# TECHNICAL SUPPORT DOCUMENT

**Air Discharge Permit ADP 24-3646**
**Air Discharge Permit Application CL-3262**

**Issued: June 5, 2024**

**Thompson Metal Fab**

**SWCAA ID - 954**

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## ABBREVIATIONS

*List of Acronyms*

| | |
|---|---|
| ADP | Air Discharge Permit |
| AP-42 | Compilation of Emission Factors, AP-42, 5th Edition, Volume 1, Stationary Point and Area Sources – published by EPA |
| ASIL | Acceptable Source Impact Level |
| BACT | Best available control technology |
| CAM | Compliance Assurance Monitoring |
| CAS# | Chemical Abstracts Service registry number |
| CFR | Code of Federal Regulations |
| EPA | U.S. Environmental Protection Agency |
| EU | Emission Unit |
| MACT | Maximum Achievable Control Technologies |
| mfr | Manufacturer |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NOV | Notice of Violation/ |
| NSPS | New Source Performance Standard |
| PSD | Prevention of Significant Deterioration |
| RACT | Reasonably Available Control Technology |
| RCW | Revised Code of Washington |
| SCC | Source Classification Code |
| SDS | Safety Data Sheet |
| SQER | Small Quantity Emission Rate listed in WAC 173-460 |
| Standard | Standard conditions at a temperature of 68°F (20°C) and a pressure of 29.92 in Hg (760 mm Hg) |
| SWCAA | Southwest Clean Air Agency |
| T-BACT | Best Available Control Technology for toxic air pollutants |
| WAC | Washington Administrative Code |

*List of Units and Measures*

| | |
|---|---|
| acfm | Actual cubic foot per minute |
| bhp | Brake horsepower |
| dscfm | Dry Standard cubic foot per minute |
| gpm | Gallon per minute |
| gr/dscf | Grain per dry standard cubic foot |
| hp | Horsepower |
| hp-hr | Horsepower-hour |
| MMBtu | Million British thermal unit |
| MMcf | Million cubic feet |
| ppm | Parts per million |
| ppmv | Parts per million by volume |
| ppmvd | Parts per million by volume, dry |
| ppmw | Parts per million by weight |
| scfm | Standard cubic foot per minute |
| tph | Ton per hour |
| tpy | Tons per year |

*List of Chemical Symbols, Formulas, and Pollutants*

| | |
|---|---|
| CO | Carbon monoxide |
| $CO_2$ | Carbon dioxide |
| $CO_2e$ | Carbon dioxide equivalent |
| HAP | Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act |
| $NO_X$ | Nitrogen oxides |
| $O_2$ | Oxygen |
| PM | Particulate Matter with an aerodynamic diameter 100 µm or less |
| $PM_{10}$ | PM with an aerodynamic diameter 10 µm or less |
| $PM_{2.5}$ | PM with an aerodynamic diameter 2.5 µm or less |
| $SO_2$ | Sulfur dioxide |
| $SO_x$ | Sulfur oxides |
| TAP | Toxic air pollutant pursuant to Chapter 173-460 WAC |
| VOC | Volatile organic compound |

Terms not otherwise defined have the meaning assigned to them in the referenced regulations or the dictionary definition, as appropriate.

## 1. FACILITY IDENTIFICATION

| | |
|---|---|
| Applicant Name: | Thompson Metal Fab, Inc. |
| Applicant Address: | 3000 SE Hidden Way, Vancouver, WA 98661 |
| Facility Name: | Thompson Metal Fab |
| Facility Address: | 3000 SE Hidden Way, Vancouver, WA 98661 |
| SWCAA Identification: | 954 |
| Contact Person: | Peter Hatfield, HS&E Manager |
| Primary Process: | Fabricated Structural Metal |
| SIC/NAICS Code: | 3441 / Fabricated Structural Metal<br>332312 / Fabricated Structural Metal Manufacturing |
| Facility Classification: | Title V Opt-out (HAP) |

## 2. FACILITY DESCRIPTION

Thompson Metal Fab, Inc. (Thompson) operates a metal fabrication and coating facility that specializes in large structural steel projects. The Thompson facility operates in Building 40, Bays 5 through 11 in the Columbia Business Park located at 3000 SE Hidden Way in Vancouver, Washington. Other building locations and outdoor areas are occupied on a temporary basis in support of specific projects. This facility currently operates under voluntary emission limits and is classified as a synthetic minor source (Title V opt-out).

## 3. CURRENT PERMITTING ACTION

This permitting action is in response to Air Discharge Permit application number CL-3262 (ADP Application CL-3262) dated February 23, 2024. Thompson Metal Fab submitted ADP Application CL-3262 requesting approval of the following:

- Replacement of the existing Peddinghaus FDB 1500 plate cutting machine with a Peddinghaus FDB 2500 plate cutting machine of similar configuration;
- Repurposing of the Torit DFT2-8 dust collector (formerly dedicated to the Peddinghaus FDB 1500 cutting machine) from dedicated use to general portable use; and
- Operation of a Bartell Global SPE12ES shot blaster.

The current permitting action provides approval for the proposed equipment modifications. ADP 24-3646 will supersede ADP 21-3481 in its entirety.

## 4. PROCESS DESCRIPTION

4.a. Pipe Profile Cutting (*existing*). Thompson operates a CNC controlled pipe profiling machine for cutting bevels and slots in preparation for pipe-to-pipe and pipe-to-plate weld connections.

4.b. Spray Coating Operations – Building 40, Bay 9 (*existing*). Thompson's primary spray coating operations are conducted in Bay 9 of Building 40. Small portable heaters are used to preheat metal parts and maintain bay temperatures for coating application and curing. The paint mixing area for the facility is located in the south end of Bay 9. Coatings are generally received in "as mixed" condition and only require thinning prior to use. Paint and thinner waste are stored in sealed drums prior to recycling in an onsite solvent still. Still bottoms are shipped offsite for disposal.

Most coatings are applied using airless spray guns because High Volume Low Pressure (HVLP) spray equipment does not function well with the types of coatings used at the facility. Airless spray guns typically have rated transfer efficiencies of 60% to 80% depending on the coating being applied. Overspray from Bay 9 is controlled with full building enclosure and paint arrestor pads installed in the bay's exhaust vents.

4.c. Outdoor Surface Prep and Spray Coating Operations (*existing*). Thompson occasionally conducts outdoor surface prep and spray coating operations for structural assemblies that are too large to be handled in the sandblasting room, regular work bays, and/or spray coating bays. Structural pieces of such size are not a common occurrence for Thompson so outdoor operations did not occur frequently. When outdoor operations are conducted, they are usually located in an open parking area south of Thompson's building. Outdoor operations are supported by portable equipment such as air compressors, electric generators, and dust collectors. Portable support equipment may be electric or engine driven. Thompson has installed utility connections in selected portions of the outdoor area in an effort to minimize engine usage.

Fugitive emissions from outdoor operations are captured using temporary enclosures made of scaffolding and plastic sheeting. The headspace of the enclosure is then exhausted to portable dust collectors. VOC emissions are exhausted uncontrolled while PM emissions are controlled by portable dust collectors. Material collected in the dust collectors is stored onsite prior to disposal. Storage bins are kept fully covered to minimize fugitive dust emissions.

4.d. Portable Surface Prep and Spray Coating Operations (*existing*). Thompson operates two dust collectors in support of temporary surface prep and spray coating activities in various locations at the facility. The dust collectors are portable electric units and moved around the facility as needed. Particulate material captured by the portable dust collectors is stored onsite in enclosed metal bins to minimize fugitive dust release.

4.e. Metal Fabrication (*modified*). Metal fabrication operations are performed in Bays 5 through 8 and 10 through 11. The primary source of emissions in this part of the facility is arc welding. Thompson operates three plasma cutting units in this area. Each of the units are serviced by dedicated dust collectors. The work bays are quite large in relation to the average size of the parts fabricated at the facility so fugitive emissions are well contained within the building envelope.

*ADP Application CL-3173. Thompson proposes to replace an existing Peddinghaus plate cutting machine with a new Peddinghaus plate cutting machine of similar configuration. The new unit will be installed at the same spot in Bay 6. The existing Peddinghaus machine has been removed from the facility. The dust collector previously dedicated to the old machine will be maintained on site as a portable unit. No other changes to fabrication and/or welding equipment are proposed.*

4.f. Sandblasting Room (*existing*). Routine sandblasting operations are performed in a fully enclosed blasting room measuring 30' wide by 82' long by 20' high. The facility currently uses three "Sand Storm" blasters, rated at 300 pounds per nozzle per hour, and one garnet blaster that supports 4 nozzles and supplies 1,000 pounds per nozzle per hour. The blasting room vents to two FabriPulse baghouses (primary control). Garnet is the primary blasting media in use at the facility.

4.g. Metalizing Treatment (*existing*). Some of the metal structures produced at the facility are given a "metalizing" treatment. The metalizing treatment consists of a proprietary procedure in which the surface of a metal structure is sandblasted and then plasma coated with a zinc mixture. The entire process is performed inside a full enclosure either permanent or temporary. The enclosure is exhausted to a portable dust collector when in use.

4.h. Vacuum Recovery (*existing*). Surface prep operations at the facility involve a significant amount of abrasive blasting. Spent blast media is collected with various vacuum systems. Most of the vacuum equipment is electrically driven, but a single diesel engine driven unit (PD 2100-D system) is also in operation at the facility.

4.i. Portable Utility Engines (*existing*). Thompson operates engine driven utility equipment in support of daily operations at the facility. This equipment includes pressure washers, small generators, etc. The engines used to power the equipment vary greatly in size. Small units (<20 horsepower) are considered to be insignificant.

## 5. EQUIPMENT/ACTIVITY IDENTIFICATION

5.a. Welding - Metal Fabrication Shop (*existing*). A variety of metal working activities are performed in the fabrication portion of the facility (Bays 4 through 8 and 10 through 14). The primary source of air contaminant emissions is flux cored welding. Emissions from these operations are fugitive in nature.

Location: 45°36'53.49"N 122°38'17.36"W

5.b. Sandblast Room Baghouse #1 (*existing*). This baghouse controls emissions from the sandblast room. The unit operates in tandem with Sandblast Room Baghouse #2.

| | |
|---|---|
| Make/Model: | FabriPulse model B-12-192-3079 |
| Filter Area/Media: | 3,050 square feet, 16 oz/yd$^2$ polyester felt |
| Cleaning Mechanism: | Continuous pulse |
| Exhaust Rate: | 20,000 acfm) |
| Baghouse Exhaust Stack: | Vertical-22" x 28" rectangular duct at 15'3" above ground level |
| Material Catch: | External metal bin |
| Location: | 45°36'52.24"N 122°38'17.93"W |

5.c. Sandblast Room Baghouse #2 (*existing*). This baghouse controls emissions from the sandblast room. The unit operates in tandem with Sandblast Room Baghouse 12.

| | |
|---|---|
| Make/Model: | FabriPulse model B-12-192-3079 |
| Filter Area/Media: | 3,050 square feet, 16 oz/yd$^2$ polyester felt |
| Cleaning Mechanism: | Continuous pulse |
| Exhaust Rate: | 20,000 acfm) |
| Baghouse Exhaust Stack: | Vertical 22" x 28" rectangular duct at 15'3" above ground level |
| Material Catch: | External metal bin |
| Location: | 45°36'52.12"N 122°38'17.94"W |

5.d. Spray Coating - Bay 9 (*existing*). Routine spray coating is performed in Bay 9. Bay 9 in its entirety measures 380' long by 80' wide by 55' high. Spray coating operations are generally performed in the northern half of the bay. Bay 9 has interior walls that partially enclose the work areas from the remainder of the building.

Bay 9 is ventilated at a nominal rate of 41,000 acfm by two exhaust systems located on the north wall of the bay. The intake plenum for the exhaust systems is located at floor level. Each system discharges vertically through a 48" diameter stack at approximately 57' above ground level (2' above roofline). Intake plenums are equipped with one layer of Viscon-Aire Corporation DRICO model XHD Paint Arrestor filters. The filter media is 2" thick and has a rated particulate matter arrestance of 98.3%. Each filter bank has a total filter area of 20 square feet.

Location: 45°36'52.90"N 122°38'17.81"W (Stack 1)
45°36'52.90"N 122°38'17.69"W (Stack 2)

5.e. Portable Natural Gas Fired Heaters (*existing*). Eight natural gas fired space heaters are used to temper air and metal parts prior to spray coating. (2) units are rated at 855,360 Btu/hr each. (6) units are rated at 400,000 Btu/hr each. Combined heat input from all units is 4,110,720 Btu/hr.

Location: 45°36'54.70"N 122°38'17.82"W

5.f. Portable Dust Collector #1 (*existing*). This unit is a skid mounted cartridge collector used to control emissions from temporary/portable operations in various locations at the facility. The unit is electrically powered.

| | |
|---|---|
| Make/Model: | Torit DownFlo model DFT 2-16 (s/n IG348320-001) |
| Filter Area/Media: | 4,084 square feet<br>16 filter cartridges (14" dia x 28" long) made of spun polyester<br>(99.999% efficiency @ 0.5 microns or larger) |
| Cleaning Mechanism: | Reverse air jet |
| Exhaust Rate: | 14,000 acfm |
| Baghouse Exhaust Stack: | Vertical 24" x 30" rectangular duct at 14'4" above ground level |
| Material Catch: | External metal bin |

5.g. Portable Dust Collector #2 (*existing*). This unit is a skid mounted cartridge collector used to control emissions from temporary/portable operations in various locations at the facility. The unit is electrically powered.

| | |
|---|---|
| Make/Model: | Farr model 24D (s/n 96DC23416) |
| Filter Area/Media: | 6,768 square feet<br>24 filter cartridges (12" dia x 34.5" long)<br>(99.999% efficiency @ 0.5 microns or larger) |
| Cleaning Mechanism: | Reverse air jet |
| Exhaust Rate: | 15,000 acfm |
| Baghouse Exhaust Stack: | Vertical 20" x 24" rectangular duct at 14'4" above ground level |
| Material Catch: | External metal bin |

5.h. *Peddinghaus Plasma Cutter (removed). This unit is a plasma plate cutting machine located in the north end of Building 40, Bay 6. Emissions from cutting operations are captured by vacuum pickups and vented to a dedicated dust collector located adjacent to the unit. Specific equipment information is listed below:*

| | |
|---|---|
| *Cutting Table Make/Model:* | *Peddinghaus / FDB1500* |
| *Plasma Torch Make/Model:* | *Hypertherm* |

*ADP Application CL-3262. Thompson has removed the Peddinghaus FDB 1500 plate cutting machine from service. The unit will be replaced by the Peddinghaus FDB 2500 plate cutting machine described below.*

*5.i. Portable Dust Collector #3 (modified). This unit is a skid mounted cartridge collector used to control emissions from temporary/portable operations in various locations at the facility. The unit is electrically powered.*

| | |
|---|---|
| *Make/Model:* | *Torit model DFT2-8* |
| *Filter Media:* | *8 cartridges (13.8" dia x 26" long) made of spun glass fiber*<br>*(99.99% efficiency @ 1 micron)* |
| *Cleaning Mechanism:* | *Reverse pulse jet* |
| *Exhaust Rate:* | *1,500 acfm (nominal)* |
| *Baghouse Exhaust:* | *7" diameter, vertical at ~10' above ground level* |
| *Material Catch:* | *External drum* |

*ADP Application CL-3262. This dust collector was previously dedicated to the Peddinghaus FDB 1500 plate cutting machine and located in Bay 6. Subsequent to removal of the cutting machine, Thompson proposes to maintain the unit in service at the facility as a portable dust collector.*

5.j. Outdoor Surface Prep and Spray Coating Equipment (*existing*). Multiple pieces of portable equipment are employed as necessary to support outdoor operations. Generally, the units involved are portable diesel engine driven compressors, baghouses, light stations, etc. The exact size and number of units depends on the project. Total engine use is limited to 800,000 hp-hr/yr.

5.k. PD 2100-D Skid-Mounted Vacuum System (*existing*). One Safe Systems model PD 2100-D vacuum system powered by a Cummins diesel engine. The system is mounted on a skid and used to collect spent blast media from various locations onsite. Equipment specifications are as follows:

| | |
|---|---|
| Vacuum Capacity/Exhaust: | 2,100 acfm free flow exhausted through 8" diameter duct at ~13' above ground |
| Filter Description: | Four cartridge-style filters rated at MERV 12 with 222 $ft^2$ of filter area each |
| Cleaning Mechanism: | Reverse flow |
| | |
| Engine Make/Model: | Cummins model B3.9-P (s/n 46120373) |
| Engine Rating/Fuel Usage: | 110 horsepower, 5.15 gal/hr diesel |
| Engine Mfg Date: | 2001 (EPA Tier 1 certified) |
| Engine Exhaust Stack: | Vertical ~3" diameter pipe at 10' above ground level |

5.l. Portable Engine – Whisper Watt Genset (*existing*). One Whisper Watt model DCA-150 SSK (S/N #3653417) portable generator powered by a Komatsu diesel engine. Engine specifications are as follows:

| | |
|---|---|
| Engine Make/Model: | Komatsu model SAD 110-1 (s/n 67521) |
| Engine Rating: | 180 hp |
| Engine Mfg Date: | 1993 |

5.m. Pipe Profiling Machine (*existing*). One CNC controlled pipe profiling machine located in Building 40, Bay 7. Emissions from cutting operations are captured by process enclosure and exhausted through a dedicated dust collector located adjacent to the unit. Equipment specifications are as follows:

| | |
|---|---|
| Make/Model: | HGG ProCutter model PC-600 |
| Dust Collector: | Avani Environmental model ECO-3000 (s/n 100607) |
| Filter Media: | 2 cartridges (15" dia x 26" long) made of spun polyester (99% efficiency @ 1 micron) |
| Cleaning Mechanism: | Reverse pulse jet |
| Exhaust Rate: | 2,340 acfm (nominal) |
| Baghouse Exhaust Stack: | Exhausts inside building through horizontal duct at top of unit |
| Material Catch: | Internal drawer |
| Location: | 45°36'53.32"N 122°38'12.59"W |

5.n. Machitech Cutting Table (*existing*). This unit is a CNC cutting table. The unit is equipped with a 5-axis robotic plasma torch, five semi-automated oxy/fuel torch heads with bevel cutting capabilities, a 50 hp drill motor w/ 12 tool auto tool-changer and linear servo motor drives. The table has a downdraft configuration. Captured fume and particulate matter are vented to a cartridge-style dust collector.

| | |
|---|---|
| Cutting Table Make/Model: | Machitech / TitaniumCut (s/n: 63025) |
| Table Dimensions: | 20' x 82' (equipment footprint)<br>10' x 60' (cutting table). |
| Plasma Torch Make/Model: | Hypertherm "HyPerformance" HPR400XD (s/n: HPR400-007975) |
| Mfg Date: | 2021 |

Dust Collector. This unit is dedicated to controlling fume and particulate emissions from the Machitech Plasma Cutting Table. Specific equipment information is listed below.

| | |
|---|---|
| Make/Model: | Camfil / GSX16 (s/n N71896) |
| Rated Airflow: | 6,900 cfm (@ 16.0" w.c.) |
| Filter Area: | 6,000 $ft^2$ (16 Cartridges) |
| Cleaning Method: | Pulse Jet |
| Mfg Date: | 2021 |
| Exhaust Stack: | 14" diameter, vertical at ~25' above ground level |
| Location: | 45°36'57.01"N 122°38'21.18"W |

5.o. BeamCut Beamline System (*existing*). This unit is an automated beam cutting system used to process I beam, HSS, round tube, pipe, W beam, etc. The unit is equipped with a Fanuc 5-axis 10M robotic arm, 60' of infeed conveyers, 40' of outfeed conveyers, and 12' of transfer conveyors at both the infeed and outfeed. Fume and particulate matter generated from plasma cutting are captured and vented to a cartridge-style dust collector.

| | |
|---|---|
| System Make/Model: | BeamCut / BC50 (s/n P740-001) |
| Table Dimensions: | 12' x 132' (equipment footprint)<br>4' x 60' (max cutting dimensions). |
| Plasma Torch Make/Model: | Hypertherm XPR300 (s/n: XPR300-004785) |
| Mfg Date: | 2021 |

Dust Collector. This unit is dedicated to controlling fume and particulate emissions from the BeamCut Beamline System. Specific equipment information is listed below:

| | |
|---|---|
| Make/Model: | Camfil GSX6 (s/n N73546) |
| Rated Airflow: | 3,150 cfm (@ 12.0" w.c.) |
| Filter Area: | 2,250 $ft^2$ (6 Cartridges) |
| Cleaning Method: | Pulse Jet |
| Mfg Date: | 2021 |
| Exhaust Stack: | 14" diameter, vertical at ~25' above ground level |
| Location: | 45°36'52.81"N 122°38'21.42"W |

*5.p. Peddinghaus Plate Cutting Machine (new). This unit is a plate cutting machine located in the north end of Building 40, Bay 6. Emissions from cutting operations are captured by vacuum pickups and vented to a dedicated dust collector located adjacent to the unit.*

| | |
|---|---|
| *Cutting Table Make/Model:* | *Peddinghaus / FDB 2500 (s/n 89269)* |
| *Plasma Torch Make/Model:* | *Hypertherm* |

*Dust Collector. This unit is dedicated to controlling fume and particulate emissions from the Peddinghaus FDB 2500 plate cutting machine.*

| | |
|---|---|
| *Make/Model:* | *Torit model DFO2-8 (s/n 3704625)* |
| *Filter Media:* | *8 cartridges / Ultra-Web media* |
| *Exhaust Rate:* | *1,500 acfm (nominal)* |
| *Cleaning Mechanism:* | *Reverse pulse jet* |
| *Material Catch:* | *Internal bin* |
| *Baghouse Exhaust:* | *14" diameter, vertical at ~25' above ground level* |
| *Location:* | *45°36'57.03"N 122°38'21.20"W* |

*ADP Application CL-3262. Thompson proposes to replace the existing Peddinghaus FDB 1500 plate cutting machine with a new Peddinghaus FDB 2500 plate cutting machine of similar configuration. The new cutting machine will be installed in the same location as the existing cutting machine and equipped with a dedicated duct collector.*

**Insignificant Emission Units.** The following pieces of facility equipment have been determined to have insignificant emissions, and are not registered as emission units:

Solvent Still. One Progressive Recovery, Inc. model SC solvent distillation system. Solvent recovered by the still is reused in on-site coating operations. Still bottoms are stored in vapor-tight drums prior to disposal. Air pollutant emissions from this unit are considered to be negligible due to limited operation and the inherently vapor tight design of the still.

Vacuum Recovery Unit. One Key Series VR-9600 recirculating vacuum. This unit is used on an infrequent basis to collect spent blast media from sandblasting projects outside of the main blast room. Recovered material is captured by a cyclone and water tank configured in series. Air pollutant emissions from this unit are considered to be negligible due to infrequent operation, integral emission controls, and small size.

*Weld Seam Shot Blaster. One Bartell Global portable shot blasting system. This unit is a small, mobile shot blaster used to surface prep weld seams and small sections of large fabricated steel pieces. The unit is manually moved while in use.*

| | |
|---|---|
| *Shot Blaster Make/Model:* | *Bartell Global / SPE12ES-6C (s/n 27773)* |
| *Dust Collector Make/Model:* | *Bartell Global / 12DC-5C (s/n 25938)* |
| *Exhaust Rate:* | *1,020 acfm (nominal)* |
| *Cleaning Mechanism:* | *Reverse pulse jet* |
| *Baghouse Exhaust:* | *Exhausts inside building through horizontal duct at top of unit* |
| *Material Catch:* | *Internal bin* |

*ADP Application CL-3262. Thompson has acquired a small, walk-behind shot blaster for use in the metal fabrication bays. The unit is generally used to clean and prep weld seams on large fabricated pieces where the unit is manually pushed across portions of the affected pieces.*

Pressure Washers. Two portable engine driven pressure washers. Units are employed in various locations in the facility on an 'as needed' basis. Specifications for each unit are as follows:

| | |
|---|---|
| Pressure Washer #1 | Landa model PGHW4-20321E (s/n P1187-2998), mfg'd – 1985<br>11 hp gas engine |
| Pressure Washer #2 | Hydro Brush, mfg'd – 1990<br>11 hp gas engine |

5.q. Equipment/Activity Summary.

| ID No. | Equipment/Activity | Control Equipment/Measure |
|---|---|---|
| 1 | Welding – Metal Fabrication Shops | Building Enclosure |
| 2 | Sandblast Room | Process Enclosure<br>Baghouse 1 (FabriPulse – 20,000 acfm) |
| 3 | Sandblast Room | Process Enclosure<br>Baghouse 2 (FabriPulse – 20,000 acfm) |
| 4 | Spray Coating (Bay 9) | Building Enclosure<br>Paint Arrestor Filters |
| 5 | Portable Natural Gas Fired Heaters | Low Sulfur Fuel (natural gas) |
| 6 | Portable Surface Prep and Spray Coating Operations | Portable Dust Collector #1<br>(Torit – 14,000 acfm) |
| 7 | Portable Surface Prep and Spray Coating Operations | Portable Dust Collector #2<br>(Farr – 15,000 acfm) |
| 8 | Portable Surface Prep and Spray Coating Operations | Portable Dust Collector #3<br>Cartridge Collector (Torit – 1,500 acfm) |
| 9 | Outdoor Surface Prep and Spray Coating Operations | Process Enclosure,<br>Dust Collectors, Vacuum Units |
| 10 | PD 2100-D Skid Mounted Vacuum | Cartridge-style Fabric Filters |
| 11 | Portable Engine<br>PD 2100-D Skid-Mounted Vacuum | EPA Tier 1 Certification<br>Ultra-low Sulfur Fuel (<0.0015% by wt) |
| 12 | Portable Engine<br>Whisper Watt Generator | Ultra-low Sulfur Fuel (<0.0015% by wt) |
| 13 | Portable Engines<br>Outdoor Operations | Engine Age Restriction<br>Operational Limitations<br>Ultra-low Sulfur Fuel (≤ 0.0015% by wt) |
| 14 | PC-600 Pipe Profiling Machine | Pipe Cutter Dust Collector<br>(Avani – 2,340 acfm) |
| 15 | Machitech Plasma Cutting Table | Process Enclosure<br>Dust Collector (Camfil – 6,900 acfm) |
| 16 | BeamCut Beamline System | Process Enclosure<br>Dust Collector (Camfil – 3,150 acfm) |
| 17 | Peddinghaus Plate Cutting Machine | Process Enclosure,<br>Cartridge Collector (Torit – 1,500 acfm) |

## 6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from the equipment and operations proposed in ADP Application CL-3262 consist of nitrogen oxides ($NO_x$), carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM), sulfur dioxide ($SO_2$), toxic air pollutants (TAPs), and hazardous air pollutants (HAPs).

Unless otherwise specified by SWCAA, actual emissions must be determined using the specified input parameter listed for each emission unit and the following hierarchy of methodologies:

(a) Continuous emissions monitoring system (CEMS) data;
(b) Source emissions test data (EPA reference method). When source emissions test data conflicts with CEMS data for the time period of a source test, source test data must be used;
(c) Source emissions test data (other test method); and
(d) Emission factors or methodology provided in this TSD.

6.a. Facility Dust Collectors (*modified*). Potential PM emissions from facility dust collectors are calculated from the maximum allowed exhaust concentration (0.005 gr/dscf), specified discharge rate, and 8,760 hr/yr of operation. All PM emissions are assumed to be $PM_{10}$. 23% of PM is assumed to be $PM_{2.5}$. Annual emissions will be calculated from actual hours of operation using the same methodology.

| Baghouse | Pollutant | Discharge Rate (acfm) | Emission Conc. (gr/dscf) | Emissions (lb/hr) | Emissions (tpy) |
|---|---|---|---|---|---|
| Fabri-Pulse 1 | $PM/PM_{10}$ | 20,000 | 0.005 | 0.86 | 3.75 |
| | $PM_{2.5}$ | | 23% PM | | 0.86 |
| Fabri-Pulse 2 | $PM/PM_{10}$ | 20,000 | 0.005 | 0.86 | 3.75 |
| | $PM_{2.5}$ | | 23% PM | | 0.86 |
| Portable #1 | $PM/PM_{10}$ | 14,000 | 0.005 | 0.60 | 2.63 |
| | $PM_{2.5}$ | | 23% PM | | 0.60 |
| Portable #2 | $PM/PM_{10}$ | 15,000 | 0.005 | 0.64 | 2.82 |
| | $PM_{2.5}$ | | 23% PM | | 0.65 |
| Portable #3 | $PM/PM_{10}$ | 1,500 | 0.005 | 0.06 | 0.28 |
| | $PM_{2.5}$ | | 23% PM | | 0.06 |
| Pipe Cutting D/C | $PM/PM_{10}$ | 2,340 | 0.005 | 0.10 | 0.44 |
| | $PM_{2.5}$ | | 23% PM | | 0.10 |

*ADP Application CL-3173. Thompson proposes to repurpose the Torit dust collector previously dedicated to the Peddinghaus FDB 1500 plate cutting machine as a portable unit for general use at the facility.*

6.b. Spray Coating Operations (*existing*). Potential VOC, TAP, and HAP emissions are calculated for all facility-wide spray coating operations. VOC emissions from spray coating operations are calculated from the maximum annual material consumption proposed by the applicant using material balance methodology. HAP/TAP emissions are calculated from specified material consumption and applicable material solvent content. PM emissions from spray coating operations are based on gross material consumption, average coating solids content of 75% by weight, 40% average transfer efficiency, and 98.3% control efficiency. All PM is assumed to be $PM_{10}$. 23% of PM is assumed to be $PM_{2.5}$.

The "Projected" emission values listed below represent the expected emissions from spray coating operations at the facility assuming the current mix of spray coatings and compliance with the existing VOC limit of 50.0 tpy. Annual emissions will be calculated from actual coating consumption. The facility's annual emission profile will vary depending on the specific type and quantity of spray coatings used in any given year.

| Pollutant | Emissions (Projected) | Emissions (PTE) |
|---|---|---|
| VOC | 50.00 tpy | 50.00 tpy |
| $PM/PM_{10}$ (Bay 9) | 0.78 tpy | 0.78 tpy |
| $PM_{2.5}$ (Bay 9) | 0.18 tpy | 0.18 tpy |
| HAPs | 23.30 tpy | 24.00 tpy |
| TAPs | 46.50 tpy | -- tpy |

6.c. Welding Operations (*existing*). Emissions from welding are calculated from 148,000 lb/yr of FCAW type E71T rod, 10,000 lb/yr of FCAW type E316 rod, and applicable emission factors from EPA AP-42, Section 12.19 (1/95). All PM emissions are assumed to be $PM_{2.5}$. Annual emissions will be calculated from actual rod consumption using the same methodology.

| Pollutant | Type E71T EF | Type E316 EF | Emissions |
|---|---|---|---|
| $PM/PM_{10}/PM_{2.5}$ | 12.2 lb/1,000 lb rod | 8.5 lb/1,000 lb rod | 0.95 tpy |
| TAP/HAPs | 0.669 lb/1,000 lb rod | 1.65 lb/1,000 lb rod | 0.06 tpy |
| Chromium | 0.002 lb/1,000 lb rod | 0.97 lb/1,000 lb rod | 10.00 lb/yr |
| Cobalt | 0.001 lb/1,000 lb rod | N/A | 0.15 lb/yr |
| Manganese | 0.662 lb/1,000 lb rod | 0.59 lb/1,000 lb rod | 103.9 lb/yr |
| Nickel | 0.004 lb/1,000 lb rod | 0.093 lb/1,000 lb rod | 1.5 lb/yr |

6.d. Space Heaters (*existing*). Potential emissions from process related space heaters are calculated using emission factors from EPA AP-42, Section 1.4 (3/98), a combined heat input of 4,110,720 Btu/hr, and 8,760 hr/yr of operation. All PM emissions are assumed to be $PM_{2.5}$. Annual emissions will be calculated from actual fuel consumption using the same methodology.

| Pollutant | Emission Factors | Emissions |
|---|---|---|
| $NO_x$ | 0.098 lb/MMBtu | 1.76 tpy |
| CO | 0.082 lb/MMBtu | 1.48 tpy |
| VOC | 0.0054 lb/MMBtu | 0.10 tpy |
| $SO_2$ | 0.0006 lb/MMBtu | 0.01 tpy |
| $PM/PM_{10}/PM_{2.5}$ | 0.0075 lb/MMBtu | 0.14 tpy |
| Benzene | 2.06E-6 lb/MMBtu | 0.07 lb/yr |
| Formaldehyde | 7.35E-5 lb/MMBtu | 2.6 lb/yr |
| | | |
| $CO_2e$ | 117 lb/MMBtu | 2,107 tpy |

6.e. Outdoor Operations (*existing*). Outdoor surface prep and spray coating operations produce VOC and PM emissions. The portable engines used to support operations produce combustion pollutants. VOC emissions from these operations are included in the facility's general spray coating emissions as described in Section 6.b above. The remaining emissions (PM from dust collector exhaust and combustion pollutants from engine operation) are calculated below.

Dust Collector PM Emissions. Potential PM emissions from portable dust collectors are estimated based on a maximum combined airflow of 56,000 cfm, an outlet concentration of 0.005 gr/dscf, and 830 hr/yr of operation. All PM emissions are assumed to be $PM_{10}$. 23% of PM is assumed to be $PM_{2.5}$. Annual emissions will be calculated from actual hours of operation using the same methodology.

| Pollutant | Discharge Rate (acfm) | Emission Conc. (gr/dscf) | Operation (hr/yr) | Emissions (tpy) |
|---|---|---|---|---|
| $PM/PM_{10}$ | 56,000 | 0.005 | 830 | 1.00 |
| $PM_{2.5}$ | | 23% PM | | 0.23 |

Portable Engine Combustion Emissions. Potential emissions from portable engine operation are calculated based on a combined power output of 800,000 hp-hr, maximum fuel sulfur content of 0.0015% sulfur by weight, brake specific fuel consumption of 7,000 Btu/hp-hr, and EPA's Tier 1 standards for nonroad diesel engines. The individual emission factors presented below correspond to the highest Tier 1 engine emission standard for the affected pollutant. All PM is assumed to be $PM_{2.5}$. Annual emissions will be calculated from actual combined power output using the same methodology.

| Operation (hp-hr) | Pollutant | Emission Factor (lb/hp-hr) | Emissions (tpy) |
|---|---|---|---|
| 800,000 | $NO_X$ | 0.015 | 6.00 |
| | CO | 0.019 | 7.60 |
| | VOC | 0.0022 | 0.88 |
| | $SO_2$ | 0.000011 | 0.004 |
| | $PM/PM_{10}/PM_{2.5}$ | 0.0017 | 0.68 |
| | | (lb/MMBtu) | |
| | $CO_2e$ | 164 | 458 |

6.f. PD 2100-D Skid-Mounted Vacuum System (*existing*). Emissions from the vacuum system consist of combustion products from the diesel engine and particulate matter from the vacuum system. Potential emissions from engine operation were calculated from manufacturer's data for the proposed engine, 1,500 hr/yr of operation, and the use of ultra-low sulfur diesel. Potential emissions from vacuum operation were calculated assuming a rated flowrate of 2,100 acfm and 1,500 hr/yr of operation. All PM is assumed to be $PM_{2.5}$. Annual emissions will be calculated from actual hours of operation using the same methodology.

| | flow | | Operation | $PM/PM_{10}/PM_{2.5}$ | | |
|---|---|---|---|---|---|---|
| | acfm | gr/dscf | hr/yr | lb/hr | lb/yr | tpy |
| Vacuum System Exhaust | 2,100 | 0.005 | 1,500 | 0.09 | 135 | 0.07 |

Vacuum System Engine - Cummins B3.9-P

| | | |
|---|---|---|
| Rated horsepower = | 110 | hp |
| Max fuel consumption = | 5.15 | gal/hr (from manufacturer) |
| Fuel S content = | 0.0015 | % by weight |
| Hours per year = | 1,500 | hours |
| Fuel Heat Content = | 0.138 | MMBtu/gal |

| Pollutant | EF lb/hp*hr | lb/hr | lb/yr | tpy | EF Source |
|---|---|---|---|---|---|
| $NO_X$ | 1.23E-02 | 1.35 | 2,032 | 1.02 | Cummins |
| CO | 3.27E-03 | 0.36 | 540 | 0.27 | Cummins |
| VOC | 1.33E-03 | 0.15 | 220 | 0.11 | Cummins |
| $SO_X$ as $SO_2$ | 1.01E-05 | 0.001 | 1.7 | 0.001 | Mass Balance |
| $PM/PM_{10}/PM_{2.5}$ | 7.87E-04 | 0.09 | 130 | 0.06 | Cummins |
| | lb/MMBtu | | | | |
| $CO_2e$ | 164 | | | 87 | |

6.g. Portable Engine – Whisper Watt Generator (*existing*). Potential emissions from generator operation are calculated based on an engine rating of 180 hp, 200 hr/yr of operation, maximum fuel sulfur content of 0.0015% sulfur by weight, a brake specific fuel consumption of 7,000 Btu/hp-hr, and applicable emission factors. Emission factors for all pollutants except $SO_2$ are taken from EPA AP-42, Table 3.3-1 (10/96). The emission factor for $SO_2$ is calculated from estimated fuel consumption using mass balance methodology. All PM is assumed to be $PM_{2.5}$. Annual emissions will be calculated from actual hours of operation using the same methodology.

| Operation (hp-hr) | Pollutant | Emission Factor (lb/hp-hr) | Emissions (tpy) |
|---|---|---|---|
| 36,000 | $NO_X$ | 0.031 | 0.56 |
| | CO | 0.0067 | 0.12 |
| | VOC | 0.0025 | 0.05 |
| | $SO_2$ | 0.000011 | 0.0002 |
| | $PM/PM_{10}/PM_{2.5}$ | 0.0022 | 0.04 |
| | | (lb/MMBtu) | |
| | $CO_2e$ | 164 | 21 |

6.h. Machitech Plasma Cutting Table (*existing*). Potential emissions from cutting table operation are calculated based on 8,760 hr/yr of operation, a dust collector exhaust rate of 6,900 acfm, a maximum PM exhaust concentration of 0.005 gr/dscf and emission factors from "*Emissions of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel*" Bromeen B. et al March 1994. All PM is assumed to be $PM_{2.5}$. Most material processed on the table is mild steel. The primary TAP compound is manganese, which is emitted as MnO in fume. Manganese content is generally less than 1% by weight. Annual emissions will be calculated from actual hours of operation using the same methodology.

Hours of operation = 8,760

| Pollutant | Emission Factor | Emissions | |
|---|---|---|---|
| $NO_X$ | 10.16 g/min | 1.34 lb/hr | 5.89 tpy |
| $PM/PM_{10}/PM_{2.5}$ | | | |
| Uncontrolled | 23.0 g/min | | |
| Control Eff. | 99% | | |
| Controlled | | 0.030 lb/hr | 0.13 tpy |
| Manganese (@ 1% of PM) | | | 2.67 lb/yr |

6.i. BeamCut Beamline System (*existing*). Potential emissions from system operation are calculated based on 8,760 hr/yr of operation, a dust collector exhaust rate of 3,150 acfm, a maximum PM exhaust concentration of 0.005 gr/dscf and emission factors from "*Emissions of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel*" Bromeen B. et al March 1994. All PM is assumed to be $PM_{2.5}$. Most material processed on the table is mild steel. The primary TAP compound is manganese, which is emitted as MnO in fume. Manganese content is generally less than 1% by weight. Annual emissions will be calculated from actual hours of operation using the same methodology.

Hours of operation = 8,760

| Pollutant | Emission Factor | Emissions | |
|---|---|---|---|
| $NO_X$ | 10.16 g/min | 1.34 lb/hr | 5.89 tpy |
| $PM/PM_{10}/PM_{2.5}$ | | | |
| Uncontrolled | 23.0 g/min | | |
| Control Eff. | 99% | | |
| Controlled | | 0.030 lb/hr | 0.13 tpy |
| Manganese (@ 1% of PM) | | | 2.67 lb/yr |

6.j. Peddinghaus Plate Cutting Machine (*new*). Potential emissions from cutting machine operation are calculated based on 8,760 hr/yr of operation, a dust collector exhaust rate of 1,500 acfm, a maximum PM exhaust concentration of 0.005 gr/dscf and emission factors from "*Emissions of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel*" Bromeen B. et al March 1994. All PM is assumed to be $PM_{2.5}$. Most material processed on the table is mild steel. The primary TAP compound is manganese, which is emitted as MnO in fume. Manganese content is generally less than 1% by weight. Annual emissions will be calculated from actual hours of operation using the same methodology.

Hours of operation = 8,760

| Pollutant | Emission Factor | Emissions | |
|---|---|---|---|
| $NO_X$ | 10.16 g/min | 1.34 lb/hr | 5.89 tpy |
| $PM/PM_{10}/PM_{2.5}$ | | | |
| Uncontrolled | 23.0 g/min | | |
| Control Eff. | 99% | | |
| Controlled | | 0.030 lb/hr | 0.13 tpy |
| Manganese (@ 1% of PM) | | | 2.67 lb/yr |

*ADP Application CL-3173. This is a new unit. Potential emission calculations assume continuous operation even though unit operation is expected to be sporadic.*

6.k. Emissions Summary/Facility-wide Potential to Emit. Facility-wide potential to emit as calculated in the sections above is summarized below.

| Pollutant | Potential Emissions | Project Increase |
|---|---|---|
| $NO_X$ | 27.00 tpy | 0.00 tpy |
| CO | 9.47 tpy | 0.00 tpy |
| VOC | 51.13 tpy | 0.00 tpy |
| $SO_2$ | 0.02 tpy | 0.00 tpy |
| Lead | 0.00 tpy | 0.00 tpy |
| PM | 17.78 tpy | 0.28 tpy |
| $PM_{10}$ | 17.78 tpy | 0.28 tpy |
| $PM_{2.5}$ | 5.88 tpy | 0.06 tpy |
| TAP | 46.56 tpy | 0.00 tpy |
| HAP | 23.36 tpy | 0.00 tpy |
| $CO_2e$ | 2,673 tpy | 0.00 tpy |

| Pollutant | CAS Number | Category | Facility-wide Emissions (lb/yr) | Project Increase (lb/yr) | WAC 173-460 SQER (lb/yr) |
|---|---|---|---|---|---|
| n-Butyl Acetate | 123-86-4 | TAP B | 204 | 0.0 | 43,748 |
| n-Butyl Alcohol | 71-36-3 | TAP B | 125 | 0.0 | 43,748 |
| t-Butyl Acetate | 540-88-5 | TAP B | 173 | 0.0 | 43,748 |
| Cumene | 98-82-8 | HAP/TAP B | 123 | 0.0 | 43,748 |
| Ethanol | 64-17-5 | TAP B | 302 | 0.0 | 43,748 |
| Ethyl Benzene | 100-41-4 | HAP/TAP B | 1,004 | 0.0 | 43,748 |
| Ethylene Glycol Monobutyl Ether | 111-76-2 | TAP B | 96 | 0.0 | 43,748 |
| Glycol Ethers | -- | HAP/TAP B | 559 | 0.0 | 43,748 |
| Hexamethylene Diisocyanate | 822-06-0 | HAP/TAP B | 0.8 | 0.0 | 175 |
| Isophrone Diisocyanate | 4098-71-9 | TAP B | 0.4 | 0.0 | 175 |
| Isopropanol | 67-63-0 | TAP B | 34 | 0.0 | 43,748 |
| Methyl Amyl Ketone | 110-43-0 | TAP B | 4,642 | 0.0 | 43,748 |
| Methyl Ethyl Ketone | 78-93-3 | HAP/TAP B | 40,000 | 0.0 | 43,748 |
| Methyl Isobutyl Ketone | 108-10-1 | HAP/TAP B | 18,000 | 0.0 | 43,748 |
| Methyl Propyl Ketone | 107-87-9 | TAP B | 44 | 0.0 | 43,748 |
| Methanol | 67-56-1 | HAP/TAP B | 72 | 0.0 | 43,748 |
| Naphthalene | 91-20-3 | HAP/TAP B | 42 | 0.0 | 22,750 |
| Toluene | 108-88-3 | HAP/TAP B | 9,865 | 0.0 | 43,748 |
| Toluene Diisocyanate | 584-84-9 | HAP/TAP A | 0.4 | 0.0 | 20.0 |
| Trimethylbenzene (mixed) | 2551-13-7 | TAP B | 798 | 0.0 | 43,748 |
| Xylene | 1330-20-7 | HAP/TAP B | 17,262 | 0.0 | 43,748 |

| Pollutant | CAS Number | Category | Facility-wide Emissions | Project Increase | WAC 173-460 SQER |
|---|---|---|---|---|---|
| | | | lb/yr | lb/yr | lb/yr |
| Benzene | 71-43-2 | HAP/TAP | 0.072 | 0.0 | 20 |
| Carbon Black | 1333-86-4 | HAP/TAP | 0.045 | 0.0 | 1,750 |
| Formaldehyde | 50-00-0 | HAP/TAP | 2.65 | 0.0 | 20 |
| Nickel | 7440-02-0 | HAP/TAP | 0.024 | 0.0 | 0.62 |
| | | | lb/24-hr | lb/24-hr | lb/24-hr |
| Chromium (III) | 7440-47-3 | HAP/TAP | 0.027 | 0.0 | 0.37 |
| Cobalt | 7440-48-4 | HAP/TAP | 4.1E-4 | 0.0 | 0.0074 |
| Manganese | 7439-96-5 | HAP/TAP | 0.31 | 0.0 | 0.022 |

## 7. REGULATIONS AND EMISSION STANDARDS

Regulations that have been used to evaluate the acceptability of the proposed facility and establish emission limits and control requirements include, but are not limited to, the regulations, codes, or requirements listed below.

7.a. Title 40 Code of Federal Regulations (40 CFR) 60.4200 et seq. (Subpart IIII) "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines" applies to each compression ignition (CI) internal combustion engine (ICE) that commences construction after July 11, 2005 and is manufactured after April 1, 2006, or that is modified or reconstructed after July 11, 2005. This regulation is not applicable to the diesel engine that powers the PD 2100-D vacuum system or the Whisper Watt generator because the units were manufactured prior to 2005. The portable engines used in support of temporary outdoor operations may or may not be subject to this regulation depending on the manufacture date of each unit.

7.b. 40 CFR 60.4230 et seq. (Subpart JJJJ) "Standards of Performance for Stationary Spark Ignition Internal Combustion Engines" established point of manufacture and operating requirements for stationary spark ignition engines. This regulation applies to spark ignition engines that commence construction or modification after June 12, 2006 or were manufactured on or after various dates as early as July 1, 2007. None of the permitted emission units at this facility have a spark ignition configuration. SWCAA does not have delegation for this regulation, and has chosen not to independently implement the associated requirements if/when they become applicable. Therefore, requirements from this regulation have not been included in the Air Discharge Permit.

7.c. 40 CFR 63.6580 et seq. (Subpart ZZZZ) "National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines" establishes national emission limitations and operating limitations for HAP emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This regulation is applicable to all stationary engines at the facility. Requirements vary greatly depending on the age, configuration, and rating of each unit. Older units generally have few requirements. Newer units generally comply by meeting the performance standards of NSPS subparts IIII and JJJJ. SWCAA does not currently have delegation for this regulation and has chosen not to independently implement the associated requirements. Therefore, requirements from this regulation have not been included in the Air Discharge Permit.

7.d. 40 CFR 63.11514 et seq. (Subpart XXXXXX) "National Emissions Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories" establishes standards and work practices for dry abrasive blasting, machining, dry grinding and polishing, spray painting, and welding operations at area sources primarily engaged in one of nine selected metal fabrication and finishing source categories. This

facility manufactures a variety of custom structural steel projects (NAICS code 332312) and is subject to the regulation. SWCAA does not currently have delegation for this regulation and has chosen not to independently implement the associated requirements. Therefore, requirements from this regulation have not been included in the Air Discharge Permit.

7.e. Revised Code of Washington (RCW) 70A.15.2040 empowers any activated air pollution control authority to prepare and develop a comprehensive plan or plans for the prevention, abatement, and control of air pollution within its jurisdiction. An air pollution control authority may issue such orders as may be necessary to effectuate the purposes of the Washington Clean Air Act and enforce the same by all appropriate administrative and judicial proceedings subject to the rights of appeal as provided in Chapter 62, Laws of 1970 ex. sess.

7.f. RCW 70A.15.2210 provides for the inclusion of conditions of operation as are reasonably necessary to assure the maintenance of compliance with the applicable ordinances, resolutions, rules, and regulations when issuing an Air Discharge Permit for installation and establishment of an air contaminant source.

7.g. Washington Administrative Code (WAC) 173-401 "Operating Permit Regulation" requires all major sources and other sources as defined in WAC 173-401-300 to obtain an operating permit. This regulation is not applicable because this source is not a potential major source (opt-out) and does not meet the applicability criteria set forth in WAC 173-401-300.

7.h. WAC 173-401-300(7) "Federally Enforceable Limits" provides that any source with the potential to emit exceeding the tonnage thresholds defined in WAC 173-401-200(18) can be exempted from the requirement to obtain an Operating Permit when federally enforceable conditions are established which limit that source's potential to emit to levels below the relevant tonnage thresholds.

7.i. WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" requires Best Available Control Technology for toxic air pollutants (T-BACT), identification and quantification of emissions of toxic air pollutants and demonstration of protection of human health and safety. SWCAA implements WAC 173-460 as in effect on August 21, 1998.

7.j. WAC 173-476 "Ambient Air Quality Standards" establishes ambient air quality standards for $PM_{10}$, $PM_{2.5}$, lead, sulfur dioxide, nitrogen dioxide, ozone, and carbon monoxide in the ambient air, which shall not be exceeded.

7.k. SWCAA 400-040 "General Standards for Maximum Emissions" requires all new and existing sources and emission units to meet certain performance standards with respect to Reasonably Available Control Technology (RACT), visible emissions, fallout, fugitive emissions, odors, emissions detrimental to persons or property, sulfur dioxide, concealment and masking, and fugitive dust.

7.l. SWCAA 400-050 "Emission Standards for Combustion and Incineration Units" requires that all provisions of SWCAA 400-040 be met and that no person shall cause or permit the emission of particulate matter from any combustion or incineration unit in excess of 0.23 grams per dry cubic meter (0.1 grains per dry standard cubic foot) of exhaust gas at standard conditions.

7.m. SWCAA 400-060 "Emission Standards for General Process Units" prohibits particulate matter emissions from all new and existing process units in excess of 0.1 grains per dry standard cubic foot of exhaust gas.

7.n. SWCAA 400-091 "Voluntary Limits on Emissions" allows sources to request voluntary limits on emissions and potential to emit by submittal of an ADP application as provided in SWCAA 400-109. Upon completion of review of the application, SWCAA shall issue a Regulatory Order that reduces the source's potential to emit to an amount agreed upon between SWCAA and the permittee.

7.o. SWCAA 400-109 "Air Discharge Permit Applications" requires that an Air Discharge Permit application be submitted for all new installations, modifications, changes, or alterations to process and emission control equipment consistent with the definition of "new source". Sources wishing to modify existing permit terms may submit an Air Discharge Permit application to request such changes. An Air Discharge Permit must be issued, or written confirmation of exempt status must be received, before beginning any actual construction, or implementing any other modification, change, or alteration of existing equipment, processes, or permits.

7.p. SWCAA 400-110 "New Source Review" requires that SWCAA issue an Air Discharge Permit in response to an Air Discharge Permit application prior to establishment of the new source, emission unit, or modification.

7.q. SWCAA 400-111 "Requirements for Sources in a Maintenance Plan Area" requires that no approval to construct or alter an air contaminant source shall be granted unless it is evidenced that:

(1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;
(2) Emissions will be minimized to the extent that the new source will not exceed emission levels or other requirements provided in the maintenance plan;
(3) Best Available Control Technology will be employed for all air contaminants to be emitted by the proposed equipment;
(4) The proposed equipment will not cause any ambient air quality standard to be exceeded; and
(5) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460, the proposed equipment and control measures will meet all the requirements of that Chapter.

7.r. SWCAA 490-205 "Surface Coating of Miscellaneous Metal Parts and Products" requires specified sources of VOCs located within designated ozone nonattainment or maintenance areas to comply with the emission standards of that regulation if potential VOC emissions are greater than 10 tons per year. Respondent's facility is located within an ozone maintenance are and potential facility-wide VOC emissions are greater than 10 tons per year. Therefore, this regulation is applicable.

7.s. SWCAA 493-300 "Architectural Coatings" establishes VOC content limits for all architectural coatings manufactured, distributed, sold, or commercially applied within the boundaries of the Vancouver Air Quality Maintenance Area. The applicant's facility is located within the Vancouver Air Quality Maintenance Area and some of the coatings applied by the facility qualify as architectural coatings. Therefore, this regulation is applicable whenever such coatings are being applied.

## 8. RACT/BACT/BART/LAER/PSD/CAM DETERMINATIONS

The proposed equipment and control systems incorporate Best Available Control Technology (BACT) for the types and amounts of air contaminants emitted by the processes as described below:

New BACT Determinations

8.a. BACT Determination – Plasma Cutting. The proposed use of process enclosure and high efficiency particulate filtration has been determined to meet the requirements of BACT for particulate matter emissions generated by plasma cutting operations. No cost-effective means of minimizing $NO_X$ emissions have been identified and the quantity of $NO_X$ emissions are highly uncertain, therefore SWCAA has determined that no additional controls are appropriate to address potential $NO_X$ emissions.

Previous BACT Determinations

8.b. BACT Determination – Plasma Cutting (*ADP 21-3481*). The proposed use of process enclosure and high efficiency particulate filtration capable of maintaining particulate matter emissions at 0.005 gr/dscf or less has been determined to meet the requirements of BACT for particulate matter emissions generated by plasma cutting operations. No cost-

effective means of minimizing $NO_X$ emissions have been identified and the quantity of $NO_X$ emissions are highly uncertain, therefore SWCAA has determined that no additional controls are appropriate to address potential $NO_X$ emissions.

8.c. BACT Determination – Spray Coating Operations (*ADP 10-2953R3*). The proposed use of process enclosures (building bays, temporary outdoor enclosures), high efficiency particulate filtration (paint arrestors, dust collectors), high transfer efficiency coating equipment (air assist airless, airless, HVLP), and low VOC coating products has been determined to meet the requirements of BACT and T-BACT for the types and quantities of air contaminants emitted by spray coating operations at this facility.

8.d. BACT Determination – Pipe Cutting Operation (*ADP 10-2953R2*). The use of a vacuum collection system and high efficiency filtration has been determined to meet the requirements of BACT for the types and quantities of air contaminants emitted by the proposed pipe cutting operation.

8.e. Previous BACT Determination – Temporary Outdoor Operations (*ADP 09-2884R1).* The proposed use of modern diesel engine designs (≤ 10 model years old), ultra-low sulfur fuel (≤ 0.0015% sulfur by weight), and limited operation (≤ 800,000 hp-hr/yr) has been determined to meet the requirements of BACT for the types and quantities of air contaminants emitted from portable engines used in support of temporary outdoor operations.

8.f. Previous BACT Determination – Portable Stationary Engines (*ADP 09-2884R1*). The proposed use of ultra-low sulfur fuel (≤ 0.0015% sulfur by weight) and limited operation (≤ 200 hr/yr) has been determined to meet the requirements of BACT for the types and quantities of air contaminants emitted from portable engines used in support of facility operations.

8.g. Previous BACT Determination – Wheelabrator Abrasive Blasting Unit (*ADP 09-2884*). The proposed use of process enclosure and high efficiency fabric filtration was determined to meet the requirements of BACT for the types and quantities of air contaminants emitted by the Wheelabrator blast unit.

8.h. Previous BACT Determination – PD 2100-D Skid-Mounted Vacuum System (*ADP 08-2822*). The proposed use of modern diesel engine designs (EPA Tier certified), ultra-low sulfur fuel (≤ 0.0015% sulfur by weight), and limited operation (≤ 1,500 hr/yr) was determined to meet the requirements of BACT for the types and quantities of air contaminants emitted from the vacuum system power unit.

The proposed use of high efficiency fabric filtration (cartridge filters rate at ~MERV 12) was determined to meet the requirements of BACT for the types and quantities of air contaminants emitted during operation of the vacuum system.

8.i. Previous BACT Determination – Welding Operations (*ADP 95-1728R6*). The proposed use of building enclosure and material consumption limitations was determined to meet the requirements of BACT and T-BACT for the type and quantity of pollutants emitted by welding operations at this facility.

Other Determinations

8.j. Prevention of Significant Deterioration (PSD) Applicability Determination. The potential to emit of this facility is less than applicable PSD applicability thresholds. Likewise, this permitting action will not result in a potential increase in emissions equal to or greater than the PSD thresholds. Therefore, PSD review is not applicable to this action.

8.k. Compliance Assurance Monitoring (CAM) Applicability Determination. CAM is not applicable to any emission unit at this facility because it is not a major source and is not required to obtain a Part 70 permit.

## 9. AMBIENT IMPACT ANALYSIS

9.a. TAP Small Quantity Review. The new equipment and modifications proposed in ADP Application CL-3262 will not affect the type or quantity of TAP emissions from approved operations.

**Conclusions**

9.b. Replacement of an existing plate cutting machine, as proposed in ADP Application CL-3262, will not cause the ambient air quality requirements of Title 40 Code of Federal Regulations (CFR) Part 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.

9.c. Replacement of an existing plate cutting machine, as proposed in ADP Application CL-3262, will not cause the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" or WAC 173-476 "Ambient Air Quality Standards" to be violated.

9.d. Replacement of an existing plate cutting machine, as proposed in ADP Application CL-3262, will not cause a violation of emission standards for sources as established under SWCAA General Regulations Sections 400-040 "General Standards for Maximum Emissions," 400-050 "Emission Standards for Combustion and Incineration Units," and 400-060 "Emission Standards for General Process Units."

## 10. DISCUSSION OF APPROVAL CONDITIONS

SWCAA has made a determination to issue ADP 24-3646 in response to ADP Application CL-3262. ADP 24-3646 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

10.a. Supersession of Previous Permits. ADP 24-3646 supersedes ADP 21-3481 in its entirety.

10.b. General Basis. Permit requirements for equipment affected by this permitting action incorporate the operating schemes proposed by the applicant in ADP Application CL-3262. Permit requirements established by this action are intended to implement BACT, minimize emissions, and assure compliance with applicable requirements on a continuous basis. Emission limits for approved equipment are based on the maximum potential emissions calculated in Section 6 of this Technical Support Document.

10.c. Monitoring and Recordkeeping Requirements. ADP 24-3646 establishes monitoring and recordkeeping requirements sufficient to document compliance with applicable emission limits, ensure proper operation of approved equipment and provide for compliance with generally applicable requirements. Specific requirements are established for hours of operation, engine horsepower ratings, process throughput, fuel consumption and differential pressure across the filtration media in each plasma cutting dust collector.

10.d. Reporting Requirements. ADP 24-3646 establishes general reporting requirements for annual air emissions, upset conditions and excess emissions. Specific reporting requirements are established for hours of equipment operation, material usage, and process heater fuel consumption. Reports are to be submitted on a semi-annual basis.

10.e. Pipe Profiling Machine. Emissions from the proposed pipe profiling machine are controlled by a dedicated dust collector. Operational monitoring requirements have been established to record hours of operation and maintenance activities. Visible emissions from the unit are limited to 0% opacity.

10.f. Spray Coating Operations. The facility is required to minimize emissions from spray coating operations through a combination of work enclosures, temporary shrouding, raw material selection, coating content limits for VOC, and high efficiency filtration. Visible emissions from affected operations are limited to 0% opacity. This facility is subject to the VOC content limits contained in SWCAA 490-205(2) and SWCAA 493-300. Permit provisions

require the facility to notify SWCAA prior to the use of new coatings or finishing materials. This notification is intended to allow assessment of the potential air quality impact of the proposed coating/material change. If the potential air quality impacts are deemed to be significant, New Source Review may be required prior to implementation.

10.g. Welding Operations. Permit requirements for welding operations limit the amount of welding rod consumed. The existing emission limits for welding are intended to be functionally equivalent to 156,000 lb/yr of FCAW type E71T rod consumption based on AP-42, Section 12.19 emission factors. E71T is the primary rod type in use at the facility, although small amounts of other rod types are used on occasion for special projects (E316, etc.). Actual emissions are calculated using rod specific emission factors and actual rod consumption.

10.h. Surface Prep Operations. Permit requirements for surface prep operations require the facility to minimize emissions through a combination of work enclosures, temporary shrouding, raw material selection, and high efficiency filtration. Visible emissions from affected operations are limited to 0% opacity.

10.i. Dust Collectors. Permit requirements specific to dust collector operation require the facility to routinely monitor the performance of both permanent and temporary units to assure proper function. Primary performance parameters are differential pressure across filtration media (monitored weekly) and visible emissions (limited to 0% opacity).

10.j. Outdoor Operations – Portable Engines. Thompson's approval to use portable engines in support of temporary outdoor operations has been renewed. Requirements for the renewed approval are substantially similar to the previous approval. Visible emission limits have been established consistent with proper operation and maintenance of the engines. Potential emissions are minimized by limiting engine use, requiring the use of newer engines, and firing ultra-low sulfur diesel fuel. Compliance with applicable emission/operational limits will be based on annual operation as recorded and reported by the permittee. Emission limits for portable engine operation were derived by applying worst case Tier 1 emission standards to the level of engine operation proposed in the application. Actual emissions are expected to be lower since engines in use will increasingly be subject to more stringent standards (Tiers 2 &3).

In renewing the approval for outdoor operations, SWCAA maintained most of the requirements applicable to the expired approval. Specific requirements were revised to limit engine age to no more than 10 model years old and to require the use of utility power whenever possible in lieu of diesel engines.

10.k. PD 2100-D Skid-Mounted Vacuum System. Permit requirements for the skid mounted vacuum system limit operation and require the use of ultra low sulfur fuel for the diesel engine power unit. Emission limits correspond to 1,500 hr/yr of operation based on equipment specifications provided by Thompson. Dust emissions from the vacuum itself are inherently controlled by the unit's internal filter bank. Visible emissions from the vacuum unit are limited to 0% opacity. Visible emissions from the engine are limited to 5% opacity with allowances for periods of cold startup.

10.l. Portable Utility Engines. Permit requirements for portable utility engines in use at the facility limit annual operation and require the use of ultra-low sulfur fuel for diesel fueled power units. Emission calculations correspond to 200 hr/yr of operation based on estimates of maximum operation provided by Thompson. Visible emissions from diesel engines are limited to 5% opacity with allowances for periods of cold startup.

10.m. Plasma Cutting Units. Emissions from plasma cutting operations are controlled via process enclosure and discharge through a dedicated dust collector. PM emissions from the associated dust collectors are limited to 0.005 gr/dscf consistent with BACT. Visible emissions from the units are limited to 0% opacity. Installation of differential pressure gages to monitor pressure drops across the dust collector filtration media is required to assist in evaluating whether the dust collectors are operating properly. Large changes in differential pressure can indicate operational problems.

10.n. Requirements for Unmodified Emission Units. Permit requirements for existing emission units not affected by ADP Application CL-3262 are carried forward unchanged from ADP 21-3481.

## 11. START-UP AND SHUTDOWN/ALTERNATIVE OPERATING SCENARIOS/POLLUTION PREVENTION

11.a. Start-up and Shutdown Provisions. Pursuant to SWCAA 400-081 "Start-up and Shutdown", technology based emission standards and control technology determinations shall take into consideration the physical and operational ability of a source to comply with the applicable standards during start-up or shutdown. Where it is determined that a source is not capable of achieving continuous compliance with an emission standard during start-up or shutdown, SWCAA shall include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during start-up or shutdown.

Diesel Engines. Visible emissions from diesel engines used at the facility are limited to 5% opacity or less during normal operation. However, the engines may not be capable of reliably limiting visible emissions to less than 5% opacity until they achieve normal operating temperature. Therefore, the 5% opacity limit shall not apply to engine exhaust during start-up periods. A start-up period is considered to end 20 minutes after the engine is started.

11.b. Alternate Operating Scenarios. SWCAA conducted a review of alternate operating scenarios applicable to equipment affected by this permitting action. The permittee did not propose or identify any applicable alternate operating scenarios. Therefore, none were included in the permit requirements.

11.c. Pollution Prevention Measures. SWCAA conducted a review of possible pollution prevention measures for the facility. No pollution prevention measures were identified by either the permittee or SWCAA separate or in addition to those measures required under BACT considerations. Therefore, none were included in the permit requirements.

## 12. EMISSION MONITORING AND TESTING

12.a. Emission Testing – Plasma Cutter Dust Collectors. Approval conditions for the Plasma Cutter Dust Collectors do not require routine emission testing. The permit specifies that formal emission testing may be required if SWCAA documents excess visible emissions from an affected unit. If required, all emission testing must be conducted in accordance with ADP 21-3481, Appendix A.

## 13. FACILITY HISTORY

13.a. Previous Permitting Actions. SWCAA has previously issued the following Permits for this facility:

| Permit Number | Application Number | Date | Purpose |
|---|---|---|---|
| 21-3481 | CL-3173 | 11/23/2021 | Installation and operation of two new plasma cutting units (Machitech cutting table, BeamCut beamline system). Removal of three existing emission units from service (MG cutting table, PCD baghouse, Wheelabrator unit). |
| 10-2953R3 | CL-2010 | 1/29/2014 | Modification of existing permit limit for MEK emissions. No equipment or structure changes made at facility |
| 10-2953R2 | CL-1950 | 11/22/2011 | Installation of HGG pipe profile cutting machine with SDC-ECO-3000 dust collector. |

| Permit Number | Application Number | Date | Purpose |
|---|---|---|---|
| 10-2953R1 | CL-1937 | 5/17/2011 | Establishment of new emission limits to limit potential facility-wide spray coating emissions. Status of facility reclassified as a synthetic minor source and removed from the Air Operating Permit program (Title V). |
| 10-2953 | CL-1924 | 12/2/2010 | Increase in emission limits for spray coating operations. Status of facility changed from a synthetic minor to a major source as a result of the permitting action. |
| 09-2884R1 | CL-1906 | 6/23/2010 | Renewal of approval for temporary outdoor operations. |
| 09-2884 | CL-1886 | 11/6/2009 | Installation of Wheelabrator abrasive blasting unit. |
| 08-2822 | CL-1843 | 10/22/2008 | Installation of PD 2100 skid mounted vacuum system. Superseded by ADP 09-2884. |
| 95-1728R6 | CL-1767 | 5/14/2007 | Approval to increase maximum welding rod consumption from 127,500 lb/yr to 156,000 lb/yr. Superseded by ADP 08-2822. |
| 95-1728R5 | CL-1647 | 12/9/2004 | Approval of two portable dust collectors and portable outdoor support equipment for large projects. Superseded by ADP 95-1728R6. |
| 95-1728R4 | CL-1551 | 4/9/2002 | Installation of a new cartridge collector. Superseded by ADP 95-1728R5. |
| 95-1728R3 | CL-1508 | 5/14/2001 | Operation of an outdoor surface prep and spray coating operation. Superseded by ADP 95-1728R4. |
| 95-1728R2 | CL-1419 | 10/14/1999 | Increase in facility-wide VOC emission limit established under ADP 95-1728R1. Superseded by ADP 95-1728R3. |
| 95-1728R1 | CL-1270 | 12/26/1996 | Modification of voluntary facility-wide emissions limits established under ADP 95-1728. Superseded by ADP 95-1728R2. |
| 95-1796 | CL-1163 | 9/18/1995 | Installation of a temporary sandblasting booth. Superseded by ADP 95-1728R1. |
| 95-1728 | CL-1107 | 3/23/1995 | Establishment of voluntary facility-wide emission limits. Superseded by ADP 95-1728R1. |
| 77-272 | CL-297 | 9/12/1977 | Installation of a new baghouse for use with an existing sandblasting room. |
| 75-119 | CL-226 | 9/22/1975 | Installation of a new baghouse for use with an existing sandblasting room. |

13.b. Compliance History. A search of source records on file at SWCAA did not identify any outstanding compliance issues at this facility.

## 14. PUBLIC INVOLVEMENT OPPORTUNITY

14.a. Public Notice for ADP Application CL-3262. Public notice for ADP Application CL-3262 was published on the SWCAA internet website for a minimum of 15 days beginning on February 27, 2024.

14.b. Public/Applicant Comment for ADP Application CL-3262. SWCAA did not receive specific comments, a comment period request, or any other inquiry from the public regarding this ADP application. Therefore, no public comment period was provided for this permitting action.

14.c. State Environmental Policy Act. A complete SEPA checklist was submitted by Thompson Metal Fab in conjunction with ADP Application CL-3262. After reviewing the checklist, SWCAA has made a Determination of Nonsignificance (DNS 24-021) concurrent with issuance of ADP 24-3646.