

ENGINEERING ANALYSIS

Cooper Steel South
Facility Number 309-0079
New Laser Cutting Tables and Welding Operations

Introduction

On January 29, 2026, the Department electronically received an application from Cooper Steel South (CSS) regarding the installation of new welding stations and laser cutting tables at the facility in Childersburg, Alabama.

CSS manufactures, fabricates, and surface coats structural steel parts. The Standard Industrial Classification (SIC) code for Fabricated Structural Metal is 3441. The North American Industry Classification System (NAICS) code for Fabricated Structural Metal Manufacturing is 332312.

Background

CSS was issued Synthetic Minor Operating Permit (SMOP) Nos. 309-0079-X001 and X002 on March 20, 2024, for the facility's steel fabrication and painting operations and enclosed shot blasting machine with particulate filter, respectively. The proposed project would include the installation of new laser metal cutting tables, a shot blaster, and welding equipment. The primary pollutants emitted from the proposed equipment would be particulate matter (PM) from the raw steel cutting and welding wire, volatile organic compounds (VOCs) from laser cutting table lubricants, and nitrogen oxides (NO_x) from the oxyfuel torches.

The Department contacted CSS on June 18, 2026, and June 24, 2026, to confirm that the facility is not proposing changes to any existing permitted emissions limits as a part of this application. On August 24, 2026, CSS electronically submitted revised emissions calculations and proposed alternative monitoring for the oxyfuel torches.

Process Description

Existing Permitted Units:

X001: Steel Fabrication and Painting

The processes, equipment, and emission unit (EU) IDs associated with SMOP X001 are listed on the table below:

EU-ID	Unit Description	Listed Equipment
01	Painting	Two HVLP spray guns
03	Plasma Cutter (HSFDB)	One dry plasma cutting Plate Machine
04	Welding	16 arc welding stations
05	Machining	Four sawing machines, one Angle Master, two drills

X002: Enclosed Shot Blasting Machine with Particulate Filter

The processes, equipment, and EU-IDs associated with SMOP X002 are listed on the table below:

EU-ID	Unit Description	Listed Equipment
02	Blaster (#1)	Enclosed shot blasting machine with particulate filter (99.5% removal), vents indoors

Proposed New Equipment:

EU-ID	Unit Description	Listed Equipment
06/07	Band Saws and Drill Line	Two band saws and one drill
08	Plasma Cutter (Peddibot)	One dry plasma cutter with particulate filter (99.5% removal), vents indoors
09	Blaster (#2)	Enclosed shot blasting machine with particulate filter (95% removal), vent indoors
10	CNC Coping Machine	One CNC Machine with particulate filter (99.5% removal), vents indoors
11	Laser Cutting Table	One Cutlite Laser Table
12	Machining	One Angle Master
13	Welding	30 arc welding machines
14	Oxyfuel Torches	40 Propane Fired Torches

Control Equipment

The associated add-on controls for the facility's emission units are listed on the table below:

EU-ID	Unit Description	Control Equipment
01	Painting	Gravel catch media for overspray
03	Plasma Cutter (HSFDB)	Baghouse (94% removal), vents indoors
11	Laser Cutting Table	Baghouse (99.97% removal), vents indoors

Emissions

SMOP No. X001 limits emissions of VOCs to 95.0 tons per year (TPY), total hazardous air pollutants (HAPs) to 24.0 TPY, and any single HAP to 9.0 TPY, calculated as rolling totals. The updated facility-wide potential to emit (PTE) is listed on the table below. All calculations are based on material usage and EPA AP-42 emission factors. 8,760 hours of operation per year is assumed for all processes except the new oxyfuel torches, which was requested by CSS to be limited to 700 hours per year. Compliance with this hours of operation limit will be demonstrated by tracking the total propane fuel usage for all torches. See Appendix A for all example calculations.

EU-ID	PM _{Total} (TPY)	PM ₁₀ (TPY)	PM _{2.5} (TPY)	NO _x (TPY)	VOC (TPY)	Single HAP (TPY)	Totals HAPs (TPY)
<i>Existing Equipment</i>							
01	34.49	34.49	34.49	0	95.0 [†]	9.0* [†]	24.0 [†]
02 [‡]	0.002	0.001	0.0001	0	0	0	0
03	3.68	2.80	1.55	8.63	0	0	0
04	2.68	2.68	2.68	0	0	0.0806**	0.0883
05	12.42	2.49	2.49	0	17.12	0	0
<i>Proposed New Equipment</i>							
06/07	6.12	1.23	1.23	0	4.33	0	0
08	1.32	1.00	0.55	8.63	1.65	0	0
09 [‡]	0.003	0.002	0.0002	0	0	0	0
10	0.20	0.15	0.08	8.63	0	0	0

11	0.05	0.04	0.02	0	0	0	0
12	0	0	0	0	0	0	0
13	11.22	11.22	11.22	0	0	6.09**	6.154
14	15.40	11.70	6.45	27.59	0	0	0
Facility Total	70.88	52.41	47.24	53.48	95.0 [†]	9.0 [†]	24.0 [†]

*Greatest single HAP from surface coating is xylene, used as thinner

**Greatest metal HAP from welding wire is manganese

‡Assumed EU02 usage = 75 TPY and EU09 usage = 25 TPY. 100 TPY combined media limit.

†Permitted limit in SMOP No. X001

Prevention of Significant Deterioration (PSD)

CSS does not fall under one of the 28 listed source categories that has a major source threshold of 100 TPY for all regulated New Source Review (NSR) pollutants. Fabricated Structural Metal Manufacturing is not a listed source in ADEM Admin. Code R. 335-3-14-.04(2)(a)(1). This facility is not subject to a PSD review because potential annual emissions are less than 250 tons for all regulated NSR pollutants. Therefore, CSS would remain a minor source with respect to PSD.

Title V

CSS has taken limits to remain below the 100 TPY major source threshold for VOCs and NO_x, the 25 TPY threshold for total HAPs, and the 10 TPY threshold for any single HAP. Therefore, CSS would remain a synthetic minor source with respect to Title V.

New Source Performance Standards (NSPS)

CSS will not be subject to any new NSPS following the installation of the proposed equipment.

National Emissions Standards for Hazardous Air Pollutants (NESHAP)

This facility is subject to 40 CFR Part 63 Subpart XXXXXX, the National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories. The facility is subject because Fabricated Structural Metal Manufacturing is a listed source in the applicability section §63.11514(a)(4), the associated SIC code 3441 and NAICS code 332312 are listed on the reference EPA NAICS/SIC Code Table for Subpart XXXXXX, and the facility utilizes materials that contain metal fabrication or finishing metal HAP (MFHAP) as stated in §63.11514(b)(1) through (5). The Department has not adopted this Federal Standard.

The initial notification and notification of compliance status (NOCS) reports for this facility were included with the initial application submitted on November 13, 2023. CSS submits an annual certification and compliance report to the Department by January 31st of each year as required by §63.11519(b)(1). CSS is currently classified as Tier 1 (quarterly visible emissions monitoring schedule) under Subpart XXXXXX. Applicable records that are required to be maintained per §63.11519(c) are reviewed during the Department's annual compliance inspection of the facility.

This facility is not subject to 40 CFR Part 63 Subpart MMMM, the National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products, because the facility is not a major source of HAPs per §63.3881(b). CSS will not be subject to any new NESHAP following the installation of the proposed equipment.

State Regulations

Stacks at this facility are subject to the opacity limits stated in ADEM Admin. Code. R. 335-3-4-.01. Sources of particulate emissions are subject to the process weight curve defined in R. 335-3-4-.04(1) because Talladega County is a listed Class I County in Appendix A of the ADEM Code.

CSS is not subject to R. 335-3-6, Control of Organic Emissions, because the facility-wide PTE for VOCs is limited to less than 100 TPY as stated in R. 335-3-6-.01(1)(b). CSS will not be subject to any new State Regulations following the installation of the proposed equipment.

Odors

Metal blasting, metal fabrication, and welding are not expected to produce unusual odors. Painting operations are conducted in a ventilated enclosed building with gravel media to catch overspray.

Coastal Consistency / Class I

This facility is approximately 145 kilometers away from the Sipsey Wilderness, the closest Class I area. This facility should not significantly impact this Class I area because it is a minor source and is over 100 kilometers away.

Public Notice

A 15-day public notice period will be required because the proposed project will consist of installing new equipment on site, and new emission limits and recordkeeping requirements will be added to the permit.

Recommendation

Since it appears that CSS would be able to meet all applicable State and Federal Regulations, I recommend that SMOP Nos. 309-0079-X001 and X002 be reissued to include the proposed equipment, pending payment of permit fees and 15-day public notice. SMOP X001 will also include a new hours of operation limit for the 40 oxyfuel torches and additional recordkeeping requirements. SMOP X002 will also include a new annual shot media usage limit for the two shot blasters. The description of the proposed permits is included below, and copies of the draft permits are attached to this document.

- | | |
|----------------|--|
| 309-0079-X001: | Metal Surface Coating (EU01) and
Steel Fabrication:
Plasma Cutting Tables (EU03, EU08)
Welding (EU04, EU13)
Machining (EU05, EU06, EU07, EU10, EU12)
Laser Cutting Table (EU11)
Oxyfuel Torches (EU14) |
| 309-0079-X002: | Two Enclosed Shot Blasting Machines each with Particulate Filters (EU02, EU09) |

Paul M. Contorno
Chemical Branch
Air Division

September 10, 2026
Date

PMC:pmc
File ID:

Appendix A

A.1. Allowable Particulate Emissions from Facility Operations Summary

Emission Unit	Particulate Source	Allowable PM (TPY)
02, 09	Shot Blast Media	0.98
03	Plasma Cutting	3.82
04, 13	Welding Wire	26.13
05, 06, 10	Machining	149.11
08	Plasma Cutting	9.42
11	Laser Cutting	8.37
14	Oxyfuel Torches	25.42
Facility Total	All Listed Emission Units	223.25

A.2. Particulate Emissions Calculations

R. 335-3-4-.04(1) Eq. 1 for process throughput: $E = 3.59P^{0.62}$, $P < 30$ tons/hr

R. 335-3-4-.04(1) Eq. 2 for process throughput: $E = 17.31P^{0.16}$, $P \geq 30$ tons/hr

Where P = process weight per hour in tons per hour, and E = emissions in pounds per hour

A.2.1. EU02 and EU09 – Enclosed Shot Blasting Unit #1 and #2 (PeddiBlast)

- (1) Maximum process weight = $100 \frac{\text{tons media combined [limit]}}{\text{year}} * \frac{1 \text{ year}}{8,760 \text{ hrs}} = 0.0114 \frac{\text{tons media}}{\text{hour}}$
- (2) $E = 3.59 * \left(0.0114 \frac{\text{tons media}}{\text{hour}}\right)^{0.62} = 0.224 \frac{\text{lbs}}{\text{hour}}$
- (3) $0.224 \frac{\text{lbs}}{\text{hour}} * \frac{1 \text{ ton}}{2,000 \text{ lbs}} * \frac{8,760 \text{ hours}}{1 \text{ year}} = 0.98 \frac{\text{tons}}{\text{year}}$

A.2.2. EU03 – Plasma Cutting Table (HSFDB)

- (1) Maximum process weight = $204.192 \frac{\text{lbs}}{\text{hour}} * \frac{1 \text{ ton}}{2,000 \text{ lbs}} = 0.102 \frac{\text{tons}}{\text{hour}}$
- (2) $E = 3.59 * \left(0.102 \frac{\text{tons}}{\text{hour}}\right)^{0.62} = 0.872 \frac{\text{lbs}}{\text{hour}}$
- (3) $0.872 \frac{\text{lbs}}{\text{hour}} * \frac{1 \text{ ton}}{2,000 \text{ lbs}} * \frac{8,760 \text{ hours}}{1 \text{ year}} = 3.82 \frac{\text{tons}}{\text{year}}$

A.2.3. EU04 and EU13 – Welding

- (1) Max process weight = $\left(190.6 \frac{\text{lbs [EU04]}}{\text{hour}} + 4346.575 \frac{\text{lbs [EU13]}}{\text{hour}}\right) * \frac{1 \text{ ton}}{2,000 \text{ lbs}} = 2.27 \frac{\text{tons}}{\text{hour}}$
- (2) $E = 3.59 * \left(2.27 \frac{\text{tons}}{\text{hour}}\right)^{0.62} = 5.97 \frac{\text{lbs}}{\text{hour}}$
- (3) $5.97 \frac{\text{lbs}}{\text{hour}} * \frac{1 \text{ ton}}{2,000 \text{ lbs}} * \frac{8,760 \text{ hours}}{1 \text{ year}} = 26.13 \frac{\text{tons}}{\text{year}}$

A.2.4. EU05, EU06, and EU10 – Machining

$$(1) \quad \text{Max process weight} = \left(136,928 \frac{\text{lbs [EU05,EU06]}}{\text{hour}} + 129 \frac{\text{lbs [EU10]}}{\text{hour}} \right) * \frac{1 \text{ ton}}{2,000 \text{ lbs}} = 68.53 \frac{\text{tons}}{\text{hour}}$$

$$(2) \quad E = 17.31 * \left(68.53 \frac{\text{tons}}{\text{hour}} \right)^{0.16} = 34.04 \frac{\text{lbs}}{\text{hour}}$$

$$(3) \quad 34.04 \frac{\text{lbs}}{\text{hour}} * \frac{1 \text{ ton}}{2,000 \text{ lbs}} * \frac{8,760 \text{ hours}}{1 \text{ year}} = 149.11 \frac{\text{tons}}{\text{year}}$$

A.2.5. EU08 – Plasma Cutting Table (Peddibot)

$$(1) \quad \text{Maximum process weight} = 875 \frac{\text{lbs}}{\text{hour}} * \frac{1 \text{ ton}}{2,000 \text{ lbs}} = 0.438 \frac{\text{tons}}{\text{hour}}$$

$$(2) \quad E = 3.59 * \left(0.438 \frac{\text{tons}}{\text{hour}} \right)^{0.62} = 2.15 \frac{\text{lbs}}{\text{hour}}$$

$$(3) \quad 2.15 \frac{\text{lbs}}{\text{hour}} * \frac{1 \text{ ton}}{2,000 \text{ lbs}} * \frac{8,760 \text{ hours}}{1 \text{ year}} = 9.42 \frac{\text{tons}}{\text{year}}$$

A.2.6. EU11 – Laser Cutting Table

$$(1) \quad \text{Maximum process weight} = 723.86 \frac{\text{lbs}}{\text{hour}} * \frac{1 \text{ ton}}{2,000 \text{ lbs}} = 0.362 \frac{\text{tons}}{\text{hour}}$$

$$(2) \quad E = 3.59 * \left(0.362 \frac{\text{tons}}{\text{hour}} \right)^{0.62} = 1.91 \frac{\text{lbs}}{\text{hour}}$$

$$(3) \quad 1.91 \frac{\text{lbs}}{\text{hour}} * \frac{1 \text{ ton}}{2,000 \text{ lbs}} * \frac{8,760 \text{ hours}}{1 \text{ year}} = 8.37 \frac{\text{tons}}{\text{year}}$$

A.2.7. EU14 – Oxyfuel Torches

$$(1) \quad \text{Maximum process weight} = 2.17 \frac{\text{tons}}{\text{hour}}$$

$$(2) \quad E = 3.59 * \left(2.17 \frac{\text{tons}}{\text{hour}} \right)^{0.62} = 5.80 \frac{\text{lbs}}{\text{hour}}$$

$$(3) \quad 5.80 \frac{\text{lbs}}{\text{hour}} * \frac{1 \text{ ton}}{2,000 \text{ lbs}} * \frac{8,760 \text{ hours}}{1 \text{ year}} = 25.42 \frac{\text{tons}}{\text{year}}$$

A.3 EU14 – Oxyfuel Torches Maximum Annual Propane Fuel Usage

$$(1) \quad 15 \frac{\text{scf propane}}{\text{hr} * \text{torch}} * 40 \text{ torches} = 600 \frac{\text{scf propane}}{\text{hr}}$$

$$(2) \quad 600 \frac{\text{scf propane}}{\text{hr}} * 700 \frac{\text{hrs}}{\text{yr}} [\text{limit}] = 420,000 \frac{\text{scf propane}}{\text{yr}}$$