TECHNICAL SUPPORT DOCUMENT

Air Discharge Permit ADP 24-3677
Air Discharge Permit Application CL-3281

Issued: December 18, 2024

Greenberry Industrial

SWCAA ID - 2404

Prepared By: Wess Safford
Air Quality Engineer
Southwest Clean Air Agency

TABLE OF CONTENTS

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
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOV	Notice of Violation/
NSPS	New Source Performance Standard
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

µg/m³	Micrograms per cubic meter
µm	Micrometer (10^{-6} meter)
acfm	Actual cubic foot per minute
gr/dscf	Grain per dry standard cubic foot
MMBtu	Million British thermal unit
ppm	Parts per million
ppmv	Parts per million by volume
ppmvd	Parts per million by volume, dry
ppmw	Parts per million by weight
psig	Pounds per square inch, gauge
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_2	Nitrogen dioxide
NO_X	Nitrogen oxides
O_2	Oxygen
O_3	Ozone
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:	Greenberry Industrial
Applicant Address:	600 SE Maritime Avenue, Suite 190 Vancouver, WA 98661
Facility Name:	Greenberry Industrial
Facility Address:	3000 SE Hidden Way Vancouver, WA 98661
SWCAA Identification:	2404
Contact Person:	Brian Harris, Regional EHS Manager
Primary Process:	Metal Fabrication
SIC/NAICS Code:	3441 / Fabricated Structural Metal 332312 / Fabricated Structural Metal Manufacturing
Facility Classification:	Natural Minor

2. FACILITY DESCRIPTION

Greenberry Industrial (Greenberry) operates a metal fabrication facility specializing in large structural steel projects. Greenberry's facility operates in Building 40 (Bays 1 through 3) and Building 41 (Bay 2) 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.

3. CURRENT PERMITTING ACTION

This permitting action is in response to Air Discharge Permit application number CL-3281 (ADP Application CL-3281) dated October 25, 2024. Greenberry submitted ADP Application CL-3281 requesting approval of a metal parts manufacturing facility equipped with the following:

- (1) Kinetic plasma cutting table; and
- Multiple welding stations.

The current permitting action provides approval for metal fabrication activities as proposed in ADP Application CL-3281. This is the initial permitting action for this facility.

4. PROCESS DESCRIPTION

4.a. Metal Fabrication/Welding (*new*). This facility converts raw metal stock (bar, plate, channel) into finished products. Raw stock is cut and shaped to specification using metal breaks, cutting torches and a plasma cutting table. Metal pieces and assemblies are manually welding together using stick/wire welders.

5. EQUIPMENT/ACTIVITY IDENTIFICATION

5.a. Kinetic Plasma Cutting Table (*new*). This unit is a plasma plate cutting machine located in the south end of Building 40, Bay 1. Emissions from cutting operations are captured by vacuum pickups and vented to a dedicated dust collector located adjacent to the unit.

Make/Model:	Kinetic model K3200XMC (s/n K3200-6920-493)
Mfg Date:	October 5, 2018

Cutting Table Dust Collector (*new*). This unit is dedicated to controlling fume and particulate emissions from the Kinetic plasma cutting table. The unit is located adjacent to the cutting table and exhausts inside Bay 1. Specific equipment information is listed below:

Make/Model:	Kinetic
Filter Count:	6 cartridges (12.74" dia x 26" long)
Filter Area:	1,524 ft^2
Filter Media:	Donaldson Ultra-Web
Cleaning Mechanism:	Reverse pulse jet
Material Catch:	Internal drum
Exhaust Rate:	3,400 acfm (nominal)
Location:	45°36'53.50"N 122°38'25.56"W

5.b. Welding Operations (*new*). Greenberry welds metal pieces of various sizes into large structural assemblies using multiple open work bays. Welding is performed using both mild steel (E70/E71/E7018) and stainless (E316) rod/wire. Emissions from steel welding operations vent openly to the work bay. Emissions from stainless welding operations are controlled with portable filtration units (Lincoln X-Tractor or equivalent).

Location: 45°36'54.87"N 122°38'25.58"W

5.c. Equipment/Activity Summary.

ID No.	Equipment/Activity	Control Equipment/Measure
1	Kinetic Plasma Cutting Table	Process Enclosure, Cartridge Collector (Kinetic – 3,400 acfm)
2	Welding Operations	Portable Filtration Units

6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from metal fabrication operations proposed in ADP Application CL-3281 consist of nitrogen oxides (NO_X), particulate matter (PM), 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. Kinetic Plasma Cutting Table (*new*). Potential emissions from plasma cutting table operation are calculated based on 4,000 hr/yr of operation, emission factors from "*Emissions of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel*" Bromeen B. et al March 1994, and a control efficiency of 99%. All PM is assumed to be $PM_{2.5}$. Annual emissions will be calculated based on actual hours of operation using the same methodology.

Plasma Cutting Table

Operation = 4,000 hr/yr

Pollutant	Emission Factor		Emissions (lb/hr)	Emissions (tpy)
NO_X	10.16	g/min	1.34	2.69
$PM/PM_{10}/PM_{2.5}$	23.0	g/min (uncontrolled)		
	99.00%	control efficiency	0.030	0.061

6.b. Metal Fabrication / Welding (*new*). Potential emissions from secondary metal fabrication activities (drilling, grinding, etc.) in the shop are not expected to be significant. Potential emissions from welding are calculated based on maximum anticipated weld wire/rod usage and emission factors from EPA AP-42, Section 12.19 (1/95). Greenberry uses portable filter units to control fume emissions when welding stainless material. The units are assumed to provide 80% capture and 99.97% control. Annual emissions will be calculated based on actual weld wire/rod consumption using the same methodology.

Welding Emissions

Type	Throughput (lb/yr)	Emission Factors (lb/1,000 lb) Cr	Cr(VI)	Co	Mn	Ni	Pb	PM_{10}	$PM_{2.5}$
FCAW E70	37,500	0.004			0.891	0.005	0	15.1	15.1
SMAW E7018	200	0.006		0.001	1.030	0.002	0	18.4	18.4
FCAW E316	950	0.970	0.140		0.590	0.093	0	8.5	8.5
SMAW E316	150	0.522	0.332		0.544	0.055	0	10.0	10.0

Type	Emissions (lb/yr) Cr	Cr(VI)	Co	Mn	Ni	Pb	PM_{10}	$PM_{2.5}$
FCAW E70	0.150	0.0	0.0	33.413	0.188	0.0	566.3	566.3
SMAW E7018	0.0012	0.0	0.00020	0.206	0.00040	0.0	3.7	3.7
Uncontrolled Emissions =	0.151	0.0	0.00020	33.619	0.188	0.0	569.9	569.9
FCAW E316	0.185	0.027	0.0	0.112	0.018	0.0	1.6	1.6
SMAW E316	0.016	0.010	0.0	0.016	0.002	0.0	0.3	0.3
Controlled Emissions =	0.200	0.037	0.0	0.129	0.019	0.0	1.9	1.9
Filter Efficiency =	99.97%		Capture Efficiency =		80%			
Total Emissions =	0.351	0.037	0.00020	33.747	0.207	0.000	571.8	571.8

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

Pollutant	Potential Emissions (tpy)	Project Increase (tpy)
NO_X	2.69	2.69
CO	0.00	0.00
VOC	0.00	0.00
SO_2	0.00	0.00
Lead	0.00	0.00
PM	0.35	0.35
PM_{10}	0.35	0.35
$PM_{2.5}$	0.35	0.35
TAP	0.018	0.018
HAP	0.018	0.018
CO_2e	0	0

Pollutant	CAS Number	Category	Facility-wide Emissions	Project Increase	WAC 173-460 SQER
			lb/yr	lb/yr	lb/yr
Chromium (VI)	*18540-29-9*	*HAP/TAP*	*0.037*	*0.037*	*6.5E-4*
Nickel	7440-02-0	HAP/TAP	0.207	0.207	0.62
			lb/24-hr	lb/24-hr	lb/24-hr
Chromium (II/III)	7440-47-3	HAP/TAP	9.6E-4	9.6E-4	0.37
Cobalt	7440-48-4	HAP/TAP	5.5E-7	5.5E-7	0.0074
Manganese	*7439-96-5*	*HAP/TAP*	*0.093*	*0.093*	*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 Part 63 (40 CFR 63) Subpart XXXXXX "National Emission 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 is primarily engaged in fabricating structural steel components so this regulation applies.

7.b. 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.c. 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.d. Washington Administrative Code (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.

7.e. 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.f. 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.g. 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.h. 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.i. 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.j. 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.k. 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.

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 (99.0% control) has been determined to meet the requirements of BACT for PM emissions from cutting table operation at this facility.

The quantity of potential NO_X emissions are relatively small and there is no cost-effective means of minimizing the estimated level of emissions. Therefore, no control has been determined to meet the requirements of BACT for NO_X emissions from cutting table operation at this facility.

8.b. BACT Determination – Welding. The proposed use of portable filtration units has been determined to meet the requirements of BACT for stainless steel welding operations at this facility. No control has been determined to meet the requirement of BACT for mild steel welding operations at this facility.

Other Determinations

8.c. 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.d. 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 incremental increases in TAP emissions associated with this permitting action are quantified in Section 6 of this Technical Support Document. All incremental increases in individual TAP emissions are less than the applicable small quantity emission rate (SQER) identified in WAC 173-460 with the exception of chromium (VI) and manganese.

9.b. TAP Ambient Impact Analysis. TAP emissions were modeled using the AERSCREEN dispersion model (ver 16216). The results of the model indicate that the project will not cause an incremental increase in ambient concentrations greater than the applicable acceptable source impact level (ASIL) identified in WAC 173-460.

Toxic Compound	CAS #	Incremental Ambient Impact (µg/m³)	Acceptable Source Impact Level (µg/m³)
Chromium (VI)	18540-29-9	3.1E-5	8.3E-5 (Annual)
Manganese	7439-96-5	0.17	0.30 (24-hr)

Conclusions

9.c. Operation of a metal fabrication facility, as proposed in ADP Application CL-3281, 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.d. Operation of a metal fabrication facility, as proposed in ADP Application CL-3281, 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.e. Operation of a metal fabrication facility, as proposed in ADP Application CL-3281, 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 24-3677 in response to ADP Application CL-3281. ADP 24-3677 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

10.a. General Basis. Permit requirements for equipment affected by this permitting action incorporate the operating schemes proposed by the applicant in ADP Application CL-3281. 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.b. Monitoring and Recordkeeping Requirements. ADP 24-3677 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 monitoring requirements are established for hours of equipment operation, welding rod/wire usage, and differential pressure across filter cartridges in the plasma cutting dust collector.

10.c. Reporting Requirements. ADP 24-3677 establishes general reporting requirements for annual air emissions, upset conditions and excess emissions. Specific reporting requirements are established for hours of equipment operation and welding rod/wire usage. Reports are to be submitted on an annual basis.

10.d. Plasma Cutting Table. Emissions from plasma cutting operations are controlled via process enclosure and discharge through a dedicated dust collector. Visible emissions are limited to 0% opacity. Installation of a differential pressure gage to monitor pressure drop across the filtration media is required to assist in evaluating whether the dust collector is operating properly. Large changes in differential pressure can indicate operational problems.

10.e. Welding Operations. Mild steel welding is conducted in partially open work bays with no dedicated control equipment. Stainless welding is conducted in partially open work bays with emissions controlled by portable filtration units (Lincoln X-Tractor or equivalent).

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.

The applicant did not identify any start-up and shutdown periods during which affected equipment is not capable of achieving continuous compliance with applicable technology determinations or approval conditions. To SWCAA's knowledge, this facility can comply with all applicable standards during startup and shutdown.

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 from those measures required under BACT considerations. Therefore, none were included in the permit requirements.

12. EMISSION MONITORING AND TESTING

There are no formal emission monitoring or testing requirements for this facility.

13. FACILITY HISTORY

13.a. Previous Permitting Actions. SWCAA has not previously issued any Permits for this facility.

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

14. PUBLIC INVOLVEMENT OPPORTUNITY

14.a. Public Notice for ADP Application CL-3281. Public notice for ADP Application CL-3281 was published on the SWCAA internet website for a minimum of (15) days beginning on October 31, 2024.

14.b. Public/Applicant Comment for ADP Application CL-3281. 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 Greenberry Industrial in conjunction with ADP Application CL-3281. After reviewing the checklist, SWCAA has made a Determination of Nonsignificance (DNS 24-047) concurrent with issuance of ADP 24-3677.