Notice of Construction (NOC) Worksheet

pscleanair.org
Puget Sound Clean Air Agency

Applicant: Capital Industries Inc	**NOC Number**: 11740
Project Location: 5801 3rd Ave S Seattle WA 98108	**Registration Number**: 10385
Applicant Name and Phone: Ray Carr, (206) 762-8585	**NAICS:** 332999
Engineer: Madeline Camp	**Inspector**: Nina Lawonn

A. DESCRIPTION

For the Order of Approval:
Two laser cutting lines used for cutting rolled carbon steel plate. Each line consists of one Amada 3015FOM2 4 kW CO_2 lasers controlled by one Donaldson Torit Powercore TG-4 MERV 13 cartridge dust collectors rated at 3,800 cfm equipped with Donaldson Torit HEPA secondary filters.

One laser cutting line consisting of one Mazak Optionics 4020 6 kW fiber optic laser for cutting rolled carbon steel plate controlled by one Robovent Plaser series MDC-8 MERV 16 cartridge type dust collector rated at 5,500 cfm equipped with secondary HEPA filters.

This Order limits facility-wide emissions for hazardous air pollutants (HAP) and volatile organic compounds (VOC). It cancels and supersedes the existing facility-wide limits in Regulatory Order 6075.

Additional Information (if needed):

Facility:

Capital Industries is a metals fabricator. Capital Industries fabricates and spray coats waste containers (dumpsters) as well as fabricating smaller metal parts (mostly for heavy-duty trucks). Most waste container production operations occur separately from the smaller metal part fabrication at the facility.

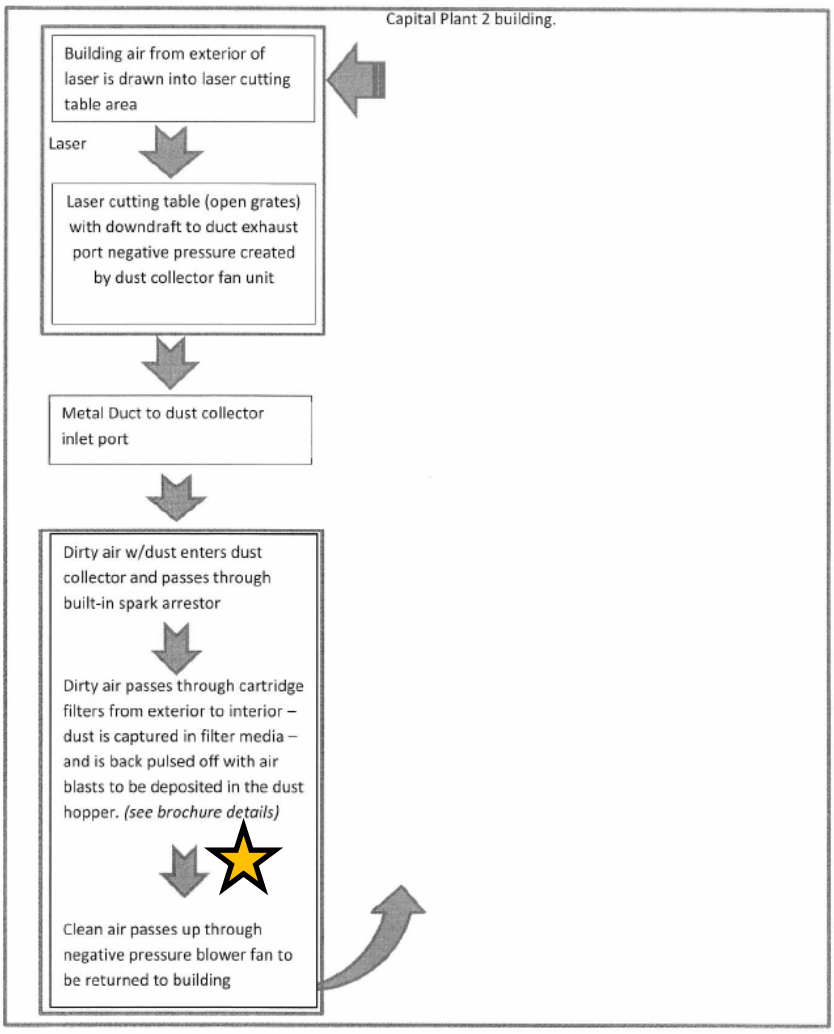
Inspector Lawonn visited the facility 12/11/18 and noted the two Amada 3015FOM2 laser cutters, associated dust collectors, and the fiber optic laser with dust collector which are used to cut stainless steel. The three laser cutters were installed without receiving an Order of Approval from the Agency and Lawonn issued NOC 3-009359. NOC 11740 and NOC 11742 applications were submitted as corrective action to NOV 3-009359. Following submittal, the two applications were combined so that all equipment is reviewed under this NOC 11740.

Inspector Lawonn and I also visited the facility on 4/9/19 where we observed the units to be permitted under this NOC 11740.

The application indicates that the Amada 3015FOM2 laser cutters and the associated Torit Donaldson Powercore dust collectors were replacements of the original laser / dust collector installed in 2004 and 2006. Equipment replaced by this NOC will be removed from the Agency database pending Inspection confirmation.

There are several odor complaints that have been received in the surrounding area on 3/13/19 and 1/18/19. The complaints are about paint fume odors. Inspector Lawonn completed an evaluation of the odor complaints on 4/9/19. This permit review does not include spray coating activities and any paint fumes.

Laser cutting under review is done in a complete enclosure inside the building.
The diagram below was submitted with both applications 11740 and 11742 and is a schematic for one of the three total laser cutting lines (two CO_2 laser cutting lines and one plasma laser cutting line). The diagram below depicts the airflow for one line with the exception of the required HEPA secondary filters which were not represented in the original application. The exhaust air will pass through the HEPA secondary filters after the cartridge dust collector and before being exhausted into the building. The location of the HEPA filters in the process flow is indicated below with a star. The airflow is identical for the other two laser cutting lines.



Proposed Equipment/Activities:

Within Capital Building 2, there are two enclosed Amada CO_2 laser cutting lines. On each line, air from the Amada 3015FOM2 laser cutting areas are directed through open grates in a downdraft to the dust collector by the dust collector fan's negative pressure. Heavy particulate from the laser cutting falls through the grate and collects below the laser cutter. Dirty air (laden with metallic fumes and smaller particulate) passes through the dust collector and built-in spark arrestor. The spark arrestor is a system of metallic baffles which collects heavier particles and keeps the fabric filter from igniting. Dirty air moves through the filter from the outside in and then the filter exterior is pulse cleaned with air blasts. The waste dust is collected in the dust collector dust hopper. The Powercore dust collectors are MERV 13 rated. At the time of the inspection on 4/9/19, the Donaldson Torit Powercore dust collectors were exhausted directly into the building and not through HEPA filters. HEPA filters will be installed as required by this NOC. The Donaldson Torit Powercore dust collectors are designed for the installation of HEPA units. The air passing through the cartridge dust collector followed by the HEPA unit will then be released into Capital Plant Building 2.

Also within Capital Building 2, air from the Mazak Optonics 4020 fiber optical industrial laser cell is routed to a MERV 16 rated Plaser MDC-8 dust collector by the dust collector fan's negative pressure. Similar to the Amada lasers, the Mazak equipment may be routed through a HEPA filter after passing through the Plaser MDC-8 dust collector. On 4/9/19, the HEPA unit was not configured but will be required to be installed as part of this permitting activity. After passing through the HEPA filter, the air will be exhausted into Capital Plant Building 2.

Permit History:

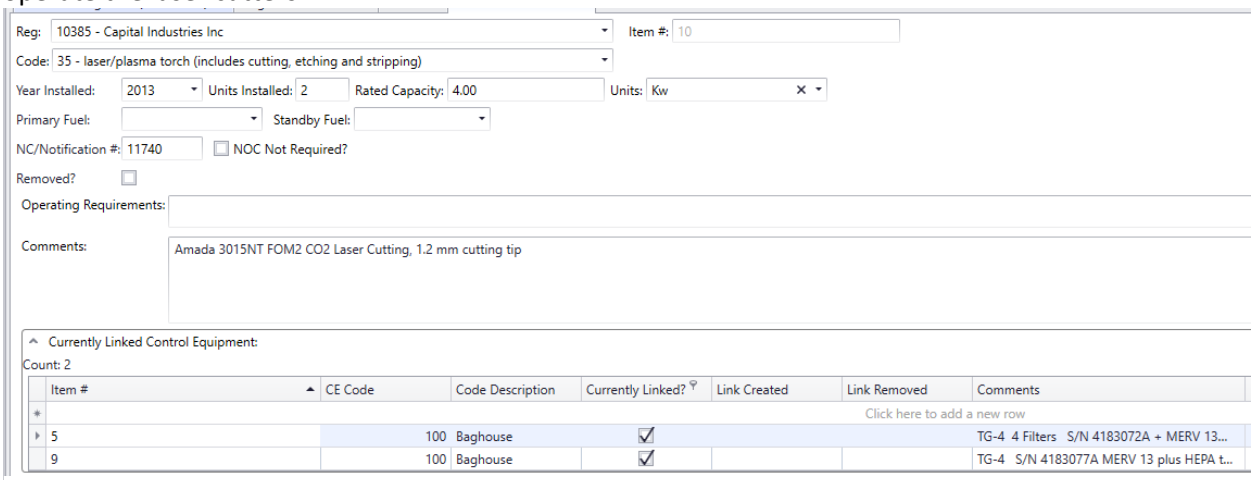
Capital Industries has the following permits:

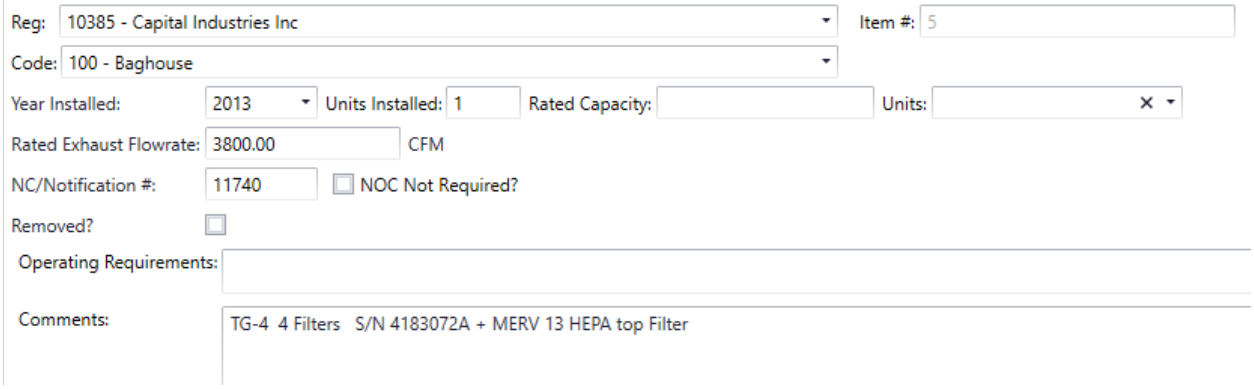
- Order of Approval 10478 (issued 6/19/2012) for Messer cutting table and plasma cutting torches (unaffected by this permitting action)
- Order 6075 (issued 9/7/1995) limits facility-wide emissions to remain below major source thresholds for hazardous air pollutants (HAPs) as established by 42 U.S.C. 7412(b)(1) and amended in 40 CFR 63 Subpart C (synthetic minor emission cap). This Order limits facility-wide emissions as follows:
    - 9.9 tons of any single HAP during any consecutive 12 month rolling period;
    - 24 tons of total HAP during any consecutive 12 month rolling period;
    - 8.7 tons of methyl isobutyl ketone during any consecutive 12 month rolling period;
    - 7.2 tons of xylene during any consecutive 12 month rolling period; and
    - 5.2 tons of toluene during any consecutive 12 month rolling period.

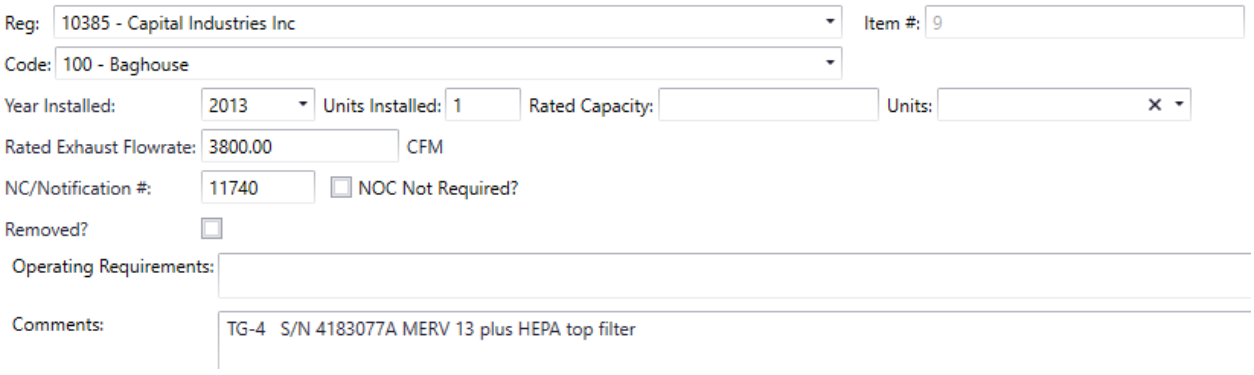
  Surface coating activities which commenced in 1995 (primer, topcoat, and thinner) are the main process for emissions of volatile HAP. Capital Industries has also historically conducted vapor degreasing at the facility (last reported in 1993).

B. DATABASE INFORMATION

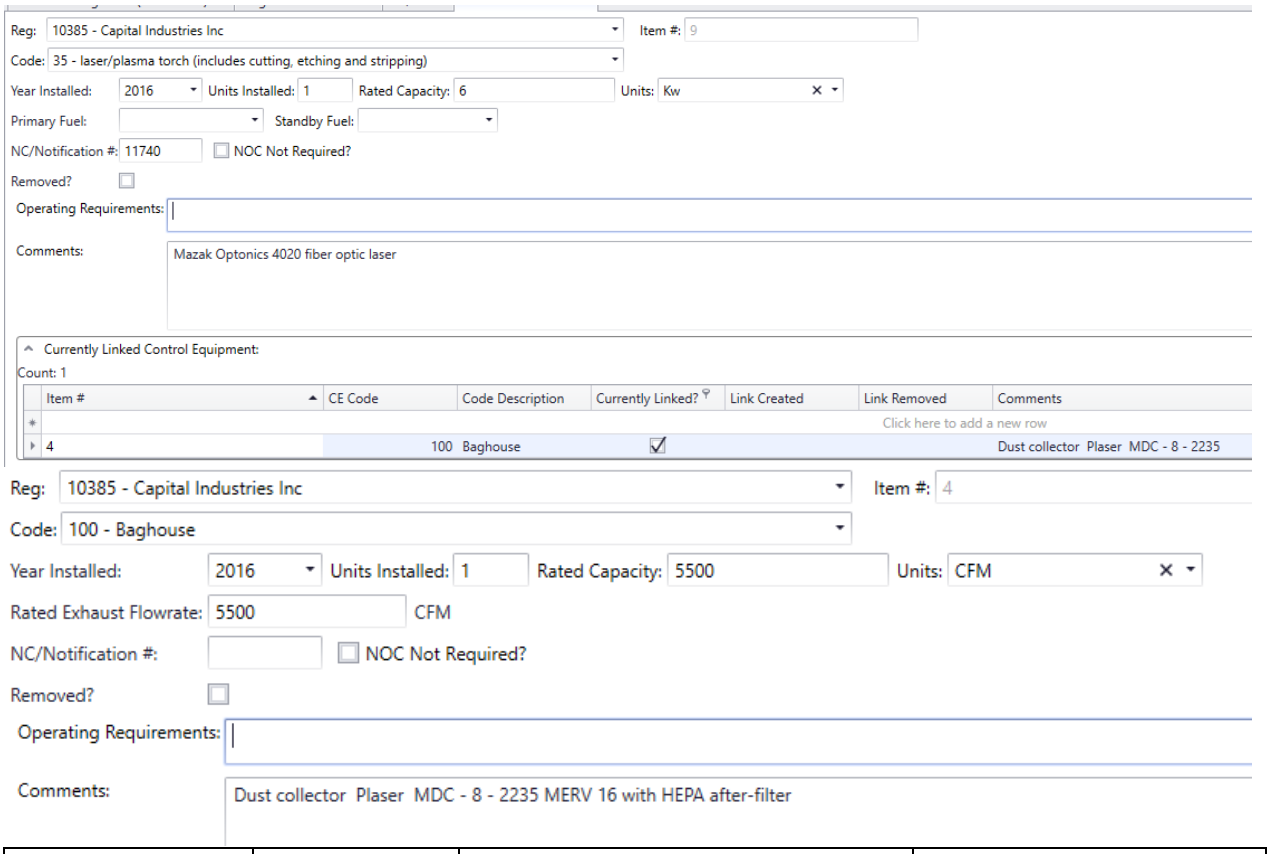
The Amada laser cutters and associated Donaldson torit dust collectors had been entered for non-stainless steel cutting in 2013. As stainless steel is cut at the facility, an Order of Approval is needed to operate the laser cutters.







The Mazak fiber optic laser cutter was installed in 2016, cuts stainless steel and is therefore required to be permitted.



New NSPS due to this NOCOA?	**No**	**Applicable NSPS:** NA	**Delegated?** NA
New NESHAP due to this NOCOA?	**No**	**Applicable NESHAP:** XXXXXX	**Delegated?** No
New Synthetic Minor due to this NOCOA?	**No**		

NESHAP, Subpart XXXXXX--National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories:

Capital Industries is subject to 40 CFR 63 Subpart XXXXXX because it is primarily engaged in production of fabricated metal products and the NAICS code for Capital Industries, 332999 “All Other Miscellaneous Fabricated Metal Product Mtfg, matches EPA’s NAICS/SIC Code Applicability Table (pasted below) and because the facility completes fabrication of compounds containing metal HAP (chromium) greater than 0.1% by weight.

40 CFR 63 Subpart XXXXXX status does not change due to this project but has not been previously reviewed for this facility under prior NOCs.

Subpart XXXXXX - 9 METAL FABRICATION APPLICABILITY - By NAICS Code, with EPA Source Category			
	NAICS Code	NAICS Description	EPA Source Category
1	332111	Iron and Steel Forging	Iron and Steel Forging
2	332117	Powder Metallurgy Part Manufacturing	Fabricated Metal Products, NEC
3	332312	Fabricated Structural Metal Manufacturing	Fabricated Structural Metal Manufacturing
4	332313	Plate Work Manufacturing	Fabricated Plate Work (Boiler Shops)
5	332410	Power Boiler and Heat Exchanger Manufacturing	Fabricated Plate Work (Boiler Shops)
6	332420	Metal Tank (Heavy Gauge) Manufacturing	Fabricated Plate Work (Boiler Shops)
7	332618	Other Fabricated Wire Product Manufacturing	Primary Metals Products Manufacturing
8	332919	Other Metal Valve and Pipe Fitting Manufacturing	Valves and Pipe Fittings, NEC
9	332999	All Other Miscellaneous Fabricated Metal Product Mftg	Fabricated Metal Products, NEC
10	333120	Construction Machinery Manufacturing	Industrial Machinery & Equipment: Finishing Ops
11	333132	Oil and Gas Field Machinery and Equipment Mftg	Industrial Machinery & Equipment: Finishing Ops
12	333414	Heating Equipment (except Warm Air Furnaces) Mftg	Heating Equipment, except electric
13	333911	Pump and Pumping Equipment Manufacturing	Industrial Machinery & Equipment: Finishing Ops
14	335312	Motor and Generator Manufacturing	Electrical & Electronic Equipment Finishing Ops
15	335999	All Other Misc. Electrical Equipment & Component Mftg	Electrical & Electronic Equipment Finishing Ops

C. NOC FEES AND ANNUAL REGISTRATION FEES

NOC Fees:

Fees have been assessed in accordance with the fee schedule in Regulation I, Section 6.04. All fees must be paid prior to issuance of the final Order of Approval. The synthetic minor and public notice fees were invoiced on 5/2/19 after review of this NOC indicated that the VOC synthetic minor limit is required.

Fee Description	Cost	Amount Received (Date)
Filing Fee	$ 1,150	
Equipment (3 laser cutters)	$1800	
Control Equipment (3 baghouses)	$1800	
NESHAP XXXXXX Determination	$1,000	
SEPA (DNS)	$800	
NOC 11742 Filing Fee Credit	-$1150	
Synthetic Minor, concurrent with NOC review	$2,000	
Public Notice*	$700	
Filing received		$ 1,150 (2/19/19)
Additional fee received		$4,250 (4/3/19)
Additional fee received		$2,700 (5/14/19)
Total		**$8,100**

*Publication fees to be invoiced following public comment period

Registration Fees:
Registration fees are assessed to the facility on an annual basis. Fees are assessed in accordance with Regulation I, Section 5.07.

This NOC will not change the existing facility registration fees. A copy of the 2019 invoice is pasted below for reference:

pscleanair.org
Puget Sound Clean Air Agency

Invoice for Year 2019 Registration Fees

Bill to:
Capital Industries Inc
PO Box 80983
Seattle, WA 98108-0983
Attention: Accounts Payable

Invoice Date:	Invoice #
November 19, 2018	20190075
Due Date:	**Terms:**
January 03, 2019	Net 45 Days
Facility ID (Registration #):	
10385	

Site Address: *Capital Industries Inc*
5801 3rd Ave S, Seattle, WA, 98108

The annual registration fee is required by Washington State law and Puget Sound Clean Air Agency's Regulation I.

Facility Fees and Applicable Regulations		Charges
Base Fee for Registered Sources. Reg I, 5.07(c)	$	1,150.00
Reg I, 5.03(a)(2) - Facilities subject to federally enforceable emission limitations Reg I, 5.03(a)(4)(D) - Facilities with spray coating operations Reg I, 5.03(a)(6) - Facilities with particulate control equipment (>= 2,000 cfm)		
Additional Fees:		
Reg I, 5.07(c)(2) - Facilities subject to federally enforceable emission limitations	$	2,300.00
	$	3,450.00

Fee Totals		
TOTAL REGISTRATION FEE	$	3,450.00

The Total Registration Fee is due by January 03, 2019. If unpaid after January 03, 2019, the facility may be subject to enforcement action with civil penalties (Reg I, 5.07(b)).

D. STATE ENVIRONMENTAL POLICY ACT (SEPA) REVIEW

State Environmental Policy Act (SEPA) review was conducted in accordance with Regulation I, Article 2. The SEPA review is undertaken to identify and help government decision-makers, applicants, and the public to understand how a project will affect the environment. A review under SEPA is required for projects that are not categorically exempt in WAC 197-11-800 through WAC 197-11-890. A new source review action which requires a NOC application submittal to the Agency is not categorically exempt.

PSCAA is the SEPA lead agency for this project. The applicant submitted a completed Environmental checklist that is included below.

I contacted Andy McKim with the City of Seattle on 3/13/19 to see whether the City had any comments or concerns regarding SEPA for this project. City of Seattle indicated that the facility is on an IG2 general industrial zoned area and no permitting activity relating to the equipment requires SEPA determination from the city. The email is embedded below:

RE SEPA for metals fabrication at Capital

The facility is located east of the Duwamish River in Georgetown. Capital Industries' metal working activities under review for this permit are an expansion and continuation of the metal working activities occurring in the existing Building 2. The facility is located on part of the Burlington Environmental LLC Georgetown Washington State Model Toxics Control Act (MTCA) clean-up site. Capital Industries is one of four potentially liable parties (PLPs) who are conducting the clean-up of contamination including chlorinated solvents used in vapor degreasing. More information about the MTCA clean-up at this site can be found here: https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=2622. The laser cutting under review for this permit is not part of MTCA clean-up activities. The MTCA clean-up project is starting to complete some pilot scale clean-up activities including in-situ (in the soil and groundwater) oxidation to break down the contamination and soil vapor extraction (applying vacuum pressure to the area of the soil above the water table to pull out contaminated air under the soil). Both actions are interim actions. The last report related to these activities was issued 2/22/19.

The laser cutting activities at this site will be conducted in the existing building 2. Capital Industries can be found under ID# WAD009245465 with the Hazardous Waste and Toxics Reduction Program with Washington State Department of Ecology. According to the 3/1/2019 Dangerous Waste Report submitted by Capital Industries, Capital Industries is a Small Quantity Generator under Federal regulation (220-2,200 lb/month) and a Medium Quantity Generator under state rules. Their waste is ignitable and spent solvent waste. The laser cutting waste which is large enough to not be ignitable is recycled. Metallic dust waste is disposed separately.

Based on the proposed action and the information in the checklist, the project will not: adversely affect environmentally sensitive or special areas, or endangered or threatened species; conflict with local, state, or federal laws or requirements for the protection of the environment, or establish a precedent for future actions with significant effects. This proposal is not likely to have a probable significant

adverse environmental impact, and I recommend the issuance of a Determination of Non-Significance with no public comment.

E. BEST AVAILABLE CONTROL TECHNOLOGY (BACT) REVIEW

Best Available Control Technology (BACT)

New stationary sources of air pollution are required to use BACT to control all pollutants not previously emitted, or those for which emissions would increase as a result of the new source or modification. BACT is defined in WAC 173-400-030 as, "an emission limitation based on the maximum degree of reduction for each air pollutant subject to regulation under Chapter 70.94 RCW emitted from or which results from any new or modified stationary source, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each pollutant."

An emissions standard or emissions limitation means "a requirement established under the Federal Clean Air Act or Chapter 70.94 RCW which limits the quantity, rate, or concentration of emissions of air contaminants on a continuous basis, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction and any design, equipment, work practice, or operational standard adopted under the Federal Clean Air Act or Chapter 70.94 RCW."

Best Available Control Technology for Toxics (tBACT)

New or modified sources are required to use tBACT for emissions control for TAP. Best available control technology for toxics (tBACT) is defined in WAC 173-460-020 as, "the term defined in WAC 173-400-030, as applied to TAP."

CO_2 laser cutting applies an electric current through a mix of gases (usually ~10-20% CO_2, 10-20% Nitrogen, and ~3% hydrogen and xenon, and ~50% helium). The electric current passing through the gases generates energy to create a stream of light which is focused into a single point through use of mirrors and focusing lenses. The concentration of the light stream creates enough heat to melt or vaporize the material which cuts the metal material.

For fiber optic laser cutting, instead of the electric current from a mix of gases generating the stream of light, as with the CO_2 laser, the medium producing the energy is an optical fiber (usually made from glass or silica) which is treated with rare-earth elements. As with the CO_2 laser, the stream of light focused into a single point creates the heat to vaporize or melt the metal material.

The emissions associated with the melting and vaporization of metals (in this case stainless steel) are metal particulate and metallic fumes (including toxics nickel and chromium) released from the material during cutting.

Similar Permits:

NOC	Issue Date	Equipment Description	BACT and Comments
11608	Pending	Laser engraving of ferrous metals and acrylics (including carbon steel alloys, 304/306/316 stainless steel)	• 100% collection efficiency of dust collector • 99.97% control efficiency for 0.3 micron particles • Carbon adsorption for VOC with 98% efficiency • HEPA filter • No visible nor fugitive emissions from dust collector & material handling
11510	2018	Fully enclosed 16 kW Fraunhofer diode laser cladding machine controlled by an internal Donaldson Torit Tg-2 powercore dust collection system which is equipped with a HEPA filter to control particulate matter and chrome(VI); used for cutting, welding, repair, cladding, and manufacturing of aerospace parts.	• The Fraunhofer Laser Cladding Machine particulate matter emissions shall be controlled with a dust collector that is equipped with a HEPA filter capable of meeting 99.97% control for particle size 0.3 microns. • No visible Emissions from the dust collection system exhaust duct.
11453	2017	A TLM-610 model laser cutting system, employing a 3.3 kW PRC CO2 laser used to cut a variety of metals and metal alloys, located inside building 17-68. The system is completely enclosed and vented to 5,000 cfm Farr GS10 HEPA filter dust collector.	• HEPA filter CO2 cutting. Includes cutting of stainless steel
11344	2017	Two Kern Model HSE 400 Watt CO2 lasers. The lasers will be used for vector cutting and engraving primarily on acrylic material. Emissions will be controlled by the existing MicroAir Model OM6000 with HEPA filter and carbon adsorber that controls the existing 400 W MultiCam 2000 CO2 laser.	• HEPA filter for cutting of stainless steel; carbon adsorption for odors. Used primarily for cutting of acrylics but could potentially for other substrates such as PET-G, wood, cardboard, glass, foam, Corian®, aluminum, leather, brass and more (nonmetallic)

NOC	Issue Date	Equipment Description	BACT and Comments
11419	2017	Robotic laser cladding system controlled by dust collector; cutting of stainless steel with a Laserdyne 795 (4000 W) laser and a Laserdyne 430 (2000 W) laser controlled by dust collectors.	• Baghouse/dust collector equipped with a HEPA Filter to control particulate matter and TAPs/HAPs. • • No visible emissions from the baghouse/dust collector.
10974	2015	One TLM-610 model laser cutting system used to cut a variety of metals including aluminum, titanium, stainless steel, and other metal alloys. Emissions will be vented to a Farr GS4P dust collector rated at 2000 cubic feet per minute and equipped with a HEPA filter.	• HEPA filter Includes cutting of a variety of metals including stainless steel
10788	2014	Cutting of stainless steel with a Laserdyne 795 (4000 W) laser and a Laserdyne 430 (2000 W) laser controlled by a 2,800 cfm Donaldson Torit Powercore TG6 dust collector.	• HEPA filtration Includes cutting of stainless steel with 4000 W and 2000 W lasers

Other Regulatory Agencies BACT:

Source	BACT for Laser Cutting
San Joaquin Valley UAPCD BACT Guideline 8.3.11 (2008)	PM_{10} > 99.9% Control Efficiency (HEPA Dust Collector, Fabric Filter Baghouse, or Equiv.)

Analysis:

All recent BACT determinations for laser cutting, ablation, and cladding of metals including stainless steel require capturing and controlling PM with a dust collector that uses HEPA filtration. The above permitting BACT determinations that include carbon adsorption were for VOC controls associated with the cutting of plastics. This proposal is only for the cutting of metal and therefore will not require carbon adsorption for VOC control. The following components of PM BACT and metallic tBACT apply:

1. Laser cutting must be conducted according to the specifications provided by the manufacturer of the equipment. This also includes materials prohibited to be marked or cut according to the manufacturer (e.g. plastics, Styrofoam)
2. Each laser cutter must route all exhaust air to a dust collector during all operation.
3. Each laser cutter must use a dust collector that collects particulate matter with a minimum efficiency of 99.97% on 0.3 micron sized particles as demonstrated by manufacturer specification.

4. No visible or fugitive emissions allowed from dust collectors and material handling. The following operation and maintenance requirements apply to each laser cutter to avoid visible emissions:
    a. Proper disposal and storage of all dusty material.
    b. The ventilation systems must be under negative pressure and vent to the dust collector including when cleaning.
    c. Dust collector system holding bins shall be fully enclosed.
    d. Dust collector system must be equipped with a pressure gauge.

Recommendations:

Summary BACT and tBACT determination

Pollutant	Emissions Limitation	Implementation of BACT
CO and NO_x		Proper operation of laser according to manufacturer specifications
PM and non-volatile (metallic) TAPs	0.0002 gr/dscf and no visible emissions	▪ All cutting must be conducted using a cutter with a ventilation system that vents all the exhaust to a dust collector ▪ No visible emissions allowed from the building housing the laser cutter or associated dust collector ▪ Each laser cutter must use a dust collector system designed with filtration that meets a control efficiency of 99.97% for 0.3 micron particle ▪ Dust collector holding bins shall be fully enclosed ▪ Dust collectors must be equipped with an operable gauge to indicate the pressure drop across the filters or a filter pressure drop indicating light/interface ▪ Each Amada laser cutting line and the Mazak fiber optic laser cutting shall each be limited to 4,380 hours per 12-month consecutive period

F. EMISSION ESTIMATES

Proposed Project Emissions

Emissions of regulated air pollutants resulting from this project are calculated using a similar methodology as was employed for NOC 11453 (laser cutting of metal substrates, issued 10/12/17). This methodology uses a mass balance approach: first the total metal removed by the cut is calculated, then multiplied by the fraction of the metal that vaporizes. Then the dust collector and HEPA control efficiency is subtracted from the total emissions because of the fraction of emissions that are captured in the dust collector and HEPA filter. Emissions are calculated for proposed actual operation (Actual Emissions) and for the maximum potential emissions that could result from the project (Potential Emissions). For this project, potential emissions are limited based on an enforceable permit condition.

Emissions from thermal cutting of metal are affected by the type of cutting process, voltage and amperage, speed, gas used, gas flowrate, cutting tip size, composition and thickness of the substrate and any surface contamination or coating on the substrate. Experiments with a 4kW laser found that emissions (grams/meter cut) decrease exponentially with the cutting speed and emissions increase with laser power.

Primary emissions of particulate matter (PM) occur because the impact of the laser imparts a physical force on the surface and causes material break-up. This PM originates from pieces of the bare metal, any coatings on the metal, and rust. The laser also vaporizes the material being cut and then the vaporized material may condense and nucleate (form particle droplets).

The applicant provided several MSDS sheets for the material cut at the facility because the majority of the steel cut is recycled steel and may be a combination of the formulations listed below.

- AM USA-001
- Cascade Steel- Carbon Steel Products
- Nucor Steel
- Alaskan Copper Companies Stainless Steel Alloys
- Stainless Steel and Alloys (Alloy #200, #900, #STAGCG57, #342, #2SA
- Ryerson Stainless Steel

From the MSDS provided, a theoretical worst case steel composition was used for calculations of emissions. The theoretical worst case steel is made up of the maximum concentration observed across each of the pollutants present in any of the steel alloys.

Only a fraction of the metal removed by the cut forms a fume. A French study using a 4kW laser measured this at about 1% for cutting stainless steel[1]. A Swedish study using a 200 Amp plasma arc torch measured this at 1% for 35 mm stainless and 7% for 8 mm stainless[2]. A study at the Puget Sound Naval Shipyard using an oxy-MAPP torch measured this at 1-5%, with the higher percentages being for the thinner (1") plates[3]. Similar results for oxy-MAPP cutting of HY-80 steel were found at the Naval Surface Warfare Center.[4] PM emissions were calculated assuming 10% of the metal removed by the cut forms a fume. The 10% was calculated by adding the sample standard deviation from the studies to the maximum observed during the studies.

The fume size distribution for laser cutting was multimodal, with the main mode centered about 0.45 µm and with virtually all of the mass being PM2.5 (<2.5 µm diameter). This size distribution was similar to that of a 50 Amp plasma torch (which also had a similar cutting speed). The PSNS study found 83% of the fume was PM2.5. The Naval Surface Warfare Center found 47% of the fume was <0.1 µm and about 60% was PM2.5. For the purposes of calculating PM; total PM was calculated using the total mass of material cut as discussed above, and the average of the 83%

[1] *"Measurement of Secondary Emissions During Laser Cutting of Steel Equipments"*, Pilot et al., Nuclear Engineering and Design, Vol. 238, Issue 8.
[2] *"Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel"* IIW Document 1E=174-93, March, 1999 - on EPA's AP-42 webpage (http://www.epa.gov/ttn/chief/ap42/ch12/index.html.
[3] *"Metal Cutting Operations: Emission Factors for Particulates, Metals and Metal Ions"*, Kura et al., 2000 AWMA Conference Paper.
[4] *"Oxy-MAPP Metal Cutting: Particle Size and Cr(VI) Speciation"*, Kura et al., 2006 AWMA Conference Paper.

and 60% size distribution was applied to calculate PM2.5. All PM which is not PM2.5 is assumed to be PM10.

Chromium may exist in different valence states (this is the location of the electrons in the atom). Cr(VI) is the valence state for chromium which is also a toxic air pollutant under WAC 173-460-150. Studies have investigated the amount of chromium which is released as Cr(VI) in the fume. There was significant enrichment of Cr(VI) concentration in the ultrafine particles. However, all studies found the fume composition as a whole was comparable to the base metal composition. Only a fraction of the chromium in the fume was found in the hexavalent oxidation state.

8% of the chromium present in the composition of the stainless steel is assumed to be in the Cr(VI) oxidation state based an average of a total of 26 measurements for the welding of stainless steel. The reference papers for these factors can be found in the workbook for emission calculations (embedded below).

The applicant stated that the maximum dimensions to be cut by the laser cutter is 0.5 inches thick with 0.01-0.05 inch kerf (cutting width) cutting at 34 inch/minute speed (maximum speed for cutting is 40 inch/minute; 85% of time is spent cutting while 15% of time is spend stationary boring the initial hole for the cut so 34 inch/minute reflects the total mass of steel removed by the cut. All metal assumed to have density of 0.289 lb/in^3.

Actual Emissions

Actual emissions are based on 2,800 hours of operation per year cutting through 40 inches/min of 0.5" material with 85% utilization efficiency (effective speed of 36 inches/min).

Potential Emissions

The permitted potential to emit calculations are based on operating 365 days per year with two 8 hour shifts (4,380 hours per year) at maximum cutting speed with the largest (thickest) steel cut. Operation is limited to 4,380 hours per year.

Below is the table summary of emission calculations for actual and potential emissions. The workbook used for emissions calculations is also embedded below.

Pollutant	Controlled	
	Actual (TPY)	Potential (TPY)
Total HAP	2.55E-05	2.87E-05
Total VOC	0.00	0.00
Total TAP	3.42E-06	5.35E-06
Total NOx	0.11	0.33
Total PM2.5	0.05	0.05
Total PM10	0.02	0.02
Total PM	0.06	0.07

11740
Emissions.xlsm

Facility-wide Emissions

Actual Emissions

Facility-wide emissions have added the maximum observed emissions from the last five years at the facility as reported per PSCAA Reg I 5.05(b).

Pollutant	NOC 11740 Actual (TPY)	Reported Actual (TPY)	Facility-wide Total Actual (TPY)
Total HAP	2.55E-05	9.02	9.02
Total VOC	0.00	30.0	30.0
Total TAP	3.42E-06	10.3	10.3
Total NOx	0.11	-	0.11
Total PM2.5	0.05	-	0.05
Total PM10	0.02	-	0.02
Total PM	0.06	-	0.06

Reporting Source?

As Capital Industries has a synthetic minor, the facility is a reporting source and will continue to be a reporting source following the issuance of this NOC. The metallic HAPs from laser cutting will be added to the facility's total HAPs and will be required to be reported if total HAP or any single HAP exceeds the thresholds under PSCAA Reg I 5.05(b): 2.50 ton/yr of any single HAP and 6.25 ton/yr of total HAPs.

Potential Emissions

Potential HAP emissions were calculated from the synthetic minor limit from the facility. Potential VOC emissions take the spray coating operating hours at the facility (8 hour shift five days per week plus 7 Saturdays/yr) and scale up (to 8760 hours operation) the maximum reported emissions observed in the past five years (emissions reported in 2015). The same methodology was used for TAPs (although some toxic air pollutants under state regulation are also hazardous air pollutants under federal regulation and TAP potential emissions may be limited partially by the synthetic minor limit for HAPs).

Pollutant	NOC 11740 Potential (TPY)	Facility-wide Potential Actual (TPY)
Total HAP	2.87E-05	24
Total VOC	0.00	131.26
Total TAP	5.35E-06	47.9
Total NOx	0.33	0.33
Total PM2.5	0.05	0.05
Total PM10	0.02	0.02
Total PM	0.07	0.07

G. OPERATING PERMIT or PSD

The Title V Air Operating Permit (AOP) program applicability for the entire source has been reviewed. The facility is an existing synthetic minor for historic solvent degreasing activities. The facility-wide PTE is limited by OA 6075 for only total HAP, individual HAPs, methyl isobutyl ketone, xylene, and toluene. The facility-wide emissions review under this NOC indicates that VOC PTE exceed Title V thresholds. As part of this NOC, an additional synthetic minor limit for VOC on a 12 month rolling average has been included in this application.

Per EPA guidance (example from EPA comments on Lockwood Regional Landfill March 29, 2011: https://www.epa.gov/sites/production/files/2015-08/documents/lockwood.pdf) "EPA encourages a 5-10% buffer between the permitted emission limits and the federal threshold". The upper range 10% buffer will be used for this synthetic minor emission limit because compliance is to be determined on a monthly basis (12-month rolling) calculated using a mass balance to track all coatings applied facility-wide. This monitoring structure does not determine compliance as frequently as other monitoring systems (e.g. continuous emission monitoring system) and therefore a larger buffer is selected.

The existing facility-wide emission limits (synthetic minor) established under NOC 6075 for HAPs have been transferred to this NOC with no changes.

Emission increases associated with this project were reviewed for Prevention of Significant Deterioration (PSD) Program applicability. The facility is not an existing PSD major source and the increase in emissions from this permitting action is below PSD thresholds.

H. AMBIENT TOXICS IMPACT ANALYSIS

The estimated potential toxic air pollutant (TAP) emissions at operating at 100% rated capacity and 4380 hour per year for the laser cutter operations based on limits in permit. The table below includes estimated potential emissions of all TAP and compares those to the Small Quantity Emission Rates (SQER) in WAC 173-460-150.

Cr(VI) emissions exceeded the SQER and a screening model run was completed with the building as a volume source and confirmed that the concentrations will be below the Cr(VI) ASIL. The modeling files are embedded below.

Theoretical	Species	% Comp.	TAC	Controlled

Worst Case (Max from SDS)			or HAP ?	lb/hr	actual lb/yr	potential lb/yr	SQER	Avg Period	lb/avg period	model?
	Iron	100%	-	1.69E-05	0.047460	0.074240	-	-	-	-
	Antimony	0.90%	HAP	1.53E-07	0.000427	0.000668	-	-	-	-
	Arsenic	0.09%	HAP	1.53E-08	0.000043	0.000067	0.0581	yr	6.68163E-05	no
	Beryllium	0.09%	HAP	1.53E-08	0.000043	0.000067	0.08	yr	6.68163E-05	no
	Cadmium	0.01%	Both	1.69E-09	0.000005	0.000007	0.0457	yr	7.42403E-06	no
	Manganese	16.00%	HAP	2.71E-06	0.007594	0.011878	0.00526	24-hr	3.25437E-05	no
	Selenium	0.90%	HAP	1.53E-07	0.000427	0.000668	2.63	24-hr	1.83058E-06	no
	Hydrochloric Acid	3%	Both	5.08E-07	0.001424	0.002227	1.18	24-hr	6.10195E-06	no
	Nickel	46%	HAP	7.80E-06	0.021831	0.034151	0.806	yr	0.034150558	no
	Chromium	30%	HAP	5.08E-06	0.014238	0.022272	-	-	-	no
	Chromium (VI)	8%	Both	4.07E-07	0.001139	0.001782	6.40E-05	yr	0.001781768	yes
	Phosphorus	2%	Both	3.39E-07	0.000949	0.001485	2.63	24-hr	4.06796E-06	no
	Cobalt	5%	Both	8.47E-07	0.002373	0.003712	0.013	24-hr	1.01699E-05	no
	Vanadium	2%	TAC	3.39E-07	0.000949	0.001485	0.0263	24-hr	4.06796E-06	no
	Lead	1%	HAP	1.69E-07	0.000475	0.000742	16	yr	0.000742403	no

Cr(VI) Toxics Analysis

Pollutant	Emission Rate (lb/averaging period)	ASIL avg. period	Emission Rate (lb/hr)	TSCREEN Modeled Value (ug/m3)	ASIL (ug/m3)	Below ASIL?
Cr(VI)	0.00	year	4.07E-07	6.31E-06	6.67E-06	YES


11740 AERSCREEN OUTPUT.OUT


11740.zip

I. APPLICABLE RULES & REGULATIONS

PUGET SOUND CLEAN AIR AGENCY REGULATIONS

SECTION 5.05 (c): The owner or operator of a registered source shall develop and implement an operation and maintenance plan to ensure continuous compliance with Regulations I, II, and III. A copy of the plan shall be filed with the Control Officer upon request. The plan shall reflect good industrial practice and shall include, but not be limited to, the following:
(1) Periodic inspection of all equipment and control equipment;

(2) Monitoring and recording of equipment and control equipment performance;
(3) Prompt repair of any defective equipment or control equipment;
(4) Procedures for startup, shut down, and normal operation;
(5) The control measures to be employed to ensure compliance with Section 9.15 of this regulation; and
(6) A record of all actions required by the plan.
The plan shall be reviewed by the source owner or operator at least annually and updated to reflect any changes in good industrial practice.

SECTION 6.09: Within 30 days of completion of the installation or modification of a stationary source subject to the provisions of Article 6 of this regulation, the owner or operator or applicant shall file a Notice of Completion with the Agency. Each Notice of Completion shall be submitted on a form provided by the Agency, and shall specify the date upon which operation of the stationary source has commenced or will commence.

SECTION 9.03: (a) It shall be unlawful for any person to cause or allow the emission of any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour, which is:
(1) Darker in shade than that designated as No. 1 (20% density) on the Ringelmann Chart, as published by the United States Bureau of Mines; or
(2) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in Section 9.03(a)(1).
(b) The density or opacity of an air contaminant shall be measured at the point of its emission, except when the point of emission cannot be readily observed, it may be measured at an observable point of the plume nearest the point of emission.
(c) This section shall not apply when the presence of uncombined water is the only reason for the failure of the emission to meet the requirements of this section.

SECTION 9.09: General Particulate Matter (PM) Standard. It shall be unlawful for any person to cause or allow the emission of particulate matter in excess of the following concentrations:
Equipment Used in a Manufacturing Process: 0.05 gr/dscf

SECTION 9.11: It shall be unlawful for any person to cause or allow the emission of any air contaminant in sufficient quantities and of such characteristics and duration as is, or is likely to be, injurious to human health, plant or animal life, or property, or which unreasonably interferes with enjoyment of life and property.

SECTION 9.13: It shall be unlawful for any person to cause or allow the installation or use of any device or use of any means designed to mask the emission of an air contaminant which causes detriment to health, safety or welfare of any person.

SECTION 9.15: It shall be unlawful for any person to cause or allow visible emissions of fugitive dust unless reasonable precautions are employed to minimize the emissions. Reasonable precautions include, but are not limited to, the following:
(1) The use of control equipment, enclosures, and wet (or chemical) suppression techniques, as practical, and curtailment during high winds;
(2) Surfacing roadways and parking areas with asphalt, concrete, or gravel;

(3) Treating temporary, low-traffic areas (e.g., construction sites) with water or chemical stabilizers, reducing vehicle speeds, constructing pavement or rip rap exit aprons, and cleaning vehicle undercarriages before they exit to prevent the track-out of mud or dirt onto paved public roadways; or
(4) Covering or wetting truck loads or allowing adequate freeboard to prevent the escape of dust-bearing materials.

SECTION 9.16(c): General Requirements for Indoor Spray-Coating Operations. It shall be unlawful for any person subject to the provisions of this section to cause or allow spray-coating inside a structure, or spray-coating of any motor vehicles or motor vehicle components, unless all of the following requirements are met:
(1) Spray-coating is conducted inside an enclosed spray area;
(2) The enclosed spray area employs either properly seated paint arresters, or water-wash curtains with a continuous water curtain to control the overspray; and
(3) All emissions from the spray-coating operation are vented to the atmosphere through an unobstructed vertical exhaust vent.

REGULATION I, SECTION 9.20(a): It shall be unlawful for any person to cause or allow the operation of any features, machines or devices constituting parts of or called for by plans, specifications, or other information submitted pursuant to Article 6 of Regulation I unless such features, machines or devices are maintained in good working order.

2. WASHINGTON STATE ADMINISTRATIVE CODE

WAC 173-400-040(3): Fallout. No person shall cause or allow the emission of particulate matter from any source to be deposited beyond the property under direct control of the owner or operator of the source in sufficient quantity to interfere unreasonably with the use and enjoyment of the property upon which the material is deposited.

WAC 173-400-040(4): Fugitive emissions. The owner or operator of any emissions unit engaging in materials handling, construction, demolition or other operation which is a source of fugitive emission:

(a) If located in an attainment area and not impacting any nonattainment area, shall take reasonable precautions to prevent the release of air contaminants from the operation.

WAC173-400-111(7): Construction limitations.
(a) Approval to construct or modify a stationary source becomes invalid if construction is not commenced within eighteen months after receipt of the approval, if construction is discontinued for a period of eighteen months or more, or if construction is not completed within a reasonable time. The permitting authority may extend the eighteen-month period upon a satisfactory showing by the permittee that an extension is justified.

3. FEDERAL

The facility is subject to 40 CFR Part 63, Subpart XXXXXX, National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories,

because it is primarily engaged in production of fabricated metal products and the NAICS code for Capital Industries, 332999 "All Other Miscellaneous Fabricated Metal Product Mtfg, matches EPA's NAICS/SIC Code Applicability Table (pasted below) and because the facility completes fabrication of compounds containing metal HAP (chromium) greater than 0.1% by weight.

The facility is also subject to the applicable general provisions in 40 CFR Part 63, Subpart A as specified in 40 CFR 63.11523.

Applicability is detailed in 40 CFR 63. 11514 and included below for reference:

40 CFR §63.11514 Am I Subject To This Subpart?

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

(a)(2) Fabricated Metal Products;

(b) The provisions of this subpart apply to each new and existing affected source listed and defined in paragraphs (b)(1) through (5) of this section if you use materials that contain or have the potential to emit metal fabrication or finishing metal HAP (MFHAP), defined to be the compounds of cadmium, chromium, lead, manganese, and nickel, or any of these metals in the elemental form with the exception of lead. Materials that contain MFHAP are defined to be materials that contain greater than 0.1 percent for carcinogens, as defined by OSHA at 29 CFR 1910.1200(d)(4), and greater than 1.0 percent for noncarcinogens. For the MFHAP, this corresponds to materials that contain cadmium, chromium, lead, or nickel in amounts greater than or equal to 0.1 percent by weight (of the metal), and materials that contain manganese in amounts greater than or equal to 1.0 percent by weight (of the metal), as shown in formulation data provided by the manufacturer or supplier, such as the Material Safety Data Sheet for the material.

(b)(2) A machining affected source is the collection of all equipment and activities necessary to perform machining operations which use materials that contain MFHAP, as defined in §63.11522, "What definitions apply to this subpart?", or that have the potential to emit MFHAP.

(b)(5) A welding affected source is the collection of all equipment and activities necessary to perform welding operations which use materials that contain MFHAP, as defined in §63.11522, "What definitions apply to this subpart?", or have the potential to emit MFHAP.

(d) An affected source is new if you commenced construction or reconstruction of the affected source, as defined in §63.2, "General Provisions" to part 63, on or after April 3, 2008.

(i) You are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not otherwise required by law to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a). Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart.

40 CFR §63.11515 What Are My Compliance Dates?

(b) If you own or operate a new affected source, you must achieve compliance with the applicable provisions in this subpart by July 23, 2008, or upon startup of your affected source, whichever is later.

40 CFR §63.11516 What Are My Standards And Management Practices?

(b) *Standards for machining*. If you own or operate a new or existing machining affected source, you must implement management practices to minimize emissions of MFHAP as specified in paragraph (b)(1) and (2) of this section for each machining operation that uses materials that contain MFHAP, as defined in §63.11522, "What definitions apply to this subpart?", or has the potential to emit MFHAP. These requirements do not apply when machining operations are being performed that do not use any materials containing MFHAP and do not have the potential to emit MFHAP.

(b)(1) You must take measures necessary to minimize excess dust in the surrounding area to reduce MFHAP emissions, as practicable; and

(b)(2) You must operate all equipment associated with machining according to manufacturer's instructions.

(f) *Standards for welding.* If you own or operate a new or existing welding affected source, you must comply with the requirements in paragraphs (f)(1) and (2) of this section for each welding operation that uses materials that contain MFHAP, as defined in §63.11522, "What definitions apply to this subpart?", or has the potential to emit MFHAP. If your welding affected source uses 2,000 pounds or more per year of welding rod containing one or more MFHAP (calculated on a rolling 12-month basis), you must demonstrate that management practices or fume control measures are being implemented by complying with the requirements in paragraphs (f)(3) through (8) of this section. The requirements in paragraphs (f)(1) through (8) of this section do not apply when welding operations are being performed that do not use any materials containing MFHAP or do not have the potential to emit MFHAP.

(f)(1) You must operate all equipment, capture, and control devices associated with welding operations according to manufacturer's instructions. You must demonstrate compliance with this requirement by maintaining a record of the manufacturer's specifications for the capture and control devices, as specified by the requirements in §63.11519(c)(4), "Notification, recordkeeping, and reporting requirements."

(f)(2) You must implement one or more of the management practices specified in paragraphs (f)(2)(i) through (v) of this section to minimize emissions of MFHAP, as practicable, while maintaining the required welding quality through the application of sound engineering judgment.

(f)(2)(i) Use welding processes with reduced fume generation capabilities (e.g., gas metal arc welding (GMAW)--also called metal inert gas welding (MIG));

(f)(2)(ii) Use welding process variations (e.g., pulsed current GMAW), which can reduce fume generation rates;

(f)(2)(iii) Use welding filler metals, shielding gases, carrier gases, or other process materials which are capable of reduced welding fume generation;

(f)(2)(iv) Optimize welding process variables (e.g., electrode diameter, voltage, amperage, welding angle, shield gas flow rate, travel speed) to reduce the amount of welding fume generated; and

(f)(2)(v) Use a welding fume capture and control system, operated according to the manufacturer's specifications.

(f)(3) *Tier 1 compliance requirements for welding.* You must perform visual determinations of welding fugitive emissions as specified in §63.11517(b), "Monitoring requirements," at the primary vent, stack, exit, or opening from the building containing the welding operations. You must keep a record of all visual determinations of fugitive emissions along with any corrective action taken in accordance with the requirements in §63.11519(c)(2), "Notification, recordkeeping, and reporting requirements."

(f)(4) *Requirements upon initial detection of visible emissions from welding.* If visible fugitive emissions are detected during any visual determination required in paragraph (f)(3) of this section, you must comply with the requirements in paragraphs (f)(4)(i) and (ii) of this section.

(f)(4)(i) Perform corrective actions that include, but are not limited to, inspection of welding fume sources, and evaluation of the proper operation and effectiveness of the management practices or fume control measures implemented in accordance with paragraph (f)(2) of this section. After completing such corrective actions, you must perform a follow-up inspection for visible fugitive emissions in accordance with §63.11517(a), "Monitoring Requirements," at the primary vent, stack, exit, or opening from the building containing the welding operations.

(f)(4)(ii) Report all instances where visible emissions are detected, along with any corrective action taken and the results of subsequent follow-up inspections for visible emissions, and submit with your annual certification and compliance report as required by §63.11519(b)(5), "Notification, recordkeeping, and reporting requirements."

(f)(5) *Tier 2 requirements upon subsequent detection of visible emissions.* If visible fugitive emissions are detected more than once during any consecutive 12 month period (notwithstanding the results of any follow-up inspections), you must comply with paragraphs (f)(5)(i) through (iv) of this section.

(f)(5)(i) Within 24 hours of the end of the visual determination of fugitive emissions in which visible fugitive emissions were detected, you must conduct a visual determination of emissions opacity, as specified in §63.11517(c), "Monitoring requirements," at the primary vent, stack, exit, or opening from the building containing the welding operations.

(f)(5)(ii) In lieu of the requirement of paragraph (f)(3) of this section to perform visual determinations of fugitive emissions with EPA Method 22 , you must perform visual determinations of emissions opacity in accordance with §63.11517(d), "Monitoring Requirements," using EPA Method 9 , at the primary vent, stack, exit, or opening from the building containing the welding operations.

(f)(5)(iii) You must keep a record of each visual determination of emissions opacity performed in accordance with paragraphs (f)(5)(i) or (ii) of this section, along with any subsequent corrective action taken, in accordance with the requirements in §63.11519(c)(3), "Notification, recordkeeping, and reporting requirements."

(f)(5)(iv) You must report the results of all visual determinations of emissions opacity performed in accordance with paragraphs (f)(5)(i) or (ii) of this section, along with any subsequent corrective action taken, and submit with your annual certification and compliance report as required by §63.11519(b)(6), "Notification, recordkeeping, and reporting requirements."

(f)(6) *Requirements for opacities less than or equal to 20 percent but greater than zero.* For each visual determination of emissions opacity performed in accordance with paragraph (f)(5) of this section for which the average of the six-minute average opacities recorded is 20 percent or less but greater than zero, you must perform corrective actions, including inspection of all welding fume sources, and evaluation of the proper operation and effectiveness of the management practices or fume control measures implemented in accordance with paragraph (f)(2) of this section.

(f)(7) *Tier 3 requirements for opacities exceeding 20 percent.* For each visual determination of emissions opacity performed in accordance with paragraph (f)(5) of this section for which the average of the six- minute average opacities recorded exceeds 20 percent, you must comply with the requirements in paragraphs (f)(7)(i) through (v) of this section.

(f)(7)(i) You must submit a report of exceedence of 20 percent opacity, along with your annual certification and compliance report, as specified in §63.11519(b)(8), "Notification, recordkeeping, and reporting requirements," and according to the requirements of §63.11519(b)(1), "Notification, recordkeeping, and reporting requirements."

(f)(7)(ii) Within 30 days of the opacity exceedence, you must prepare and implement a Site-Specific Welding Emissions Management Plan, as specified in paragraph (f)(8) of this section. If you have already prepared a Site-Specific Welding Emissions Management Plan in accordance with this paragraph, you must prepare and implement a revised Site-Specific Welding Emissions Management Plan within 30 days.

(f)(7)(iii) During the preparation (or revision) of the Site-Specific Welding Emissions Management Plan, you must continue to perform visual determinations of emissions opacity, beginning on a daily schedule as specified in §63.11517(d), "Monitoring Requirements," using EPA Method 9 , at the primary vent, stack, exit, or opening from the building containing the welding operations.

(f)(7)(iv) You must maintain records of daily visual determinations of emissions opacity performed in accordance with paragraph (f)(7)(iii) of this section, during preparation of the Site-Specific Welding Emissions Management Plan, in accordance with the requirements in §63.11519(b)(9), "Notification, recordkeeping, and reporting requirements."

(f)(7)(v) You must include these records in your annual certification and compliance report, according to the requirements of §63.11519(b)(1), "Notification, recordkeeping, and reporting requirements."

(f)(8) *Site-Specific Welding Emissions Management Plan.* The Site-Specific Welding Emissions Management Plan must comply with the requirements in paragraphs (f)(8)(i) through (iii) of this section.

(f)(8)(i) Site-Specific Welding Emissions Management Plan must contain the information in paragraphs (f)(8)(i)(A) through (F) of this section.

(f)(8)(i)(A) Company name and address;

(f)(8)(i)(B) A list and description of all welding operations which currently comprise the welding affected source;

(f)(8)(i)(C) A description of all management practices and/or fume control methods in place at the time of the opacity exceedence;

(f)(8)(i)(D) A list and description of all management practices and/or fume control methods currently employed for the welding affected source;

(f)(8)(i)(E) A description of additional management practices and/or fume control methods to be implemented pursuant to paragraph (f)(7)(ii) of this section, and the projected date of implementation; and

(f)(8)(i)(F) Any revisions to a Site-Specific Welding Emissions Management Plan must contain copies of all previous plan entries, pursuant to paragraphs (f)(8)(i)(D) and (E) of this section.

(f)(8)(ii) The Site-Specific Welding Emissions Management Plan must be updated annually to contain current information, as required by paragraphs (f)(8)(i)(A) through (C) of this section, and submitted with your annual certification and compliance report, according to the requirements of §63.11519(b)(1), "Notification, recordkeeping, and reporting requirements."

(f)(8)(iii) You must maintain a copy of the current Site-Specific Welding Emissions Management Plan in your records in a readily-accessible location for inspector review, in accordance with the requirements in §63.11519(c)(12), "Notification, recordkeeping, and reporting requirements."

J. PUBLIC NOTICE

A notice of application was posted on the Agency's website for 15 days. No requests or responses were received. A copy of the website posting is below:

Capital Industries Inc	5801 3rd Ave S, Seattle, WA 98108	Application to install a laser cutter controlled by a dust collector at a metals fabricating facility.	3/7/19	Madeline Camp
Capital Industries Inc	5801 3rd Ave S, Seattle, WA 98108	Application for fiber optic laser cutting controlled by a cartridge dust collector at a metal product manufacturing facility.	3/7/19	Madeline Camp

This project meets the criteria for mandatory public notice under WAC 173-400-171(3)(k) for establishing a voluntary limit on emissions. This is due to requesting a voluntary limit on emissions for VOCs. A 30-day public comment period shall be held from May 30, 2019 through June 29, 2019. Notices that the draft materials were open to comment were published in the Seattle Times and Daily Journal of Commerce on May 30, 2019. The Agency posted the application and the draft worksheet on the Agency's website during the comment period.

Comments to be summarized in this section following public comment period.

K. RECOMMENDED APPROVAL CONDITIONS

Standard Conditions:

1. Approval is hereby granted as provided in Article 6 of Regulation I of the Puget Sound Clean Air Agency to the applicant to install or establish the equipment, device or process described hereon at the installation address in accordance with the plans and specifications on file in the Engineering Division of the Puget Sound Clean Air Agency.

2. This approval does not relieve the applicant or owner of any requirement of any other governmental agency.

Facility-wide Conditions:

3. The owner or operator shall limit facility-wide emissions of hazardous air pollutants (HAPs) as established by U.S.C. 7412(b)(1) and amended in 40 CFR 63 Subpart C to less than 9.9 tons of any single listed HAP and less than 24 tons of any combination of HAPs during any 12 consecutive months after the date of this order.

4. The owner or operator shall limit facility-wide emissions of methyl isobutyl ketone to 8.7 tons, xylene to 7.2 tons and toluene to 5.2 tons during any 12 consecutive months after the date of this Order.

5. The owner or operator shall limit facility-wide emissions of volatile organic compounds (VOCs) to less than or equal to 90.0 tons during any 12 consecutive months after the date of the Order.

6. Within 30 days of the end of each month, the owner or operator shall calculate and record emissions of each individual HAP, including methyl isobutyl ketone, xylene and toluene, total HAP and total VOCs emitted during the previous month and during the previous consecutive 12-month period using a material balance approach. Calculations may use the HAP content (% composition) and the VOC content (lb/gallon) of each coating and the total amount (gallons) of each HAP- and VOC-containing material applied during the previous month and during any consecutive 12-month period. Purchase records may be used as a surrogate for usage.

Laser Cutting Operational Requirements:

7. Laser cutting activities on the two Amada laser cutting lines and the Mazak laser cutting line shall not be conducted for greater than 4,380 hours per 12-month rolling period per laser cutting line. Compliance with this condition shall, at minimum, be demonstrated by maintaining operating logs for each laser cutting line.

8. The two Amada laser cutting lines and the Mazak laser cutting line shall not cut steel containing greater than 30% chromium. Compliance with this condition shall, at minimum, be demonstrated through Material Safety Data Sheets (MSDS) for any steel thermally cut at the facility. For recycled steel, the MSDS for all constituent steel may be supplied.

9. All emissions from laser cutting conducted on the two Amada laser cutting lines and the Mazak laser cutting line shall be continuously captured and vented to a dust collector and secondary HEPA filtration system during all times that laser cutting activities are conducted.

    a. The exhaust from each of the Amada laser cutting lines shall be routed through a dust collector with MERV 13 filter technology followed by a secondary HEPA filter system that meets a minimum efficiency of 99.97% for 0.3 micron sized particles.
    b. The exhaust from the Mazak laser cutting line shall be routed through a dust collector with MERV 16 filter technology followed by a secondary HEPA filter system that meets a minimum efficiency of 99.97% for 0.3 micron sized particles.

10. No visible or fugitive emissions shall be allowed from the dust collectors and material handling. Each laser cutter shall be fully enclosed under negative pressure and vent to the dust collector during operation and cleaning. The dust collector holding bins shall be fully enclosed.

11. The two Donaldson Torit dust collectors and associated HEPA filters and the Robovent dust collector and associated HEPA filters shall each be equipped with an operable gauge to monitor the pressure drop across the filter bank and/or media bed for the cartridge filters and an operable gauge to monitor the pressure drop across each of the HEPA secondary filtration systems. The pressure drop minimum and maximum values must be clearly marked on or nearby the gauge and documented in the facility Operation and Maintenance (O&M) plan based on manufacturer's recommendations, specifications or instruction, or good air pollution control practices to minimize emissions. Upon

determination of no remaining filter capacity, the laser processing shall be temporarily ceased until the filters are replaced.

12. The dust collectors including secondary HEPA filters permitted under this Order shall always be operated within the acceptable pressure drop range across the filter bank.

13. At least once per calendar month when laser processing occurs, the owner/operator shall:

    a. Inspect each of the garage or bay doors, windows or building openings for the presence or absence of visible emissions. Monthly inspections for the presence of visible emissions must be conducted by an observer standing outside of the building and facing building openings for at least 5 minutes when laser cutting is being conducted.
    b. Specify whether the dust collector pressure drop gauge is operating and the pressure drop is within the acceptable range. The observed pressure drop value must be recorded for each inspection.
    c. Specify whether the HEPA filtration system pressure drop gauge is within the acceptable range. The observed pressure drop value must be recorded for each inspection.

14. Laser cutting operations shall cease and corrective action shall be taken prior to resuming laser cutting operations if any of the following are observed during the inspections required by Condition #13 or during any operating period:

    a. Visible emissions from the associated dust collector or building.
    b. The pressure drop gauge on the associated dust collector or secondary HEPA filter is not operating.
    c. The pressure drop across the associated dust collector or secondary HEPA filter is not within the acceptable range.

Recordkeeping Requirements:

15. All records required by this Order of Approval must be maintained for at least two years.

16. The following facility-wide records shall be kept onsite and up-to-date, and made readily available to Agency personnel upon request:

    a. Monthly records of all products used at the facility that contribute to methyl isobutyl ketone, xylene, toluene and other HAP emissions and the quantity of each product applied.
    b. Monthly records of all products used at the facility that contribute to VOC emissions and the quantity of each product applied.
    c. Monthly and twelve-month rolling total emissions as calculated in accordance with Condition #6 of this Order to demonstrate compliance with each individual HAP, including methyl isobutyl ketone, xylene, toluene, and total HAP limits of Conditions #3, #4.
    d. Monthly and twelve-month rolling total emissions as calculated in accordance with Condition #6 of this Order to demonstrate compliance with the total VOC limit of Conditions #5.

17. The following laser cutting records shall be kept onsite and up-to-date, and made readily available to Agency personnel upon request:

    a. Documentation to demonstrate compliance with the filter specifications required by Condition #9.
    b. The Operation and Maintenance (O&M) plan. The O&M plan shall be developed and implemented per Agency's Regulation I. The following shall be included in the O&M plan:
        i. Pressure drop minimum and maximum values for each dust collector;
        ii. HEPA filter maintenance procedures; and
        iii. Corrective action procedures to be taken if the pressures drop across the filter bank deviates from the established range or is non-operational.

18. The following records shall be kept onsite and updated within 30 days of the end of each month, and be readily available for Agency personnel upon request:
    a. Documentation to demonstrate compliance with Condition #7 total operating hour limits;
    b. A written log documenting the visible emission inspection results as required by Condition #13;
    c. A written log documenting the monthly pressure drop readings of each dust collector as required by Condition #13; and
    d. Documentation verifying any corrective action taken to maintain compliance with this Order of Approval, if any, and the date and time it was conducted.

L. CORRESPONDENCE AND SUPPORTING DOCUMENTS

M. REVIEWS

Reviews	Name	Date
Engineer	Madeline Camp	5/2/19
Inspector	Nina Lawonn	5/6/19
Second Review:	Maggie Corbin	5/5/19
Applicant Name:	Ray Carr	5/23/19