Statement of Basis

Permit to Construct No. P-2018.0025
Project ID 62039

Gem State Manufacturing - Skyway
Caldwell, Idaho

Facility ID 027-00172

Final

September 14, 2018
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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.

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
BCP	Blast Cleaning Products
BMP	best management practices
Btu	British thermal units
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_2	carbon dioxide
CO_2e	CO_2 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
GACT	Generally Available Control Technology
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
HVLP	high volume low pressure
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
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_2	nitrogen dioxide

NO_X	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
O_2	oxygen
PAH	polyaromatic hydrocarbons
PC	permit condition
PCB	polychlorinated biphenyl
PERF	Portable Equipment Relocation Form
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	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
Rules	*Rules for the Control of Air Pollution in Idaho*
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_2	sulfur dioxide
SO_x	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^3	cubic yards
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

Gem State Manufacturing - Skyway operates an existing heavy equipment trailer manufacturing facility, located in Caldwell Idaho. The facility consists of the following emission sources, three natural gas fired heaters, one semi-automated abrasive blasting unit, one paint booth with two sections, four high volume low pressure (HVLP) spray guns, one CNC plasma cutting machine, one welding machine, and various hand welders.

The first process is metal fabrication, raw steel, plate steel, and pre-fabricated steel pieces are delivered to the facility. The raw steel and plate steel are cut, using a steel saw or CNC plasma cutting machine. The CNC plasma cutting machine is equipped with a CMAXX downdraft fume extraction system with cartridge filters, and exhausts inside the main building.

After the material is cut into product components, the components are cleaned using the semi-automated abrasive blasting unit. The semi-automated abrasive blasting unit is equipped with two filtration systems, and vents inside the main building.

Once the material is cleaned using the semi-automated abrasive blasting unit, it is transferred to the pre-fabrication, support parts, fabrication area, or the specialty line for welding. The hand welding is conducted using hand metal inert gas (MIG) welding, and is not equipped with any control or fume extraction units. Fabrication welding is done using WELDPRO 360 welding booms equipped with an integrated weldpro clean air fume extraction system; however this fume extraction system is not being used. All welding emissions exhaust inside the main building.

Spray coating is the final application after the product has been cut, cleaned, and constructed. The paint booth has two sections, a spraying section and a curing section. The curing section has a natural gas fired heater, while the spraying section is heated with ambient air from the main building. Materials are first placed into the spraying section where either primer or paint is applied to the material; application of primer and paint can occur concurrently. The primer mixture consists of primer, catalyst, and acetone. The paint mixture consists of polyurethane paint, hardener, Q70 (methyl amyl ketone), and accelerator. Both the primer and paint mixture are applied using a high volume low pressure (HVLP) spray gun. The spray booth is equipped with filters for control of particulate emissions.

There are three combustion sources, one natural gas fired heater located in the curing section of the spray booth previously mentioned above, and two natural gas fired HVAC units located in the main building.

Permitting History

This is the initial PTC for an existing facility that was constructed in June, 2017 thus there is no permitting history.

Application Scope

This permit is the initial PTC for this facility.

The applicant has already installed:

- One natural gas heated ventilated paint booth
- Two HVAC units in the main building
- Metal inert gas welding equipment
- Semi-automated abrasive basting equipment
- Metal sizing and cutting equipment

Application Chronology

April 23, 2018	DEQ sent a notice of violation to the facility, which included notification that a PTC was required (Enforcement Case No. BRO-NTC-2018-0004).
March 26, 2018	DEQ received an application and an application fee.
July 31 – August 15, 2018	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
April 24, 2018	DEQ determined that the application was incomplete.
July 12, 2018	DEQ received supplemental information from the applicant.
July 25, 2018	DEQ determined that the application was complete.
July 31, 2018	DEQ made available the draft permit and statement of basis for peer and regional office review.
August 9, 2018	DEQ made available the draft permit and statement of basis for applicant review.
September 12, 2018	DEQ received the permit processing fee.
September 14, 2018	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Sources	Control Equipment
CNC Plasma Cutting Machine: Manufacturer: AKS Cutting Systems Model: accu-kut Max. capacity: 1200 IPM Manufacture Date: 2017	Control Device Name: Manufacturer: CMAXX Fume Extraction System Model: Imperial Systems CMAXX Fume Extraction System PM_{10} control efficiency: 99.9% Enclosed Building PM_{10} Control Efficiency: 50.0% Manufacture Date: September 2017
WeldPro Welding: Manufacturer: Andersen Industries, Inc. Model: WELDPRO360 Max. capacity: 60 lb spool, 905 spools/year Manufacture Date: September 2017 Various Hand Welders: Hand Metal Inert Gas (MIG Welding)	WeldPro 360 Fume Extraction: Manufacturer: Weldpro 360 Fume Extraction System PM_{10} control efficiency: 0.0% (Not being used) Manufacture Date: September 2017
Semi-Automated Abrasive Blasting: Manufacturer: Blast Cleaning Products (BCP) Model: Autoblast Max. capacity: 1480 lbs media/minute Manufacture Date: November 1996	Control Device Name: Manufacturer: BCP Model: Donaldson Torit Ultra-Web Cartridge, MERV 15 $PM_{10/2.5}$ control efficiency: 90.0% Model: Donaldson Torit Ultra-Web Cartridge, MERV 16 $PM_{10/2.5}$ control efficiency: 95.0% Enclosed Building $PM_{10/2.5}$ Control Efficiency: 50.0% Manufacture Date: September 2017
Paint Booth: Type: Side draft, dry filters Manufacture Date: November 2017 Spray Gun: Manufacture: Iwata Model: LPH200 Type: HVLP Transfer Efficiency: 65% Manufacture Date: November 2017	Filter: Manufacturer: Superior Fibers, LLC Model: TGT21—12-OT/PA12 Filter Efficiency: 98.7% Manufacture Date: November 2017
Two (2) HVAC Units: Manufacturer: Titan Model: TA-130 NG VLH AR/80 Heat Input Rate: 2.475 MMBtu/hr Fuel Type: Natural Gas Manufacture Date: September 2017 Curing Room Heater: Manufacturer: Trane Model:DFOA118FNAB1ACF13AOABJLNPY Heat Input Rate: 0.825 MMBtu/hr Fuel Type: Natural Gas Manufacture Date: November 2017	None

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 plasma cutting, semi-automated abrasive blasting, welding, paint booth, natural gas fired heater, and two natural gas fired HVAC units at the facility (see Appendix A) associated with this proposed project. Emissions estimates of criteria pollutant, HAP PTE were based on emission factors from AP-42 Section 12 (Broman B. et al, The Swedish Institute of Production Engineering Research, March 1994), AP-42 Section 13.2.6 and abrasive blasting media safety data sheets, AP-42 Section 12.19, AP-42 Section 1.4, and all material safety data sheets for the coating process, operation of 2,600 hours per year at most, and process information specific to the facility for this proposed project.

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 heavy equipment trailer manufacturing facility uncontrolled Potential to Emit is based upon a worst-case for operation of the facility of 8,760 hr/yr (24 hr/day x 365 day/yr) for the plasma cutting, semi-automated abrasive blasting, welding, natural gas fired heater, and the two HVAC units, 2,920 hr/yr (8 hr/day x 365 day/yr) for primer, and 3,650 hr/yr (10 hr/day x 365 day/yr) for paint.

Table 2 UNCONTROLLED POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{2.5}$	PM_{10}	SO_2	NO_X	CO	VOC
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Point Sources						
CNC Plasma Cutting Machine	0.07	0.07	0.00	0.95	0.00	0.00
Semi-Automated Abrasive Blasting	25.28	252.81	0.00	0.00	0.00	0.00
WeldPro Welding	0.14	0.14	0.00	0.00	0.00	0.00
Paint Booth	45.61	45.61	0.00	0.00	0.00	133.39
Curing Room Heater	5.00E-03	5.00E-03	4.25E-04	0.07	0.06	4.00E-03
Two (2) HVAC Units	0.16	0.16	0.012	2.12	1.78	0.11
Total, Point Sources	**71.27**	**298.80**	**0.01**	**3.15**	**1.85**	**133.51**

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 heavy equipment trailer manufacturing facility uncontrolled Potential to Emit is based upon a worst-case for operation of the facility of 8,760 hr/yr (24 hr/day x 365 day/yr) for the plasma cutting, semi-automated abrasive blasting, welding, natural gas fired heater, and the two HVAC units, 2,920 hr/yr (8 hr/day x 365 day/yr) for primer, and 3,650 hr/yr (10 hr/day x 365 day/yr) for paint. Then, the worst-case maximum HAP Potential to Emit was determined for this heavy equipment trailer manufacturing facility.

Table 3 UNCONTROLLED POTENTIAL TO EMIT FOR HAZARDOUS AIR POLLUTANTS

Hazardous Air Pollutants	PTE (lb/hr)	PTE (T/yr)
4-methylpentan-2-one	2.45E+00	3.58E+00
Toluene	3.46E+00	6.02E+00
Butanone (methyl ethyl ketone)	6.61E+00	1.21E+01
Ethylbenzene	2.18E-01	3.48E-01
hexamethlyene-di-isocyanate	1.93E-03	3.53E-03
xylene	2.36E-01	3.45E-01
Benzene	1.19E-05	5.21E-05
Formaldehyde	4.25E-04	1.86E-03
Dichlorobenzene	6.79E-06	2.98E-05
Hexane	1.02E-02	4.46E-02
Naphthalene	3.45E-06	1.51E-05
Arsenic	1.13E-06	4.96E-06
Beryllium	6.79E-08	2.98E-07
Cadmium	6.23E-06	2.73E-05
Chromium	6.99E-05	3.06E-04
Cobalt	6.25E-05	2.74E-04
Lead	2.51E-06	1.07E-05
Manganese	1.43E+00	6.26E+00
Mercury	1.47E-06	6.45E-06
Nickel	7.39E-05	3.24E-04
Phosphorus	4.20E-02	1.84E-01
POM	6.45E-08	2.83E-07
Selenium	1.36E-07	5.95E-07
Totals	**14.46**	**28.89**

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 determined 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	$PM_{2.5}$		PM_{10}		SO_2		NO_X		CO		VOC	
	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]	lb/hr[(a)]	T/yr[(b)]
CNC Plasma Cutting Machine	6.89E-06	8.96E-06	6.89E-06	8.96E-06	0.00	0.00	0.22	0.28	0.00	0.00	0.00	0.00
Semi-Automated Abrasive Blasting	0.01	0.01	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WeldPro Welding	0.01	0.04	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paint Booth	1.35E-01	0.42	1.35E-01	0.42	0.00	0.00	0.00	0.00	0.00	0.00	30.45	95.02
Curing Room Heater	1.00E-03	2.00E-03	1.00E-03	2.00E-03	1.00E-04	1.26E-04	0.02	0.02	0.01	0.02	8.90E-04	1.15E-03
Two (2) HVAC Units	0.01	0.04	0.01	0.04	3.00E-03	3.80E-03	0.48	0.63	0.40	0.53	0.02	0.03
Post Project Totals	**0.17**	**0.52**	**0.26**	**0.61**	**0.003**	**0.004**	**0.72**	**0.93**	**0.41**	**0.55**	**30.47**	**95.05**

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	$PM_{2.5}$		PM_{10}		SO_2		NO_X		CO		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	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	0.00
Post Project Potential to Emit	0.17	0.52	0.26	0.61	0.003	0.004	0.72	0.93	0.41	0.55	30.47	95.05
Changes in Potential to Emit	**0.17**	**0.52**	**0.26**	**0.61**	**0.003**	**0.004**	**0.72**	**0.93**	**0.41**	**0.55**	**30.47**	**95.05**

Non-Carcinogenic TAP Emissions

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)
Toluene	0.00E-03	3.46E+00	3.46E+00	2.50E+01	No
Dichlorobenzene	0.00E-03	2.83E-06	2.83E-06	3.00E+01	No
Hexane	0.00E-03	4.25E-03	4.25E-03	1.20E+01	No
Naphthalene	0.00E-03	1.44E-06	1.44E-06	3.33E+00	No
Pentane	0.00E-03	6.13E-03	6.13E-03	1.18E+02	No
Acetone	0.00E-03	1.02E+01	1.02E+01	1.19E+02	No
n-Butyl acetate	0.00E-03	1.32E+01	1.32E+01	4.73E+01	No
Carbon black	0.00E-03	1.20E-02	1.20E-02	2.30E-01	No
Diiron trioxide (iron oxide fume)	0.00E-03	3.01E-02	3.01E-02	3.33E-01	No
Ethanol (ethyl alcohol)	0.00E-03	7.93E-01	7.93E-01	1.25E+02	No
Ethylbenzene	0.00E-03	2.18E-01	2.18E-01	2.90E+01	No
hexamethlyene-di-isocyanate	0.00E-03	1.93E-03	1.93E-03	2.00E-03	No
Limestone (calcium carbonate)	0.00E-03	1.49E-02	1.49E-02	6.67E-01	No
Heptan-2-one (methyl n-amly ketone)	0.00E-03	1.04E+01	1.04E+01	1.57E+01	No
Butanone (methyl ethyl ketone)	0.00E-03	6.61E+00	6.61E+00	3.93E+01	No
2-methoxy-1-methylethyl acetate	0.00E-03	6.61E+00	6.61E+00	2.40E+01	No
4-methylpentan-2-one	0.00E-03	2.45E+00	2.45E+00	1.37E+01	No
butan-1-ol (n-Butyl alcohol)	0.00E-03	6.02E-01	6.02E-01	1.00E+01	No
ethylenediamine	0.00E-03	9.51E-02	9.51E-02	1.67E+00	No
Crystalline silica powder	0.00E-03	7.44E-04	7.44E-04	6.70E-03	No
2-butoxyethanol	0.00E-03	1.15E+00	1.15E+00	8.00E+00	No
1-methoxy-2-propanol (propylene glycol monomethyl ether)	0.00E-03	5.70E-01	5.70E-01	2.40E+01	No
xylene	0.00E-03	2.36E-01	2.36E-01	2.90E+01	No
tert-butyl acetate	0.00E-03	3.34E+00	3.34E+00	6.33E+01	No
Stoddard Solvent	0.00E-03	7.93E-01	7.93E-01	3.50E+01	No
Aluminum powder	0.00E-03	6.01E-03	6.01E-03	3.33E-01	No
Barium	0.00E-03	1.04E-05	1.04E-05	3.30E-02	No
Chromium	0.00E-03	2.91E-05	2.91E-05	3.30E-02	No
Chromium(VI)	0.00E-03	0.00E+00	0.00E+00	5.60E-07	No
Cobalt	0.00E-03	2.60E-05	2.60E-05	3.30E-03	No
Copper	0.00E-03	2.01E-06	2.01E-06	6.70E-02	No
Iron oxide fume	0.00E-03	4.82E-06	4.82E-06	3.33E-01	No
Manganese	0.00E-03	1.06E-02	1.06E-02	3.33E-01	No
Molybdenum	0.00E-03	2.59E-06	2.59E-06	3.33E-01	No
Phosphorus	0.00E-03	6.99E-05	6.99E-05	7.00E-03	No
Selenium	0.00E-03	5.66E-08	5.66E-08	1.30E-02	No
Silicon	0.00E-03	3.50E-04	3.50E-04	6.67E-01	No
Vanadium	0.00E-03	5.43E-06	5.43E-06	3.00E-03	No
Zinc	0.00E-03	6.84E-05	6.84E-05	6.67E-01	No

All changes in emissions rates for non-carcinogenic TAP were below EL (screening emissions level) 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)
Benzene	0.00E-03	3.53E-06	3.53E-06	8.00E-04	No
Formaldehyde	0.00E-03	1.26E-04	1.26E-04	5.10E-04	No
2-Methylnaphthalene	0.00E-03	4.03E-08	4.03E-08	9.10E-05	No
3-Methylchloranthrene	0.00E-03	3.02E-09	3.02E-09	9.10E-05	No
7,12-Dimethylbenz(a)anthracene	0.00E-03	2.69E-08	2.69E-08	9.10E-05	No
Acenaphthylene	0.00E-03	3.02E-09	3.02E-09	9.10E-05	No
Benzo(a)pyrene	0.00E-03	2.02E-09	2.02E-09	2.00E-06	No
Benzo(b)fluoranthene	0.00E-03	3.02E-09	3.02E-09	2.00E-06	No
Benzo(k)fluoranthene	0.00E-03	3.02E-09	3.02E-09	2.00E-06	No
Dibenzo(a,h)anthracene	0.00E-03	2.02E-09	2.02E-09	2.00E-06	No
Acenaphthene	0.00E-03	3.02E-09	3.02E-09	9.10E-05	No
Anthracene	0.00E-03	4.03E-09	4.03E-09	9.10E-05	No
Benzo(a)anthracene	0.00E-03	3.02E-09	3.02E-09	2.00E-06	No
Benzo(g,h,i)perylene	0.00E-03	2.02E-09	2.02E-09	9.10E-05	No
Chrysene	0.00E-03	3.02E-09	3.02E-09	2.00E-06	No
Fluoranthene	0.00E-03	5.04E-09	5.04E-09	9.10E-05	No
Fluorene	0.00E-03	4.71E-09	4.71E-09	9.10E-05	No
Indeno(1,2,3-cd)pyrene	0.00E-03	3.02E-09	3.02E-09	2.00E-06	No
Phenanthrene	0.00E-03	2.86E-08	2.86E-08	9.10E-05	No
Pyrene	0.00E-03	8.40E-09	8.40E-09	9.10E-05	No
Arsenic	0.00E-03	3.36E-07	3.36E-07	1.50E-06	No
Beryllium	0.00E-03	2.02E-08	2.02E-08	2.80E-05	No
Cadmium	0.00E-03	1.85E-06	1.85E-06	3.70E-06	No
Nickel	0.00E-03	2.19E-05	2.19E-05	2.70E-05	No
POM	0.00E-03	1.92E-08	1.92E-08	2.00E-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.

All changes in emissions rates for carcinogenic TAP were below EL (screening emissions level) 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 (lb/hr)	PTE (T/yr)
4-methylpentan-2-one	2.45E+00	2.55E+00
Toluene	3.46E+00	4.29E+00
Butanone (methyl ethyl ketone)	6.61E+00	8.59E+00
Ethylbenzene	2.18E-01	2.48E-01
hexamethlyene-di-isocyanate	1.93E-03	2.51E-03
xylene	2.36E-01	2.46E-01
Benzene	3.53E-06	1.55E-05
Formaldehyde	1.26E-04	5.52E-04
Dichlorobenzene	2.83E-06	8.83E-06
Hexane	4.25E-03	1.32E-02
Naphthalene	1.44E-06	4.49E-06
Arsenic	3.36E-07	1.47E-06
Beryllium	2.02E-08	8.83E-08
Cadmium	1.85E-06	8.10E-06
Chromium	2.91E-05	9.09E-05
Cobalt	2.60E-05	8.12E-05
Lead	2.51E-06	3.26E-06
Manganese	1.06E-02	2.81E-02
Mercury	1.47E-06	1.91E-06
Nickel	2.19E-05	9.61E-05
Phosphorus	6.99E-05	7.27E-05
POM	1.92E-08	8.39E-08
Selenium	5.66E-08	1.77E-07
Totals	**12.99**	**15.97**

Ambient Air Quality Impact Analyses

Ambient air quality impact analyses are not a requirement for this permitting action because the $PM_{2.5/10}$, SO_2, NO_X, CO, VOC, and TAP emissions from this project were below applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Canyon County, which is designated as attainment or unclassifiable for $PM_{2.5}$, PM_{10}, SO_2, NO_2, 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 ≥ 10 T/yr or if the aggregate of all HAPS (Total HAPs) has actual or potential emissions ≥ 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 ≥ 8 T/yr of a single HAP or ≥ 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.

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 ≥ 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 ≥ 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	571.06	0.72	**100**	SM
PM_{10}	298.80	0.60	**100**	SM
$PM_{2.5}$	71.27	0.51	**100**	B
SO_2	0.01	4.00E-03	**100**	B
NO_X	3.15	0.93	**100**	B
CO	1.85	0.55	**100**	B
VOC	133.51	95.05	**100**	SM80
HAP (single)	12.10	8.59	**10**	SM80
HAP (total)	28.89	15.97	**25**	SM
Pb	1.07E-05	3.26E-06	**100**	B

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 ..... Permit to Construct Required

Due to requirements from a notice to comply and the permittee requesting that a PTC be issued to the facility for the proposed new emissions source. 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.

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 were 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, 3.4, 4.5, and 5.4.

Standards for New Sources (IDAPA 58.01.01.676)

IDAPA 58.01.01.676 ..... Standards for New Sources

The fuel burning equipment located at this facility, with a maximum rated input of ten (10) million BTU per hour or more, 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. This requirement is assured by Permit Conditions 5.5.

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 $PM_{2.5}/PM_{10}$, SO_2, NO_X, CO, VOC or 10 tons per year for any one 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.

NESHAP Applicability (40 CFR 61)

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

GACT Applicability (40 CFR 63)

The facility has proposed to operate as a minor source of hazardous air pollutant (HAP) emissions, and is subject to the requirements of 40 CFR 63, Subpart HHHHHH–National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources. DEQ is not delegated this Subpart. Refer to the Title V Classification section for additional information.

40 CFR 63, Subpart HHHHHH ..... National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources

§ 60.11169 ..... What is the purpose of this subpart?

In accordance with §63.11169, subpart HHHHHH establishes national emission standards for hazardous air pollutants (HAP) for area sources involved in auto body refinishing operations that encompass motor vehicle and mobile equipment spray-applied surface coating operations.

§ 63.11170.....Am I subject to this subpart?

In accordance with §63.11170(a), this automotive 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 motor vehicles and mobile equipment including operations that are located in stationary structures at fixed locations

The facility has applied for an exemption from the EPA on July 8, 2018, however the facility has not received an approved or denied exemption letter during this project and is subject to this subpart pending the EPA's exemption letter. The facility shall comply with this regulation until the exemption is obtained.

40 CFR 63, Subpart MMMM .....National Emission Standards for Hazardous Air Pollutants For Surface Coating of Miscellaneous Metal Parts and Products

Gem State Manufacturing – Skyway performs surface coating of heavy equipment truck trailers. However, this rule affects a miscellaneous metal parts and products surface coating facility that uses 250 gallons per year or more of coatings that contain hazardous air pollutants and is a major source, or is located at a major source, or is part of a major source of HAP emissions. Although Gem State Manufacturing – Skyway uses more than 250 gallons per year of coatings that contain hazardous air pollutants, since Gen State Manufacturing – Skyway is not a major source of HAP emissions, this subpart does not apply to Gem State Manufacturing – Skyway.

40 CFR 63, Subpart XXXXXX .....National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Categories

Gem State Manufacturing – Skyway, heavy equipment truck trailers facility, are not included in the nine manufacturing subcategories regulated by this subpart. Their NAICS code is 336212 for" Truck Trailer Manufacturing".

Permit Conditions Review

This section describes the permit conditions for this initial permit.

PERMIT SCOPE

Initial Permit Condition 1.1 and Table 1.1

Permit Condition 1.1 and Table 1.1 describe the permitting action and regulated sources.

CUTTING AND WELDING FABRICATION

Initial Permit Condition 2.1 and 2.2 and Table 2.1

Permit conditions 2.1 and 2.2 and Table 2.1 describe the fabrication process, including plasma cutting, welding, and their emission controls. The facility met the requirements of maintaining a completely closed building during emission generating processes, to qualify for a 50% control efficiency towards the PM generated during the plasma cutting.

Initial Permit Condition 2.3

Permit condition 2.3 establishes the emission limits for plasma cutting and welding, including the various hand welders at the facility. The electrode rod use for hand welding is included in the annual WELDPRO360 welding as the hand welders and WELSPRO360 will generate the same emissions. The hourly and annual emissions are dependent upon the hourly and annual electrode use.

Initial Permit Condition 2.4

Permit condition 2.4 sets the opacity limit for the plasma cutting and welding process.

Initial Permit Condition 2.5

Permit condition 2.5 sets the daily and annual hour of operation limit for the plasma cutting and welding electrode rod use. The emissions generated from this process are derived from AP-42 Section 12.19 and 12 emission factors for the plasma cutting and welding. The emission factors were used with the facilities daily and annual operating hours to calculate the emissions generated from the plasma cutting and welding process.

Initial Permit Condition 2.6

Permit condition 2.6 lists the specific type of welding rod used to calculate the emissions generated from welding. This permit condition also defines how to demonstrate, "equivalent" welding rod in the event a different welding rod is used at the facility, to ensure the emission limits set in Permit Condition 2.3 will not be exceeded. Refer to Appendix A for the components of the welding electrode rod listed in this permit.

Initial Permit Condition 2.7

Permit condition 2.7 describes the filtration system for the plasma cutting and sets the standard for the minimum filter control efficiency, which was used in the calculation to determine the emissions generated due to plasma cutting.

Initial Permit Condition 2.8

Permit condition 2.8 establishes the permit condition for all shop doors and windows to remain closed during plasma cutting in order for the facility to use a 50.0% control efficiency for $PM_{2.5}/PM_{10}$emissions generated during this operation. IDEQ's Standard Operating Procedure, "Establishing Particulate Emission Control Efficiency Values For Building Enclosures When Used For Air Quality Permitting Of Stationary Sources".

Initial Permit Condition 2.9

Permit condition 2.9 explains what to record to demonstrate compliance with the plasma cutting and welding daily and annual hourly limits.

Initial Permit Condition 2.10

Permit condition 2.10 explains what to record and retain to demonstrate compliance with the welding rod type permit requirement.

Initial Permit Condition 2.11

Permit condition 2.11 establishes the records the permittee must maintain for the filters used in the fume extraction filtration system. This permit condition will also demonstrate compliance with the minimum filter control efficiency used to calculate the emissions generated due to the plasma cutting process.

Initial Permit Condition 2.12

Permit condition 2.12 sets the standard at which the filters for the fume extraction filtration system shall be checked and replaced, as well as required documentation to demonstrate compliance with the minimum filter control efficiency used to calculate the emissions generated due to the plasma cutting process.

Initial Permit Condition 2.13

Permit condition 2.13 establishes the timeframe of when the O&M Manual shall be developed and the requirements the O&M Manual shall manage for the fume extraction filtration system.

ABRASIVE BLASTING

Initial Permit Condition 3.1 and 3.2 and Table 3.1

Permit conditions 3.1 and 3.2 and Table 3.1 describe the abrasive blasting process along with the associated control device and emissions as presented by the applicant. The facility met the requirements of maintaining a completely closed building during emission generating processes, to qualify for a 50% control efficiency towards the PM generated during the abrasive blasting.

Initial Permit Condition 3.3

Permit condition 3.3 establishes the emission limits for abrasive blasting.

Initial Permit Condition 3.4

Permit condition 3.4 sets the opacity limit for the abrasive blasting process.

Initial Permit Condition 3.5

Permit condition 3.5 establishes the daily and annual media usage limit.

Initial Permit Condition 3.6

Permit condition 3.6 describes the filtration system for the abrasive blasting and sets the standard for the minimum filter control efficiencies, which was used in the calculation to determine the emissions generated due to abrasive blasting.

Initial Permit Condition 3.7

Permit condition 3.7 establishes the permit condition for all shop doors and windows to remain closed during abrasive blasting in order for the facility to use a 50.0% control efficiency for $PM_{2.5}/PM_{10}$ emissions generated during this operation. IDEQ's Standard Operating Procedure, "Establishing Particulate Emission Control Efficiency Values For Building Enclosures When Used For Air Quality Permitting Of Stationary Sources".

Initial Permit Condition 3.8

Permit condition 3.8 explains what to record to demonstrate compliance with the abrasive blasting media usage permit condition limit.

Initial Permit Condition 3.9

Permit condition 3.9 establishes the records the permittee must maintain for the filters used in the blast cleaning products filtration system. This permit condition will also demonstrate compliance with the minimum filter control efficiencies used to calculate the emissions generated due to the abrasive blasting.

Initial Permit Condition 3.10

Permit condition 3.10 sets the standard at which the filters for the blast cleaning products filtration system shall be checked and replaced, as well as required documentation to demonstrate compliance with the minimum filter control efficiency used to calculate the emissions generated due to the abrasive blasting.

Initial Permit Condition 3.11

Permit condition 3.11 establishes the timeframe of when the O&M Manual shall be developed and the requirements the O&M Manual shall manage for the blast cleaning products filtration system.

COATING OPERATIONS

Initial Permit Condition 4.1 and 4.2 and Table 4.1

Permit conditions 4.1 and 4.2 and Table 4.1 describe the coating operation along with the associated control device and emissions as presented by the applicant.

Initial Permit Condition 4.3

Permit condition 4.3 establishes the emission limits for the coating process.

Initial Permit Condition 4.4

Permit condition 4.4 sets the odorous gases limit for the coating process.

Initial Permit Condition 4.5

Permit condition 4.5 sets the opacity limit for the coating process.

Initial Permit Condition 4.6

Permit condition 4.6 sets the daily and annual material coating usage limit for each material listed in the emissions inventory used to calculate the emissions for the coating process. See Appendix A.

Initial Permit Condition 4.7

Permit condition 4.7 describes the material formulations for the material used in the emissions inventory. As well as the definition of, "equivalent" in the event a different primer or paint is used. This will ensure the emissions for the different material will not exceed the established emission limits which were set using the material formulations listed in permit condition 4.7. See Appendix A.

Initial Permit Condition 4.8

Permit condition 4.8 establishes the minimum control efficiency for the paint booth and, all coating operations shall be conducted inside the paint booth with an operating filter system.

Initial Permit Condition 4.9

Permit condition 4.9 lists the spray gun(s) or equivalent spray gun(s) the permittee shall use exclusively and the minimum control efficiency the spray gun(s) or equivalent spray gun(s) must have, as the transfer efficiency of the HVLP spray gun(s) directly affect the amount of emissions generated during the coating operation.

Initial Permit Condition 4.10

Permit condition 4.10 sets the odorous gases monitoring requirement to ensure compliance for Odors permit condition.

Initial Permit Condition 4.11

Permit condition 4.11 establishes the monitoring and record process to ensure compliance with the Coating Material Usage Limits permit condition.

Initial Permit Condition 4.12

Permit condition 4.12 establishes the monitoring and record process to ensure compliance with the Coating Material Formulations permit condition.

Initial Permit Condition 4.13

Permit condition 4.13 establishes the record process to ensure compliance with the minimum control efficiency required to demonstrate compliance with the Paint Booth Filters Operation permit condition.

Initial Permit Condition 4.14

Permit condition 4.14 establishes the record process to ensure compliance with the minimum transfer efficiency required to demonstrate compliance with the Spray Gun Operation permit condition.

Initial Permit Condition 4.15

Permit condition 4.15 sets the standard at which the filters for the coating filtration system shall be checked and replaced, as well as required documentation to demonstrate compliance with the minimum filter control efficiency used to calculate the emissions generated due to the coating operation.

Initial Permit Condition 4.16

Permit condition 4.16 establishes the timeframe of when the O&M Manual shall be developed and the requirements the O&M Manual shall manage for the coating operation filtration system.

COMBUSTION SOURCES

Initial Permit Condition 5.1 and 5.2 and Table 5.1

Permit conditions 5.1 and 5.2 and Table 5.1 describe the combustion sources at the facility along with the emissions as presented by the applicant.

Initial Permit Condition 5.3

Permit condition 5.3 establishes the emission limits for the combustion sources.

Initial Permit Condition 5.4

Permit condition 5.4 sets the opacity limit for the combustion sources.

Initial Permit Condition 5.5

Permit condition 5.5 sets the fuel burning equipment particulate matter limit which shall be released to the atmosphere. This is a state standard per IDAPA 58.01.01.676.

Initial Permit Condition 5.6

Permit condition 5.6 lists the allowable fuel as natural gas exclusively, as AP 42 Section 1.4 emission factors were used to determine emissions generated due to natural gas fired heaters only, and the allowable annual natural gas usage limit as presented by the applicant.

Initial Permit Condition 5.7

Permit condition 5.7 establishes the record process to ensure compliance with Fuel Usage permit condition.

GENERAL PROVISIONS

Initial Permit Condition 6.1

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 6.2

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 6.3

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 6.4

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

Initial Permit Condition 6.5

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 6.6

The notification of construction and operation provision requires that the permittee notify DEQ of the dates of construction and operation, in accordance with IDAPA 58.01.01.211.01 and 211.03.

Initial Permit Condition 6.7

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 6.8

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 6.9

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 6.10

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 6.11

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 6.12

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 6.13

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 6.14

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 6.15

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 6.16

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 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

Facility-wide Emissions (lb/hr)

Emission Sources	CO	NO_x	PM	PM10	PM2.5	SO_2	VOC	Lead	HAPs	CH_4	N_2O	CO_2	CO_2e
Spray Booth #1 Combustion	0.01	0.02	0.001	0.001	0.001	0.0001	0.00	8.09E-08	0.002	0.000	0.000	19	20
HVAC	0.408	0.485	0.015	0.015	0.015	0.003	0.027	2.43E-06	0.009	0.011	0.011	582.4	585.8
Coatings/Prep	---	---	1.35E-01	1.35E-01	1.35E-01	---	30.45	---	6.01	---	---	---	---
Welding	---	---	0.01	0.01	0.01	---	---	---	0.002	---	---	---	---
Plasma Cutting	---	0.22	6.89E-06	6.89E-06	6.89E-06	---	---	---	---	---	---	---	---
Abrasive Blasting	---	---	0.20	0.10	0.01	---	---	---	0.00	---	---	---	---
TOTAL	0.42	0.72	0.36	0.26	0.17	0.003	30.5	2.51E-06	6.0	0.0	0.0	601.8	605.3
Level I Modeling Threshold	15.0	0.2	N/A	0.22	0.054	0.21							
Level II Modeling Threshold	175.0	2.4	N/A	2.6	0.63	2.5							
		1.68E+00	0.676684020046001										

Facility-wide Emissions (tpy)

Emission Sources	CO	NO_x	PM	PM10	PM2.5	SO_2	VOC	Lead	HAPs	CH_4	N_2O	CO_2	CO_2e
Spray Booth #1 Combustion	0.02	0.02	0.002	0.002	0.002	0.000	0.00	1.05E-07	0.002	0.000	0.00	25	25
HVAC	0.530	0.631	0.048	0.048	0.048	0.0038	0.035	3.15E-06	0.012	0.015	0.014	757.1	761.6
Coatings/Prep	---	---	0.42	0.42	0.42	---	95.02	---	18.74	---	---	---	---
Welding	---	---	0.04	0.04	0.04	---	---	---	0.003	---	---	---	---
Plasma Cutting	---	0.28	8.96E-06	8.96E-06	8.96E-06	---	---	---	---	---	---	---	---
Abrasive Blasting	---	---	0.21	0.10	0.01	---	---	---	0.00	---	---	---	---
TOTAL	0.55	0.93	0.72	0.61	0.52	0.004	95.05	3.26E-06	18.8	0.0	0.0	782.3	786.9
Level I Modeling Threshold	N/A	1.2	N/A	N/A	0.35	1.2	N/A						
Level II Modeling Threshold	N/A	14	N/A	N/A	4.1	14	N/A						
Below Regulatory Concern Threshold	10	4.0	2.5	1.5	1.0	4.0	4.0						

Pollutant	Potential TAP Emissions (lb/hr)	(tpy)	IDAPA EL (lb/hr)	Exceeds IDAPA EL (Yes/No)
Benzene	3.53E-06	1.55E-05	8.00E-04	No
Formaldehyde	1.26E-04	5.52E-04	5.10E-04	No
Toluene	3.46E+00	4.29E+00	2.50E+01	No
2-Methylnaphthalene	4.03E-08	1.77E-07	9.10E-05	No
3-Methylchloranthrene	3.02E-09	1.32E-08	9.10E-05	No
7,12-Dimethylbenz(a)anthracene	2.69E-08	1.18E-07	9.10E-05	No
Acenaphthylene	3.02E-09	1.32E-08	9.10E-05	No
Benzo[a]pyrene	2.02E-09	8.83E-09	2.00E-06	No
Benzo[b]fluoranthene	3.02E-09	1.32E-08	2.00E-06	No
Benzo[k]fluoranthene	3.02E-09	1.32E-08	2.00E-06	No
Dibenz(a,h)anthracene	2.02E-09	8.83E-09	2.00E-06	No
Dichlorobenzene	2.83E-06	8.83E-06	3.00E+01	No
Hexane	4.25E-03	1.32E-02	1.20E+01	No
Naphthalene	1.44E-06	4.49E-06	3.33E+00	No
Acenaphthene	3.02E-09	1.32E-08	9.10E-05	No
Anthracene	4.03E-09	1.77E-08	9.10E-05	No
Benzo[a]anthracene	3.02E-09	1.32E-08	2.00E-06	No
Benzo[g,h,i]perylene	2.02E-09	8.83E-09	9.10E-05	No
Chrysene	3.02E-09	1.32E-08	2.00E-06	No
Fluoranthene	5.04E-09	2.21E-08	9.10E-05	No
Fluorene	4.71E-09	2.06E-08	9.10E-05	No
Indeno(1,2,3-cd)pyrene	3.02E-09	1.32E-08	2.00E-06	No
Phenanthrene	2.86E-08	1.25E-07	9.10E-05	No
Pyrene	6.13E-09	1.91E-02	1.19E+02	No
Toluene	8.40E-09	3.68E-08	9.10E-05	No
Acetone	1.02E+01	1.23E+01	1.19E+02	No
n-Butyl acetate	1.32E+01	1.72E+01	4.73E+01	No
Carbon black	1.20E-02	1.56E-02	2.30E-01	No
Diiron trioxide (iron oxide fume)	3.01E-02	3.91E-02	3.33E-01	No
Ethanol (ethyl alcohol)	7.93E-01	1.03E+00	1.25E+02	No
Ethylbenzene	2.18E-01	2.48E-01	2.90E+01	No
hexamethylene-di-isocyanate	1.93E-03	2.51E-03	2.00E-03	No
Limestone (calcium carbonate)	1.49E-02	1.55E-02	6.67E-01	No
Heptan-2-one (methyl n-amly ketone)	1.04E+01	1.04E+01	1.57E+01	No
Butanone (methyl ethyl ketone)	6.61E+00	8.59E+00	3.93E+01	No
2-methoxy-1-methylethyl acetate	6.61E+00	8.59E+00	2.40E+01	No
4-methylpentan-2-one	2.45E+00	2.55E+00	1.37E+01	No
butan-1-ol (n-Butyl alcohol)	6.02E-01	6.26E-01	1.00E+01	No
ethylenediamine	9.51E-02	9.89E-02	1.67E+00	No
Crystalline silica powder	7.44E-04	7.74E-04	6.70E-03	No
2-butoxyethanol	1.15E+00	1.20E+00	8.00E+00	No
1-methoxy-2-propanol (propylene glycol monom	5.70E-01	5.93E-01	2.40E+01	No
xylene	2.36E-01	2.46E-01	2.90E+01	No
text-butyl acetate	3.34E+00	3.47E+00	6.33E+01	No
Stoddard Solvent	7.93E-01	1.03E+00	3.50E+01	No
Aluminum powder	6.01E-03	7.82E-03	3.33E-01	No
Arsenic	3.36E-07	1.42E-06	1.50E-06	No
Barium	1.04E-05	3.24E-05	3.30E-02	No
Beryllium	2.02E-08	8.83E-08	2.80E-05	No
Cadmium	1.85E-06	8.10E-06	3.70E-06	No
Chromium	2.91E-05	9.09E-05	3.30E-02	No
Chromium(VI)	0.00E+00	0.00E+00	5.60E-07	No
Cobalt	2.60E-05	8.12E-05	3.30E-03	No
Copper	2.01E-06	6.26E-06	6.70E-02	No
Iron oxide fume	4.82E-06	6.27E-06	3.33E-01	No
Manganese	1.06E-02	2.81E-02	3.33E-01	No
Molybdenum	2.59E-06	8.10E-06	3.33E-01	No
Nickel	2.19E-05	9.61E-05	2.70E-05	No
Phosphorus	6.99E-05	7.27E-05	7.00E-03	No
Selenium	5.66E-08	1.77E-07	1.30E-02	No
Silicon	3.50E-04	3.64E-04	6.67E-01	No
Vanadium	5.43E-06	1.69E-05	3.00E-03	No
Zinc	6.84E-05	2.13E-04	6.67E-01	No
POM	1.92E-08	8.39E-08	2.00E-06	No

Mercury (lb/hr)	1.47E-06	
Mercury (tpy)	1.91E-06	3.83E-03

Heater Emission Factors

Pollutant	Emission Factor lb/MMscf	EF Source
CO	84	AP-42 Table 1.4-1 (Small Boilers <100 MMBtu/hr))
NOx	100	AP-42 Table 1.4-1 (Small Boilers <100 MMBtu/hr)
Lead	0.0005	AP-42 Table 1.4-2
SOx	0.6	AP-42 Table 1.4-2
VOCs	5.5	AP-42 Table 1.4-2
PM	7.6	AP-42 Table 1.4-2
CO2	120,000	AP-42 Table 1.4-2
N20	2.2	AP-42 Table 1.4-2
Methane	2.3	AP-42 Table 1.4-2

Heater PTE

Heater ID	Heater Capacity	Recirculation Exhaust Reduction	Operating Hours**	CO		NO_x		Lead		SO_x		VOC		$PM/PM_{10}/PM_{2.5}$		CO_2		N_2O		CH_4		CO_2e	
	MMscf/hr	%	(hours/year)	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Curing Room Heater/AMU	0.0008	80	2600	0.014	0.018	0.016	0.021	8.09E-09	1.05E-07	9.71E-05	1.26E-04	8.90E-04	0.001	0.0005	0.003	19.4	25.235	3.56E-04	4.63E-04	3.72E-04	4.84E-04	19.5	25.365
Total				0.014	0.018	0.016	0.021	8.09E-09	1.05E-07	0.0001	0.000	0.001	0.001	0.001	0.002	19.4	25	3.56E-04	4.63E-04	3.72E-04	4.84E-04	19.5	25

**Facility will operate one (1) 10-hour shift per day/5 days per week. Therefore, for pollutants with a 24-hour standard, the maximum lb/hr emission rate will be multiplied by a ratio of 10/24

Recirculation of exhaust is inherent to the operation of the heater/air makeup unit, and therefore is not considered as a control

Natural Gas Heaters Potential HAP and TAP Emissions

Fuel Usage (Total All Heaters)	0.0008 MMscf/hr
Hours of Operation Per Year	2,600 hours/year

Pollutant	HAP?	Non-Carcinogenic TAP?	Carcinogenic TAP?	Natural Gas Combustion Emission Factor[1] (lb/MMscf)	Potential HAP Emissions (lb/hr)	Potential HAP Emissions (tpy)	Potential TAP Emissions (lb/hr)	Potential TAP Emissions (tpy)
Benzene	Yes	No	Yes	2.10E-03	1.70E-06	2.21E-06	5.04E-07	2.21E-06
Formaldehyde	Yes	No	Yes	7.50E-02	6.07E-05	7.89E-05	1.80E-05	7.89E-05
Toluene	Yes	Yes	No	3.40E-03	2.75E-06	3.58E-06	1.15E-06	3.58E-06
2-Methylnaphthalene	Yes	No	Yes	2.40E-05	1.94E-08	2.52E-08	5.76E-09	2.52E-08
3-Methylchloranthrene	Yes	No	Yes	1.80E-06	1.46E-09	1.89E-09	4.32E-10	1.89E-09
7,12-Dimethylbenz(a)anthracene	Yes	No	Yes	1.60E-05	1.29E-08	1.68E-08	3.84E-09	1.68E-08
Acenaphthylene	Yes	No	Yes	1.80E-06	1.46E-09	1.89E-09	4.32E-10	1.89E-09
Benzo(a)pyrene	Yes	No	Yes	1.20E-06	9.71E-10	1.26E-09	2.88E-10	1.26E-09
Benzo(b)fluoranthene	Yes	No	Yes	1.80E-06	1.46E-09	1.89E-09	4.32E-10	1.89E-09
Benzo(k)fluoranthene	Yes	No	Yes	1.80E-06	1.46E-09	1.89E-09	4.32E-10	1.89E-09
Dibenzo(a,h)anthracene	Yes	No	Yes	1.20E-06	9.71E-10	1.26E-09	2.88E-10	1.26E-09
Dichlorobenzene	Yes	Yes	No	1.20E-03	9.71E-07	1.26E-06	4.04E-07	1.26E-06
Hexane	Yes	Yes	No	1.80E+00	1.46E-03	1.89E-03	6.07E-04	1.89E-03
Naphthalene	Yes	Yes	No	6.10E-04	4.93E-07	6.41E-07	2.06E-07	6.41E-07
Acenaphthene	Yes	No	Yes	1.80E-06	1.46E-09	1.89E-09	4.32E-10	1.89E-09
Anthracene	Yes	No	Yes	2.40E-06	1.94E-09	2.52E-09	5.76E-10	2.52E-09
Benzo(a)anthracene	Yes	No	Yes	1.80E-06	1.46E-09	1.89E-09	4.32E-10	1.89E-09
Benzo(g,h,i)perylene	Yes	No	Yes	1.20E-06	9.71E-10	1.26E-09	2.88E-10	1.26E-09
Chrysene	Yes	No	Yes	1.80E-06	1.46E-09	1.89E-09	4.32E-10	1.89E-09
Fluoranthene	Yes	No	Yes	3.00E-06	2.43E-09	3.15E-09	7.20E-10	3.15E-09
Fluorene	Yes	No	Yes	2.80E-06	2.26E-09	2.94E-09	6.72E-10	2.94E-09
Indeno(1,2,3-cd)pyrene	Yes	No	Yes	1.80E-06	1.46E-09	1.89E-09	4.32E-10	1.89E-09
Phenanthrene	Yes	No	Yes	1.70E-05	1.38E-08	1.79E-08	4.08E-09	1.79E-08
Pentane	No	Yes	No	2.60E+00	-	-	8.76E-04	2.73E-03
Pyrene	Yes	No	Yes	5.00E-06	4.04E-09	5.26E-09	1.20E-09	5.26E-09
Arsenic	Yes	No	Yes	2.00E-04	1.62E-07	2.10E-07	4.80E-08	2.10E-07
Barium	No	Yes	No	4.40E-03	-	-	1.48E-06	4.63E-06
Beryllium	Yes	No	Yes	1.20E-05	9.71E-09	1.26E-08	2.88E-09	1.26E-08
Cadmium	Yes	No	Yes	1.10E-03	8.90E-07	1.16E-06	2.64E-07	1.16E-06
Chromium	Yes	Yes	Yes	1.40E-03	1.13E-06	1.47E-06	4.72E-07	1.47E-06
Cobalt	Yes	Yes	No	8.40E-05	6.79E-08	8.83E-08	2.83E-08	8.83E-08
Copper	No	Yes	No	8.50E-04	-	-	2.86E-07	8.94E-07
Lead	Yes	No	No	5.00E-04	4.04E-07	5.26E-07	-	-
Manganese	Yes	Yes	No	3.80E-04	3.07E-07	4.00E-07	1.28E-07	4.00E-07
Mercury	Yes	No	No	2.60E-04	2.10E-07	2.73E-07	-	-
Molybdenum	No	Yes	No	1.10E-03	-	-	3.71E-07	1.16E-06
Nickel	Yes	No	Yes	2.10E-03	1.70E-06	2.21E-06	5.04E-07	2.21E-06
Selenium	Yes	Yes	No	2.40E-05	1.94E-08	2.52E-08	8.09E-09	2.52E-08
Vanadium	No	Yes	No	2.30E-03	-	-	7.75E-07	2.42E-06
Zinc	No	Yes	No	2.90E-02	-	-	9.77E-06	3.05E-05
POM	Yes	No	Yes	n/a	9.22E-09	1.20E-08	2.74E-09	1.20E-08
Maximum Individual HAP					**0.001**	**0.00**	**0.001**	**0.00**
Total HAP					**0.002**	**0.002**	**0.002**	**0.00**

[1] AP-42 Section 1.4 Natural Gas Combustion, Tables 1.4-3 and 1.4-4 (7/98).

* Facility will operate one (1) 10-hour shifts per day/5 days per week. Therefore, for TAPs with a 24-hour standard, the maximum lb/hr emission rate will be multiplied by a ratio of 10/24.

** The curing room heater will operate a maximum of 2600 hrs/year. Therefore, for TAPs with an annual ambient standard, the maximum lb/hr emission rate will be multiplied by a ratio of 2600/8760.

HVAC Emission Factors

Pollutant	Emission Factor lb/MMscf	EF Source
CO	84	AP-42 Table 1.4-1 (Small Boilers <100 MMBtu/hr)
NOx	100	AP-42 Table 1.4-1 (Small Boilers <100 MMBtu/hr)
Lead	0.0005	AP-42 Table 1.4-2
SOx	0.6	AP-42 Table 1.4-2
VOCs	5.5	AP-42 Table 1.4-2
PM	7.6	AP-42 Table 1.4-2
CO2	120,000	AP-42 Table 1.4-2
N20	2.2	AP-42 Table 1.4-2
Methane	2.3	AP-42 Table 1.4-2

Heater PTE

Heater ID	Heater Capacity	Operating Hours	CO		NO_x		Lead		SO_x		VOC		$PM/PM_{10}/PM_{2.5}$		CO_2		N_2O		CH_4		CO_2e	
	MMscf/hr	(hours/year)	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
HVAC Unit 1 (main building)	0.0024	2600	0.204	0.265	0.243	0.315	1.21E-06	1.58E-06	1.46E-03	1.89E-03	1.33E-02	0.017	0.0077	0.024	291.2	378.529	5.34E-03	6.94E-03	5.58E-03	7.26E-03	292.9	380.779
HVAC Unit 2 (main building)	0.0024	2600	0.204	0.265	0.243	0.315	1.21E-06	1.58E-06	1.46E-03	1.89E-03	1.33E-02	0.017	0.0077	0.024	291.2	378.529	5.34E-03	6.94E-03	5.58E-03	7.26E-03	292.9	380.779
Total			0.408	0.530	0.485	0.631	2.43E-06	3.15E-06	0.003	0.004	0.027	0.035	0.015	0.048	582.353	757.059	0.011	0.014	0.011	0.015	585.814	761.558

*Facility will operate one (1) 10-hour shifts per day/5 days per week. Therefore, for pollutants with a 24-hour standard, the maximum lb/hr emission rate will be multiplied by a ratio of 10/24.

All three of these HVAC units are direct-fired units and will not exhaust combustion emissions to the atmosphere.

Natural Gas Heaters Potential HAP and TAP Emissions

Fuel Usage (Total All HVAC)	0.0049 MMscf/hr
Hours of Operation Per Year	2,600 hours/year

Pollutant	HAP?	Non-Carcinogenic TAP?	Carcinogenic TAP?	Natural Gas Combustion Emission Factor[1] (lb/MMscf)	Potential HAP Emissions (lb/hr)	Potential HAP Emissions (tpy)	Potential TAP Emissions (lb/hr)	Potential TAP Emissions (tpy)
Benzene	Yes	No	Yes	2.10E-03	1.02E-05	1.32E-05	3.02E-06	1.32E-05
Formaldehyde	Yes	No	Yes	7.50E-02	3.64E-04	4.73E-04	1.08E-04	4.73E-04
Toluene	Yes	Yes	No	3.40E-03	1.65E-05	2.15E-05	6.88E-06	2.15E-05
2-Methylnaphthalene	Yes	No	Yes	2.40E-05	1.16E-07	1.51E-07	3.46E-08	1.51E-07
3-Methylchloranthrene	Yes	No	Yes	1.80E-06	8.74E-09	1.14E-08	2.59E-09	1.14E-08
7,12-Dimethylbenz(a)anthracene	Yes	No	Yes	1.60E-05	7.76E-08	1.01E-07	2.30E-08	1.01E-07
Acenaphthylene	Yes	No	Yes	1.80E-06	8.74E-09	1.14E-08	2.59E-09	1.14E-08
Benzo(a)pyrene	Yes	No	Yes	1.20E-06	5.82E-09	7.57E-09	1.73E-09	7.57E-09
Benzo(b)fluoranthene	Yes	No	Yes	1.80E-06	8.74E-09	1.14E-08	2.59E-09	1.14E-08
Benzo(k)fluoranthene	Yes	No	Yes	1.80E-06	8.74E-09	1.14E-08	2.59E-09	1.14E-08
Dibenzo(a,h)anthracene	Yes	No	Yes	1.20E-06	5.82E-09	7.57E-09	1.73E-09	7.57E-09
Dichlorobenzene	Yes	Yes	No	1.20E-03	5.82E-06	7.57E-06	2.43E-06	7.57E-06
Hexane	Yes	Yes	No	1.80E+00	8.74E-03	1.14E-02	3.64E-03	1.14E-02
Naphthalene	Yes	Yes	No	6.10E-04	2.96E-06	3.85E-06	1.23E-06	3.85E-06
Acenaphthene	Yes	No	Yes	1.80E-06	8.74E-09	1.14E-08	2.59E-09	1.14E-08
Anthracene	Yes	No	Yes	2.40E-06	1.16E-08	1.51E-08	3.46E-09	1.51E-08
Benzo(a)anthracene	Yes	No	Yes	1.80E-06	8.74E-09	1.14E-08	2.59E-09	1.14E-08
Benzo(g,h,i)perylene	Yes	No	Yes	1.20E-06	5.82E-09	7.57E-09	1.73E-09	7.57E-09
Chrysene	Yes	No	Yes	1.80E-06	8.74E-09	1.14E-08	2.59E-09	1.14E-08
Fluoranthene	Yes	No	Yes	3.00E-06	1.46E-08	1.89E-08	4.32E-09	1.89E-08
Fluorene	Yes	No	Yes	2.80E-06	1.36E-08	1.77E-08	4.03E-09	1.77E-08
Indeno(1,2,3-cd)pyrene	Yes	No	Yes	1.80E-06	8.74E-09	1.14E-08	2.59E-09	1.14E-08
Phenanthrene	Yes	No	Yes	1.70E-05	8.25E-08	1.07E-07	2.45E-08	1.07E-07
Pentane	No	Yes	No	2.60E+00	-	-	5.26E-03	1.64E-02
Pyrene	Yes	No	Yes	5.00E-06	2.43E-08	3.15E-08	7.20E-09	3.15E-08
Arsenic	Yes	No	Yes	2.00E-04	9.71E-07	1.26E-06	2.88E-07	1.26E-06
Barium	No	Yes	No	4.40E-03	-	-	8.90E-06	2.78E-05
Beryllium	Yes	No	Yes	1.20E-05	5.82E-08	7.57E-08	1.73E-08	7.57E-08
Cadmium	Yes	No	Yes	1.10E-03	5.34E-06	6.94E-06	1.58E-06	6.94E-06
Chromium	Yes	Yes	Yes	1.40E-03	6.79E-06	8.83E-06	2.83E-06	8.83E-06
Cobalt	Yes	Yes	No	8.40E-05	4.08E-07	5.30E-07	1.70E-07	5.30E-07
Copper	No	Yes	No	8.50E-04	-	-	1.72E-06	5.36E-06
Lead	Yes	No	No	5.00E-04	2.43E-06	3.15E-06	-	-
Manganese	Yes	Yes	No	3.80E-04	1.84E-06	2.40E-06	7.68E-07	2.40E-06
Mercury	Yes	No	No	2.60E-04	1.26E-06	1.64E-06	-	-
Molybdenum	No	Yes	No	1.10E-03	-	-	2.22E-06	6.94E-06
Nickel	Yes	No	Yes	2.10E-03	1.02E-05	1.32E-05	3.02E-06	1.32E-05
Selenium	Yes	Yes	No	2.40E-05	1.16E-07	1.51E-07	4.85E-08	1.51E-07
Vanadium	No	Yes	No	2.30E-03	-	-	4.65E-06	1.45E-05
Zinc	No	Yes	No	2.90E-02	-	-	5.86E-05	1.83E-04
POM	Yes	No	Yes	n/a	5.53E-08	7.19E-08	1.64E-08	7.19E-08
Maximum Individual HAP					**0.009**	**0.01**	**0.005**	**0.02**
Total HAP					**0.009**	**0.012**	**0.009**	**0.03**

[1] AP-42 Section 1.4 Natural Gas Combustion, Tables 1.4-3 and 1.4-4 (7/98).

* Facility will operate one (1) 10-hour shifts per day/5 days per week. Therefore, for TAPs with a 24-hour standard, the maximum lb/hr emission rate will be multiplied by a ratio of 10/24.

** Assume HVAC system will operate a maximum of 1300 hrs/year each. Therefore, for TAPs with an annual ambient standard, the maximum lb/hr emission rate will be multiplied by a ratio of 2600/8760.

Welding Emission Factors

Pollutant	Emission Factor lb/10^3 lb	EF Source
PM10	5.2	AP-42 Table 12.19-1 (GMAW, E70S Electrode)

Welding PTE

Welder ID	Electrode Usage	PM10	
	10^3 lb/hr	lb/hr	tpy
Welder (All)	0.0062	0.013	0.042
Total	**0.0062**	**0.013**	**0.042**

Electrode usage is usage for all welders at the facility.

*Facility will operate one (1) 10-hour shifts per day/5 days per week. Therefore, for pollutants with a 24-hour standard, the maximum lb/hr emission rate will be multiplied by a ratio of 10/24.

Welding emissions exhaust inside the building, and are therefore considered fugitive emissions. The WELDPRO 360 welding units are equipped with a fume extraction system; however the emissions calculations presented do not include control from the system.
Type of welding wire is E70C-6M H4, not included in AP-42. Use EF for E70S electrode.

Welding Potential HAP and TAP Emissions

Electrode Usage (Total All Welding)	0.0062 10^3 lb/hr
Hours of Operation Per Year	2,600 hours/year

Pollutant	HAP?	Non-Carcinogenic TAP?	Carcinogenic TAP?	Welding Emission Factor[1] (10^{-1} lb/10^3 lb)	Potential HAP Emissions (lb/hr)	Potential HAP Emissions (tpy)	Potential TAP Emissions (lb/hr)	Potential TAP Emissions (tpy)
Chromium	Yes	Yes	Yes	1.00E-02	6.20E-06	8.06E-06	2.58E-05	8.06E-05
Chromium(VI)	Yes	Yes	Yes	ND				
Cobalt	Yes	Yes	No	1.00E-02	6.20E-06	8.06E-06	2.58E-05	8.06E-05
Lead	Yes	No	No	ND				
Manganese	Yes	Yes	No	3.18E+00	1.97E-03	2.56E-03	8.22E-03	2.56E-02
Nickel	Yes	No	Yes	1.00E-02	6.20E-06	8.06E-06	1.84E-05	8.06E-05
Maximum Individual HAP					**1.97E-03**	**2.56E-03**	**8.22E-03**	**2.56E-02**
Total HAP					**1.99E-03**	**2.59E-03**	**8.29E-03**	**2.59E-02**

[1] AP-42 Section 12.19-2 Electric Arc Welding, Tables 12.19-2 (1/95).

* Facility will operate one (1) 10-hour shift per day/5 days per week. Therefore, for TAPs with a 24-hour standard, the maximum lb/hr emission rate will be multiplied by a ratio of 10/24.

Welding emissions exhaust inside the building, and are therefore considered fugitive emissions. The WELDPRO 360 welding units are equipped with a fume extraction system; however the emissions calculations presented do not include control from the system.

Type of welding wire is E70C-6M H4, not included in AP-42. Use EF for E70S electrode.

Fume Emission Rate, 1-hr	6.89E-06	lb/hr
NO_x Emission Rate, 1-hr	2.16E-01	lb/hr [2]

Plasma Cuttting Emissions

	PM_{10}		NO_x	
Activity	**lb/hr**	**tpy [3]**	**lb/hr**	**tpy [3]**
Plasma cutting	6.89E-06	8.96E-06	2.16E-01	2.80E-01
Total	**6.89E-06**	**8.96E-06**	**2.16E-01**	**2.80E-01**

[1] Emission factor reference: Broman B. et al, The Swedish Institute of Production Engineering Research., March 1994. Average emission factor for wet cutting 8mm mild steel.

[2] NOx fume production assumes average emission factor for wet cutting 8mm mild steel (1.05 L/min). Assumed average density of NO (1.226 g/L) and NO_2 (1.88 g/L).

[3] Based on annual usage and maximum operating hours; 10hr/day; 5day/wk; 52 wk/yr = 2600 hr/yr

*Facility will operate one (1) 10-hour shifts per day/5 days per week. Therefore, for pollutants with a 24-hour standard, the maximum lb/hr emission rate will be multiplied by a ratio of 10/24.

The CNC plasma table is equipped with a CMAXX downdraft fume extraction system with internal baghouses; the unit exhausts inside the building. The CMAXX fume extraction system provides 99.9% control of particulate emissions.

Plasma Cuttting TAPs Emissions

PM emissions		6.89E-06	lb/hr			
Pollutant[1]	**Concentration (wt %)**	**Non-Carcinogenic TAP?**	**Carcinogenic TAP?**	**Potential TAP Emissions Emissions (lb/hr)**	**Potential TAP Emissions Emissions (tpy)**	**EL (lb/hr)**
Iron oxide fume (Fe)	70	Yes	No	4.82E-06	6.27E-06	3.33E-01

[1] Emission factor reference: Broman B. et al, The Swedish Institute of Production Engineering Research., March 1994. Component in fumes from mild steel: metal oxides with 67-73% iron, 2-10% manganese and copper from ND to 1.4%. Manganese oxide and copper oxide are not IDAPA TAPs.

Blasting Emission Factors

Pollutant	Emission Factor lb/1,000 lb abrasive*	EF Source
PM	3	AP-42 Table 13.2.6-1 5 mph wind speed
PM	5.5	AP-42 Table 13.2.6-1 10 mph wind speed
PM	9.1	AP-42 Table 13.2.6-1 15 mph wind speed
PM-10	1.3	AP-42 Table 13.2.6-1
PM-2.5	0.1	AP-42 Table 13.2.6-1

*Limited data from Reference 3 give a comparison of total PM emissions from abrasive blasting using various media. The study indicates that, on the basis of tons of abrasive used, total PM emissions from abrasive blasting using grit are about 24 percent of total PM emissions from abrasive blasting with sand. The study also indicates that total PM emissions from abrasive blasting using shot are about 10 percent of total PM emissions from abrasive blasting with sand. Since Gem State will use steel shot, the EF's from AP-42 for sand blasting have been reduced by 90%.

Abrasive Blasting PTE

Blasting ID	Abrasive Usage 10^3 lb/hr	Operating Hours (hours/year)	PM		PM10		PM2.5	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Semi-automated Blasting	88.8	2080	0.200	0.208	0.096	0.100	9.62E-03	1.00E-02
Total			**0.200**	**0.208**	**0.096**	**0.100**	**9.62E-03**	**1.00E-02**

*Facility will operate one (1) 10-hour shifts per day/5 days per week. However, semi-automated blasting will be conducted 8 hours per day. Therefore, for pollutants with a 24-hour standard, the maximum lb/hr emission rate will be multiplied by a ratio of 8/24.

Semi-automated blasting is controlled by a primary MERV 15 filter and a secondary safety MERV 16 filter and occurs inside building. Filter control efficiency for a MERV 15 filter for particle size 0.3 to 1.0 um = 85-94.9%; particle size 1.0 to 3.0 um = >90%; particle size 3.0 to 10.0 um = >90%. Filter control efficiency for a MERV 16 filter for all particle sizes = greater than or equal to 95%. Assume an additional 50% control from building enclosure.

0.0025

Since semi-automated blasting is conducted indoors, the 5 mph PM emission factor was used.

0.9975 0.0962

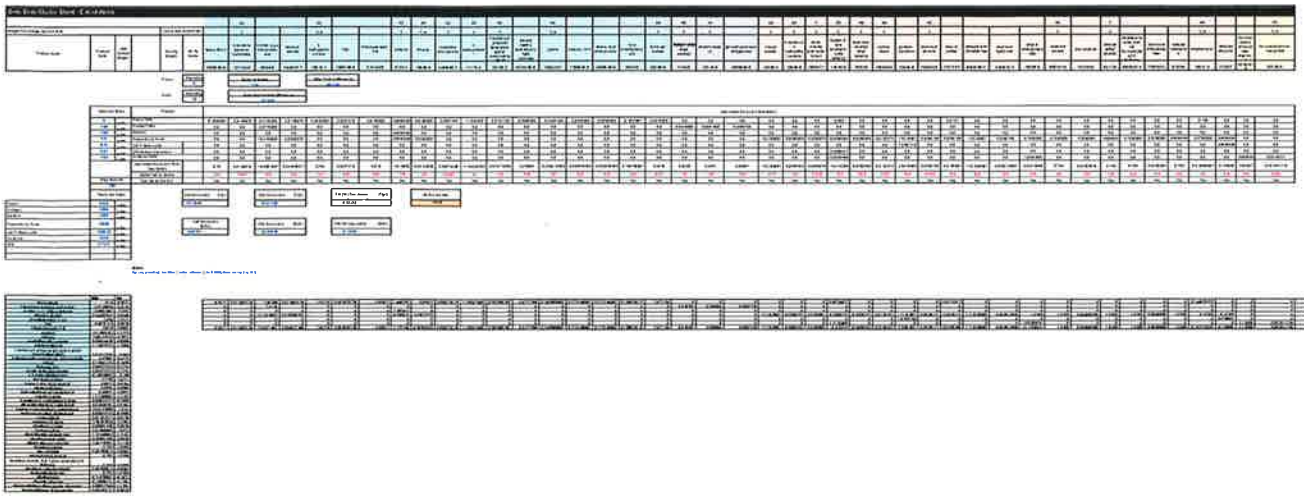
Abrasive Blasting TAPs PTE

PM emissions			0.20 lb/hr			
Pollutant	Concentration (wt %)	Non-Carcinogenic TAP?	Carcinogenic TAP?	Potential TAP Emissions [1] (lb/hr)	Potential TAP Emissions (tpy)	EL (lb/hr)
Iron oxide fume (Fe)[2]	96	Yes	No	-	-	-
Manganese	1.18	Yes	No	2.35E-03	2.44E-03	3.33E-01
Silicon	0.18	Yes	No	3.50E-04	3.64E-04	6.67E-01
Phosphorus	0.04	Yes	No	6.99E-05	7.27E-05	7.00E-03

[1] Semi-automated blasting is controlled by a primary MERV 15 filter and a secondary safety MERV 16 filter and occurs inside building. Filter control efficiency for a MERV 15 filter for particle size 0.3 to 1.0 um = 85-94.9%; particle size 1.0 to 3.0 um = >90%; particle size 3.0 to 10.0 um = >90%. Filter control efficiency for a MERV 16 filter for all particle sizes = greater than or equal to 95%. Assume an additional 50% control from building enclosure.

[2] Iron is listed as a TAP in the form of Iron oxide fume (Fe2O3). The weight percent shown is for Iron. Iron oxide fume is formed when Iron oxide is heated to high temperatures. Since the abrasive blasting is not a heated process iron oxide fumes are not expected to be formed.

Pollutant concentration information from SDS for Low Carbon Cast Steel Shot, Maltec Steel Abrasive Co.



Gem State Primers

						NC			NC			NC	NC	NC	NC	NC	NC		NC				NC		NC	
Weight Percentage Content Data				TAP & HAP INDICATOR			T			T, H			T	T, H	T	T	T	T		T, H				T		T, H
Product Name	Product Code	VOC Content (lb/gal)		Density (lb/gal)	Wt. % Solids	Epoxy Resin	Limestone (calcium carbonate)	[illegible]	titanium dioxide	[illegible]	Talc	[illegible]	acetone	toluene	crystalline silica powder	[illegible]	[illegible]	[illegible]	[illegible]	xylene	Ketones, C11	Acetic Acid ethenyl ester	[illegible]	[illegible]	barium sulfate	Ethylbenzene
						[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	111-76-2	[illegible]	107-98-2	64742-95-6	1330-20-7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	100-41-4
VOC Spray Primer	[illegible]	[illegible]		10.43	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.00%	6.30%	[illegible]	4.10%	3.30%	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.00%
3.1 VOC White Epoxy Primer	[illegible]	[illegible]		12.27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.00%											
3.1 VOC Gray Epoxy Primer	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.00%											

Wight Calculations																											HAPS
VOC Spray Primer	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.28
3.1 VOC White Epoxy Primer	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.45
3.1 VOC Gray Epoxy Primer	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.28
Maximum VOC Content (lb/gal)	[illegible]	Maximum Density (lb/gal)	12.27		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Weighted Avg wt %			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Minimum Density (lb/gal)	10.43																								

Daily Use Rates	
4	[illegible]
8	[illegible]
12	[illegible]
24	[illegible]

Factor of Safety
[illegible]

Filter Control Efficiency
[illegible]

Paint Gun Transfer Efficiency
[illegible]

Calculated Emissions Rate (lb/hr)	11.4111	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IDAPA TAP EL (lb/hr)		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Meets the ELT		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Annual Use Rate (gal/yr)
[illegible]

HAP Emissions (T/yr)	VOC Emissions (T/yr)	PM (10) Calculation (T/yr)	All ELs Are Met
[illegible]	[illegible]	[illegible]	TRUE

HAP Emissions (lb/hr)	VOC Emissions (lb/hr)	PM (10) Calculation (lb/hr)
[illegible]	[illegible]	[illegible]

Gem State Primers

							NC	NC	
Weight Percentage Content Data				TAP & HAP INDICATOR			T	T	
Product Name	Product Code	VOC Content (lb/gal)		Density (lb/gal)	Wt % Solids	4-chlor-a,a,a-trifluorotoluene	butan-1-ol (n-Butyl alcohol)	ethylenediamine	[(dimethylamino)methyl]phenol
						98-56-6	71-36-3	107-15-3	25338-55-0
Low Cure Catalyst	GXM350	6.31		9.51	33.65%	75.00%	18.00%	3.00%	2.10%
lb/gal Calculations									HAPS
Low Cure Catalyst	GXM350				3.20	7.13	1.81	0.29	0.20	
Maximum VOC Content (lb/gal)	6.30989		Maximum Density (lb/gal)	9.51	3.20	7.13	1.81	0.29	0.20	0.00
			Weighted Avg wt %		0.34	0.75	0.19	0.03	0.02	0.00
			Minimum Density (lb/gal)	9.51						

Daily Use Rates	
1.00	gal/hr
8	hr/day
8	gal/day
24	hr/day (averaging period)

Factor of Safety
1.00

Filter Control Efficiency
98.70%

Paint Gun Transfer Efficiency
65.00%

Calculated Emissions Rate (lb/hr)	1.066705	2.3775	0.6023	0.0951	0.08657
IDAPA TAP EL (lb/hr)		N/A	10	1.67	N/A
Meets the EL?		Yes	Yes	Yes	Yes

Annual Use Rate (gal/yr)
2080

HAP Emissions (T/yr)
0.00000

VOC Emissions (T/yr)
0.56228

PM (10) Calculation (T/yr)
0.01514

All ELs Are Met
TRUE

HAP Emissions (lb/hr)
0.00000

VOC Emissions (lb/hr)
2.10330

PM (10) Calculation (lb/hr)
0.00485

Gem State Primers

						NC		
Weight Percentage Content Data				TAP & HAP INDICATOR		T		
Product Name	Product Code	VOC Content (lb/gal)		Density (lb/gal)	Wt. % Solids	acetone		
						67-64-1		
Acetone		6.59		6.59	0.00%	100.00%		
lb/gal Calculations								HAPS
Acetone	0				0.00	6.59	0.00	
0	0				0.00	0.00	0.00	
Maximum VOC Content (lb/gal)	6.59255		Maximum Density (lb/gal)	6.59	0.00	6.59	0.00	
			Weighted Avg wt %		0.00	1.00	0.00	
			Minimum Density (lb/gal)	6.59				

Daily Use Rates	
1.00	gal/hr
8	hr/day
8	gal/day
24	hr/day (averaging period)

Factor of Safety
1.00

Filter Control Efficiency
98.70%

Paint Gun Transfer Efficiency
65.00%

Calculated Emissions Rate (lb/hr)	0	2.1975167	0
iDAPA TAP EL (lb/hr)		119	N/A
Meets the EL?		Yes	Yes

Annual Use Rate (gal/yr)	HAP Emissions (T/yr)	VOC Emissions (T/yr)	PM (10) Calculation (T/yr)	All ELs Are Met
2080	0.00000	6.85625	0.00000	TRUE

HAP Emissions (lb/hr)	VOC Emissions (lb/hr)	PM (10) Calculation (lb/hr)
0.00000	2.19752	0.00000

Gem State Clearcoats

						n-butyl acetate	[illegible]	1-methoxy-2-propyl acetate	diiron trioxide (iron oxide fume)	titanium dioxide	heptan-2-one (methyl n-amyl ketone)	butanone (methyl ethyl ketone)	acetone	carbon black	toluene	pentane-2,4-dione	aluminum powder
						NC		NC	T		NC	NC	NC	NC	NC		NC
Weight Percentage Content Data				TAP & HAP INDICATOR		T		T	T		T	T	T	T	T, H		T
Product Name	Product Code	VOC Content (lb/gal)		Density (lb/gal)	Wt. % Solids	123-86-4	98-56-6	108-65-6	1309-37-1	13463-67-7	110-43-0	78-93-3	67-64-1	1333-86-4	108-88-3	123-54-6	7429-90-5
Custom Tinted DTM Polyurethane	AUE-57064-1	5.47		8.79	43.55%	50%	50.00%	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%	10.00%	10.00%	5.00%	5.00%
Mgmt Calculations																	
Custom Tinted DTM Polyurethane	AUE-57064-1				4.25	4.88	4.88	2.44	2.44	2.44	2.44	2.44	2.44	0.98	0.98	0.49	0.49
0	0				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	0				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	0				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum VOC Content (lb/gal)	5.4636		Maximum Density (lb/gal)	8.79	4.25	4.88	4.88	2.44	2.44	2.44	2.44	2.44	2.44	0.98	0.98	0.49	0.49
			Weighted Avg wt %		0.44	0.50	0.50	0.25	0.25	0.25	0.25	0.25	0.25	0.10	0.10	0.05	0.05
			Minimum Density (lb/gal)	8.79													

	barium sulfate	IRGAZIN DPP ORANGE 16A	aluminum hydroxide	ethyl 3-ethoxypropionate	stoddard solvent	zinc sulphide	ethanol (ethyl alcohol)	[illegible]	aluminum orthophosphate	isobutyl isobutyrate	ethylbenzene	dibutyltin dilaurate	
					NC		T				NC		
Weight Percentage Content Data					T		T				T, H		
Product Name	7727-43-7	84632-59-7	21645-51-2	763-69-9	8052-41-3	1314-98-3	64-17-5	55349-01-4	7784-30-7	97-85-8	100-41-4	77-58-7	
Custom Tinted DTM Polyurethane	5.00%	5.00%	5.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	0.30%	0.30%	
Mgmt Calculations													HAPS
Custom Tinted DTM Polyurethane	0.49	0.49	0.49	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.03	0.03	1.01
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum Density (lb/gal)	0.49	0.49	0.49	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.03	0.03	1.01
Weighted Avg wt %	0.05	0.05	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.00	0.00	0.10

Daily Use Rates	
6.5	gal/hr
30	hr/day
65	gal/day
24	hr/day (averaging period)

Factor of Safety
1.00

Filter Control Efficiency
98.70%

Paint Gun Transfer Efficiency
65.00%

		n-butyl acetate	[illegible]	1-methoxy-2-propyl acetate	diiron trioxide (iron oxide fume)	titanium dioxide	heptan-2-one	butanone	acetone	carbon black	toluene	pentane-2,4-dione	aluminum powder
Calculated Emissions Rate (lb/hr)	11.51638	13.2166667	13.2166667	6.608333333	0.03308752	0.033087917	6.608333333	6.608333333	6.6083333	0.012027167	2.643333333	1.32166667	0.000013183
IDAPA TAP EL (lb/hr)		47.3	N/A	24	0.333	N/A	15.7	39.3	119	0.23	25	N/A	0.333
Meets the EL?		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	barium sulfate	IRGAZIN DPP ORANGE 16A	aluminum hydroxide	ethyl 3-ethoxypropionate	stoddard solvent	zinc sulphide	ethanol	[illegible]	aluminum orthophosphate	isobutyl isobutyrate	ethylbenzene	dibutyltin dilaurate
Calculated Emissions Rate (lb/hr)	0.000013183	1.32166667	0.00001158	0.793	0.793	0.00388619	0.793	0.793	0.00381	0.793	0.0793	0.0793
IDAPA TAP EL (lb/hr)	N/A	N/A	N/A	N/A	35	N/A	125	N/A	N/A	N/A	29	N/A
Meets the EL?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Annual Use Rate (gal/yr)
10000

HAP Emissions (T/yr)
8.40482

VOC Emissions (T/yr)
48.15432

PM (10) Calculation (T/yr)
0.19348

All ELs Are Met
TRUE

HAP Emissions (lb/hr)
2.72203

VOC Emissions (lb/hr)
14.81097

PM (10) Calculation (lb/hr)
0.06238

Gem State Hardener Chemicals

								NC	NC								
Weight Percentage Content Data				TAP & HAP INDICATOR				T, H	T								
Product Name	Product Code	VOC Content (lb/gal)		Density (lb/gal)	Wt. % Solids	Hexamethylene diisocyanate, oligomers	ethyl 3-ethoxypropionate	hexamethylene-di-isocyanate	heptan-2-one (Methyl n-amyl ketone)								
						28182-81-2	763-69-9	822-06-0	110-43-0								
Single Stage Hardener	ESH200	1.04		9.51	69.04%	90.00%	25.00%	0.20%	0.00%								
Urethane Hardener	GXH1066	1.27051		9.18	66.16%	90.00%	0.00%	0.20%	15.00%								
lb/gal Calculations																	HAPS
Single Stage Hardener	ESH200				6.47	5.56	2.38	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Urethane Hardener	GXH1066				7.91	8.26	0.00	0.02	1.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Maximum VOC Content (lb/gal)	1.270512		Maximum Density (lb/gal)	9.51	6.47	8.68	2.38	0.02	1.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
			Weighted Avg wt %		0.91	0.92	0.25	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.002
			Minimum Density (lb/gal)	9.18													

Daily Use Rates	
1.83	gal/hr
10	hr/day
16.25	gal/day
24	hr/day (averaging period)

Factor of Safety
1.00

Filter Control Efficiency
98.70%

Paint Gun Transfer Efficiency
65.00%

Isocyanate reaction factor (control for isocyanate particulates)
65.00%

Calculated Emissions Rate (lb/hr)	13.760019	0.869273438	1.609766625	0.001931719	0.93234375	0	0	0	0	0	0	0	0	0
IDAPA TAP EL (lb/hr)		N/A	N/A	0.002	15.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Meets the EL?		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Annual Use Rate (gal/yr)	HAP Emissions (T/yr)	VOC Emissions (T/yr)	PM (10) Calculation (T/yr)	All ELs Are Met
4225	0.04018	2.65396	0.08139	TRUE

HAP Emissions (lb/hr)	VOC Emissions (lb/hr)	PM (10) Calculation (lb/hr)
0.01288	0.86024	0.02609

Gem State Hardener Chemicals

						NC		
Weight Percentage Content Data				TAP & HAP INDICATOR		T		
Product Name	Product Code	VOC Content (lb/gal)		Density (lb/gal)	Wt % Solids	heptan-2-one (Methyl n-amyl ketone)		
						110-43-0		
Methyl Amyl Ketone	Q70	6.76		6.76	0.00%	100.00%		

lb/gal Calculations								HAPS
Methyl Amyl Ketone	Q70				0.00	6.76	0.00	
0	0				0.00	0.00	0.00	
Maximum VOC Content (lb/gal)	6.76		Maximum Density (lb/gal)	6.76	0.00	6.76	0.00	0.00
			Weighted Avg wt %		0.00	1.00	0.00	0.000
			Minimum Density (lb/gal)	6.76				

Daily Use Rates	
0.81	gal/hr
10	hr/day
8.125	gal/day
24	hr/day (averaging period)

Factor of Safety
1.00

Filter Control Efficiency
98.70%

Paint Gun Transfer Efficiency
65.00%

Calculated Emissions Rate (lb/hr)	0	2.288541667	0
IDAPA TAP EL (lb/hr)		15.7	N/A
Meets the EL?		Yes	Yes

Annual Use Rate (gal/yr)
2112.5

HAP Emissions (T/yr)
0.00000

VOC Emissions (T/yr)
7.14025

PM (10) Calculation (T/yr)
0.00000

All ELs Are Met
TRUE

HAP Emissions (lb/hr)
0.00000

VOC Emissions (lb/hr)
2.28854

PM (10) Calculation (lb/hr)
0.00000

Gem State Hardener Chemicals

Weight Percentage Content Data				TAP & HAP INDICATOR					
Product Name	Product Code	VOC Content (lb/gal)		Density (lb/gal)	Wt. % Solids	pentane-2,4-dione	dibutyltin dilaurate		
						123-54-6	77-58-7		
Urethane Accelerator	UA-11	8.04		8.18	1.69%	90.00%	2.00%		
lb/gal Calculations									HAPS
Urethane Accelerator	UA-11				0.14	7.36	0.16	0.00	
Maximum VOC Content (lb/gal)	8.04176		Maximum Density (lb/gal)	8.18	0.14	7.36	0.16	0.00	0.00
			Weighted Avg wt %		0.02	0.90	0.02	0.00	0.000
			Minimum Density (lb/gal)	8.18					

Daily Use Rates	
0.41	gal/hr
10	hr/day
4.0625	gal/day
24	hr/day (averaging period)

Factor of Safety
1.00

Filter Control Efficiency
68.70%

Paint Gun Transfer Efficiency
65.00%

Calculated Emissions Rate (lb/hr)	0.0561608	1.246171875	0.027692708	0
IDAPA TAP EL (lb/hr)		N/A	N/A	N/A
Meets the EL?		Yes	Yes	Yes

Annual Use Rate (gal/yr)
1056.25

HAP Emissions (T/yr)
0.00000

VOC Emissions (T/yr)
4.24705

PM (10) Calculation (T/yr)
0.00033

All ELs Are Met
TRUE

HAP Emissions (lb/hr)
0.00000

VOC Emissions (lb/hr)
1.36124

PM (10) Calculation (lb/hr)
0.00011

Table 1. POTENTIAL TO EMIT FOR NSR REGULATED POLLUTANTS

Emissions Unit	CO[a]	NOx[a]	PM[a]	PM10[a]	PM2.5[a]	SO2[a]	VOC[a]	CH4[a]	N2O[a]	CO2[a]	CO2e[a]
	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr	T/yr
Point Sources											
Spray Booth #1 Combustion	0.02	0.02	0.002	0.002	0.002	0.0001	0.00	0.000	0.000	23.24	23.39
HVAC	0.55	[illegible]	[illegible]	0.05	0.05	[illegible]	0.03	[illegible]	[illegible]	[illegible]	[illegible]
Coatings Prep	—	—	0.42	0.42	0.42	—	[illegible]	—	—	—	—
Welding	—	—	0.04	0.04	0.04	—	—	—	—	—	—
Plasma Cutting	—	0.28	0.00	0.00	0.00	—	—	—	—	—	—
Abrasive Blasting	—	—	0.21	0.10	0.01	—	—	—	—	—	—
Fugitive Sources (For listed source categories only; see item 1 below in the instructions)											
N/A	—	—	—	—	—	—	—	—	—	—	—
Totals	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.00	[illegible]	0.01	0.01	[illegible]	[illegible]

a) NSR Regulated air Pollutants are defined[1] as: Particulate Matter (PM, PM-10, PM-2.5), Carbon Monoxide, Lead, Nitrogen Dioxide, Ozone (VOC), Sulfur Dioxide, CO_2e[2], Green House Gases (GHG) mass, all pollutants regulated by NSPS (40 CFR 60) [illegible] fluoride, sulfuric acid mist) & Class I & Class II Ozone Depleting Substances (40 CFR 82) [illegible] CFC, HCFC, Halon, etc.)
[1] 40 CFR 52.21(b)(50), as incorporated by reference at IDAPA 58.01.01.107.03.d
[2] Multiply each green house gas (GHG) by the global warming potential (GWP) listed at 40 CFR 98, Table A-1 of Subpart A then sum all values to determine CO2e (GHGs are carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride). Be sure to show all calculations as described in the instructions.
*Does not include fugitive welding emissions or fugitive indoor abrasive blasting emissions

Table 2. HAP POTENTIAL TO EMIT EMISSIONS SUMMARY

HAP Pollutants	PTE (T/yr)
4-methylpentan-2-one	[illegible]
Toluene	4.79E+00
Ethylbenzene	[illegible]
hexamethylene-di-isocyanate	2.51E-03
xylene	[illegible]
Benzene	1.55E-05
Formaldehyde	[illegible]
Toluene	4.79E+00
2-Methylnaphthalene	[illegible]
3-Methylchloranthrene	[illegible]
7,12-Dimethylbenz(a)anthracene	[illegible]
Acenaphthylene	[illegible]
Benzo(a)pyrene	[illegible]
Benzo(b)fluoranthene	[illegible]
Benzo(k)fluoranthene	[illegible]
Dibenzo(a,h)anthracene	[illegible]
Dichlorobenzene	[illegible]
Hexane	1.31E-02
Naphthalene	[illegible]
Acenaphthene	[illegible]
Anthracene	[illegible]
Benzo(a)anthracene	[illegible]
Benzo(g,h,i)perylene	[illegible]
Chrysene	[illegible]
Fluoranthene	[illegible]
Fluorene	[illegible]
Indeno(1,2,3-cd)pyrene	[illegible]
Phenanthrene	1.25E-07
Pyrene	[illegible]
Arsenic	1.47E-06
Beryllium	[illegible]
Cadmium	[illegible]
Chromium	9.09E-05
Chromium(VI)	0.00E+00
Cobalt	[illegible]
Lead	[illegible]
Manganese	[illegible]
Mercury	[illegible]
Phosphorus	[illegible]

* Maximum Individual HAP
**Fugitive welding and abrasive blasting emissions included

Table 3. PRE- AND POST PROJECT NON CARCINOGENIC TAP EMISSIONS SUMMARY POTENTIAL TO EMIT

Non-Carcinogenic Toxic Air Pollutants (sum of all emissions)	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)
Toluene	0.00E+00	[illegible]	[illegible]	[illegible]	No
Dichlorobenzene	0.00E+00	[illegible]	[illegible]	[illegible]	No
Hexane	0.00E+00	4.75E-03	[illegible]	[illegible]	No
Naphthalene	0.00E+00	[illegible]	[illegible]	[illegible]	No
Pentane	0.00E+00	[illegible]	6.53E-03	[illegible]	No
Acetone	0.00E+00	[illegible]	[illegible]	[illegible]	No
n-Butyl acetate	0.00E+00	[illegible]	[illegible]	[illegible]	No
Carbon black	0.00E+00	[illegible]	[illegible]	[illegible]	No
Titanium dioxide (from rutile form)	0.00E+00	3.01E-02	[illegible]	[illegible]	No
Ethanol (ethyl alcohol)	0.00E+00	[illegible]	[illegible]	[illegible]	No
Ethylbenzene	0.00E+00	[illegible]	[illegible]	[illegible]	No
hexamethylene-di-isocyanate	0.00E+00	[illegible]	[illegible]	[illegible]	No
Limestone (calcium carbonate)	0.00E+00	[illegible]	[illegible]	[illegible]	No
Heptan-2-one (methyl n-amyl ketone)	0.00E+00	[illegible]	1.04E+01	[illegible]	No
Butanone (methyl ethyl ketone)	0.00E+00	6.61E+00	[illegible]	[illegible]	No
2-methoxy-1-methylethyl acetate	0.00E+00	6.61E+00	6.61E+00	2.40E+01	No
4-methylpentan-2-one	0.00E+00	[illegible]	[illegible]	[illegible]	No
butan-1-ol (n-Butyl alcohol)	0.00E+00	[illegible]	[illegible]	[illegible]	No
ethylenediamine	0.00E+00	[illegible]	[illegible]	[illegible]	No
Crystalline silica powder	0.00E+00	7.44E-04	[illegible]	[illegible]	No
2-butoxyethanol	0.00E+00	[illegible]	[illegible]	[illegible]	No
1-methoxy-2-propanol (propylene glycol monomethyl ether)	0.00E+00	5.70E-01	5.70E-01	[illegible]	No
xylene	0.00E+00	[illegible]	[illegible]	[illegible]	No
tert-butyl acetate	0.00E+00	[illegible]	[illegible]	[illegible]	No
Stoddard Solvent	0.00E+00	7.93E-01	7.93E-01	3.50E+01	No
Aluminum powder	0.00E+00	[illegible]	[illegible]	[illegible]	No
Barium	0.00E+00	[illegible]	[illegible]	[illegible]	No
Chromium	0.00E+00	[illegible]	[illegible]	[illegible]	No
Chromium(VI)	0.00E+00	[illegible]	[illegible]	[illegible]	No
Cobalt	0.00E+00	[illegible]	[illegible]	[illegible]	No
Copper	0.00E+00	[illegible]	[illegible]	6.70E-02	No
Iron oxide fume	0.00E+00	[illegible]	[illegible]	[illegible]	No
Manganese	0.00E+00	1.06E-07	1.06E-07	[illegible]	No
Molybdenum	0.00E+00	[illegible]	2.59E-06	[illegible]	No
Phosphorus	0.00E+00	[illegible]	[illegible]	7.00E-03	No
Selenium	0.00E+00	[illegible]	[illegible]	[illegible]	No
Silicon	0.00E+00	[illegible]	[illegible]	[illegible]	No
Vanadium	0.00E+00	[illegible]	[illegible]	[illegible]	No
Zinc	0.00E+00	[illegible]	[illegible]	[illegible]	No

**Fugitive welding and abrasive blasting emissions included

Table 4. PRE- AND POST PROJECT CARCINOGENIC TAP EMISSIONS SUMMARY POTENTIAL TO EMIT

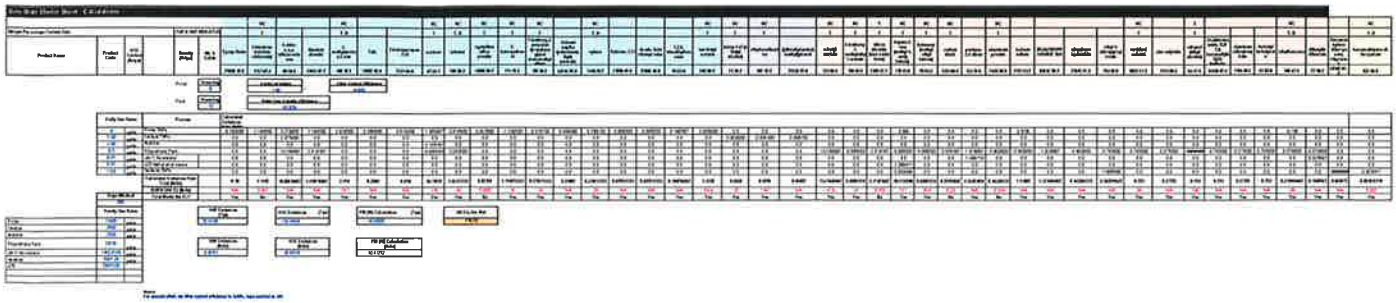
Carcinogenic Toxic Air Pollutants (sum of all emissions)	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Benzene	0.00E+00	[illegible]	[illegible]	[illegible]	No
Formaldehyde	0.00E+00	[illegible]	[illegible]	[illegible]	No
2-Methylnaphthalene	0.00E+00	[illegible]	[illegible]	[illegible]	No
3-Methylchloranthrene	0.00E+00	[illegible]	[illegible]	[illegible]	No
7,12-Dimethylbenz(a)anthracene	0.00E+00	2.69E-08	[illegible]	[illegible]	No
Acenaphthylene	0.00E+00	[illegible]	[illegible]	[illegible]	No
Benzo(a)pyrene	0.00E+00	[illegible]	[illegible]	[illegible]	No
Benzo(b)fluoranthene	0.00E+00	[illegible]	[illegible]	[illegible]	No
Benzo(k)fluoranthene	0.00E+00	3.02E-09	3.02E-09	1.00E-06	No
Dibenzo(a,h)anthracene	0.00E+00	[illegible]	[illegible]	[illegible]	No
Acenaphthene	0.00E+00	[illegible]	[illegible]	[illegible]	No
Anthracene	0.00E+00	4.03E-09	4.03E-09	[illegible]	No
Benzo(a)anthracene	0.00E+00	[illegible]	3.02E-09	2.00E-06	No
Benzo(g,h,i)perylene	0.00E+00	2.02E-09	2.02E-09	[illegible]	No
Chrysene	0.00E+00	[illegible]	[illegible]	1.00E-06	No
Fluoranthene	0.00E+00	[illegible]	5.04E-09	[illegible]	No
Fluorene	0.00E+00	[illegible]	[illegible]	[illegible]	No
Indeno(1,2,3-cd)pyrene	0.00E+00	3.02E-09	[illegible]	[illegible]	No
Phenanthrene	0.00E+00	[illegible]	[illegible]	[illegible]	No
Pyrene	0.00E+00	[illegible]	[illegible]	[illegible]	No
Arsenic	0.00E+00	[illegible]	[illegible]	[illegible]	No
Beryllium	0.00E+00	2.02E-08	[illegible]	2.80E-05	No
Cadmium	0.00E+00	[illegible]	[illegible]	[illegible]	No
Nickel	0.00E+00	[illegible]	[illegible]	[illegible]	No
POM	0.00E+00	[illegible]	[illegible]	2.00E-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.

**Fugitive welding and abrasive blasting emissions included

E = Emission Limit = $0.045(PW)^{0.60}$, if PW is less than 9,250 lb/hr. E = $1.10(PW)^{0.25}$, if PW is greater than 9,250 lb/hr.

System Description	Maximum Solids Content (lb/gal)	Maximum Usage Rate (gal/hr)	Controlled PM Emission Rate (lb/hr)	Process Weight Rate Limitations - E (lb/hr)	In Compliance? (Y/N)
Primer	8.56	4.00	5.19E-02	3.75E-01	Yes
Catalyst	3.2	1.0	4.85E-03	9.04E-02	Yes
Acetone	0.0	1.0	0.00E+00	0.00E+00	Yes
Poly Paint	4.3	6.5	5.24E-02	3.30E-01	Yes
Hardener	8.5	1.6	2.61E-02	2.17E-01	Yes
Q70	0.0	0.8	0.00E+00	0.00E+00	Yes
Accelerator	0.1	0.4	1.06E-04	8.00E-03	Yes
System Description		**Maximum Usage Rate (lb/hr)**	**Controlled PM Emission Rate (lb/hr)**	**Process Weight Rate Limitations - E (lb/hr)**	**In Compliance? (Y/N)**
Welding		6.2	0.013	1.34E-01	Yes
Abrasive Blasting		88,800	0.200	1.90E+01	Yes



Pollutant	Potential TAP Emissions (lb/hr)	Potential TAP Emissions (tpy)	IDAPA EL (lb/hr)	Exceeds IDAPA EL (Yes/No)
Benzene	1.19E-05	5.21E-05	8.00E-04	No
Formaldehyde	4.25E-04	1.86E-03	5.10E-04	No
Toluene	3.46E+00	6.02E+00	2.50E+01	No
2-Methylnaphthalene	1.36E-07	5.95E-07	9.10E-05	No
3-Methylchloranthrene	1.02E-08	4.46E-08	9.10E-05	No
7,12-Dimethylbenz(a)anthracene	9.06E-08	3.97E-07	9.10E-05	No
Acenaphthylene	1.02E-08	4.46E-08	9.10E-05	No
Benzo(a)pyrene	6.79E-09	2.98E-08	2.00E-06	No
Benzo(b)fluoranthene	1.02E-08	4.46E-08	2.00E-06	No
Benzo(k)fluoranthene	1.02E-08	4.46E-08	2.00E-06	No
Dibenzo(a,h)anthracene	6.79E-09	2.98E-08	2.00E-06	No
Dichlorobenzene	6.79E-06	2.98E-05	3.00E+01	No
Hexane	1.02E-02	4.46E-02	1.20E+01	No
Naphthalene	3.45E-06	1.51E-05	3.33E+00	No
Acenaphthene	1.02E-08	4.46E-08	9.10E-05	No
Anthracene	1.36E-08	5.95E-08	9.10E-05	No
Benzo(a)anthracene	1.02E-08	4.46E-08	2.00E-06	No
Benzo(g,h,i)perylene	6.79E-09	2.98E-08	9.10E-05	No
Chrysene	1.02E-08	4.46E-08	2.00E-06	No
Fluoranthene	1.70E-08	7.44E-08	9.10E-05	No
Fluorene	1.59E-08	6.94E-08	9.10E-05	No
Indeno(1,2,3-cd)pyrene	1.02E-08	4.46E-08	2.00E-06	No
Phenanthrene	9.63E-08	4.22E-07	9.10E-05	No
Pentane	1.47E-02	6.45E-02	1.18E+02	No
Pyrene	2.83E-08	1.24E-07	9.10E-05	No
Acetone	1.02E+01	1.73E+01	1.19E+02	No
n-Butyl acetate	1.32E+01	2.41E+01	4.73E+01	No
Carbon black	9.25E-01	1.69E+00	2.30E-01	Yes
Diiron trioxide (iron oxide fume)	2.31E+00	4.22E+00	3.33E-01	Yes
Ethanol (ethyl alcohol)	7.93E-01	1.45E+00	1.25E+02	No
Ethylbenzene	2.18E-01	3.48E-01	2.90E+01	No
hexamethlyene-di-isocyanate	1.93E-03	3.53E-03	2.00E-03	No
Limestone (calcium carbonate)	1.15E+00	1.67E+00	6.67E-01	Yes
Heptan-2-one (methyl n-amly ketone)	1.04E+01	1.46E+01	1.57E+01	No
Butanone (methyl ethyl ketone)	6.61E+00	1.21E+01	3.93E+01	No
2-methoxy-1-methylethyl acetate	6.61E+00	1.21E+01	2.40E+01	No
4-methylpentan-2-one	2.45E+00	3.58E+00	1.37E+01	No
butan-1-ol (n-Butyl alcohol)	6.02E-01	8.79E-01	1.00E+01	No
ethylenediamine	9.51E-02	1.39E-01	1.67E+00	No
Crystalline silica powder	5.73E-02	8.36E-02	6.70E-03	Yes
2-butoxyethanol	1.15E+00	1.69E+00	8.00E+00	No
1-methoxy-2-propanol (propylene glycol monom	5.70E-01	8.32E-01	2.40E+01	No
xylene	2.36E-01	3.45E-01	2.90E+01	No
tert-butyl acetate	3.34E+00	4.87E+00	6.33E+01	No
Stoddard Solvent	7.93E-01	1.45E+00	3.50E+01	No
Aluminum powder	4.63E-01	8.44E-01	3.33E-01	Yes
Arsenic	1.13E-06	4.96E-06	1.50E-06	No
Barium	2.49E-05	1.09E-04	3.30E-02	No
Beryllium	6.79E-08	2.98E-07	2.80E-05	No
Cadmium	6.23E-06	2.73E-05	3.70E-06	Yes
Chromium	6.99E-05	3.06E-04	3.30E-02	No
Chromium(VI)	0.00E+00	0.00E+00	5.60E-07	No
Cobalt	6.25E-05	2.74E-04	3.30E-03	No
Copper	4.81E-06	2.11E-05	6.70E-02	No
Iron oxide fume	1.16E-02	5.07E-02	3.33E-01	No
Manganese	1.43E+00	6.26E+00	3.33E-01	Yes
Molybdenum	6.23E-06	2.73E-05	3.33E-01	No
Nickel	7.39E-05	3.24E-04	2.70E-05	Yes
Phosphorus	4.20E-02	1.84E-01	7.00E-03	Yes
Selenium	1.36E-07	5.95E-07	1.30E-02	No
Silicon	2.10E-01	9.19E-01	6.67E-01	No
Vanadium	1.30E-05	5.70E-05	3.00E-03	No
Zinc	1.64E-04	7.19E-04	6.67E-01	No
POM	6.45E-08	2.83E-07	2.00E-06	No

Heater Emission Factors

Pollutant	Emission Factor lb/MMscf	EF Source
CO	84	AP-42 Table 1.4-1 (Small Boilers <100 MMBtu/hr)
NOx	100	AP-42 Table 1.4-1 (Small Boilers <100 MMBtu/hr)
Lead	0.0005	AP-42 Table 1.4-2
SOx	0.6	AP-42 Table 1.4-2
VOCs	5.5	AP-42 Table 1.4-2
PM	7.6	AP-42 Table 1.4-2
CO2	120,000	AP-42 Table 1.4-2
N20	2.2	AP-42 Table 1.4-2
Methane	2.3	AP-42 Table 1.4-2

Heater PTE

Heater ID	Heater Capacity	Recirculation Exhaust Reduction	Operating Hours	CO		NO_x		Lead		SO_x		VOC		$PM/PM_{10}/PM_{2.5}$		CO_2		N_2O		CH_4		CO
	MMscf/hr	%	(hours/year)	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr
Curing Room Heater/AMU	0.0008	80	8760	0.014	0.060	0.016	0.071	8.09E-08	3.54E-07	9.71E-05	4.25E-04	8.90E-04	0.004	0.0012	0.005	19.4	85.024	3.56E-04	1.56E-03	3.72E-04	1.63E-03	19.5
Total				0.014	0.060	0.016	0.071	8.09E-08	3.54E-07	0.0001	0.000	0.001	0.004	0.001	0.005	19.4	85	3.56E-04	1.56E-03	3.72E-04	1.63E-03	19.5

Recirculation of exhaust is inherent to the operation of the heater/air makeup unit, and therefore is not considered as a control.

Natural Gas Heaters Potential HAP and TAP Emissions

Fuel Usage (Total All Heaters)	0.0008 MMscf/hr
Hours of Operation Per Year	8,760 hours/year

Pollutant	HAP?	Non-Carcinogenic TAP?	Carcinogenic TAP?	Natural Gas Combustion Emission Factor[1] (lb/MMscf)	Potential HAP Emissions (lb/hr)	Potential HAP Emissions (tpy)	Potential TAP Emissions (lb/hr)	Potential TAP Emissions (tpy)
Benzene	Yes	No	Yes	2.10E-03	1.70E-06	7.44E-06	1.70E-06	7.44E-06
Formaldehyde	Yes	No	Yes	7.50E-02	6.07E-05	2.66E-04	6.07E-05	2.66E-04
Toluene	Yes	Yes	No	3.40E-03	2.75E-06	1.20E-05	2.75E-06	1.20E-05
2-Methylnaphthalene	Yes	No	Yes	2.40E-05	1.94E-08	8.50E-08	1.94E-08	8.50E-08
3-Methylchloranthrene	Yes	No	Yes	1.80E-06	1.46E-09	6.38E-09	1.46E-09	6.38E-09
7,12-Dimethylbenz(a)anthracene	Yes	No	Yes	1.60E-05	1.29E-08	5.67E-08	1.29E-08	5.67E-08
Acenaphthylene	Yes	No	Yes	1.80E-06	1.46E-09	6.38E-09	1.46E-09	6.38E-09
Benzo(a)pyrene	Yes	No	Yes	1.20E-06	9.71E-10	4.25E-09	9.71E-10	4.25E-09
Benzo(b)fluoranthene	Yes	No	Yes	1.80E-06	1.46E-09	6.38E-09	1.46E-09	6.38E-09
Benzo(k)fluoranthene	Yes	No	Yes	1.80E-06	1.46E-09	6.38E-09	1.46E-09	6.38E-09
Dibenzo(a,h)anthracene	Yes	No	Yes	1.20E-06	9.71E-10	4.25E-09	9.71E-10	4.25E-09
Dichlorobenzene	Yes	Yes	No	1.20E-03	9.71E-07	4.25E-06	9.71E-07	4.25E-06
Hexane	Yes	Yes	No	1.80E+00	1.46E-03	6.38E-03	1.46E-03	6.38E-03
Naphthalene	Yes	Yes	No	6.10E-04	4.93E-07	2.16E-06	4.93E-07	2.16E-06
Acenaphthene	Yes	No	Yes	1.80E-06	1.46E-09	6.38E-09	1.46E-09	6.38E-09
Anthracene	Yes	No	Yes	2.40E-06	1.94E-09	8.50E-09	1.94E-09	8.50E-09
Benzo(a)anthracene	Yes	No	Yes	1.80E-06	1.46E-09	6.38E-09	1.46E-09	6.38E-09
Benzo(g,h,i)perylene	Yes	No	Yes	1.20E-06	9.71E-10	4.25E-09	9.71E-10	4.25E-09
Chrysene	Yes	No	Yes	1.80E-06	1.46E-09	6.38E-09	1.46E-09	6.38E-09
Fluoranthene	Yes	No	Yes	3.00E-06	2.43E-09	1.06E-08	2.43E-09	1.06E-08
Fluorene	Yes	No	Yes	2.80E-06	2.26E-09	9.92E-09	2.26E-09	9.92E-09
Indeno(1,2,3-cd)pyrene	Yes	No	Yes	1.80E-06	1.46E-09	6.38E-09	1.46E-09	6.38E-09
Phenanthrene	Yes	No	Yes	1.70E-05	1.38E-08	6.02E-08	1.38E-08	6.02E-08
Pentane	No	Yes	No	2.60E+00	-	-	2.10E-03	9.21E-03
Pyrene	Yes	No	Yes	5.00E-06	4.04E-09	1.77E-08	4.04E-09	1.77E-08
Arsenic	Yes	No	Yes	2.00E-04	1.62E-07	7.09E-07	1.62E-07	7.09E-07
Barium	No	Yes	No	4.40E-03	-	-	3.56E-06	1.56E-05
Beryllium	Yes	No	Yes	1.20E-05	9.71E-09	4.25E-08	9.71E-09	4.25E-08
Cadmium	Yes	No	Yes	1.10E-03	8.90E-07	3.90E-06	8.90E-07	3.90E-06
Chromium	Yes	Yes	Yes	1.40E-03	1.13E-06	4.96E-06	1.13E-06	4.96E-06
Cobalt	Yes	Yes	No	8.40E-05	6.79E-08	2.98E-07	6.79E-08	2.98E-07
Copper	No	Yes	No	8.50E-04	-	-	6.88E-07	3.01E-06
Lead	Yes	No	No	5.00E-04	4.04E-07	1.77E-06	-	-
Manganese	Yes	Yes	No	3.80E-04	3.07E-07	1.35E-06	3.07E-07	1.35E-06
Mercury	Yes	No	No	2.60E-04	2.10E-07	9.21E-07	-	-
Molybdenum	No	Yes	No	1.10E-03	-	-	8.90E-07	3.90E-06
Nickel	Yes	No	Yes	2.10E-03	1.70E-06	7.44E-06	1.70E-06	7.44E-06
Selenium	Yes	Yes	No	2.40E-05	1.94E-08	8.50E-08	1.94E-08	8.50E-08
Vanadium	No	Yes	No	2.30E-03	-	-	1.86E-06	8.15E-06
Zinc	No	Yes	No	2.90E-02	-	-	2.35E-05	1.03E-04
POM	Yes	No	Yes	n/a	9.22E-09	4.04E-08	9.22E-09	4.04E-08
Maximum Individual HAP					**0.001**	**0.01**	**0.002**	**0.01**
Total HAP					**0.002**	**0.007**	**0.004**	**0.02**

[1] AP-42 Section 1.4 Natural Gas Combustion, Tables 1.4-3 and 1.4-4 (7/98).

HVAC Emission Factors

Pollutant	Emission Factor lb/MMscf	EF Source
CO	84	AP-42 Table 1.4-1 (Small Boilers <100 MMBtu/hr)
NOx	100	AP-42 Table 1.4-1 (Small Boilers <100 MMBtu/hr)
Lead	0.0005	AP-42 Table 1.4-2
SOx	0.6	AP-42 Table 1.4-2
VOCs	5.5	AP-42 Table 1.4-2
PM	7.6	AP-42 Table 1.4-2
CO2	120,000	AP-42 Table 1.4-2
N20	2.2	AP-42 Table 1.4-2
Methane	2.3	AP-42 Table 1.4-2

Heater PTE

Heater ID	Heater Capacity	Operating Hours	CO		NO_x		Lead		SO_2		VOC		$PM/PM_{10}/PM_{2.5}$		CO_2		N_2O		CH_4		CO_2e	
	MMscf/hr	(hours/year)	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
HVAC Unit 1 (main building)	0.0024	8760	0.204	0.893	0.243	1.063	1.21E-06	5.31E-06	1.46E-03	6.38E-03	1.33E-02	0.058	0.0184	0.081	291.2	1275.353	5.34E-03	2.34E-02	5.58E-03	2.44E-02	292.9	1282.932
HVAC Unit 2 (main building)	0.0024	8760	0.204	0.893	0.243	1.063	1.21E-06	5.31E-06	1.46E-03	6.38E-03	1.33E-02	0.058	0.0184	0.081	291.2	1275.353	5.34E-03	2.34E-02	5.58E-03	2.44E-02	292.9	1282.932
Total			0.408	1.785	0.485	2.126	0.000	0.000	0.003	0.013	0.027	0.117	0.037	0.162	582.353	2550.706	0.011	0.047	0.011	0.049	585.814	2565.863

Natural Gas Heaters Potential HAP and TAP Emissions

Fuel Usage (Total All HVAC)	0.0049 MMscf/hr
Hours of Operation Per Year	8,760 hours/year

Pollutant	HAP?	Non-Carcinogenic TAP?	Carcinogenic TAP?	Natural Gas Combustion Emission Factor[1] (lb/MMscf)	Potential HAP Emissions (lb/hr)	Potential HAP Emissions (tpy)	Potential TAP Emissions (lb/hr)	Potential TAP Emissions (tpy)
Benzene	Yes	No	Yes	2.10E-03	1.02E-05	4.46E-05	1.02E-05	4.46E-05
Formaldehyde	Yes	No	Yes	7.50E-02	3.64E-04	1.59E-03	3.64E-04	1.59E-03
Toluene	Yes	Yes	No	3.40E-03	1.65E-05	7.23E-05	1.65E-05	7.23E-05
2-Methylnaphthalene	Yes	No	Yes	2.40E-05	1.16E-07	5.10E-07	1.16E-07	5.10E-07
3-Methylchloranthrene	Yes	No	Yes	1.80E-06	8.74E-09	3.83E-08	8.74E-09	3.83E-08
7,12-Dimethylbenz(a)anthracene	Yes	No	Yes	1.60E-05	7.76E-08	3.40E-07	7.76E-08	3.40E-07
Acenaphthylene	Yes	No	Yes	1.80E-06	8.74E-09	3.83E-08	8.74E-09	3.83E-08
Benzo(a)pyrene	Yes	No	Yes	1.20E-06	5.82E-09	2.55E-08	5.82E-09	2.55E-08
Benzo(b)fluoranthene	Yes	No	Yes	1.80E-06	8.74E-09	3.83E-08	8.74E-09	3.83E-08
Benzo(k)fluoranthene	Yes	No	Yes	1.80E-06	8.74E-09	3.83E-08	8.74E-09	3.83E-08
Dibenzo(a,h)anthracene	Yes	No	Yes	1.20E-06	5.82E-09	2.55E-08	5.82E-09	2.55E-08
Dichlorobenzene	Yes	Yes	No	1.20E-03	5.82E-06	2.55E-05	5.82E-06	2.55E-05
Hexane	Yes	Yes	No	1.80E+00	8.74E-03	3.83E-02	8.74E-03	3.83E-02
Naphthalene	Yes	Yes	No	6.10E-04	2.96E-06	1.30E-05	2.96E-06	1.30E-05
Acenaphthene	Yes	No	Yes	1.80E-06	8.74E-09	3.83E-08	8.74E-09	3.83E-08
Anthracene	Yes	No	Yes	2.40E-06	1.16E-08	5.10E-08	1.16E-08	5.10E-08
Benzo(a)anthracene	Yes	No	Yes	1.80E-06	8.74E-09	3.83E-08	8.74E-09	3.83E-08
Benzo(g,h,i)perylene	Yes	No	Yes	1.20E-06	5.82E-09	2.55E-08	5.82E-09	2.55E-08
Chrysene	Yes	No	Yes	1.80E-06	8.74E-09	3.83E-08	8.74E-09	3.83E-08
Fluoranthene	Yes	No	Yes	3.00E-06	1.46E-08	6.38E-08	1.46E-08	6.38E-08
Fluorene	Yes	No	Yes	2.80E-06	1.36E-08	5.95E-08	1.36E-08	5.95E-08
Indeno(1,2,3-cd)pyrene	Yes	No	Yes	1.80E-06	8.74E-09	3.83E-08	8.74E-09	3.83E-08
Phenanthrene	Yes	No	Yes	1.70E-05	8.25E-08	3.61E-07	8.25E-08	3.61E-07
Pentane	No	Yes	No	2.60E+00	-	-	1.26E-02	5.53E-02
Pyrene	Yes	No	Yes	5.00E-06	2.43E-08	1.06E-07	2.43E-08	1.06E-07
Arsenic	Yes	No	Yes	2.00E-04	9.71E-07	4.25E-06	9.71E-07	4.25E-06
Barium	No	Yes	No	4.40E-03	-	-	2.14E-05	9.35E-05
Beryllium	Yes	No	Yes	1.20E-05	5.82E-08	2.55E-07	5.82E-08	2.55E-07
Cadmium	Yes	No	Yes	1.10E-03	5.34E-06	2.34E-05	5.34E-06	2.34E-05
Chromium	Yes	Yes	Yes	1.40E-03	6.79E-06	2.98E-05	6.79E-06	2.98E-05
Cobalt	Yes	Yes	No	8.40E-05	4.08E-07	1.79E-06	4.08E-07	1.79E-06
Copper	No	Yes	No	8.50E-04	-	-	4.13E-06	1.81E-05
Lead	Yes	No	No	5.00E-04	2.43E-06	1.06E-05	-	-
Manganese	Yes	Yes	No	3.80E-04	1.84E-06	8.08E-06	1.84E-06	8.08E-06
Mercury	Yes	No	No	2.60E-04	1.26E-06	5.53E-06	-	-
Molybdenum	No	Yes	No	1.10E-03	-	-	5.34E-06	2.34E-05
Nickel	Yes	No	Yes	2.10E-03	1.02E-05	4.46E-05	1.02E-05	4.46E-05
Selenium	Yes	Yes	No	2.40E-05	1.16E-07	5.10E-07	1.16E-07	5.10E-07
Vanadium	No	Yes	No	2.30E-03	-	-	1.12E-05	4.89E-05
Zinc	No	Yes	No	2.90E-02	-	-	1.41E-04	6.16E-04
POM	Yes	No	Yes	n/a	5.53E-08	2.42E-07	5.53E-08	2.42E-07
Maximum Individual HAP					**0.009**	**0.04**	**0.013**	**0.06**
Total HAP					**0.009**	**0.040**	**0.022**	**0.10**

[1] AP-42 Section 1.4 Natural Gas Combustion, Tables 1.4-3 and 1.4-4 (7/98).

Welding Emission Factors

Pollutant	Emission Factor lb/10^3 lb	EF Source
PM10	5.2	AP-42 Table 12.19-1 (GMAW, E70S Electrode)

Welding PTE

Welder ID	Electrode Usage	PM10	
	10^3 lb/hr	lb/hr	tpy
Welder (All)	0.0062	0.032	0.141
Total	**0.0062**	**0.032**	**0.141**

Welding Potential HAP and TAP Emissions

Electrode Usage (Total All Welding)	0.0062 10^3 lb/hr
Hours of Operation Per Year	8,760 hours/year

Pollutant	HAP?	Non-Carcinogenic TAP?	Carcinogenic TAP?	Welding Emission Factor[1] (10^{-1} lb/10^3 lb)	Potential HAP Emissions (lb/hr)	Potential HAP Emissions (tpy)	Potential TAP Emissions (lb/hr)	Potential TAP Emissions (tpy)
Chromium	Yes	Yes	Yes	1.00E-02	6.20E-06	2.72E-05	6.20E-05	2.72E-04
Chromium(VI)	Yes	Yes	Yes	ND				
Cobalt	Yes	Yes	No	1.00E-02	6.20E-06	2.72E-05	6.20E-05	2.72E-04
Lead	Yes	No	No	ND				
Manganese	Yes	Yes	No	3.18E+00	1.97E-03	8.64E-03	1.97E-02	8.64E-02
Nickel	Yes	No	Yes	1.00E-02	6.20E-06	2.72E-05	6.20E-05	2.72E-04
Maximum Individual HAP					**1.97E-03**	**8.64E-03**	**1.97E-02**	**8.64E-02**
Total HAP					**1.99E-03**	**8.72E-03**	**1.99E-02**	**8.72E-02**

[1] AP-42 Section 12.19-2 Electric Arc Welding, Tables 12.19-2 (1/95).

Plasma Cutting Fumes	0.25	g/min [1]
Fume Extraction control efficiency	0.0%	
Building enclosure control efficiency	50.0%	
Fume Emission Rate, 1-hr	1.65E-02	lb/hr
NO_x Emission Rate, 1-hr	2.16E-01	lb/hr [2]

Plasma Cuttting Emissions

	PM_{10}		NO_x	
Activity	**lb/hr**	**tpy**	**lb/hr**	**tpy**
Plasma cutting	1.65E-02	7.24E-02	2.16E-01	9.45E-01
Total	**1.65E-02**	**7.24E-02**	**2.16E-01**	**9.45E-01**

[1] Emission factor reference: Broman B, et al, The Swedish Institute of Production Engineering Research., March 1994, Average emission factor for wet cutting 8mm mild steel.

[2] NOx fume production assumes average emission factor for wet cutting 8mm mild steel (1.05 L/min). Assumed average density of NO (1.226 g/L) and NO_2 (1.88 g/L).

Assume 50% control because process is conducted inside building, and therefore considred inherent to the process.

Plasma Cuttting TAPs Emissions

PM emissions		1.65E-02	lb/hr			
Pollutant[1]	**Concentration (wt %)**	**Non-Carcinogenic TAP?**	**Carcinogenic TAP?**	**Potential TAP Emissions Emissions (lb/hr)**	**Potential TAP Emissions Emissions (tpy)**	**EL (lb/hr)**
Iron oxide fume (Fe)	70	Yes	No	1.16E-02	5.07E-02	3.33E-01

[1] Emission factor reference: Broman B, et al, The Swedish Institute of Production Engineering Research., March 1994. Component in fumes from mild steel: metal oxides with 67-73% iron, 2-10% manganese and copper from ND to 1.4%. Manganese oxide and copper oxide are not IDAPA TAPs.

Blasting Emission Factors

Pollutant	Emission Factor lb/1,000 lb abrasive*	EF Source
PM	3	AP-42 Table 13.2.6-1 5 mph wind speed
PM	5.5	AP-42 Table 13.2.6-1 10 mph wind speed
PM	9.1	AP-42 Table 13.2.6-1 15 mph wind speed
PM-10	1.3	AP-42 Table 13.2.6-1
PM-2.5	0.1	AP-42 Table 13.2.6-1

*Limited data from Reference 3 give a comparison of total PM emissions from abrasive blasting using various media. The study indicates that, on the basis of tons of abrasive used, total PM emissions from abrasive blasting using grit are about 24 percent of total PM emissions from abrasive blasting with sand. The study also indicates that total PM emissions from abrasive blasting using shot are about 10 percent of total PM emissions from abrasive blasting with sand. Since Gem State will use steel shot, the EF's from AP-42 for sand blasting have been reduced by 90%.

Abrasive Blasting PTE

Blasting ID	Abrasive Usage 10^3 lb/hr	Operating Hours (hours/year)	Control Efficiency (%)	PM lb/hr	PM tpy	PM10 lb/hr	PM10 tpy	PM2.5 lb/hr	PM2.5 tpy
Semi-automated Blasting	88.8	8760	50	119.880	525.074	57.720	252.814	5.77E+00	2.53E+01
Total				**119.88**	**525.07**	**57.72**	**252.81**	**5.77**	**25.28**

Semi-automated blasting is controlled by a primary MERV 15 filter and a secondary safety MERV 16 filter and occurs inside building. Filter control efficiency for a MERV 15 filter for particle size 0.3 to 1.0 um = 85-94.9%; particle size 1.0 to 3.0 um = >90%; particle size 3.0 to 10.0 um = >90%. Filter control efficiency for a MERV 16 filter for all particle sizes = greater than or equal to 95%. Assume 50% control because process is conducted inside building, and therefore considered inherent to the process.

Since semi-automated blasting is conducted indoors, the 5 mph PM emission factor was used.

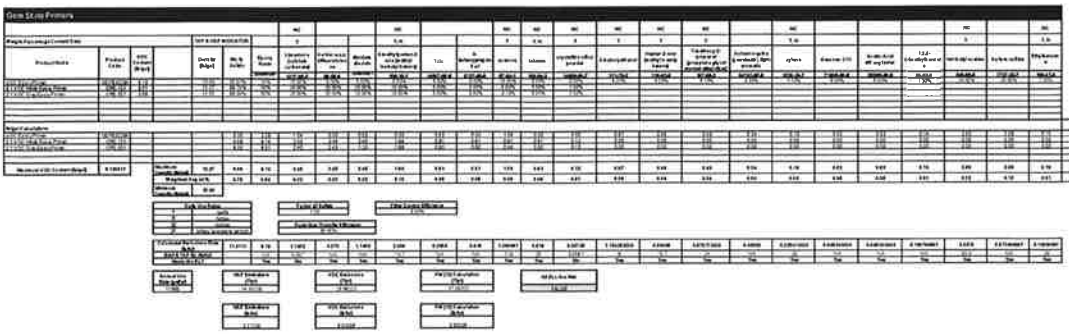
Abrasive Blasting TAPs PTE

PM emissions		119.88 lb/hr				
Pollutant	**Concentration (wt %)**	**Non-Carcinogenic TAP?**	**Carcinogenic TAP?**	**Potential TAP Emissions Emissions [1] (lb/hr)**	**Potential TAP Emissions Emissions (tpy)**	**EL (lb/hr)**
Iron oxide fume (Fe)[2]	96	Yes	No	-	-	-
Manganese	1.18	Yes	No	1.41E+00	6.17E+00	3.33E-01
Silicon	0.18	Yes	No	2.10E-01	9.19E-01	6.67E-01
Phosphorus	0.04	Yes	No	4.20E-02	1.84E-01	7.00E-03

[1] Semi-automated blasting is controlled by a primary MERV 15 filter and a secondary safety MERV 16 filter and occurs inside building. Filter control efficiency for a MERV 15 filter for particle size 0.3 to 1.0 um = 85-94.9%; particle size 1.0 to 3.0 um = >90%; particle size 3.0 to 10.0 um = >90%. Filter control efficiency for a MERV 16 filter for all particle sizes = greater than or equal to 95%. Assume an additional 50% control from building enclosure (building enclosure considered inherent to the process)

[2] Iron is listed as a TAP in the form of Iron oxide fume (Fe2O3). The weight percent shown is for Iron. Iron oxide fume is formed when Iron oxide is heated to high temperatures. Since the abrasive blasting is not a heated process iron oxide fumes are not expected to be formed.

Pollutant concentration information from SDS for Low Carbon Cast Steel Shot, Maltec Steel Abrasive Co.



Gem State Primers

Product Name	Product Code	VOC Content (lb/gal)		Density (lb/gal)	Wt. % Solids	4-chloro-α,α,α-trifluorotoluene	butan-1-ol (n-butyl alcohol)	ethylenediamine	(dimethylamino)methyl)phenol	HAPS
							NC	NC		
Weight Percentage Content Data				TAP & HAP INDICATOR			Y	Y		
						98-56-6	71-36-3	107-15-3	[illegible]	
Low Cure Catalyst	[illegible]	8.31		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
lb/gal Calculations										HAPS
Low Cure Catalyst	[illegible]				3.20	7.13	1.61	0.29	0.20	
Maximum VOC Content (lb/gal)	8.3[illegible]		Maximum Density (lb/gal)	8.61	3.20	7.13	1.61	0.29	0.20	0.00
			Weighted Avg wt %		0.34	0.75	0.18	0.03	0.02	0.00
			Minimum Density (lb/gal)	8.61						

Daily Use Rates	
1.00	gal/hr
8	hr/day
8	gal/day
24	hr/day (averaging period)

Factor of Safety
1.00

Filter Control Efficiency
[illegible]

Paint Gun Transfer Efficiency
[illegible]

Calculated Emissions Rate (lb/hr)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
IDAPA TAP EL (lb/hr)		N/A	[illegible]	[illegible]	N/A
Meets the EL?		Yes	Yes	Yes	Yes

Annual Use Rate (gal/yr)
2920

HAP Emissions (T/yr)	VOC Emissions (T/yr)	PM (10) Calculation (T/yr)	All ELs Are Met
0.00000	[illegible]	[illegible]	TRUE

HAP Emissions (lb/hr)	VOC Emissions (lb/hr)	PM (10) Calculation (lb/hr)
0.00000	[illegible]	[illegible]

Gem State Primers

						NC	
Weight Percentage Content Data				TAP & HAP INDICATOR		T	
Product Name	Product Code	VOC Content (lb/gal)		Density (lb/gal)	Wt. % Solids	acetone	
						67-64-1	
Acetone		6.59		6.59	0.00%	100.00%	

lb/gal Calculations							HAPS
Acetone	0				0.00	6.59	0.00	
0	0				0.00	0.00	0.00	
Maximum VOC Content (lb/gal)	6.59255		Maximum Density (lb/gal)	6.59	0.00	6.59	0.00	
			Weighted Avg wt %		0.00	1.00	0.00	
			Minimum Density (lb/gal)	6.59				

Daily Use Rates	
1.00	gal/hr
8	hr/day
8	gal/day
24	hr/day (averaging period)

Factor of Safety
1.00

Filter Control Efficiency
0.00%

Paint Gun Transfer Efficiency
65.00%

Calculated Emissions Rate (lb/hr)	0	2.1975167	0
ID/APA TAP EL (lb/hr)		119	705
Meets the EL?		Yes	Yes

Annual Use Rate (gal/yr)
2920

HAP Emissions (T/yr)
0.00000

VOC Emissions (T/yr)
9.62512

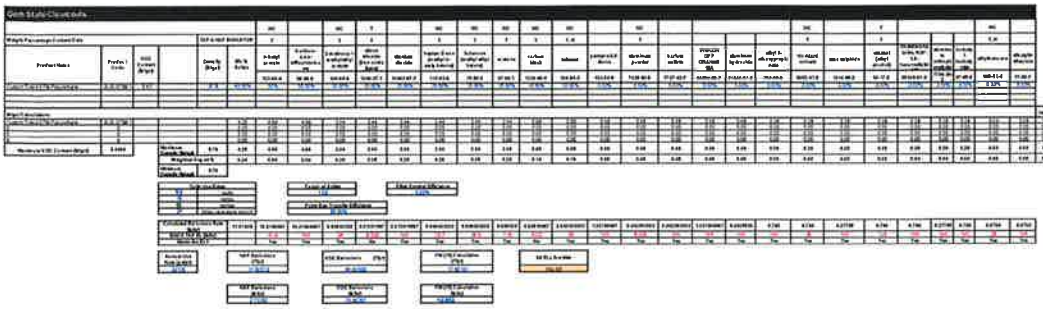
PM (10) Calculation (T/yr)
0.00000

All ELs Are Met
TRUE

HAP Emissions (lb/hr)
0.00000

VOC Emissions (lb/hr)
2.19792

PM (10) Calculation (lb/hr)
0.00000


Gem State Clover mills

Gem State Hardener Chemicals

								NC	NC								
Weight Percentage Content Data				TAP & HAP INDICATOR				T, H	T								
Product Name	Product Code	VOC Content (lb/gal)		Density (lb/gal)	Wt. % Solids	Hexamethylene diisocyanate, oligomers	ethyl 3-ethoxypropionate	hexamethylene-di-isocyanate	heptan-2-one (Methyl n-amyl ketone)								
						28182-81-2	763-69-9	822-06-0	110-43-0								
Single Stage Hardener	ESH200	1.04		9.51	89.04%	90.00%	25.00%	0.20%	0.00%								
Urethane Hardener	GXH1066	1.27051		9.18	88.16%	90.00%	0.00%	0.20%	15.00%								
lb/gal Calculations																	HAPS
Single Stage Hardener	ESH200				8.47	8.56	2.38	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Urethane Hardener	GXH1066				7.91	8.26	0.00	0.02	1.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Maximum VOC Content (lb/gal)	1.270512		Maximum Density (lb/gal)	9.51	8.47	8.56	2.38	0.02	1.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
			Weighted Avg wt %		0.91	0.92	0.25	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.002
			Minimum Density (lb/gal)	9.18													

Daily Use Rates	
1.63	gal/hr
10	hr/day
16.25	gal/day
24	hr/day (averaging period)

Factor of Safety
1.00

Paint Gun Transfer Efficiency
65.00%

Filter Control Efficiency
0.00%

Isocyanate reaction factor (control for isocyanate particulates)
85.00%

Calculated Emissions Rate (lb/hr)	13.760019	0.869273438	1.609765625	0.001931719	0.93234375	0	0	0	0	0	0	0
IDAPA TAP EL (lb/hr)		N/A	N/A	0.002	15.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Meets the EL?		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Annual Use Rate (gal/yr)
5931.25

HAP Emissions (T/yr)
0.05641

VOC Emissions (T/yr)
3.76786

PM (10) Calculation (T/yr)
8.78921

All ELs Are Met
TRUE

HAP Emissions (lb/hr)
0.01288

VOC Emissions (lb/hr)
0.86024

PM (10) Calculation (lb/hr)
2.00687

Gem State Hardener Chemicals

						NC		
Weight Percentage Content Data				TAP & HAP INDICATOR		T		
Product Name	Product Code	VOC Content (lb/gal)		Density (lb/gal)	Wt. % Solids	heptan-2-one (Methyl n-amyl ketone)		
						110-43-0		
Methyl Amyl Ketone	Q70	6.76		6.76	0.00%	100.00%		
lb/gal Calculations								HAPS
Methyl Amyl Ketone	Q70				0.00	6.76	0.00	
0	0				0.00	0.00	0.00	
Maximum VOC Content (lb/gal)	6.76		Maximum Density (lb/gal)	6.76	0.00	6.76	0.00	0.00
			Weighted Avg wt %		0.00	1.00	0.00	0.000
			Minimum Density (lb/gal)	6.76				

Daily Use Rates	
0.81	gal/hr
10	hr/day
8.125	gal/day
24	hr/day (averaging period)

Factor of Safety
1.00

Filter Control Efficiency
0.00%

Paint Gun Transfer Efficiency
65.00%

Calculated Emissions Rate (lb/hr)	0	2.288541667	0
IDAPA TAP EL (lb/hr)		16.7	N/A
Meets the EL?		Yes	Yes

Annual Use Rate (gal/yr)
2968.625

HAP Emissions (T/yr)
0.00000

VOC Emissions (T/yr)
10.02381

PM (10) Calculation (T/yr)
0.00000

All ELs Are Met
TRUE

HAP Emissions (lb/hr)
0.00000

VOC Emissions (lb/hr)
2.28854

PM (10) Calculation (lb/hr)
0.00000

Gem State Hardener Chemicals

Weight Percentage Content Data				TAP & HAP INDICATOR					
Product Name	Product Code	VOC Content (lb/gal)		Density (lb/gal)	Wt. % Solids	pentane-2,4-dione	dibutyltin diacurate		
						123-54-6	77-58-7		
Urethane Accelerator	UA-11	8.04		8.18	1.69%	90.00%	2.00%		
lb/gal Calculations									HAPS
Urethane Accelerator	UA-11				0.14	7.36	0.16	0.00	
Maximum VOC Content (lb/gal)	8.041758		Maximum Density (lb/gal)	8.18	0.14	7.36	0.16	0.00	0.00
			Weighted Avg wt %		0.02	0.90	0.02	0.00	0.000
			Minimum Density (lb/gal)	8.18					

Daily Use Rates	
0.41	gal/hr
10	hr/day
4.0625	gal/day
24	hr/day (averaging period)

Factor of Safety
1.00

Filter Control Efficiency
0.00%

Paint Gun Transfer Efficiency
65.00%

Calculated Emissions Rate (lb/hr)	0.05616081	1.246171875	0.027692708	0
IDAPA TAP EL (lb/hr)		N/A	N/A	N/A
Meets the EL?		Yes	Yes	Yes

Annual Use Rate (gal/yr)
1462.8125

HAP Emissions (T/yr)
0.00000

VOC Emissions (T/yr)
5.96221

PM (10) Calculation (T/yr)
0.03587

All ELs Are Met
TRUE

HAP Emissions (lb/hr)
0.00000

VOC Emissions (lb/hr)
1.36124

PM (10) Calculation (lb/hr)
0.00819

Table 4. PRE- AND POST PROJECT CARCINOGENIC TAP EMISSIONS SUMMARY
POTENTIAL TO EMIT

Carcinogenic Toxic Air Pollutants (sum of all emissions)	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)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Benzene	**0.00E+00**	**1.19E-05**	**1.19E-05**	**8.00E-04**	**No**
Formaldehyde	**0.00E+00**	**4.25E-04**	**4.25E-04**	**5.10E-04**	**No**
2-Methylnaphthalene	**0.00E+00**	**1.36E-07**	**1.36E-07**	**9.10E-05**	**No**
3-Methylchloranthrene	**0.00E+00**	**1.02E-08**	**1.02E-08**	**9.10E-05**	**No**
7,12-Dimethylbenz(a)anthracene	**0.00E+00**	**9.06E-08**	**9.06E-08**	**9.10E-05**	**No**
Acenaphthylene	**0.00E+00**	**1.02E-08**	**1.02E-08**	**9.10E-05**	**No**
Benzo(a)pyrene	**0.00E+00**	**6.79E-09**	**6.79E-09**	**2.00E-06**	**No**
Benzo(b)fluoranthene	**0.00E+00**	**1.02E-08**	**1.02E-08**	**2.00E-06**	**No**
Benzo(k)fluoranthene	**0.00E+00**	**1.02E-08**	**1.02E-08**	**2.00E-06**	**No**
Dibenzo(a,h)anthracene	**0.00E+00**	**6.79E-09**	**6.79E-09**	**2.00E-06**	**No**
Acenaphthene	**0.00E+00**	**1.02E-08**	**1.02E-08**	**9.10E-05**	**No**
Anthracene	**0.00E+00**	**1.36E-08**	**1.36E-08**	**9.10E-05**	**No**
Benzo(a)anthracene	**0.00E+00**	**1.02E-08**	**1.02E-08**	**2.00E-06**	**No**
Benzo(g,h,i)perylene	**0.00E+00**	**6.79E-09**	**6.79E-09**	**9.10E-05**	**No**
Chrysene	**0.00E+00**	**1.02E-08**	**1.02E-08**	**2.00E-06**	**No**
Fluoranthene	**0.00E+00**	**1.70E-08**	**1.70E-08**	**9.10E-05**	**No**
Fluorene	**0.00E+00**	**1.59E-08**	**1.59E-08**	**9.10E-05**	**No**
Indeno(1,2,3-cd)pyrene	**0.00E+00**	**1.02E-08**	**1.02E-08**	**2.00E-06**	**No**
Phenanthrene	**0.00E+00**	**9.63E-08**	**9.63E-08**	**9.10E-05**	**No**
Pyrene	**0.00E+00**	**2.83E-08**	**2.83E-08**	**9.10E-05**	**No**
Arsenic	**0.00E+00**	**1.13E-06**	**1.13E-06**	**1.50E-06**	**No**
Beryllium	**0.00E+00**	**6.79E-08**	**6.79E-08**	**2.80E-05**	**No**
Cadmium	**0.00E+00**	**6.23E-06**	**6.23E-06**	**3.70E-06**	**Yes**
Nickel	**0.00E+00**	**7.39E-05**	**7.39E-05**	**2.70E-05**	**Yes**
POM	**0.00E+00**	**6.45E-08**	**6.45E-08**	**2.00E-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.

**Fugitive welding and abrasive blasting emissions included

E = Emission Limit = $0.045(PW)^{0.60}$, if PW is less than 9,250 lb/hr. E = $1.10(PW)^{0.25}$, if PW is greater than 9,250 lb/hr.

System Description	Maximum Solids Content (lb/gal)	Maximum Usage Rate (gal/hr)	Controlled PM Emission Rate (lb/hr)	Process Weight Rate Limitations - E (lb/hr)	In Compliance? (Y/N)
Primer	8.56	4.00	3.99E+00	3.75E-01	No
Catalyst	3.2	1.0	3.73E-01	9.04E-02	No
Acetone	0.0	1.0	0.00E+00	0.00E+00	Yes
Poly Paint	4.3	6.5	4.03E+00	3.30E-01	No
Hardener	8.5	1.6	2.01E+00	2.17E-01	No
Q70	0.0	0.8	0.00E+00	0.00E+00	Yes
Accelerator	0.1	0.4	8.19E-03	8.00E-03	No
System Description		**Maximum Usage Rate (lb/hr)**	**Controlled PM Emission Rate (lb/hr)**	**Process Weight Rate Limitations - E (lb/hr)**	**In Compliance? (Y/N)**
Welding		6.2	0.032	1.34E-01	Yes
Abrasive Blasting		88,800	119.880	1.90E+01	No

APPENDIX B – FACILITY DRAFT COMMENTS

The following comments were received from the facility on August 24, 2018:

Facility Comment: Permit Scope page 3.

- Bernard clean air fume extraction gun needs to be updated to new guns (to be determined).
- Donaldson Torit Ultra-Web Filters need to be replaced with the info from Trey Haworth as recommended.

DEQ Response: Zero control efficiency was used from the bernard clean air fume extraction gun to determine the emissions generated from the welding process. This piece of equipment has been removed from the permit and statement of basis.

Emissions generated from the abrasive blasting process were calculated using the control efficiency of the MERV 15 at 90.0%, and MERV 16 at 95.0% control efficiency. To ensure permit emission limits are met filters with this control efficiency must be used. An engineering analysis will need to be completed if different control efficiency filters are to be used. This change shall not be made.

Facility Comment: Cutting and Welding Fabrication page 4.

- Internal baghouses need to be changed to cartridge filters.
- Weldpro 360 Fume extraction manufacture needs to be changed to weld pro 360 fume extraction system.

DEQ Response: internal baghouses has been changed to cartridge filters. The manufacture BCP for the weldpro 360 has been changed to weldpro 360 fume extraction system.

Facility Comment: Abrasive Blasting page 7.

- Remove shall not reuse blasting media since – Steel shot is recycled in unit until too small and dumped in waste barrel.
- Donaldson Torit Ultra-Web filters need to be replaced with the info from Trey Haworth as recommended.
- Section 3.5 remove shall not reuse blasting media.

DEQ Response: The reuse permit condition for the abrasive blasting has been removed. Abrasive blasting is completed inside of a booth with two filters to control $PM_{2.5}$, thus reusing the abrasive blasting will generate more $PM_{2.5}$, however this will be captured by the booth filters. Reusing this media will not generate more $PM_{2.5}$ emissions venting to the atmosphere.

Emissions generated from the abrasive blasting process were calculated using the control efficiency of the MERV 15 at 90.0%, and MERV 16 at 95.0% control efficiency. To ensure permit emission limits are met filters with this control efficiency must be used. An engineering analysis will need to be completed if different control efficiency filters are to be used. This change shall not be made.

Section 3.5, reuse permit condition for the abrasive blasting has been removed. Abrasive blasting is completed inside of a booth with two filters to control $PM_{2.5}$, thus reusing the abrasive blasting will generate more $PM_{2.5}$, however this will be captured by the booth filters. Reusing this media will not generate more $PM_{2.5}$ emissions venting to the atmosphere.

Facility Comment: Coating Operations page 9.

- Application of paint and primer happen concurrently and have the ability to use 4 guns at a time. Not 1 gun at a time.
- Question on hours of painting when we are limited by gallons per day.

DEQ Response: The permit has been revised to reflect four paint spray guns along with the paint and primer applied concurrently.

The emissions generated due to the painting and primer applications are based off of the facility application using a daily hourly rate of 8 hours per day for primer, and 10 hours a day for paint. This was further broken down into the ratio used per application to calculate the gallons per day and then applied to the facility annual operational hours to calculate the annual usage. The safety data sheets were used with this data to determine the volatile organic chemicals, toxic air pollutants, hazardous air pollutants, and particulate emissions. In order to ensure the emission limits and NAAQS are not exceeded, the daily and annual usage limits listed in the permit must be followed.

Facility Comment: Statement of Basis page 5.

- HVLP guns instead of 1.
- Welding machines instead of 1 (2 welders per machine).
- Cartridge filters instead of internal baghouse.
- Remove (however this fume extraction is not being used) as we will start using this system.
- Change application of primer and paint do not occur concurrently.

DEQ Response: One HVLP spray gun has been revised to four HVLP spay guns.

The application submitted by the facility only lists one welding machine and various hand welders. This shall not be changed.

Internal baghouses has been changed to cartridge filters.

The emissions generated due to welding did not use the fume extraction system. This shall not be changed, as this change would affect the emission inventory and require a new engineering analysis.

Primer and paint has been changed to reflect that this process can occur concurrently.

Facility Comment: Technical Analysis page 7.

- Weldpro 360 Fume extraction manufacture needs to be changed to weld pro 360 fume extraction system.
- Donaldson Torit Ultra-Web Filters need to be replaced with the info from Trey Haworth as recommended.

DEQ Response: The manufacture for the Weldpro 360 Fume Extraction has been changed to reflect your request.

Emissions generated from the abrasive blasting process were calculated using the control efficiency of the MERV 15 at 90.0%, and MERV 16 at 95.0% control efficiency. To ensure permit emission limits are met filters with this control efficiency must be used. An engineering analysis will need to be completed if different control efficiency filters are to be used. This change shall not be made.

APPENDIX C – 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: Gem State Manufacturing - Skyway
Address: 3820 Skyway
City: Caldwell
State: Idaho
Zip Code: 83605
Facility Contact: Bruce Wiegers
Title: Operations Manager
AIRS No.: 336212

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_X	0.9	0	0.9
SO_2	0.0	0	0.0
CO	0.6	0	0.6
PM10	0.6	0	0.6
VOC	95.1	0	95.1
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0	**97.1**
Fee Due	**$ 5,000.00**		

Comments: