

ENGINEERING ANALYSIS

PROJECT DESCRIPTION

Quality Fab, Inc. (QFI) currently operates the Quality Fab Steel Facility in Arton, Alabama. The Quality Fab Steel Facility is an existing A36 steel fabrication facility that performs metal cutting, welding, and painting operations. This facility was originally owned by Quality Fabrications, LLC but was shut down and reopened by Quality Fab, Inc. in October 2009. Due to hazardous air pollutants in the metal processing and painting operations, QFI has the potential to exceed the Title V major source thresholds for hazardous air pollutants (HAPs). QFI submitted a Synthetic Minor Operating Permit (SMOP) application on October 24, 2024 that requested limits on volatile organic compound (VOC) and HAP emissions to avoid being a major source with respect to Title V. A complete application was received on May 19, 2025. This facility has not received any previous permit determinations from the Department and does not currently hold any Air Permits.

EQUIPMENT

The following equipment is listed in the facility's SMOP application:

- Plasma/Laser Cutting Table 1 controlled by a baghouse
- Plasma/Laser Cutting Table with no control device
- Metal Cutting Process
- Welding Process
- Media Blasting Process
- Steel Coating Process

PROCESS DESCRIPTIONS

QFI processes metal fabrication projects according to customer requests, such as constructing process equipment. QFI can perform each of the process steps listed below, but only does the ones that the customer requests.

Plasma/Laser Cutting Tables

This facility has two plasma/laser cutting tables that are used to cut metal before assembly. Plasma Table 1 is controlled by a baghouse. Plasma Table 2 is uncontrolled. The maximum throughput of each plasma table is 5 tons per hour.

Metal Cutting Process

Some material is cut with a cutting machine that can make more complex cuts than the plasma/laser cutting tables. The maximum throughput of this process is 5 tons per hour.

Welding Process

Metal parts are welded together with shielded metal arc welding (SMAW) or gas metal arc welding (GMAW). This process uses 56,500 pounds of wire per year and uses E70S, 309, or 308 electrodes. SMAW is rarely used.

Media Blasting Process

Some material is processed in a media blasting process before it is painted or coated. Material is blasted outdoors with Black Beauty blasting media and is uncontrolled. The maximum throughput is 0.25 tons per hour of blasting media.

Steel Coating Process

Some material is spray painted or coated in a paint shed. The paint shed is a building with doors on both ends. The material is painted as it travels through the building. QFI uses the paint that is requested by the customer, so different paints are used for each project.

EMISSIONS

The expected facility-wide emissions are shown in Figure 2, and the facility-wide potential to emit (PTE) is shown in Figure 3.

Facility-Wide SMOP Limits

QFI has requested facility-wide SMOP limits for HAPs and VOCs. VOC emissions shall not exceed 95 tons per rolling 12-month period, emissions of each individual HAP shall not exceed 9.5 tons per twelve months, and the combined amount of all HAPs emitted shall not exceed 24.5 tons per rolling 12-month period.

Plasma/Laser Cutting Tables and Metal Cutting Process

The PTE of the metal cutter was calculated with a mass balance. Particulate matter (PM) emissions were calculated with the volume of material cut per minute and the density of the cut metal. This information was provided by QFI in the SMOP application. 8,760 hours of operation were used for all calculations.

The PTE of the Plasma Tables was calculated using a mass balance and emission factors from South Coast Air Quality Management District Guidelines for Calculating and Reporting Emissions from Laser or Plasma Cutting of Metal Materials Operations December 2024 for mild steel. This document listed emission factors for nitrogen oxides (NO_x) and PM for wet and dry cutting. Emissions from both scenarios were calculated, but Dry Cutting was used in the facility-wide PTE because it has the highest PTE. Emissions were calculated using 8,760 hours of operation per year for both tables. Since Plasma/Laser Cutting Table 1 is controlled by a baghouse, a control efficiency of 95 percent was used to calculate the emissions from all pollutants emitted by Plasma/Laser Cutting Table 1 except NO_x. Plasma Table 2 and the Metal Cutting Process are uncontrolled, so no control efficiencies were used in those calculations.

Hazardous air pollutant (HAP) emissions from these processes were calculated using the weight percent of manganese, phosphorus, nickel, and chromium from the material test report for ASTM A500-23 Grade B&C steel that was provided in QFI's application.

Media Blasting Process

The PTE of the Media Blasting Process was calculated with AP-42 emission factors and a mass balance. Emission factors from AP-42 Table 13.2.6-1 were used for PM, PM-10, and PM-2.5. Manganese, beryllium, and cadmium emissions were calculated using the compositions taken from the Safety Data Sheet (SDS) for Black Beauty that was provided in the SMOP application. A throughput of 0.2 tons per hour and 8,760 hours of operation per year were used for all calculations.

Welding

QFI performs welding using shielded metal arc welding (SMAW) and gas metal arc welding (GMAW). E70S, 309, and 308 electrodes are used. Emissions were calculated using information from the background document of AP-42 section 12.19 and a material balance.

PM-10 emissions were calculated using the fume generation rates from Figure 2-15 of the background document for AP-42 Section 12.19. The ranges of fume generation rates are shown in Figure 1 below. The highest fume generation

rates for steel were used for all calculations because they would result in the highest emissions. These rates were 35.7 pounds of PM-10 per thousand pounds of metal deposited for SMAW and 8.0 pounds of PM-10 per thousand pounds of metal deposited for GMAW. All of the metal was assumed to be deposited or emitted as fumes. All fumes were assumed to be PM-10 in accordance with footnote b of AP-42 Table 12.19-1.

Welding Type	Metal	PM Emissions (pounds of PM-10 emitted per 1000 pounds of deposited metal)
Shielded Metal Arc Welding	Steel	8.6 – 35.7
	Stainless Steel and High Alloy	7.9 – 14.1
Gas Metal Arc Welding	Steel	3.4 – 8.0
	Stainless Steel and High Alloy	0.7 – 6.8

Figure 1 – Welding Fume Generation Rates

HAP emissions were calculated with a mass balance using the compositions of manganese, phosphorus, chromium, and nickel from the safety data sheets for each electrode. The compositions of each welding alloy are shown in Appendix A and were obtained from Safety Data Sheets for the welding rods.

56,528 pounds of welding wire per year and 8,760 hours of operation per year were used for all calculations.

Steel Coating Process

Since QFI uses different paints for each project, the facility-wide SMOP limits of 95 tons per twelve-months of VOC, 9.5 tons per twelve-months of single HAPs, and 24.5 tons per twelve-months of all HAPs were used as the PTE for the Steel Coating Process.

Pollutant	Media Blasting Process	Welding Process	Plasma/Laser Cutting Table 1	Plasma/Laser Cutting Table 2	Metal Cutting Process	Coating and Painting Process	Total
NO _x	-	-	6.04	6.04	-	-	12.09
PM	59.13	-	0.75	14.98	9.20	-	84.06
PM-10	28.47	0.23	-	-	-	-	28.70
PM2.5	2.85	-	-	-	-	-	2.85
VOC	-	-	-	-	-	95.00	95.00
Beryllium Compounds	5.91E-04	-	-	-	-	-	5.91E-04
Cadmium	5.91E-04	-	-	-	-	-	5.91E-04
Chromium	-	1.20E-05	3.47E-06	3.47E-06	2.76E-03	-	2.78E-03
Phosphorus	-	2.00E-06	1.27E-06	1.27E-06	1.01E-03	-	1.02E-03
Manganese	2.96E-02	4.52E-04	8.79E-05	8.79E-05	6.99E-02	-	0.10
Nickel	-	3.39E-04	1.16E-06	1.16E-06	9.20E-04	-	1.26E-03
Individual HAPs from Paints	-	-	-	-	-	9.50	9.50
Total HAP	3.07E-02	8.05E-04	-	-	7.46E-02	24.50	24.50

Figure 2 – Expected Emissions

Pollutant	Media Blasting Process	Welding Process	Plasma/Laser Cutting Table 1	Plasma/Laser Cutting Table 2	Metal Cutting Process	Coating and Painting Process	Total
NO _x	-	-	6.04	6.04	-	-	12.09
PM	59.13	-	0.75	14.98	9.20	-	84.06
PM-10	28.47	0.23	-	-	-	-	28.70
PM2.5	2.85	-	-	-	-	-	2.85
VOC	-	-	-	-	-	95.00	95.00
Beryllium Compounds	5.91E-04	-	-	-	-	-	9.50
Cadmium	5.91E-04	-	-	-	-	-	9.50
Chromium	-	1.20E-05	3.47E-06	3.47E-06	2.76E-03	-	9.50
Phosphorus	-	2.00E-06	1.27E-06	1.27E-06	1.01E-03	-	9.50
Manganese	2.96E-02	4.52E-04	8.79E-05	8.79E-05	6.99E-02	-	9.50
Nickel	-	3.39E-04	1.16E-06	1.16E-06	9.20E-04	-	9.50
Individual HAPs from Paints	-	-	-	-	-	9.50	9.50
Total HAP	3.07E-02	8.05E-04	-	-	7.46E-02	24.50	24.50

Figure 3 – Facility-Wide Potential to Emit

REGULATIONS

STATE REGULATIONS

ADEM Admin. Code r. 335-3-4-.01(1)(a and b), “Visible Emissions”

Applicability

The Plasma/Laser Cutting Tables, Metal Cutting Process, Welding Process, and Media Blasting Process will be subject to these requirements. The coating and spraying process will not be subject to the requirements of this rule because it does not have the potential to emit particulate matter.

Emission Standards

ADEM Admin. Code r. 335-3-4-.01(1)(a) states that no person shall emit particulate emissions to the atmosphere of an opacity of greater than twenty percent (20%) over a six (6) minute period.

ADEM Admin. Code r. 335-3-4-.01(1)(b) states that during one six-minute period in any sixty minute period a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than that designated as forty percent (40%) opacity.

Compliance Test Methods and Procedures

Compliance with the opacity standards for the Plasma/Laser Cutting Tables, Metal Cutting Process, Welding Process, and Media Blasting Process stacks shall be determined using one of the methods below:

- Method 9 of Appendix A-4 to 40 CFR Part 60 (Method 9) [ADEM Admin. Code r. 335-3-4-.01(2)].
 - Method 9 must be conducted by an observer that is certified and familiar with Method 9 procedures.
 - Method 9 shall be conducted during daylight hours.
 - Method 9 observations should be documented using an ADEM Visible Emissions Observation Report.
- Method 22 of Appendix A-7 to 40 CFR Part 60 (Method 22).
 - The observation must be done by an individual who is familiar with Method 22.

- To determine compliance with the opacity standards, a violation is defined as visible emissions observed for a total of six (6) minutes in any 60-minute period.

Emission Monitoring

QFI should conduct weekly checks of the Plasma/Laser Cutting Tables, Metal Cutting Process, Welding Process, and Media Blasting Process stacks to determine the presence or absence of visible emissions. The checks should be performed while the units are in operation. If visible emissions are observed, corrective action shall be initiated within 1 hour. If visible emissions are still present after corrective action has been conducted, a Method 9 or Method 22 observation must be conducted for a period of at least 12 minutes to confirm that the opacity standards are not exceeded.

Recordkeeping and Reporting

The results of each weekly visible emissions check and any required Method 9 or Method 22 observations should be maintained.

Records of deviations from the opacity standards in ADEM Admin. Code r. 335-3-4-.01(1)(a) and ADEM Admin. Code r. 335-3-4-.01(1)(b) should be maintained. The records must include the cause of the visible emissions, the corrective actions taken, records of any Method 9 observations, and the date, time, and duration of the deviation.

ADEM Admin. Code r. 335-3-4-.04, “Process Industries - General”

Applicability

ADEM Admin. Code r. 335-4-.04 applies to all units at this facility except the Steel Coating Process. The Steel Coating Process is not subject to this rule because it does not have the potential to emit particulate matter.

Emission Standards

ADEM Admin. Code r. 335-3-4-.04(1) states that no person shall cause or permit the emission of particulate matter in any one hour from any source in a Class I County in excess of the amount shown in Table 4-2 for the process weight per hour allocated to such source. For sources in Class I Counties, interpolation of the data in Table 4-2 for the process weight per hour values up to 60,000 lbs/hr shall be accomplished by use of Equation 1:

$$\text{Equation 1: } E = 3.59 \times P^{0.62}$$

Value	Description	Units
E	Emissions in pounds per hour	Pounds of PM per Hour
P	Process weight per hour in tons per hour, must be less than 30 tons per hour	Tons per Hour

Interpolation and extrapolation of the data for process weight per hour values equal to or in excess of 60,000 lbs/hr shall be accomplished by use of Equation 2:

$$\text{Equation 2: } E = 17.31 \times P^{0.16}$$

Value	Description	Units
E	Emissions in pounds per hour	Pounds of PM per Hour
P	Process weight per hour in tons per hour, must be greater than or equal to 30 tons per hour	Tons per Hour

Compliance with these requirements shall be demonstrated by complying with the requirements discussed in the SMOP section (r. 335-3-15) below.

ADEM Admin Code r. 335-3-6– Control of Organic Emissions

Applicability

The provisions of ADEM Admin. Code Chapter 6 do not apply to sources with a potential VOC emission rate of less than 100 tons per year [ADEM Admin. Code r. 335-3-6-.01 and ADEM Admin. Code r. 335-3-6-.01(c)].

ADEM Admin. Code r. 335-3-14-.04, “Prevention of Significant Deterioration (PSD) Permitting”

Applicability

Based on the emissions found in Figure 3, this facility would not exceed the 250 tons per year (TPY) major source threshold for criteria pollutants for this type of facility (fabrication and coating facilities are not included in the 28 source categories listed in Rule 335-3-14-.04). Therefore, no PSD review would be required.

ADEM Admin. Code r. 335-3-14-.06, “Determinations for Major Sources in Accordance with Clean Air Act Section 112(g)”

Applicability

Because QFI has requested to limit HAP emissions to less than 10 tons per year (TPY) of any single HAP or 25 TPY of any combination of HAPs, a 112(g) case by case MACT review would not be necessary.

ADEM Admin. Code r. 335-3-15, “Synthetic Minor Operating Permits”

Applicability

- This chapter is applicable because QFI has requested SMOP limits to avoid exceeding the Title V major source thresholds for HAPs and VOC.

Emission Standards

- Emissions of VOC should not exceed 95 tons per twelve months.
- Emissions of a single HAP should not exceed 9.5 tons per twelve months.
- Combined HAP emissions should not exceed 24.5 tons per twelve months.

Compliance Test Methods and Procedures

- No test methods or procedures are necessary to demonstrate compliance with the SMOP limits.

Emission Monitoring

- Monitoring shall be in the form of recordkeeping.

Recordkeeping and Reporting Requirements

The Permittee must maintain records of rolling twelve month VOC and HAP emissions and the supporting information used to make the calculations as described below.

- The following monthly production records should be maintained:
 - Operating hours of the plasma tables in hours per month.

- Operating hours of the metal cutter in the Metal Cutting Process in hours per month.
- Welding wire used in the Welding Process in pounds per month.
- Paint used in the Steel Coating Process in gallons per month.
- Density, VOC content, and HAP content of each paint used.
- Abrasive used in the Media Blasting Process in pounds per month.

The following monthly emission calculations should be performed to show compliance with the facility-wide VOC limit:

Records of the monthly VOC emissions from the Steel Coating Process should be maintained. Monthly VOC emissions should be calculated using Equation 1.

$$\text{Equation 1: Monthly VOC Emissions} = \text{Volume of Paint Used} \times \text{Density of Paint} \times \text{VOC Content} \times \left[\frac{\text{ton}}{2000 \text{ pounds}} \right]$$

Value	Description	Units
Monthly VOC Emissions	Tons of VOC emitted per month	Tons per month
Volume of Paint Used	Gallons of paint used per month	Gallons of paint per month
Density of Paint	Mass per volume of paint	Pounds of paint per gallon of paint
VOC Content	Mass fraction of VOC in the paint	Pounds of VOC per pound of paint

Records of VOC emissions from the Steel Coating Process should be maintained in tons per twelve-month rolling period. Tons per rolling twelve-month period should be calculated with Equation 2.

$$\text{Equation 2: 12 – Month Rolling VOC Emissions} = \text{VOC Emissions from Current Month} + \text{VOC Emissions from Previous 11 Months}$$

Value	Description	Units
12-Month Rolling Emissions	VOC emissions emitted in the twelve-month period ending in the current month	Tons per rolling 12-month period
VOC Emissions from Current Month	VOC emissions in current month	Tons per month
VOC Emissions from Previous 11 Months	Sum of VOC emissions emitted in the eleven months before the current month	Tons per eleven-month period

The following monthly emission calculations should be performed to show compliance with the facility-wide HAP limits. A calculation should be performed for each HAP used in each process:

Records of the monthly HAP emissions from the Plasma Tables should be maintained. Monthly HAP emissions from the Plasma Tables should be calculated with Equation 3. The PM emission factors were taken from the South Coast Air Quality Management District Guidelines for Calculating and Reporting Emissions from Laser or Plasma Cutting of Metal Materials Operations December 2024 for mild steel. These are the same emission factors that were used to calculate the PTE of the facility.

$$\text{Equation 3: Monthly HAP Emissions} = \text{Op Hours} \times \text{EF} \times \left[\frac{60 \text{ min}}{\text{hour}} \right] \times \text{HAP Content} \times \left[\frac{100 - \text{CE}}{100} \right] \times \left[\frac{\text{ton}}{2000 \text{ pounds}} \right]$$

Value	Description	Units
Monthly HAP Emissions	Tons of HAP emitted per month	Tons per month
Op Hours	Hours that the plasma table operated per month	Hours per month
EF	PM emission factor for plasma cutting. 0.00088 should be used for wet plasma cutting and 0.057 should be used for dry plasma cutting	Pounds of PM per minute
HAP Content	Mass fraction of HAP in metal being cut	Pounds of HAP per pound of metal
CE	Control efficiency of control device	Percent

Records of the monthly HAP emissions from the Metal Cutting Process should be maintained. Monthly HAP emissions from the Metal Cutting Process should be calculated with Equation 4. The 2.1 pounds per hour emission factor was used to calculate the PTE of the Metal Cutting Process. This emission factor was provided by Quality Fab in the SMOP application.

$$\text{Equation 4: Monthly HAP Emissions} = \text{Op Hours} \times \left[\frac{2.1 \text{ pounds of PM}}{\text{hour}} \right] \times \text{HAP Content} \times \left[\frac{\text{ton}}{2000 \text{ pounds}} \right]$$

Value	Description	Units
Monthly HAP Emissions	Tons of HAP emitted per month	Tons per month
Op Hours	Hours that the cutting process operated per month	Hours per month
HAP Content	Mass fraction of HAP in metal being cut	Pounds of HAP per pound of metal

Records of the monthly HAP emissions from the Welding Process should be maintained. Monthly HAP emissions from the Welding Process should be calculated with Equation 5. The 0.008 pound of PM per pound of wire used emission factor is the PM emission factor from Figure 2-15 of the background document for AP-42 Section 12.19 that was used to calculate the PTE of the facility.

$$\text{Equation 5: Monthly HAP Emissions} = \left[\frac{0.008 \text{ pounds of PM}}{\text{pounds of wire used}} \right] \times \text{HAP Content} \times \text{Wire Used} \times \left[\frac{\text{ton}}{2000 \text{ pounds}} \right]$$

Value	Description	Units
Monthly HAP Emissions	Tons of HAP emitted per month	Tons per month
HAP Content	Mass fraction of HAP in metal being cut	Pounds of HAP per pound of metal
Wire Used	Pounds of welding wire used per month	Pounds per month

Records of the monthly HAP emissions from the Steel Coating Process should be maintained. Equation 6 should be used to calculate monthly HAP emissions from the Steel Coating Process.

$$\text{Equation 6: Monthly HAP Emissions} = \text{Volume of Paint Used} \times \text{Density of Paint} \times \text{HAP Content} \times \left[\frac{\text{ton}}{2000 \text{ pounds}} \right]$$

Value	Description	Units
Monthly HAP Emissions	Tons of HAP emitted per month	Tons per month
HAP Content	Mass fraction of HAP making up the paint	Pounds of HAP per pound of paint
Density of Paint	Mass per volume of paint	Pounds of paint per gallon of paint
Volume of Paint Used	Gallons of paint used per month	Gallons of paint per month

Records of the monthly HAP emissions from the Media Blasting Process should be maintained. HAP emissions from the Media Blasting Process should be calculated with Equation 7. The 0.027 pounds of PM per pound of abrasive emission factor was taken from AP-42 Table 13.2.6-1 and was used to calculate the PTE of the facility.

$$\text{Equation 7: Monthly HAP Emissions} = \text{AU} \times \left[\frac{0.027 \text{ pounds of PM}}{\text{Pound of abrasive}} \right] \times \text{HAP Content} \times \left[\frac{\text{ton}}{2000 \text{ pounds}} \right]$$

Value	Description	Units
Monthly HAP Emissions	Tons of HAP emitted per month	Tons per month
AU	Pounds of abrasive used per month	Pounds per month
HAP Content	Mass fraction of HAP making up material	Pounds of HAP per pound of blasting media

Records should be kept of the emissions of each individual HAP emitted during the month in tons per month and tons per rolling twelve-month period. This calculation should be the sum of the emissions from each unit that emitted a particular HAP in a given month. Rolling twelve-month emissions should be calculated using Equation 8.

Records should be kept of the Total-HAP emissions in tons per month and tons per rolling twelve-month period. Each monthly Total-HAP emission calculation should be the sum of all HAPs emitted from each process unit during the month. Rolling twelve-month emissions should be calculated using Equation 8.

$$\text{Equation 8: 12 – Month Rolling HAP Emissions} = \text{Current Month HAPs} + \text{Previous 11 Months HAPs}$$

Value	Description	Units
12-Month Rolling Emissions	HAP emissions emitted in the twelve-month period ending in the current month	Tons per 12-month period
Current Month HAPs	HAP emissions in current month	Tons per month
Previous 11 Months HAPs	Sum of HAP emissions emitted in the eleven months before the current month	Tons per eleven-month period

All records should be maintained in a form suitable for inspection for a period of at least 5 years.

ADEM Admin. Code r. 335-3-16, “Major Source Operating Permits”

Applicability

To become a major source under this regulation, the facility must have the potential to emit greater than 100 TPY of a criteria pollutant, 10 TPY of a single HAP, or 25 TPY of a combination of HAPs. QFI has requested SMOP limits to prevent its PTE from exceeding the Title V major source thresholds.

CLASS 1 AREA

The nearest Class I Area would be Bradwell Bay. However, the facility is located more than 100 km from this area.

FEDERAL REGULATIONS

40 CFR 63, Subpart A “General Provisions”

The provisions in 40 CFR Part 63, Subpart A, applicable to sources subject to 40 CFR §63.11514(a) are specified in Table 2 to MACT XXXXXX [40 CFR §63.11523].

40 CFR 63, Subpart XXXXXX, “National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories” [MACT 6X]

Applicability

- MACT XXXXXX is applicable to the owner or operator of an area source that is primarily engaged in the operations in one of the nine source categories listed in 40 CFR §63.11514(a)(1) through 40 CFR §63.11514(a)(9). Descriptions of these source categories are shown in Table 1 to MACT 6X. “Primarily engaged” is defined in 40 CFR §63.11522, “What definitions apply to this subpart?” [40 CFR §63.11514(a)].
 - Quality Fab is engaged in the Fabricated Metal Products [40 CFR §63.11514(a)(2)], Fabricated Structural Metal Manufacturing [40 CFR §63.11514(a)(4)], and Industrial Machinery and Equipment Finishing Operations [40 CFR §63.11514(a)(6)] source categories.
- The provisions of MACT 6X apply to each new and existing affected source listed and defined in 40 CFR §63.11514(b)(1) through 40 CFR §63.11514(b)(5) if a new or existing affected source uses 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 [40 CFR §63.11514(b)].
 - A dry abrasive blasting affected source is the collection of all equipment and activities necessary to perform dry abrasive blasting operations which use materials that contain MFHAP or that have the potential to emit MFHAP [40 CFR §63.11514(b)(1)].
 - Dry abrasive blasting means cleaning, polishing, conditioning, removing or preparing a surface by propelling a stream of abrasive material with compressed air against the surface. Hydroblasting, wet abrasive blasting, or other abrasive blasting operations which employ liquids to reduce emissions are not dry abrasive blasting [40 CFR §63.11522].
 - Metal fabrication and finishing HAP (MFHAP) means any compound of the following metals: cadmium, chromium, lead, manganese, or nickel, or any of these metals in the elemental form, with the exception of lead [40 CFR §63.11522].
 - According to QFI’s application, the blasting media contains 0.001 weight percent of cadmium and 0.05 weight percent of manganese. The concentrations of these metals are below the thresholds required in 40 CFR §63.11522 to meet the definition of material containing MFHAP in 40 CFR §63.11522; therefore this process is not a dry abrasive blasting affected source, and these requirements do not apply to QFI’s process.
 - 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 [40 CFR §63.11514(b)(2)].
 - QFI processes steel alloys that do not meet the definition of materials that contain MFHAP as defined in 40 CFR §63.11522, so any equipment and activities necessary to perform machining operations would not meet the definition of machining affected source. QFI will be required to notify the Department before using steel alloys that meet the definition of

materials that contain MFHAP as defined in 40 CFR §63.11522 to determine if the requirements for machining affected sources would apply to the project.

- A dry grinding and dry polishing with machines affected source is the collection of all equipment and activities necessary to perform dry grinding and dry polishing with machines operations which use materials that contain MFHAP, as defined in 40 CFR §63.11522, “What definitions apply to this subpart?”, or have the potential to emit MFHAP [40 CFR §63.11514(b)(3)].
 - QFI does not operate any dry grinding and dry polishing with machines affected sources.
- A spray painting affected source is the collection of all equipment and activities necessary to perform spray-applied painting operations using paints which contain MFHAP. A spray painting affected source includes all equipment used to apply cleaning materials to a substrate to prepare it for paint application (surface preparation) or to remove dried paint; to apply a paint to a substrate (paint application) and to dry or cure the paint after application; or to clean paint operation equipment (equipment cleaning). Affected source(s) subject to the requirements of 40 CFR §63.11514(b)(4) are not subject to the miscellaneous surface coating provisions of 40 CFR 63 Subpart HHHHHH, “National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources [40 CFR §63.11514(b)(4)].”
 - QFI has not used any paints that meet the definition of materials that contain MFHAP as defined in 40 CFR §63.11522, so there are no spray painting affected sources at this facility. QFI will be required to notify the Department before using paints that meet the definition of materials that contain MFHAP as defined in 40 CFR §63.11522 to determine if the requirements for spray painting affected sources would apply to the project.
- 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 40 CFR §63.11522, “What definitions apply to this subpart?”, or have the potential to emit MFHAP [40 CFR §63.11514(b)(5)].
 - According to QFI’s application, the welding wires used at the facility contain more than 1.0 percent of manganese by weight, making them materials that contain MFHAPs. Therefore, the welding process is a welding affected source.

Emission Standards

- Owners or operators of new or existing welding affected sources, must comply with the requirements in 40 CFR §63.11516(f)(1) and 40 CFR §63.11516(f)(2) for each welding operation. If the 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), the owner or operator must demonstrate that management practices are being implemented by complying with the requirements in 40 CFR §63.11516(f)(3) through 40 CFR §63.11516(f)(8). The requirements in 40 CFR §63.11516(f)(1) through 40 CFR §63.11516(f)(8) 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 [40 CFR §63.11516(f)].
 - QFI’s application states that more than 2,000 pounds of welding rod containing material containing MFHAP are used per year.
 - The Permittee must operate all equipment, capture, and control devices associated with welding operations according to manufacturer’s instructions [40 CFR §63.11516(f)(1)].
 - QFI does not operate control or capture devices, so only the equipment requirements apply.
 - The Permittee must implement one or more of the management practices specified in 40 CFR §63.11516(f)(2)(i) through 40 CFR §63.11516(f)(2)(v) to minimize emissions of MFHAP, as

practicable, while maintaining the required welding quality through the application of sound engineering judgment [40 CFR §63.11516(f)(2)].

- Use welding processes with reduced fume generation capabilities (e.g., gas metal arc welding (GMAW)—also called metal inert gas welding (MIG));
- Use welding process variations (e.g., pulsed current GMAW), which can reduce fume generation rates;
- Use welding filler metals, shielding gases, carrier gases, or other process materials which are capable of reduced welding fume generation;
- 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; or
- Use a welding fume capture and control system, operated according to the manufacturer's specifications.

Compliance Test Methods and Procedures

- Visual determination of fugitive emissions must be performed according to the procedures of EPA Method 22, of 40 CFR Part 60, Appendix A-7. The Permittee must conduct the EPA Method 22 test while the affected source is operating under normal conditions. The duration of each EPA Method 22 test must be at least 15 minutes, and visible emissions will be considered to be present if they are detected for more than six minutes of the fifteen-minute period [40 CFR §63.11517(a)].
- If required, visual determination of emissions opacity must be performed in accordance with the procedures of EPA Method 9, of 40 CFR Part 60, Appendix A-4, and while the affected source is operating under normal conditions. The duration of the EPA Method 9 test shall be thirty minutes [40 CFR §63.11517(c), 40 CFR §63.11516(f)(5)(ii)].
- Visual determinations of fugitive emissions must be performed in accordance with 40 CFR §63.11517(a) and according to the schedule in 40 CFR §63.11517(b)(1) through 40 CFR §63.11517(b)(4) [40 CFR §63.11517(b)].
 - Daily Method 22 Testing. Perform visual determination of fugitive emissions once per day, on each day the process is in operation, during operation of the process [40 CFR §63.11517(b)(1)].
 - Weekly Method 22 Testing. If no visible fugitive emissions are detected in consecutive daily EPA Method 22 tests, performed in accordance with 40 CFR §63.11517(b)(1) for 10 days of work day operation of the process, the Permittee may decrease the frequency of EPA Method 22 testing to once every five days of operation of the process (one calendar week). If visible fugitive emissions are detected during these tests, the Permittee must resume EPA Method 22 testing of that operation once per day during each day that the process is in operation, in accordance with 40 CFR §63.11517(b)(1) [40 CFR §63.11517(b)(2)].
 - Monthly Method 22 Testing. If no visible fugitive emissions are detected in four consecutive weekly EPA Method 22 tests performed in accordance with 40 CFR §63.11517(b)(2), the Permittee may decrease the frequency of EPA Method 22 testing to once per 21 days of operation of the process (one calendar month). If visible fugitive emissions are detected during these tests, the Permittee must resume weekly EPA Method 22 in accordance with 40 CFR §63.11517(b)(2) [40 CFR §63.11517(b)(3)].
 - Quarterly Method 22 Testing. If no visible fugitive emissions are detected in three consecutive monthly EPA Method 22 tests performed in accordance with 40 CFR §63.11517(b)(3), the Permittee may decrease the frequency of EPA Method 22 testing to once per 60 days of operation of the process (3 calendar months). If visible fugitive emissions are detected during

these tests, the Permittee must resume monthly EPA Method 22 in accordance with 40 CFR §63.11517(b)(3) [40 CFR §63.11517(b)(4)].

- If required, the Permittee must perform visual determinations of emissions opacity in accordance with 40 CFR §63.11517(c) and according to the schedule in 40 CFR §63.11517(d)(1) through 40 CFR §63.11517(d)(5) [40 CFR §63.11517(d)].
 - Daily Method 9 testing for welding, Tier 2 or 3. Perform visual determination of emissions opacity once per day during each day that the process is in operation [40 CFR §63.11517(d)(1)].
 - Weekly Method 9 testing for welding, Tier 2 or 3. If the average of the six minute opacities recorded during any of the daily consecutive EPA Method 9 tests performed in accordance with 40 CFR §63.11517(d)(1) does not exceed 20 percent for 10 days of operation of the process, the Permittee may decrease the frequency of EPA Method 9 testing to once per five days of consecutive work day operation. If opacity greater than 20 percent is detected during any of these tests, the Permittee must resume testing every day of operation of the process according to the requirements of 40 CFR §63.11517(d)(1) [40 CFR §63.11517(d)(2)].
 - Monthly Method 9 testing for welding Tier 2 or 3. If the average of the six minute opacities recorded during any of the consecutive weekly EPA Method 9 tests performed in accordance with 40 CFR §63.11517(d)(2) does not exceed 20 percent for four consecutive weekly tests, the Permittee may decrease the frequency of EPA Method 9 testing to once per every 21 days of operation of the process. If visible emissions opacity greater than 20 percent is detected during any monthly test, the Permittee must resume testing every five days of operation of the process according to the requirements of 40 CFR §63.11517(d)(2) [40 CFR §63.11517(d)(3)].
 - Quarterly Method 9 testing for welding Tier 2 or 3. If the average of the six minute opacities recorded during any of the consecutive weekly EPA Method 9 tests performed in accordance with 40 CFR §63.11517(d)(3) does not exceed 20 percent for three consecutive monthly tests, the Permittee may decrease the frequency of EPA Method 9 testing to once per every 120 days of operation of the process. If visible emissions opacity greater than 20 percent is detected during any quarterly test, the Permittee must resume testing every 21 days (month) of operation of the process according to the requirements of 40 CFR §63.11517(d)(3) [40 CFR §63.11517(d)(4)].
 - Return to Method 22 testing for welding, Tier 2 or 3. If, after two consecutive months of testing, the average of the six minute opacities recorded during any of the monthly EPA Method 9 tests performed in accordance with 40 CFR §63.11517(d)(3) does not exceed 20 percent, the Permittee may resume EPA Method 22 testing as in 40 CFR §63.11517(b)(3) and 40 CFR §63.11517(b)(4). In lieu of this, the Permittee may elect to continue performing EPA Method 9 tests in accordance with 40 CFR §63.11517(d)(3) and 40 CFR §63.11517(d)(4) [40 CFR §63.11517(d)(5)].

Emission Monitoring

- Tier 1 compliance requirements for welding. The Permittee must perform visual determinations of welding fugitive emissions as specified in 40 CFR §63.11517(b), “Monitoring requirements,” at the primary vent, stack, exit, or opening from the building containing the welding operations [40 CFR §63.11516(f)(3)].
 - Requirements upon initial detection of visible emissions from welding. If visible fugitive emissions are detected during any visual determination required in 40 CFR §63.11516(f)(3), the Permittee must comply with the requirements in 40 CFR §63.11516(f)(4)(i) and 40 CFR §63.11516(f)(4)(ii) [40 CFR §63.11516(f)(4)]:
 - 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 implemented in accordance with 40 CFR §63.11516(f)(2). After completing such corrective actions, the Permittee must perform a follow-up inspection for visible fugitive emissions in accordance with 40 CFR §63.11517(a), “Monitoring Requirements,” at the primary vent, stack, exit, or opening from the building containing the welding operations [40 CFR §63.11516(f)(4)(i)].

- 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), the Permittee must comply with 40 CFR §63.11516(f)(5)(i) through 40 CFR §63.11516(f)(5)(iv) [40 CFR §63.11516(f)(5)]:
 - Within 24 hours of the end of the visual determination of fugitive emissions in which visible fugitive emissions were detected, the Permittee must conduct a visual determination of emissions opacity, as specified in 40 CFR §63.11517(c), “Monitoring requirements,” at the primary vent, stack, exit, or opening from the building containing the welding operations [40 CFR §63.11516(f)(5)(i)].
 - In lieu of the requirement of 40 CFR §63.11516(f)(3) to perform visual determinations of fugitive emissions with EPA Method 22, the Permittee must perform visual determinations of emissions opacity in accordance with 40 CFR §63.11517(d), “Monitoring Requirements,” using EPA Method 9, at the primary vent, stack, exit, or opening from the building containing the welding operations [40 CFR §63.11516(f)(5)(ii)].
 - 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 40 CFR §63.11516(f)(5) for which the average of the six-minute average opacities recorded is 20 percent or less but greater than zero, the Permittee must perform corrective actions, including inspection of all welding fume sources, and evaluation of the proper operation and effectiveness of the management practices implemented in accordance with 40 CFR §63.11516(f)(2) [40 CFR §63.11516(f)(6)].
- Tier 3 requirements for opacities exceeding 20 percent. For each visual determination of emissions opacity performed in accordance with 40 CFR §63.11516(f)(5) for which the average of the six-minute average opacities recorded exceeds 20 percent, the Permittee must comply with the requirements in 40 CFR §63.11516(f)(7)(i) through 40 CFR §63.11516(f)(v) [40 CFR §63.11516(f)(7)].
 - Within 30 days of the opacity exceedance, the Permittee must prepare and implement a Site-Specific Welding Emissions Management Plan, as specified in 40 CFR §63.11516(f)(8). If the Permittee has already prepared a Site-Specific Welding Emissions Management Plan in accordance with 40 CFR §63.11516(f)(7)(ii), the Permittee must prepare and implement a revised Site-Specific Welding Emissions Management Plan within 30 days [40 CFR §63.11516(f)(7)(ii)].
 - **Site-Specific Welding Emissions Management Plan.** The Site-Specific Welding Emissions Management Plan must comply with the requirements in 40 CFR §63.11516(f)(8)(i) through 40 CFR §63.11516(f)(8)(iii) [40 CFR §63.11516(f)(8)].
 - Site-Specific Welding Emissions Management Plan must contain the information in 40 CFR §63.11516(f)(8)(i)(A) through 40 CFR §63.11516(f)(8)(i)(F) [40 CFR §63.11516(f)(8)(i)].
 - Company name and address;
 - A list and description of all welding operations which currently comprise the welding affected source;
 - A description of all management practices in place at the time of the opacity exceedance;

- A list and description of all management practices currently employed for the welding affected source;
 - A description of additional management practices to be implemented pursuant to 40 CFR §63.11516(f)(7)(ii), and the projected date of implementation; and
 - Any revisions to a Site-Specific Welding Emissions Management Plan must contain copies of all previous plan entries, pursuant to 40 CFR §63.11516(f)(8)(i)(D) and 40 CFR §63.11516(f)(8)(i)(E).
- The Site-Specific Welding Emissions Management Plan must be updated annually to contain current information, as required by 40 CFR §63.11516(f)(8)(i)(A) through 40 CFR §63.11516(f)(8)(i)(C) [40 CFR §63.11516(f)(8)(ii)].
 - During the preparation (or revision) of the Site-Specific Welding Emissions Management Plan, the Permittee must continue to perform visual determinations of emissions opacity, beginning on a daily schedule as specified in 40 CFR §63.11517(d), using EPA Method 9, at the primary vent, stack, exit, or opening from the building containing the welding operations [40 CFR §63.11516(f)(7)(iii)].

Recordkeeping and Reporting Requirements

- The following notifications must be submitted [40 CFR §63.11519(a)]:
 - Initial notification. If the Permittee is the owner or operator of an area source in one of the nine metal fabrication and finishing source categories, as defined in 40 CFR §63.11514, the Permittee must submit the initial notification required by 40 CFR §63.9(b), for a new affected source no later than 120 days after initial startup, or no later than 120 days after the source becomes subject to MACT XXXXXX. For an existing affected source, the Permittee must submit the initial notification no later than 120 days after the source becomes subject to MACT XXXXXX, whichever is later. The initial notification must provide the information specified in 40 CFR §63.11519(a)(1)(i) through 40 CFR §63.11519(a)(1)(iv) [40 CFR §63.11519(a)(1)].
 - The name, address, phone number and e-mail address of the owner and operator [40 CFR §63.11519(a)(1)(i)].;
 - The address (physical location) of the affected source [40 CFR §63.11519(a)(1)(ii)].;
 - An identification of the relevant standard (i.e., MACT XXXXXX); and [40 CFR §63.11519(a)(1)(iii)]
 - A brief description of the type of operation. For example, a brief characterization of the types of products (e.g., aerospace components, sports equipment, etc.), the number and type of processes, and the number of workers usually employed [40 CFR §63.11519(a)(1)(iv)].
 - QFI's SMOP application meets this requirement for the welding affected sources at this facility. QFI's SMOP application indicates that there are no machining affected sources or spray painting affected sources at this facility because they do not process metals or paints that contain MFHAP as defined in 40 CFR §63.11522. If QFI intends to process metals or paints containing MFHAP as defined in 40 CFR §63.11522, a permit determination request addressing the applicable requirements of MACT XXXXXX for machining affected sources or spray painting affected sources must be submitted to the Department at least two months before beginning the project. The permit determination

request must also include the information specified in 40 CFR §63.11519(a)(1)(i) through 40 CFR §63.11519(a)(1)(iv).

- Notification of compliance status. If the Permittee is the owner or operator of a new affected source, the Permittee must submit a notification of compliance status within 120 days after initial startup. The Permittee is required to submit the information specified in 40 CFR §63.11519(a)(2)(i) through 40 CFR §63.11519(a)(2)(iv) with the notification of compliance status [40 CFR §63.11519(a)(2)].:
 - The Permittee's company name and address [40 CFR §63.11519(a)(2)(i)];
 - A statement by a responsible official with that official's name, title, phone number, e-mail address and signature, certifying the truth, accuracy, and completeness of the notification and a statement of whether the source has complied with all the relevant standards and other requirements of MACT XXXXXX [40 CFR §63.11519(a)(2)(ii)];
 - The date of the notification of compliance status [40 CFR §63.11519(a)(2)(iv)].
- The following reporting requirements must be met [40 CFR §63.11519(b)]:
 - Annual certification and compliance reports. The Permittee must prepare and submit annual certification and compliance reports for each affected source according to the requirements of 40 CFR §63.11519(b)(2) through 40 CFR §63.11519(b)(7). The annual certification and compliance reporting requirements may be satisfied by reports required under other parts of the CAA, as specified in 40 CFR §63.11519(b)(3) [40 CFR §63.11519(b)(1), 40 CFR §63.11516(f)(7)(v), 40 CFR §63.11516(f)(8)(ii)].
 - Dates. Unless the Department has approved or agreed to a different schedule for submission of reports under 40 CFR §63.10(a), "General Provisions," the Permittee must prepare and submit each annual certification and compliance report according to the dates specified in 40 CFR §63.11519(b)(2)(i) through 40 CFR §63.11519(b)(2)(iii). Note that the information reported for each of the months in the reporting period will be based on the last 12 months of data prior to the date of each monthly calculation [40 CFR §63.11519(b)(2)].
 - The first annual certification and compliance report must cover the first annual reporting period which begins the day after the compliance date and ends on December 31 [40 CFR §63.11519(b)(2)(i)].
 - Each subsequent annual certification and compliance report must cover the subsequent semiannual reporting period from January 1 through December 31 [40 CFR §63.11519(b)(2)(ii)].
 - Each annual certification and compliance report must be prepared and submitted no later than January 31 and kept in a readily-accessible location for inspector review. If an exceedance has occurred during the year, each annual certification and compliance report must be submitted along with the exceedance reports, and postmarked or delivered no later than January 31 [40 CFR §63.11519(b)(2)(iii)].
 - General requirements. The annual certification and compliance report must contain the information specified in 40 CFR §63.11519(b)(4)(i) through 40 CFR §63.11519(b)(4)(iii), and the information specified in 40 CFR §63.11519(b)(5) through 40 CFR §63.11519(b)(7) that is applicable to each affected source [40 CFR §63.11519(b)(4)].
 - Company name and address [40 CFR §63.11519(b)(4)(i)];
 - Statement by a responsible official with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report; and [40 CFR §63.11519(b)(4)(ii)].

- Date of report and beginning and ending dates of the reporting period. The reporting period is the 12-month period ending on December 31. Note that the information reported for the 12 months in the reporting period will be based on the last 12 months of data prior to the date of each monthly calculation [40 CFR §63.11519(b)(4)(iii)].
- The following reporting requirements must be met when complying with the Tier 1 compliance requirements for welding in 40 CFR §63.11516(f)(3):
 - Visual determination of fugitive emissions requirements. The annual certification and compliance report must contain the information specified in 40 CFR §63.11519(b)(5)(i) through 40 CFR §63.11519(b)(5)(iii) for each affected source which performs visual determination of fugitive emissions in accordance with 40 CFR §63.11517(a), “Monitoring requirements” [40 CFR §63.11519(b)(5), 40 CFR §63.11516(f)(4)(ii), 40 CFR §63.11516(f)(5)(iv)].
 - The date of every visual determination of fugitive emissions which resulted in detection of visible emissions [40 CFR §63.11519(b)(5)(i)];
 - A description of the corrective actions taken subsequent to the test; and [40 CFR §63.11519(b)(5)(ii)]
 - The date and results of the follow-up visual determination of fugitive emissions performed after the corrective actions [40 CFR §63.11519(b)(5)(iii)].
- The following reporting requirements must be met when complying with the Tier 2 compliance requirements for welding in 40 CFR §63.11516(f)(5):
 - Visual determination of emissions opacity requirements. The annual certification and compliance report must contain the information specified in 40 CFR §63.11519(b)(6)(i) through 40 CFR §63.11519(b)(6)(iii) for each affected source which performs visual determination of emissions opacity in accordance with 40 CFR §63.11517(c), “Monitoring requirements” [40 CFR §63.11519(b)(6) and 40 CFR §63.11516(f)(5)(iv)].
 - The date of every visual determination of emissions opacity [40 CFR §63.11519(b)(6)(i)];
 - The average of the six-minute opacities measured by the test; and [40 CFR §63.11519(b)(6)(ii)]
 - A description of any corrective action taken subsequent to the test [40 CFR §63.11519(b)(6)(iii)].
- The following reporting requirements must be met when complying with the Tier 3 compliance requirements for welding in 40 CFR §63.11516(f)(7):
 - Exceedances of 20 percent opacity for welding affected sources. As required by 40 CFR §63.11516(f)(7)(i), “Requirements for opacities exceeding 20 percent,” the Permittee must prepare an exceedance report whenever the average of the six-minute average opacities recorded during a visual determination of emissions opacity exceeds 20 percent. This report must be submitted along with the annual certification and compliance report according to the requirements in 40 CFR §63.11519(b)(1), and must contain the information in 40 CFR §63.11519(b)(8)(iii)(A) and 40 CFR §63.11519(b)(8)(iii)(B) [40 CFR §63.11519(b)(8), 40 CFR §63.11516(f)(7)(i), and 40 CFR §63.11516(f)(7)(v)].
 - The date on which the exceedance occurred; and [40 CFR §63.11519(b)(8)].

- The average of the six-minute average opacities recorded during the visual determination of emissions opacity [40 CFR §63.11519(b)(8)].
- Site-specific Welding Emissions Management Plan reporting. The Permittee must submit a copy of the records of daily visual determinations of emissions recorded in accordance with 40 CFR §63.11516(f)(7)(iv) and a copy of the Site-Specific Welding Emissions Management Plan and any subsequent revisions to the plan pursuant to 40 CFR §63.11516(f)(8), “Site-specific Welding Emission Management Plan,” along with the annual certification and compliance report, according to the requirements in 40 CFR §63.11519(b)(1) [40 CFR §63.11519(b)(9), 40 CFR §63.11516(f)(7)(iv), and 40 CFR §63.11516(f)(8)(ii)].
- 40 CFR §63.11519(b)(7) was reserved before the initial issuance of MACT XXXXXX. This requirement was for paint limit reports for spray painting affected sources. This requirement would not be applicable to QFI’s sources [EPA–HQ–OAR–2006–0306; FRL–8547–2].
- The Permittee must collect and keep records of the data and information specified in 40 CFR §63.11519(c)(1) through 40 CFR §63.11519(c)(13), according to the requirements in 40 CFR §63.11519(c)(14) [40 CFR §63.11519(c)].
 - General compliance and applicability records. Maintain information specified in 40 CFR §63.11519(c)(1)(i) through 40 CFR §63.11519(c)(1)(ii) for each affected source [40 CFR §63.11519(c)(1)].
 - Each notification and report that the Permittee submitted to comply with MACT XXXXXX, and the documentation supporting each notification and report [40 CFR §63.11519(c)(1)(i)].
 - Records of the applicability determinations as in 40 CFR §63.11514(b)(1) through 40 CFR §63.11514(b)(5) listing equipment included in its affected source, as well as any changes to that and on what date they occurred, must be maintained for 5 years and be made available for inspector review at any time [40 CFR §63.11519(c)(1)(ii)].
 - The following recordkeeping requirements must be met when complying with the Tier 1 requirements upon subsequent detection of visible emissions in 40 CFR §63.11517(a):
 - Visual determination of fugitive emissions records. Maintain a record of the information specified in 40 CFR §63.11519(c)(2)(i) through 40 CFR §63.11519(c)(2)(iii) for each affected source which performs visual determination of fugitive emissions in accordance with 40 CFR §63.11517(a), “Monitoring requirements” [40 CFR §63.11519(c)(2), 40 CFR §63.11516(f), 40 CFR §63.11516(f)(3)].
 - The date and results of every visual determination of fugitive emissions [40 CFR §63.11519(c)(2)(i)];
 - A description of any corrective action taken subsequent to the test; [40 CFR §63.11519(c)(2)(ii)]
 - The date and results of any follow-up visual determination of fugitive emissions performed after the corrective actions [40 CFR §63.11519(c)(2)(iii)].
 - The following recordkeeping requirements must be met when complying with the Tier 2 requirements upon subsequent detection of visible emissions in 40 CFR §63.11516(f)(5):
 - Visual determination of emissions opacity records. Maintain a record of the information specified in 40 CFR §63.11519(c)(3)(i) through 40 CFR §63.11519(c)(3)(iii) for each affected source which performs visual determination of emissions opacity in accordance with 40 CFR §63.11517(c), “Monitoring requirements” [40 CFR §63.11519(c)(3), 40 CFR §63.11516(f)(5), and 40 CFR §63.11516(f)(5)(iii)].

- The date of every visual determination of emissions opacity; [40 CFR §63.11519(c)(3)(i)].
 - The average of the six-minute opacities measured by the test; [40 CFR §63.11519(c)(3)(ii)].
 - A description of any corrective action taken subsequent to the test [40 CFR §63.11519(c)(3)(iii)].
- The following recordkeeping requirements must be met when complying with the Tier 3 requirements upon subsequent detection of visible emissions in 40 CFR §63.11516(f)(7):
 - Tier 3 requirements for opacities exceeding 20 percent. For each visual determination of emissions opacity performed in accordance with 40 CFR §63.11516(f)(5) for which the average of the six-minute average opacities recorded exceeds 20 percent, the Permittee must comply with the requirements in 40 CFR §63.11516(f)(7)(i) through 40 CFR §63.11516(f)(v) [40 CFR §63.11516(f)(7)].
 - The Permittee must maintain records of daily visual determinations of emissions opacity performed in accordance with 40 CFR §63.11516(f)(7)(iii), during preparation of the Site-Specific Welding Emissions Management Plan, in accordance with the requirements in 40 CFR §63.11519(b)(9), “Notification, recordkeeping, and reporting requirements” [40 CFR §63.11516(f)(7)(iv)].
 - Visual determination of emissions opacity performed during the preparation (or revision) of the Site-Specific Welding Emissions Management Plan. The Permittee must maintain a record of each visual determination of emissions opacity performed during the preparation (or revision) of a Site-Specific Welding Emissions Management Plan, in accordance with 40 CFR §63.11516(f)(7)(iii), “Requirements for opacities exceeding 20 percent [40 CFR §63.11519(c)(11)].”
- Site-Specific Welding Emissions Management Plan. If the Permittee has been required to prepare a plan in accordance with 40 CFR §63.11516(f)(7)(iii), “Site-Specific Welding Emissions Management Plan,” the Permittee must maintain a copy of the current Site-Specific Welding Emissions Management Plan and it must be readily available for inspector review [40 CFR §63.11519(c)(12), 40 CFR §63.11516(f)(8)(iii)].
- For all equipment meeting the requirement in 40 CFR §63.11516(f)(1) to be operated according to the manufacturer’s instructions, the manufacturer’s instructions must be kept on-site [40 CFR §63.11519(c)(13)].
- The Permittee’s records must be maintained according to the requirements in 40 CFR §63.11519(c)(14)(i) through 40 CFR §63.11519(c)(14)(iii) [40 CFR §63.11519(c)(15)].
 - The Permittee’s records must be in a form suitable and readily available for expeditious review, according to 40 CFR §63.10(b)(1), “General Provisions.” Where appropriate, the records may be maintained as electronic spreadsheets or as a database [40 CFR §63.11519(c)(15)(i)].
 - As specified in 40 CFR §63.10(b)(1), the Permittee must keep each record for 5 years following the date of each occurrence, measurement, corrective action, report, or record [40 CFR §63.11519(c)(15)(ii)].
 - The Permittee must keep each record on-site for at least 2 years after the date of each occurrence, measurement, corrective action, report, or record according to 40 CFR §63.10(b)(1), the Permittee may keep the records off-site for the remaining 3 years [40 CFR §63.11519(c)(15)(iii)].

- The Permittee must maintain records of each metal and coating used in each project. Each record must include the information below:
 - Identification and composition of each metal and coating used.
 - Indication of whether each metal and coating meets the definition of material containing MFHAP in 40 CFR §63.11522.

40 CFR 63, Subpart Mmmm “National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products” [MACT Mmmm]

Applicability

- MACT Mmmm is applicable to the owners or operators of a new, reconstructed, or existing affected source, as defined in 40 CFR §63.3882, that uses 946 liters (250 gallons (gal)) per year, or more, of coatings that contain hazardous air pollutants (HAP) in the surface coating of miscellaneous metal parts and products defined in 40 CFR §63.3881(a); and that is a major source, is located at a major source, or is part of a major source of emissions of HAP. A major source of HAP emissions is any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit any single HAP at a rate of 9.07 megagrams (Mg) (10 tons) or more per year or any combination of HAP at a rate of 22.68 Mg (25 tons) or more per year. Coatings that meet the definition of non-HAP coating contained in 40 CFR §63.3981 do not need to be included in determining whether 946 liters (250 gal) per year, or more, of coatings in the surface coating of miscellaneous metal parts and products are used [40 CFR §63.3881(b)].
 - QFI has requested limits to avoid becoming a major source of HAPs. As long as these limits are not exceeded, QFI is not a major source of HAPs and is not subject to the requirements of MACT Mmmm.

40 CFR 63, Subpart HHHHHH, “National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources” [MACT 6H]

Applicability

- Except as provided in 40 CFR §63.11169(d), MACT 6H establishes national emission standards for hazardous air pollutants (HAP) for area sources involved in any of the activities in 40 CFR §63.11169(a) through 40 CFR §63.11169(c).
 - Paint stripping operations that involve the use of chemical strippers that contain methylene chloride (MeCl), Chemical Abstract Service number 75092, in paint removal processes [40 CFR §63.11169(a)];
 - QFI’s application indicates MeCl is not used at this facility.
 - Autobody refinishing operations that encompass motor vehicle and mobile equipment spray-applied surface coating operations [40 CFR §63.11169(b)];
 - QFI does not perform autobody refinishing operations that encompass motor vehicle and mobile equipment spray-applied surface coating operations.
 - Spray application of coatings containing compounds of chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd), collectively referred to as the target HAP to any part or product made of metal or plastic, or combinations of metal and plastic that are not motor vehicles or mobile equipment [40 CFR §63.11169(c)].

- QFI’s application indicates that spray application of coatings to parts or products made of metal is performed at this facility, but the spray applied coatings previously used at this facility did not contain chromium, lead, manganese, nickel, or cadmium.
- Since QFI commonly brings new coatings into the facility, a permit determination request must be submitted to the Department at least two months before beginning a project requiring the use of coatings containing compounds of chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd). This notification should also include the information in 40 §CFR 63.11175(b).
- The Permittee must maintain records of each coating used in each project. Each record must include the information below:
 - Identification and composition of each coating used.
 - Indication of whether each coating contains compounds of chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd).

RECOMMENDATIONS

This analysis indicates that QFI should be able to meet the requirements of all federal and state rules and regulations. Based on the emissions from this project, I recommend that QFI is issued SMOP No.: 604-0030-X001.

Jason Mote
Industrial Minerals Section
Energy Branch
Air Division
ADEM

Month xx, 2025
Date

APPENDIX A: CALCULATIONS

Electrode	Maximum Concentration of Each HAP (Weight Fraction)				Source
	Manganese	Phosphorus	Chromium	Nickel	
E70S	2.00E-03	2.50E-04	1.50E-03	1.50E-03	SDS - https://www.powerweldinc.com/uploads/assets/sds/en/ER70S-1.pdf
309	1.60E-02	1.30E-03	0.2412	0.135	SDS - https://www.airgas.com/msds/004508.pdf
308	0.25	4.00E-04	0.21	0.11	SDS - https://www.hobartbrothers.com/product/product-details/308-308l-sterling-ap/

Figure 4 – Composition of Welding Rods

Welding Type	Electrode	Wire Used (lb/Year)	Fume Generation Rate (lb fumes/lb welding wire used)	Potential to Emit (TPY)					
				PM-10	Manganese	Phosphorus	Chromium	Nickel	Total HAP
GMAW	E70S	56,528	8.00E-03	0.23	4.52E-04	2.00E-06	1.20E-05	3.39E-04	8.05E-04
	309	56,528	8.00E-03	0.23	3.62E-03	1.04E-05	1.93E-03	3.05E-02	3.61E-02
	308	56,528	8.00E-03	0.23	5.65E-02	3.20E-06	1.68E-03	2.49E-02	8.31E-02
SMAW	E70S	56,528	3.57E-02	1.01	2.02E-03	8.93E-06	5.36E-05	1.51E-03	3.59E-03
	309	56,528	3.57E-02	1.01	1.61E-02	4.64E-05	8.61E-03	0.14	0.16
	308	56,528	3.57E-02	1.01	0.25	1.43E-05	7.50E-03	0.11	0.37

Assumes all of the welding wire is deposited or emitted as fumes.

Figure 5 – Welding PTE

Media Blasting					
Throughput	0.25	ton/hr			
Pollutant	Emission Factor	Units	Source	PTE	
				lb/hr	TPY
PM	2.70E-02	pounds of PM/pound of abrasive	AP-42 Table 13.2.6-1	13.50	59.13
PM-10	1.30E-02	pounds of PM/pound of abrasive	AP-42 Table 13.2.6-1	6.50	28.47
PM _{2.5}	1.30E-03	pounds of PM/pound of abrasive	AP-42 Table 13.2.6-1	0.65	2.85
Manganese	5.00E-04	Mass fraction ^[1]	SDS	6.75E-03	2.96E-02
Beryllium	1.00E-05	Mass fraction ^[1]	SDS	1.35E-04	5.91E-04
Cadmium	1.00E-05	Mass fraction ^[1]	SDS	1.35E-04	5.91E-04

^[1]These values were taken from a Safety Data Sheet provided by QFI.

Figure 6 – Media Blasting PTE

ASTM A500-23 Grade B&C	
Element	Weight Percent
Manganese	0.760
Phosphorus	0.011
Nickel	0.010
Chromium	0.030

^[1]These values were taken from a Safety Data Sheet for ASTM A500-23 Grade B&C steel provided by QFI and are reported at the precision listed in the SDS. Only HAPs are shown.

Figure 7 – ASTM A500-23 Grade B&C HAP Content

Plasma/Laser Cutting Table 1								
Throughput	8,760	hours/year						
Wet Cutting	Pollutant	Emission Factor	Units	Source	Control Efficiency	Units	PTE	
							lb/hr	TPY
	PM	8.80E-04	pounds of PM/minute	AQMD	95	Percent	2.64E-03	1.16E-02
	Manganese	7.6E-03	Weight Fraction	MTR	95	Percent	2.01E-05	8.79E-05
	Phosphorus	1.1E-04	Weight Fraction	MTR	95	Percent	2.90E-07	1.27E-06
	Nickel	1.0E-04	Weight Fraction	MTR	95	Percent	2.64E-07	1.16E-06
	Chromium	3.0E-04	Weight Fraction	MTR	95	Percent	7.92E-07	3.47E-06
Dry Cutting	NO _x	7.00E-03	pounds of NO _x /minute	AQMD	0	Percent	0.42	1.84
	Pollutant	Emission Factor	Units	Source	Control Efficiency	Units	PTE	
							lb/hr	TPY
	PM	5.70E-02	pounds of PM/minute	AQMD	95	Percent	0.17	0.75
Dry Cutting	NO _x	2.30E-02	pounds of NO _x /minute	AQMD	0	Percent	1.38	6.04

AQMD - South Coast Air Quality Management District Guidelines for Calculating and Reporting Emissions from Laser or Plasma Cutting of Metal Materials Operations December 2024 (mild steel)

MTR - These values were taken from a Material Test Report for ASTM A500-23 Grade B&C steel provided by QFI.

Figure 8 – Plasma/Laser Cutting Table 1 PTE

Plasma/Laser Cutting Table 2								
Throughput	8,760	hours/year						
Wet Cutting	Pollutant	Emission Factor	Units	Source	Control Efficiency	Units	PTE	
							lb/hr	TPY
	PM	8.80E-04	pounds of PM/minute	AQMD	0	Percent	5.28E-02	0.23
	Manganese	7.6E-03	Weight Fraction	MTR	0	Percent	2.01E-05	8.79E-05
	Phosphorus	1.1E-04	Weight Fraction	MTR	0	Percent	2.90E-07	1.27E-06
	Nickel	1.0E-04	Weight Fraction	MTR	0	Percent	2.64E-07	1.16E-06
	Chromium	3.0E-04	Weight Fraction	MTR	0	Percent	7.92E-07	3.47E-06
Dry Cutting	NO _x	7.00E-03	pounds of NO _x /minute	AQMD	0	Percent	0.42	1.84
	Pollutant	Emission Factor	Units	Source	Control Efficiency	Units	PTE	
							lb/hr	TPY
	PM	5.70E-02	pounds of PM/minute	AQMD	0	Percent	3.42	14.98
Dry Cutting	NO _x	2.30E-02	pounds of NO _x /minute	AQMD	0	Percent	1.38	6.04

AQMD - South Coast Air Quality Management District Guidelines for Calculating and Reporting Emissions from Laser or Plasma Cutting of Metal Materials Operations December 2024 (mild steel)

MTR - These values were taken from a Material Test Report for ASTM A500-23 Grade B&C steel provided by QFI.

Figure 9 – Plasma/Laser Cutting Table 2 PTE

Metal Cutting/Sawing					
Volume of Metal Cut per Minute		0.125	Cubic Inches per Minute		
Density of Metal		0.28	Pounds per Cubic Inch		
Pollutant	Emission Factor	Units	Source	PTE	
				lb/hr	TPY
PM	-	-	Mass Balance	2.10	9.20
Manganese	7.6E-03	Weight Fraction	Safety Data Sheet	1.60E-02	6.99E-02
Phosphorus	1.1E-04	Weight Fraction	Safety Data Sheet	2.31E-04	1.01E-03
Nickel	1.0E-04	Weight Fraction	Safety Data Sheet	2.10E-04	9.20E-04
Chromium	3.0E-04	Weight Fraction	Safety Data Sheet	6.30E-04	2.76E-03
[1] Assumes all cut metal is PM					

Figure 10 – Metal Cutter PTE