<b>8.60E-02</b>	<b>7.82E-06</b>	<b>2.59E-01</b>	<b>2.82E+01</b>	<b>1.66E+03</b>

**Table 5-1c: Changes in Potential to Emit (based on maximum continuous operations)**

Emissions Unit	PM <sub>2.5</sub>	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>2</sub>	CO	VOC	Lead	HAPs	Total <sup>1</sup>	Greenhouse Gases
	tons/yr									
Unit Heater 1-5	4.90E-02	4.90E-02	3.86E-03	6.44E-01	5.41E-01	3.54E-02	3.22E-06	1.22E-02		6.97E+02
IR Heater 1-13	6.79E-02	6.79E-02	5.36E-03	8.93E-01	7.50E-01	4.91E-02	4.47E-06	1.69E-02		9.67E+02
Office Furnace Heater	1.96E-03	1.96E-03	1.55E-04	2.58E-02	2.16E-02	1.42E-03	1.29E-07	4.87E-04		0.00E+00
EU1 Plasma Cutting1	6.65E+00	6.65E+00	0.00E+00	5.52E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-01		0.00E+00
EU1 Plasma Cutting2	6.65E+00	6.65E+00	0.00E+00	5.51E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-01		0.00E+00
EU2 Metal Router	2.08E-01	2.08E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00
EU3 Metal Router	3.12E-01	3.12E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00
<b>Total =</b>	<b>1.39E+01</b>	<b>1.39E+01</b>	<b>9.38E-03</b>	<b>1.26E+01</b>	<b>1.31E+00</b>	<b>8.60E-02</b>	<b>7.82E-06</b>	<b>2.59E-01</b>	<b>2.82E+01</b>	<b>1.66E+03</b>

Grand Total<sup>1</sup> Does not include greenhouse gases

**APPENDIX B – 40 CFR 60, AND 63 NON-APPLICABILITY JUSTIFICATIONS**

## 5. FEDERAL REGULATION APPLICABILITY – FORM FRA DOCUMENTATION

### 5.1 New Source Performance Standards (40 CFR 60)

EPA has established New Source Performance Standards (NSPS) for new, modified, or reconstructed facilities and source categories. No Western Trailer facility equipment or processes have potentially applicable NSPS subparts.

### 5.2 National Emission Standards for Hazardous Air Pollutants (40 CFR 63)

EPA has established National Emission Standards for Hazardous Air Pollutants (NESHAP) for new, modified, or reconstructed facilities and source categories. The following NESHAP Subparts were evaluated for applicability to this project. Sections in the regulation(s) that are applicable to the Western Trailer source(s) are highlighted in underline format below the regulation text. Sections in the regulation(s) that are not applicable to the Western Trailer source(s) are highlighted in strike-out format.

Manufacturing Operations: 40 CFR Part 63, XXXXXX—National Emission Standards For Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories

§63.11514 Am I subject to the subpart?

(a) You are subject to this subpart if you own or operate an area source that is primarily engaged in the operations in one of the nine source categories listed in paragraphs (a)(1) through (9) of this section. Descriptions of these source categories are shown in Table 1 of this subpart. “Primarily engaged” is defined in §63.11522, “What definitions apply to this subpart?”

- ~~(1) Electrical and Electronic Equipment Finishing Operations;~~
- ~~(2) Fabricated Metal Products;~~
- ~~(3) Fabricated Plate Work (Boiler Shops);~~
- ~~(4) Fabricated Structural Metal Manufacturing;~~
- ~~(5) Heating Equipment, except Electric;~~
- ~~(6) Industrial Machinery and Equipment Finishing Operations;~~
- ~~(7) Iron and Steel Forging;~~
- ~~(8) Primary Metal Products Manufacturing; and~~
- ~~(9) Valves and Pipe Fittings.~~

Western Trailer operations, manufacturing heavy truck trailers, is not included in the nine manufacturing subcategories. Descriptions of potentially similar subcategories are provided below.

The subcategory Fabricated Metal Products is defined as:

“Establishments primarily engaged in manufacturing fabricated metal products, such as fire or

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burglary resistive steel safes and vaults and similar fire or burglary resistive products; and collapsible tubes of thin flexible metal. Also, establishments primarily engaged in manufacturing powder metallurgy products, metal boxes; metal ladders; metal household articles, such as ice cream freezers and ironing boards; and other fabricated metal products not elsewhere classified.” (Table 1 to Subpart XXXXXX of Part 63—Description of Source Categories Affected by This Subpart)

Since Western Trailer does not manufacture these types of products, Western Trailer is not engaged in manufacturing fabricated metal products subject to Subpart XXXXXX.

The subcategory Fabricated Structural Metal Manufacturing is defined as:  
“Establishments primarily engaged in fabricating iron and steel or other metal for structural purposes, such as bridges, buildings, and sections for ships, boats, and barges.” (Table 1 to Subpart XXXXXX of Part 63—Description of Source Categories Affected by This Subpart)

Since Western Trailer does not manufacture these types of products, Western Trailer is not engaged in fabricated structural metal manufacturing subject to Subpart XXXXXX.

The subcategory Industrial Machinery and Equipment Finishing Operations is defined as:  
“Establishments primarily engaged in construction machinery manufacturing; oil and gas field machinery manufacturing; and pumps and pumping equipment manufacturing. The construction machinery manufacturing industry sector of this source category includes establishments primarily engaged in manufacturing heavy machinery and equipment of types used primarily by the construction industries, such as bulldozers; concrete mixers; cranes, except industrial plant overhead and truck-type cranes; dredging machinery; pavers; and power shovels. Also establishments primarily engaged in manufacturing forestry equipment and certain specialized equipment, not elsewhere classified, similar to that used by the construction industries, such as elevating platforms, ship cranes, and capstans, aerial work platforms, and automobile wrecker hoists. The oil and gas field machinery manufacturing industry sector of this source category includes establishments primarily engaged in manufacturing machinery and equipment for use in oil and gas fields or for drilling water wells, including portable drilling rigs. The pumps and pumping equipment manufacturing sector of this source category includes establishments primarily engaged in manufacturing pumps and pumping equipment for general industrial, commercial, or household use, except fluid power pumps and motors. This category includes establishments primarily engaged in manufacturing domestic water and sump pumps.”

Since Western Trailer does not manufacture these types of products, Western Trailer is not engaged in industrial machinery and equipment finishing operations subject to Subpart XXXXXX.

The subcategory Primary Metal Products Manufacturing is defined as:  
“Establishments primarily engaged in manufacturing products such as fabricated wire products



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(except springs) made from purchased wire. These facilities also manufacture steel balls; nonferrous metal brads and nails; nonferrous metal spikes, staples, and tacks; and other primary metals products not elsewhere classified.”

Since Western Trailer operations do not include manufacturing these types of products, Western Trailer is not engaged in primary metal products manufacturing subject to Subpart XXXXXX.

Western Trailer operations are not subject to Subpart XXXXXX or other 40 CFR Part 63 Subparts.

40 CFR Part 63, Subpart HHHHHH NESHAP: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources

§ 63.11169 What is the purpose of this subpart?

Except as provided in paragraph (d) of this section, this subpart establishes national emission standards for hazardous air pollutants (HAP) for area sources involved in any of the activities in paragraphs (a) through (c) of this section. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission standards contained herein.

- ~~(a) Paint stripping operations that involve the use of chemical strippers that contain methylene chloride (MeCl), Chemical Abstract Service number 75092, in paint removal processes;~~
- ~~(b) Autobody refinishing operations that encompass motor vehicle and mobile equipment spray applied surface coating operations;~~
- ~~(c) Spray application of coatings containing compounds of chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd), collectively referred to as the target HAP to any part or product made of metal or plastic, or combinations of metal and plastic that are not motor vehicles or mobile equipment.~~
- ~~(d) This subpart does not apply to any of the activities described in paragraph (d)(1) through (6) of this section.~~
  - ~~(1) Surface coating or paint stripping performed on site at installations owned or operated by the Armed Forces of the United States (including the Coast Guard and the National Guard of any such State), the National Aeronautics and Space Administration, or the National Nuclear Security Administration.~~
  - ~~(2) Surface coating or paint stripping of military munitions, as defined in §63.11180, manufactured by or for the Armed Forces of the United States (including the Coast Guard and the National Guard of any such State) or equipment directly and exclusively used for the purposes of transporting military munitions.~~
  - ~~(3) Surface coating or paint stripping performed by individuals on their personal vehicles, possessions, or property, either as a hobby or for maintenance of their personal vehicles, possessions, or property. This subpart also does not apply when these operations are performed~~

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~~by individuals for others without compensation. An individual who spray applies surface coating to more than two motor vehicles or pieces of mobile equipment per year is subject to the requirements in this subpart that pertain to motor vehicle and mobile equipment surface coating regardless of whether compensation is received.~~

~~(4) Surface coating or paint stripping that meets the definition of "research and laboratory activities" in §63.11180.~~

~~(5) Surface coating or paint stripping that meets the definition of "quality control activities" in §63.11180.~~

~~(6) Surface coating or paint stripping activities that are covered under another area source NESHAP.~~

§ 63.11170 Am I subject to this subpart?

(a) You are subject to this subpart if you operate an area source of HAP as defined in paragraph (b) of this section, including sources that are part of a tribal, local, State, or Federal facility and you perform one or more of the activities in paragraphs (a)(1) through (3) of this section:

~~(1) Perform paint stripping using MeCl for the removal of dried paint (including, but not limited to, paint, enamel, varnish, shellac, and lacquer) from wood, metal, plastic, and other substrates.~~

~~(2) Perform spray application of coatings, as defined in §63.11180, to motor vehicles and mobile equipment including operations that are located in stationary structures at fixed locations, and mobile repair and refinishing operations that travel to the customer's location, except spray coating applications that meet the definition of facility maintenance in §63.11180. However, if you are the owner or operator of a motor vehicle or mobile equipment surface coating operation, you may petition the Administrator for an exemption from this subpart if you can demonstrate, to the satisfaction of the Administrator, that you spray apply no coatings that contain the target HAP, as defined in §63.11180. Petitions must include a description of the coatings that you spray apply and your certification that you do not spray apply any coatings containing the target HAP. If circumstances change such that you intend to spray apply coatings containing the target HAP, you must submit the initial notification required by 63.11175 and comply with the requirements of this subpart.~~

~~(3) Perform spray application of coatings that contain the target HAP, as defined in §63.11180, to a plastic and/or metal substrate on a part or product, except spray coating applications that meet the definition of facility maintenance or space vehicle in §63.11180.~~

(b) An area source of HAP is a source of HAP that is not a major source of HAP, is not located at a major source, and is not part of a major source of HAP emissions. A major source of HAP emissions is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (Mg) (10 tons) or more per year, or emit any combination of HAP at a rate of 22.68 Mg (25 tons) or more per year.

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In accordance with §63.11170(a), this mobile equipment coating operation is subject to this subpart because the facility will be operated as an area source of HAP. The facility is a source of HAP that is not a major source of HAP, is not located at a major source, and is not part of a major source of HAP emissions. In addition, the facility will perform one or more activities listed in this section, including spray application of coatings, as defined in §63.11180, to mobile equipment including operations that are located in stationary structures at fixed locations.

In accordance with §63.11169, subpart HHHHHH establishes national emission standards for hazardous air pollutants (HAP) for area sources involved in paint stripping operations using chemical strippers that contain methylene chloride, spray-apply coatings to motor vehicles or mobile equipment, or spray-apply coatings containing chromium, lead, manganese, nickel, or cadmium to parts or products made of metal or plastic that are not motor vehicles or mobile equipment. Although the Western Trailer facility is an area source of HAP that is not a major source, the specified operations (paint stripping, spray coating of motor vehicle and mobile equipment, and spray coating of metal and plastic parts), are not performed. Therefore, Western Trailer operations are not subject to this subpart.

#### **Revised As Of 8-25-17**

In accordance with §63.11170(a), this mobile equipment coating operation is subject to this subpart because the facility will be operated as an area source of HAP. The facility is a source of HAP that is not a major source of HAP, is not located at a major source, and is not part of a major source of HAP emissions. However, the facility does not perform any of the activities listed in this section, including spray application of coatings, as defined in §63.11180, to mobile equipment including operations that are located in stationary structures at fixed locations.

In accordance with §63.11169, subpart HHHHHH establishes national emission standards for hazardous air pollutants (HAP) for area sources involved in paint stripping operations using chemical strippers that contain methylene chloride, spray-apply coatings to motor vehicles or mobile equipment, or spray-apply coatings containing chromium, lead, manganese, nickel, or cadmium to parts or products made of metal or plastic that are not motor vehicles or mobile equipment. Although the Western Trailer facility is an area source of HAP that is not a major source, the specified operations (paint stripping, spray coating of motor vehicle and mobile equipment, and spray coating of metal and plastic parts), are not performed. Therefore, Western Trailer operations are not subject to this subpart.

## **APPENDIX C – FACILITY DRAFT COMMENTS**

**The following comments were received from the facility on October 13<sup>th</sup>, 2017:**

**Facility Comment under Facility Information/Description:** Statement of Basis - Consider moving this sentence to the discussion of permit limits.

**DEQ Response:** Referenced sentence, "All of the unit heaters and furnace has specific annual hours of operations and limited to 17MMscf/yr total use of natural gas for all combined units". This statement has been removed and is listed in the permit under operating requirements.

**Facility Comment under Facility Information/Description:** Statement of Basis - See Comments on Draft Permit regarding substrate throughput vs. amount of cuttings; applicability of annual vs. monthly emissions.

**DEQ Response:** Annual amounts of TAP emissions over a 24 hour period have been verified not to exceed 585 TAP EL levels. Therefore the throughput limits have been revised to annual limits as requested by the applicant.

**Facility Comment under Facility Information/Description:** Statement of Basis - See Comments on Draft Permit regarding suggestion to avoid citing maximum capacity of equipment. That value is an estimate, and that value is unnecessary to identify machine or demonstrate compliance.

**DEQ Response:** Annual amounts of TAP emissions over a 24 hour period have been verified not to exceed 585 TAP EL levels. Therefore the maximum capacity of the equipment has been removed as requested by the applicant.

**Facility Comment under Facility Information/Description:** Statement of Basis - See Comments on Draft Permit regarding adjusted installation dates.

**DEQ Response:** The facility application machine installation dates have been replaced with the revised installation dates.

**Facility Comment under Facility Information/Description:** Statement of Basis - See Comments on Draft Permit regarding control efficiencies of filters vs. control efficiency used to estimate emissions.

**DEQ Response:** For units PC1, PC2, and MC2, the wording "or greater" was added to the control efficiency for both plasma cutters and the metal cutter filters.

**Facility Comment under Emissions Inventories/Potential to Emit:** Statement of Basis - See Comments on Draft Permit regarding total annual amounts of plasma cuttings.

**DEQ Response:** The annual amount of steel kerf material removed from the plasma operations have been revised from 120,000 to 150,000 lbs. per year.

**Facility Comment under Emissions Inventories/Potential to Emit/Table 2:** Statement of Basis - The total emission for NO<sub>x</sub> change from 11.75 to 12.59 T/yr.

**DEQ Response:** The total emission for NO<sub>x</sub> has been updated to reflect the correct total of 12.59 T/yr.

**Facility Comment under Emissions Inventories/Post Project Potential to Emit/Table 4 and Table 5:** Statement of Basis - DEQ calculated the post project lbs. /hr emissions. Is there a reason that the total lbs./hr. values in Table 5 differ from the total lbs./hr. values in Table 4?

**DEQ Response:** The emission values in Table 4 and 5 have been corrected to reflect the emission inventory submitted with the application.

**Facility Comment under Emissions Inventories/Non-Carcinogenic TAP Emissions/Table 6:** Statement of Basis - Noticed an error in the calculation for P, (Phosphorus) TAP in Table 3-5. This is the correct value. Please let us know if you need additional documentation such as a revised emission inventory or revised Table 3-5.

**DEQ Response:** The Phosphorous emission value has been updated to reflect the value received with facility draft comments.

**Facility Comment under Emissions Inventories/Non-Carcinogenic TAP Emissions/Table 6:** Statement of Basis - 1.56E-7 is the value listed in the Table 3-5. (Selenium)

**DEQ Response:** The Selenium emission values have been updated to reflect the correct values received with the emission inventory.

**Facility Comment under Emissions Inventories/Hazardous Air Pollutants/Table 8:** Statement of Basis - 3.6E-7 is the value listed in Table 3-6 for P, (Phosphorous).

**DEQ Response:** The Phosphorous value on Table 8 has been corrected to reflect the value from Table 3-6 submitted as a revision to the HAP summary on 8/15/2017.

**Facility Comment under Emissions Inventories/Hazardous Air Pollutants/Table 8:** Statement of Basis - 3.7E-7 is the value listed in Table 3-6. (Selenium)

**DEQ Response:** The Selenium value in Table 8 has been corrected to reflect the value from Table 3-6 submitted as a revision to the HAP summary on 8/15/17.

**Facility Comment under Standards for New Sources (IDAPA 58.01.01.677:** Statement of Basis - First, the Draft Permit Condition appears to be 2.5

Second, as described in our Comments regarding the Draft Permit, the PTC application estimated that potential emission of PM from the heaters is 6E-3 grains/cubic ft. natural gas compared to the standard 1.5E-2 grains/cubic ft., 40% of the standard. Consequently, there is not a significant potential to exceed the standard. In addition, we do not observe this gr/dscf discharge limit for natural gas in any other permits with similar unit heaters and including this limit may impose a compliance/record keeping obligation. We request that the Section 2.5 limit be removed.

**DEQ Response:** Permit condition 2.5, (58.01.01.676 Standards For New Sources) has been removed; compliance is assured by the requirement that the equipment be fired on natural gas only.

**Facility Comment under Particulate Matter – New Equipment Process Weight Limitations (IDAPA 58.01.01.701):** Statement of Basis - We agree with the analysis concluding that the limit would not be exceeded. However, as described above, the applicable limits are annual, not monthly.

**DEQ Response:** This section has been revised to reflect annual limits.

**Facility Comment under Permit Condition 2.2:** Statement of Basis - As described in our comments regarding Draft Permit Condition 2.2, we believe this information duplicates the information in Section 1.1 and can be removed.

**DEQ Response:** Section 1.1 lists the scope of the project, and regulated emission sources. Section 2.2 outlines the control devices in detail. Therefore, both tables are required as they are specific to their sections.

**Facility Comment under Permit Condition 2.3:** Statement of Basis - Section 2.3 and Table 2.2 of the Draft Permit only describe criteria pollutants, not TAPs.

**DEQ Response:** This section was revised to only address the six criteria pollutants listed in Table 2.2.

**Facility Comment under Permit Condition 2.5:** Statement of Basis - See Comments on Draft Permit regarding proposed deletion of this Permit limit.

**DEQ Response:** Permit condition 2.5, (58.01.01.676 Standards For New Sources) has been removed as discussed previously; compliance is assured by the requirement that the equipment be fired on natural gas only.

**Facility Comment under Permit Condition 2.6:** Statement of Basis - The requirement to only burn natural gas in the heaters is acceptable. However, please see Comments on Draft Permit regarding proposed deletion of gr/dscf discharge limit. We do not observe this limit in any other permits with similar unit heaters and including this limit may impose a compliance/record keeping obligation.

Natural gas heating is not the principle source of nickel emissions and the amount of nickel in heating fuel not a reason to require only natural gas as the heating fuel. We suggest that this sentence be removed.

**DEQ Response:** Permit condition 2.6 has been revised to remove, (58.01.01.676 Standards For New Sources) as discussed previously; compliance is assured by the requirement that the equipment be fired on natural gas only.

**Facility Comment under previous Permit Condition 2.7, now Permit Condition 2.6:** Statement of Basis - As described in our comments on the Draft Permit, perhaps the natural gas Heater throughput limits described in Section 2.1 could be deleted and cited in Section 2.3.

**DEQ Response:** The natural gas heater annual throughput limits will be listed under Operating Requirements.

**Facility Comment under previous Permit Condition 2.8, now Permit Condition 2.7:** Statement of Basis - See Comments on Draft Permit regarding potential alternative materials and information necessary to demonstrate alternative material compliance. The prohibition on cutting other materials, as written, could require a permit modification to cut other materials even if the new material emissions qualified for permit exemption or if the incremental TAP increase(s) is below the EL.

**DEQ Response:** Per the application submitted to DEQ, the type of material being cut by Plasma cutters 1 and 2 is listed under Permit Condition 2.7. The materials being cut established the PTE of TAPs emissions from the cutting operation that was then used to demonstrate compliance with IDAPA 58.01.01.585 and 586 TAP emissions requirements. Therefore the requested change will not be made to the permit.

**Facility Comment under previous Permit Condition 2.9, now Permit Condition 2.8:** Statement of Basis - See Comments on Draft Permit regarding emission limits based on cuttings rather than amount of substrate processed in machine.

As described in the comments on the Draft Permit, we suggest that the throughput limits be listed only once in the permit.

**DEQ Response:** Throughput limits have been revised to reflect annual throughput limits per the application submitted to DEQ, and are stated where appropriate within the S.O.B. and the Permit. This requirement established the TAP emissions. Therefore, the requested change will not be made to the permit.

**Facility Comment under previous Permit Condition 2.10, now Permit Condition 2.9:** Statement of Basis - This statement is not correct.

This statement appears to be incorrect. Filter efficiency levels below 99.6197% (e.g., 80% PM efficiency) would still maintain PM emissions below regulatory concern. The filter efficiency is important to maintain TAP emissions below ELs; however, efficiency below 99.97% would still comply (e.g., 99.9%). Consequently, we suggest removing the phrase "...will cause the...emissions to exceed the regulatory concerns."

**DEQ Response:** This statement has been revised to anything below 99.61% efficiency will cause specific TAP's to exceed EL's.

**Facility Comment under previous Permit Condition 2.11, now Permit Condition 2.10:** Statement of Basis - As described in the comments on the Draft Permit, limiting the type materials cut would require a permit modification in the event the facility wished to cut another material. The facility would like the flexibility to cut other materials if the emissions were not greater than the emissions estimated for mild steel and stainless steel or did not exceed TAP increment screening emission levels. We request that the prohibition on cutting other materials be removed.

**DEQ Response:** Per the application submitted to DEQ, with the request for specific material to be cut, which the emission inventory was generated from, the material type is listed under Permit Condition 2.10.

**Facility Comment under previous Permit Condition 2.12, now Permit Condition 2.11 :** Statement of Basis - This suggests that the limit should be 25% or better, rather than 99%. The 99% is the level used to demonstrate compliance rather than the absolute efficiency of the filter. We don't object to referencing "99% filter efficiency or better" but we are concerned at the phrase "This facility chose not to model, and requested a PTC with limits" when no metal cutting limits were requested in the application or included in the Draft Permit.

**DEQ Response:** This statement has been revised to reflect 99.0% or greater for filter efficiency. The comment, "This facility chose not to model, and requested a PTC with limits" has been removed.

**Facility Comment under previous Permit Condition 2.13, now Permit Condition 2.12:** Statement of Basis - Please see comment No. 24 on the Draft Permit for our concerns related to the Filter System Procedures requirements. Our suggestions would still require that the filter system procedures be written, ensure compliance with the terms and conditions of this permit, be maintained in good working order, operated as efficiently as practicable and the manual shall remain on-site at all times and shall be made available to DEQ representatives upon request.

**DEQ Response:** This is a standard DEQ requirement for all baghouse/cartridge filter systems to ensure compliance, and is listed as Permit Condition 2.13.

**Facility Comment under previous Permit Condition 2.15, now Permit Condition 2.14:** Statement of Basis - As described in the comments on the Draft Permit, we request that material type limits be removed.

**DEQ Response:** Per the application submitted to DEQ, with the request for specific material to be cut, which the emission inventory was generated from, the material monitoring for the type of material cut is listed under Permit Condition 2.14.

**Facility Comment under previous Permit Condition 2.17, now Permit Condition 2.16:** Statement of Basis - As described in the comments on the Draft Permit, the facility has already supplied DEQ with manufacturer information describing efficiency of the filters and the Draft Permit already specifies the model and estimated efficiency of the equipment that will be used in Section 1.1, above. This Section is duplicative and unnecessary and should be removed.

**DEQ Response:** Permit Condition 1.1 states the purpose of the permit, while Permit Condition 2.16 outlines the requirements for monitoring and recordkeeping of both plasma machine cartridge filter systems. This section is not duplicative. Therefore the requested change will not be made to the permit.

**Facility Comment under previous Permit Condition 2.18, now Permit Condition 2.17:** Statement of Basis - As described in the comments on the Draft Permit, the facility has already supplied DEQ with manufacturer information describing efficiency of the filters and the Draft Permit already specifies the model and estimated efficiency of the equipment that will be used in Section 1.1, above. This Section is duplicative and unnecessary and should be removed.

**DEQ Response:** Permit Condition 1.1 states the purpose of the permit, while Permit Condition 2.17 outlines the requirements for monitoring and recordkeeping of metal cutter 2 particulate control filter system. This section is not duplicative. Therefore the requested change will not be made to the permit.

**Facility Comment under Permit Scope/Table 1.1:** Permit – PC1 and PC2, As described in our Email 9/8/17, the equipment manufacturer does not provide a maximum capacity for the equipment. The capacity would vary based on the material characteristic (thickness) and the cut characteristics (kerf width, cut length, complexity of cut shape). We note that this process is similar to other metal cutting processes used by Western Trailer in that, for the reasons cited above, the manufacturer does not specify a “max. production rate” and DEQ does not specify a “max. production rate” for the other metal cutting processes. We recommend removing this element from the source description.

We recommend adding the phrase “or better.” The efficiency of the Torit Ultra-Web filter is 90% and the 99.97%, respectively.  $\text{Efficiency} = 100\% - (100\% * (1 - 0.90) * (1 - 0.9997)) = 99.99997\%$ . Emissions are conservatively estimated assuming 99.97% efficiency. The recommended change affirms that control equipment efficiency could be demonstrated to be more efficient should record keeping warrant a more accurate calculation.

**DEQ Response:** The maximum capacity of the plasma machines have been removed, after the annual throughput limits were verified not to exceed any 585 TAP’s within a 24 hour period.

The phrase, “or greater” has been added to the control efficiency of both plasma machine filters.

**Facility Comment under Permit Scope/Table 1.1:** Permit – MC2, We recommend adding the phrase “or better.” The manufacturer rates the efficiency of the filter 99.95%. However, emissions are conservatively estimated assuming 99 % efficiency. The recommended change affirms that control equipment efficiency could be demonstrated to be more efficient should record keeping warrant a more accurate calculation.

**DEQ Response:** The phrase, “or greater” has been added to the control efficiency of the metal cutter filter.

**Facility Comment under Permit Condition 2.1:** Permit - This sentence may be more appropriate in Section 2.7 “Operating Requirements” than in Section 2.1 “Process Description”. Similarly, references to plasma cutting limits may be more appropriate in Section 2.7 “Operating Requirements” than in Section 2.1 “Process Description”.

**DEQ Response:** The natural gas annual usage limit for all unit heaters, and the annual throughput limits for plasma cutting has been removed from the process description and listed under operating requirements section 2.7 and 2.9.

**Facility Comment under Permit Condition 2.1:** Permit – The restricted limits are based on annual emissions not monthly emissions. Monthly emissions are only recorded to determine rolling 12-month (annual) emissions. Consequently, the annual limits are the estimated restricted annual emissions, 120,000 lbs/yr + 30,000 lbs/yr =150,000 lbs/yr mild steel; and 4,512 lbs/yr + 1,128 lbs/yr =5,640 lbs/yr stainless steel.

Alternatively, if DEQ determines that the description should be lbs/month, the correct mild steel monthly value should be (150,000 lbs/yr) X (1 yr/12 months) = 12,500 lbs/month.

**DEQ Response:** The monthly throughput limits for the plasma cutters have been removed from the process description and listed as annual throughput limits under operating requirements.

**Facility Comment under Permit Condition 2.1:** Permit – It is important to clarify that any Plasma Cutting throughput limits would be for the amount (weight) of cuttings, as opposed to the overall amount of substrate loaded into the machines.

**DEQ Response:** This sentence has been removed from the process description. The clarification of amount weight of cuttings has been added under operating requirements for the annual throughput limits. It now states:

- The amount of kerf material removed from mild steel by plasma cutters 1 and 2 shall not exceed 150,000 pounds per year (lb/yr).
- The amount of kerf material removed from mild stainless steel by plasma cutters 1 and 2 shall not exceed 5,640 pounds per year (lb/yr).

**Facility Comment under Permit Condition 2.1:** Permit – As described in Comments 1 and 3, above, the maximum capacity ratings are estimates and listing these values ascribes greater accuracy to these values than is relevant or necessary to describe the equipment.

**DEQ Response:** After verifying the annual throughput limits for both plasma machines did not exceed any 585 TAP within a 24 hour period, the maximum capacity was removed from the permit and statement of basis.

**Facility Comment under Permit Condition 2.1:** Permit – The dates shown here are believed more accurate than included in the application and previously listed in this section.

**DEQ Response:** The machine installation dates and the control device dates have been updated, per the comments on the facility draft permit.

**Facility Comment under Permit Condition 2.1:** Permit – Since Section 2.2 describes the control devices, we suggest moving these sentences to Section 2.2.

**DEQ Response:** The statement describing the control devices for the filter efficiencies has been removed from section 2.1 and listed under Control Device Descriptions under section 2.2.

**Facility Comment under Permit Condition 2.1:** Permit – Since Section 2.2 describes the control devices, we suggest moving these sentences to Section 2.2.

**DEQ Response:** This statement has been removed from section 2.1 and listed under Control Device Descriptions under section 2.2.

**Facility Comment under Permit Condition 2.1:** Permit – We recommend adding the phrase “or better.” The manufacturer rates the efficiency of the filter 99.95%. However, emissions are conservatively estimated assuming 99% efficiency. The recommended change affirms that control equipment efficiency could be demonstrated to be more efficient should record keeping warrant a more accurate calculation.

**DEQ Response:** The phrase, “or greater” has been added to the 99.0% control efficiency statement.

**Facility Comment under Permit Condition 2.1:** Permit – Table 2.1 duplicates Table 1.1. We suggest deleting Table 2.1. If DEQ determines that Table 2.1 is necessary, we suggest that Table 2.1 be revised to reflect the comments and changes shown for Table 1.1, above.

**DEQ Response:** Table 2.1 has been revised to reflect Table 1.1 data. Table 1.1 lists regulated sources under the scope of the permit. Table 2.1 lists the emission units / processes and control devices under section 2.2 for control devices. These tables are not duplicates. Therefore the requested change will not be made to the permit.

**Facility Comment under Permit Condition 2.1:** Permit – Since Section 2.2 describes the control devices, we suggest moving these sentences to Section 2.2.

**DEQ Response:** The statement describing the control devices has been removed from section 2.1 and listed in section 2.2 of the permit.

**Facility Comment under Table 2.1:** Permit – Table 2.1 appears to duplicate Table 1.1. We suggest removing Table 2.1.

**DEQ Response:** Table 1.1 lists regulated sources under the scope of the permit. Table 2.1 lists the emission units/processes and control devices under section 2.2 for control devices. These tables are not duplicates. Therefore the requested change will not be made to the permit.

**Facility Comment under Table 2.2:** Permit – This Table is more appropriate for describing emissions in the SOB. Showing 0.0 lbs./hr. and 0.0 tons/yr. as SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC limits is unusual and unnecessary in a Permit.

Since the applicable PM and NO<sub>x</sub> standards are BRC, an hourly limit, prescribing hourly Plasma Cutting, Metal Cutting and Heater limits is onerous and unnecessary to assure compliance. Therefore, we request that PM and NO<sub>x</sub> hourly limits be removed.

Since estimated plasma cutting PM emissions total 1.19 E-3 tons/year and the applicable standard (BRC) is 1 ton/yr. PM<sub>2.5</sub>, applying annual limits is onerous and unnecessary to assure compliance. Therefore, we request that the PM annual limit be removed.

Since Section 2.1 prescribes an annual throughput limit for plasma cutting, prescribing an additional NO<sub>x</sub> annual emissions limit is onerous and unnecessary to assure compliance. Perhaps the Plasma cutting throughput limits described in Section 2.1 could be deleted and cited in Section 2.3.

Similar to plasma cutting, the natural gas throughput limit for the heaters is to limit NO<sub>x</sub> emissions. Consequently, prescribing additional NO<sub>x</sub> annual emissions limits for each Heater is onerous and unnecessary to assure compliance. Perhaps the natural gas Heater throughput limits described in Section 2.1 could be deleted and cited in Section 2.3.

Similar to the plasma cutting machines, the metal cutting machines estimated plasma cutting PM emissions are quite low with respect to the applicable annual BRC standard, 2 E-1 tons/yr. and 3.1E-3 tons/yr. Applying annual limits is onerous and unnecessary to assure compliance. For example, the Western Trailer PTC for Business Way (Permit No. P-20016.0058) does not include annual PM limits. Therefore, we request that the PM annual limits for the cutting machines be removed.

**DEQ Response:** 0.0 lbs/hr and 0.0 tons/yr for SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC limits have been revised to N/A. Table 2.2 shall remain in the permit as it reflects the emission limits submitted with the application and is part of the permit verification process.

**Facility Comment under Permit Condition 2.5:** Permit – The PTC application estimated that potential emission of PM from the heaters is 6E-3 grains/cubic ft. natural gas compared to the standard 1.5E-2 grains/cubic ft., 40% of the standard. Consequently, there is not a significant potential to exceed the standard. In addition, we do not observe this gr/dscf discharge limit for natural gas in any other permits with similar unit heaters and including this limit may impose a compliance/record keeping obligation. We request that the Section 2.5 limit be removed.

**DEQ Response:** Permit condition 2.5, (58.01.01.676 Standards For New Sources) has been removed as discussed previously; compliance is assured by the requirement that the equipment be fired on natural gas only.

**Facility Comment under previous Permit Condition 2.8, now Permit Condition 2.7:** Permit – Limiting the type materials cut would require a permit modification in the event the facility wished to cut another material. The facility would like the flexibility to cut other materials if the emissions were not greater than the emissions estimated for mild steel and stainless steel or did not exceed TAP increment screening emission levels. We request that the prohibition on cutting other materials be removed.

Alternate operating limitations could be as included for welding in the Western Trailer Business Way PTC (Permit No. P-20016.0058), as follows:

Alternate equivalent substrate materials may be used if it is demonstrated that the types and amounts of cutting alternate materials result in emissions equal or lower than the emission screening levels for toxic air pollutants (TAP0 provided in IDAPA 58.01.01.585-586.

**DEQ Response:** Per the application submitted to DEQ, the type of material being cut by Plasma cutters 1 and 2 is listed under Permit Condition 2.7. This requirement established the TAP emissions. Therefore the requested change will not be made to the permit.

**Facility Comment under previous Permit Condition 2.9, now Permit Condition 2.8:** Permit – As described in Comment 10, above, the restricted limits for mild steel are based on annually cutting 120,000 lbs./yr. + 30,000 lbs/yr =150,000 lbs/yr

As described in Comment 7, above, the restricted limits are based on annual emissions not monthly emissions. Monthly emissions are only recorded to determine rolling 12-month (annual) emissions. Consequently, monthly limits should be removed.

Facility struck through all of table 2.6.

**DEQ Response:** The annual amount of 150,000 pounds of steel kerf removed and 5,640 pounds of stainless steel kerf removed were calculated within a 24 hour period and verified all 585 TAP's did not exceed EL levels, and criteria pollutants stayed below regulatory concern. Therefore monthly limits have been removed and only annual limits remain in the permit. Table 2.6 was removed.

**Facility Comment under previous Permit Condition 2.11, now Permit Condition 2.10:** Permit – Limiting the type materials cut would require a permit modification in the event the facility wished to cut another material. The facility would like the flexibility to cut other materials if the emissions were not greater than the emissions estimated for mild steel and stainless steel or did not exceed TAP increment screening emission levels. We request that the prohibition on cutting other materials be removed.

Alternate operating limitations could be as included for welding in the Western Trailer Business Way PTC (Permit No. P-20016.0058), as follows:

Alternate equivalent substrate materials may be used if it is demonstrated that the types and amounts of cutting alternate materials result in emissions equal or lower than the emission screening levels for toxic air pollutants (TAP0 provided in IDAPA 58.01.01.585-586.

**DEQ Response:** Per the application submitted to DEQ, the type of material being cut by metal cutters 1 and 2 is listed under Permit Condition 2.10. This requirement established the TAP emissions. Therefore the requested change will not be made to the permit.

**Facility Comment under previous Permit Condition 2.12, now Permit Condition 2.11:** Permit – The filter is supplied by the manufacturer and is already installed.

**DEQ Response:** The statement has been revised to reflect the filter is already installed.

**Facility Comment under previous Permit Condition 2.13, now Permit Condition 2.12:** Permit – Western Trailers requests that the requirement for O&M and inspection of the filter control systems be similar to the requirements for its Business Way facility (Permit No. P-20016.0058). Key concerns with the proposed terms

include daily see-no-see visible emissions inspections (see-no-see may be more appropriate for a facility subject to federal NESHAPS 6X), specific equipment parts to be inspected, and submission of certified O&M documents to DEQ for review.

The filter system procedure requirements in Western Trailer Permit No. P-20016.0058 emphasize "...to ensure compliance with the terms and conditions of this permit...maintained in good working order...operated as efficiently as practicable...manual shall remain on-site at all times and shall be made available to DEQ representatives upon request."

**DEQ Response:** Permit Condition 2.12 is a standard DEQ compliance requirement.

**Facility Comment under previous Permit Condition 2.15, now Permit Condition 2.14:** Permit – As described in Comment No. 22, we recommend deleting the material type limits. We do not object to recording the type of material cut.

**DEQ Response:** Per the application submitted to DEQ, the type of material being cut by Plasma cutters 1 and 2 is listed under Permit Condition 2.7, and the type of material being cut by metal cutters 1 and 2 is listed under Permit Condition 2.10. This requirement established the TAP emissions. Therefore the requested change will not be made to the permit. The material type shall be monitored and records kept per Permit Condition 2.14.

**Facility Comment under previous Permit Condition 2.17, now Permit Condition 2.16:** Permit – Facility struck through permit condition 2.17 Filter System Requirements for Plasma Cutting.

**DEQ Response:** Permit Condition 2.16 is a standard monitoring and recordkeeping DEQ compliance requirement.

**Facility Comment under previous Permit Condition 2.18, now Permit Condition 2.17:** Permit – Facility struck through permit condition 2.18 Filter System Requirements for Metal Cutting.

Permit – The facility has already supplied DEQ with manufacturer information describing efficiency of the filters and the Draft Permit already specifies the model and estimated efficiency of the equipment that will be used in Section 1.1, above. These Sections are duplicative and unnecessary and should be removed.

**DEQ Response:** Permit Condition 2.17 is a standard monitoring and recordkeeping DEQ compliance requirement.

## APPENDIX D – PROCESSING FEE

## PTC Processing Fee Calculation Worksheet

**Instructions:**

Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

**Company:** Western Trailer Co. - S. Federal Way  
**Address:** 8623 S Federal Way  
**City:** Boise  
**State:** Idaho  
**Zip Code:** 83716  
**Facility Contact:** Tom Hogan  
**Title:** Facility Permitting Contact  
**AIRS No.:** 001-00349

**N** Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N

**Y** Did this permit require engineering analysis? Y/N

**N** Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO <sub>x</sub>	3.96	0	4.0
SO <sub>2</sub>	5.0E-03	0	0.0
CO	0.72	0	0.7
PM10	0.28	0	0.3
VOC	0.05	0	0.1
TAPS/HAPS	0.00	0	0.0
<b>Total:</b>	<b>5.02</b>	<b>0</b>	<b>5.0</b>
Fee Due	<b>\$ 2,500.00</b>		

Fee Amount (based on emisisions)  
2500

Comments: