

FERROUS

Processing & Trading Co.

December 3, 2021

Daniel McGeen
Air Quality Division
Michigan Department of the Environment, Great Lakes and Energy
Constitution Hall, First Floor South
525 West Allegan Street
Lansing, MI 48933

Response to Violation Notice dated November 2, 2021
Ferrous Processing and Trading Company – Genesee Recycling Industries (U251512119)
G-5107 North Dort Highway, Flint, Michigan

Dear Mr. McGeen:

This letter is in response to the EGLE-AQD Violation Notice dated November 2, 2021 (VN). The VN alleges the following violation at the Ferrous Processing and Trading Company (FPT) – Genesee Recycling Industries facility:

| Process Description | Rule/Permit Condition Violated | Comments |
|--------------------------|--------------------------------|--|
| Torch cutting operations | Rule 336.2101(1) | Installation of a non-portable torch cutting, without enclosure or particulate control |

As requested, this letter provides information regarding the referenced citation including: the date the alleged violation occurred; an explanation of the causes and duration of the alleged violation; whether the alleged violation is ongoing; a summary of the actions that have been taken and are proposed to be taken to correct the alleged violation; the dates by which these actions will take place; and what steps are being taken to prevent a reoccurrence.

It should be noted that the Genesee Recycling Industries facility has been operating at this location for more than 50 years. Therefore, the air quality regulations in place at the time the facility was constructed are the 1967 air regulations provided as Attachment 1A. Under the 1967 regulations, torching operations would have been exempt under Michigan Rule 36 (h)(vi) which exempted *...equipment for carving, cutting, turning, drilling, machining, sewing, surface grinding, sanding, planing, buffing or polishing of ceramic artwork, leather, metals, plastics, rubber, wood or wood products* from the requirement to secure an Air Use Permit to Install (PTI). Site operations have changed very little over the last 50 years. Because there have been no complaints about operations at the site, EGLE has had little reason to visit the site and EGLE records do not reflect activities that have occurred at the site over the years. Additional information on the history of the site can be provided upon request.

We would also like to note that, because the portable torch cutting operations were conducted at the site prior to 2016, the exemption that would apply is the one that was in place prior to 2016 when the rule was changed. It reads differently than the exemption that is in place now. The exemption in place prior to the 2016 changes (Attachment 1B) read as follows:

R 336.1285 Permit to install exemptions; miscellaneous.

Rule 285. The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following:

...
(j) *Portable cutting torches*

The previous version of the exemption reads differently than the current version; it does not require an enclosure or particulate control. It did not include the current language requiring that the torching be performed inside or be controlled by a fabric filter if vented internally. In addition, although the storage tanks containing the gases used for torching are stationary, EGLE determined that the torches were considered *portable* and were exempted at other locations with similar operations. It should be noted that, even if EGLE does not agree with the use of the Rule 285(j) exemption for this particular portable torch cutting operation, emissions from this process are very low and would also be considered exempt pursuant to Rule 291. Emissions were estimated as part of a Rule 278a demonstration, which is provided as Attachment 2. In similar instances, pursuant to Rule 278a(2), EGLE would have requested an exemption analysis for a process before writing the VN. Rule 278a allows FPT 30 days to provide EGLE the exemption documentation following a request. Had EGLE requested the exemption documentation from appropriate personnel, they would have received the analysis provided in Attachment 2. This particular analysis was designed to demonstrate conformance with Rule 291, rather than Rule 36(h)(vi) or the pre-2016 version of Rule 285(j), as the emissions are low enough that the process also qualifies for exemption under Rule 291. FPT believes use of either Rule 291 or previous permit exemptions are appropriate.

It is our understanding that your most recent site visit was precipitated by a complaint you received on a nearby facility. While the VN does not address compliance with either of these rules, FPT wanted to assure you that compliance with all applicable environmental regulations is very important to us. We previously developed a Scrap Metal Management Plan for the site to help personnel operate in compliance with these important air quality regulations. The Scrap Metal Management Plan is provided as Attachment 3. In response to the VN and site visits, we have reviewed our Scrap Management Plan with staff and reminded them of actions we can take to ensure compliance. These include:

- Use of shearing and cutting whenever possible
- Inspection of scrap to avoid torching of rubber or plastic
- Proper sorting of scrap metal to avoid torching materials that would smoke excessively
- Immediate extinguishing of any accidental fires that occur

Facilities like FPT play an important part in Michigan's recycling efforts. The analysis in Attachment 2 was prepared some time ago to ensure that our use of PTI exemptions is appropriate and that it is properly documented. To ensure environmental compliance, FPT has prepared a Scrap Metal Management Plan that outlines internal procedures that can ensure compliance with all of the applicable air quality regulations. We work hard to be a good neighbor and your recent inspection did not identify noncompliance with either Rule 301 or Rule 901. If you have any questions regarding these issues, or this response, please contact me at 313.582.2911 or lisa.carroll@fptscrap.com.

Sincerely,



Lisa Carroll
Ferrous Processing and Trading Company

Attachments

By email

Copy: Susan Johnson – Butzel Long

Technical Memo

SUBJECT: Exemption Record Rule 291
Torch Cutting Operations
Ferrous Processing & Trading Company, Genesee Recycling
Genesee, Michigan

FROM: Lillian L. Woolley, PE – Fishbeck

DATE: November 29, 2021

PROJECT NO.: 211414

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Introduction

Torch cutting operations at the Ferrous Processing and Trading – Genesee Division (FPT) is exempt under either Michigan Rule 36 or the current Michigan Rule 291. FPT retained Fishbeck to document use of either exemption as it relates to the torch cutting operations and to perform emission calculations showing that use of either exemption is appropriate under Rule 278 and Rule 278a.

Background

FPT has been handling recyclable metals at this location for more than 50 years and has employed torch cutting as a method of dismantling or resizing material the entire time. When evaluating an activity to determine whether it is exempt, the exemptions in place at the time the activity began or the exemptions in place at the time of the evaluation can be reviewed. At the time this activity started, torch cutting was exempt under Rule 36(h)(vi), which simply lists metal cutting activities as being exempt from the Michigan PTI Program (see Attachment 1).

Therefore, FPT could argue that this activity is exempt under this Michigan Rule as it read when torch cutting operations began at the site.

That being said, because emissions from the torch cutting operations are so low, FPT can also demonstrate that these operations are exempt under Rule 291 (see Attachment 2), as its emissions are below emission thresholds in Rule 291 that would require a PTI.

Process Description and Emission Calculation Methodology

Torch cutting is performed at scrap metal facilities to dismantle and resize large pieces of metal, mostly steel, to make the metals saleable to mills and foundries, who then melt the material into new metal, which starts the life cycle of the metal again. At scrap metal facilities, oxy-fuel torches are used for rough cutting larger scrap items into smaller pieces. Oxy-fuel torches are the most common means of cutting metals in the scrap yard for numerous reasons. Torches are available in extended lengths to keep the operator at a distance from the heat, flames, and slag produced while cutting. Different tips can be used on the torch to facilitate cutting different materials or materials of different thicknesses.

Oxy-fuel torches are most commonly used with 75- to 100-foot hoses, though in some operations torch hoses of up to 200 feet may be used. Torch hoses are connected to a portable fuel source. The use of long hoses allows greater portability than is afforded by other metal cutting options, which may require electrical power and a compressed air source. In the event a fire starts, FPT keeps a tub of water nearby with which to douse material. FPT also keeps portable fire extinguishers in the vicinity of the torch cutting area.

The size and thickness of the scrap being cut can vary, though emissions tend to increase or decrease proportionally with changing plate thickness. It also takes longer to cut thicker pieces. For example, cutting a 2-inch plate would take at least twice as long as cutting a 1-inch plate and emissions would be twice as high. Calculations documenting the Facility's potential to emit are provided in Table 1. Emissions were calculated using *Compilation of Air Pollutant Emission Factors (Fifth Edition) Table 12.5.1* including emission factors for billet cutting at mini mills – an excerpt is provided as Attachment 2. Metal emissions were estimated using *Clarification and Guidance for the Metal Fabrication Industry* (USEPA, January 1990). An excerpt of the section outlining emission estimates is provided as Attachment 3.

The Facility is aware of the challenges of Michigan Rules 301 and 901 and has implemented a Scrap Metal Management Plan (SMP) to address air emissions and smoke opacity.

Michigan Rule 291

Michigan Rule 291 exempt sources based on their potential emissions as outlined in Table 1:

Michigan Rule 291 Exempt Sources

| Air Contaminant | Potential Emissions (tpy) |
|---|---------------------------|
| CO ₂ e | 75,000 |
| CO | 10 |
| NO _x | 10 |
| SO ₂ | 10 |
| VOC | 5 |
| PM | 10 |
| PM ₁₀ | 5 |
| PM _{2.5} | 3 |
| Lead | 0.1 |
| Fluorides | 1 |
| Sulfuric acid mist | 0.12 |
| Hydrogen sulfide | 2 |
| Total reduced sulfur | 2 |
| Reduced sulfur compounds | 2 |
| Total mercury | 0.12 |
| Total TACs not listed in Table 23 with any screening level | 5 |
| Total air contaminants not listed in Table 23 that are non-carcinogenic and do not have a screening level | 6 |

An individual torch cutting process has potential emissions less than the Rule 291 thresholds presented in Table 1. TAC emissions also meet the requirements of Rule 291 (2)(a), (b) and (c). Torch cutting emits no asbestos or other TACs that would prohibit use of this exemption. Emissions from the torch cutting activity are included in Table 1.

Michigan Rule 278a(1)(a) Scope of Permit Exemptions – Description

To qualify for permit exemptions under Michigan Air Pollution Control Rules, emission units must meet the scope of permit exemptions identified in Rule 336.1278a, which states:

R 336.1278a Scope of Permit Exemptions

(1) *To be eligible for a specific exemption listed in R 336.1280 to R 336.1291, any owner or operator of an exempt process or exempt process equipment must be able to provide information demonstrating the applicability of the exemption. The demonstration may include the following information:*

- (a) *A description of the exempt process or process equipment, including the date of installation.*
- (b) *The specific exemption being used by the process or process equipment.*
- (c) *An analysis demonstrating that R 336.1278 does not apply to the process or process equipment.*

The process equipment description is provided in the *Process Description and Emission Calculation Methodology* section of this document and demonstrates eligibility for the specific exemption outlined in Rule 291.

Rule 278a(1)(c) Scope of Permit Exemptions – Rule 278 Exclusions

In addition to the Rule 336.1278a(1)(a) and (b) scope of permit exemptions previously identified, Rule 336.1278a(1)(c), requires an analysis demonstrating that R 336.1278 does not apply to any of the processes or process equipment. A copy of Rule 278 is included as Attachment 6. Rule 336.1278 states:

Rule 278.

- (1) *The exemptions specified in R 336.1280 to R 336.1291 do not apply to either of the following:*
 - (a) *Any activity that is subject to prevention of significant deterioration of air quality regulations or new source review for major sources in nonattainment areas regulations.*
 - (b) *Any activity that results in an increase in actual emissions greater than the significance levels defined in R 336.1119. For the purpose of this rule, "activity" means the concurrent and related installation, construction, reconstruction, relocation, or modification of any process or process equipment.*
- (2) *The exemptions specified in R 336.1280 to R 336.1291 do not apply to the construction of a new major source of hazardous air pollutants or reconstruction of a major source of hazardous air pollutants, as defined in 40 C.F.R. §63.2 and subject to §63.5(b)(3), national emission standards for hazardous air pollutants, adopted by reference in R 336.1902.*
- (3) *The exemptions specified in R 336.1280 to R 336.1291 do not apply to a construction or modification as defined in and subject to 40 C.F.R. part 61, national emission standards for hazardous air pollutants, adopted by reference in R 336.1902.*
- (4) *The exemptions in R 336.1280 to R 336.1291 apply to the requirement to obtain a permit to install only and do not exempt any source from complying with any other applicable requirement or existing permit limitation.*

As demonstrated in Table 1, none of the torch cutting equipment has a potential to emit more than the major source thresholds.

Rule 278a(2) Scope of Permit Exemptions – Records

R 336.1278a Scope of Permit Exemptions

- (2) *The demonstration required by this rule shall be provided within 30 days of a written request from the department. Any other records required within a specific exemption shall be provided within timeframes established within that specific exemption.*

This memorandum and its attachments serve as the required Rule 278 demonstration. As long as the process description is accurate, this memorandum and its attachments provide adequate documentation for demonstrating that each torch cutting activity is exempt from permitting.

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Table 1 – Torch Cutting Rule 291 Emissions Estimate

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Attachment 1 – Michigan Rule 36

Attachment 2 – Information on Torch Cutting Emissions

Attachment 3 – Metal Emissions from Torch Cutting

List of Abbreviations and Acronyms

| | |
|-------------------|---|
| CO | carbon monoxide |
| CO _{2e} | carbon dioxide equivalent (greenhouse gas) |
| FPT | Ferrous Processing & Trading Company |
| NO _x | nitrogen oxides |
| PM | particulate matter |
| PM ₁₀ | fine particulate matter less than 10 microns |
| PM _{2.5} | fine particulate matter less than 2.5 microns |
| PTI | Permit to Install |
| SO ₂ | sulfur dioxide |
| TAC | toxic air contaminant |
| tpy | tons per year |
| VOC | volatile organic compound |

Scrap Metal Management Plan

**Ferrous Processing & Trading Company
Genesee Recycling
G-5107 North Dort Highway
Flint, Michigan**

Original: October 9, 2019

Revised: November 29, 2021

Project No. 211414

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List of Abbreviations/Acronyms

- FPT Ferrous Processing and Trading Company
- PPE personal protective equipment
- PTI Permit to Install
- SMP Scrap Metal Management Plan
- VE visible emission

1.0 Introduction

Fishbeck has been retained by Ferrous Processing and Trading Company (FPT) to prepare a Scrap Metal Management Plan (SMP) for the torch-cutting activities taking place at G-5107 North Dort Highway, Flint, Michigan. The torch-cutting activities are exempt from an Air Use Permit to Install (PTI) under both Rule 285(j) and the current Michigan Rule 291. Documentation associated with these exemptions is filed separately and available for review.

Torch cutting is performed at metal recycling facilities to dismantle and resize large pieces of metal, mainly steel. Oxy-fuel torches can also be used for rough cutting larger metal items into smaller pieces. Oxy-fuel torches are the most common means of cutting metals in metal recycling facilities for a variety of reasons:

- Oxy torches are portable and can be used on large pieces of metal of different sizes and thicknesses.
- Oxy torches are available in extended lengths to keep the operator at a distance from the heat, flames, and slag produced while cutting.
- Different tips can be used on an oxy torch to facilitate cutting different materials or materials of different thicknesses.

This SMP has been developed to ensure that the torch-cutting activity is conducted in a manner to minimize air emissions and smoke opacity.

Air emissions associated with torch cutting include particulate matter and metals such as lead, chromium, cadmium, manganese, beryllium, aluminum, and nickel.

Opacity is the measurement of how dense the dust particles are in the air and takes into account how much light is obscured by the rising dust when looking at a solid colored background. Opacity is measured in percentages from 0 to 100%; measurement is performed by visible observation. When there is no visible smoke, the opacity is 0%, meaning all of the light is able to pass through the air. Therefore, when the statement is made that an activity is operating at a 20% opacity level, that means that the dust, soot, and smoke levels are blocking only 20% of the visual background light, leaving 80% of the background light clearly visible. The more dust or smoke that is generated, the more difficult it is to see the landscape opposite the observer's position.

Michigan Rule 301(a) limits opacity from torch cutting to *...a 6-minute average of 20% opacity, except one 6-minute average of per hour not more than 27%*. Following procedures outlined in this document will ensure compliance with the exemption outlined in Rule 291 as well as the opacity limits in Rule 301.

2.0 Scrap Metal Management Procedures

Oxy-fuel torches are most commonly used with 75- to 100-foot hoses, although, in some operations, torch hoses of up to 200 feet may be used. Torch hoses are connected to a portable fuel source. The use of long hoses allows greater portability.

If a fire starts, FPT keeps a tub of water nearby with which to douse the material. FPT also keeps portable fire extinguishers in the vicinity of the torch cutting area.

FPT will follow best management practices, as required, for torch cutting to minimize emissions including:

- Selective cutting of materials
- Metal cleaning/housekeeping
- Use of aggregate
- Operational controls
- Fire Safety
- Training

2.1 Selective Cutting of Materials

FPT shall continuously analyze all of its metal recycling activities and shall determine ways to minimize torch cutting whenever possible (e.g., by shearing, cutting, breaking, etc., the recyclable metals to be processed). Torch cutting will only be done as needed on metals which are too large to otherwise process. Only metal materials will be cut with a torch, not plastics, wood, etc. When possible, FPT will avoid torching materials that could smoke.

2.2 Metal Cleaning/Housekeeping

FPT will communicate with its customers that recyclable metal needs to be free of debris before it can be accepted. Only recyclable metals which are free of debris will be cut with a torch. If debris is present, FPT personnel will attempt to remove the debris by hand or other means.

FPT shall ensure that recyclable metals are drained of all fluids, have had all non-metal material removed, to the extent practicable, and have been properly and thoroughly cleaned prior to torch cutting. Flammable, combustible, or explosive fluids and materials will be properly disposed by FPT in approved receptacles or disposal facilities in accordance with applicable local, state, and/or federal laws. When recyclable metals contain non-metal materials, like hoses, insulation, or other material, personnel will use a torch to cut around the non-metal.

FPT shall conduct good housekeeping practices in the torch-cutting areas to eliminate, to the extent practicable, foreign material which could create visible emissions (VEs) if it were to come into contact with torch flames. If combustible materials begin to burn, the material will be immediately doused with water or extinguished using a portable fire extinguisher.

2.3 Use of Aggregate

FPT shall use only crushed concrete, aggregate, crushed limestone, slag, or gravel as ground cover in high-traffic areas and shall replace the material, as necessary, to help control emissions of fugitive dust. FPT may also apply calcium chloride to these areas to control fugitive dust.

FPT shall perform torch cutting only on surfaces of crushed concrete, aggregate, hard-packed clay, crushed limestone, slag, or gravel, unless there is no longer any space for cutting on such surfaces. The area will be free of debris that could accidentally catch fire.

2.4 Operational Controls

FPT shall implement the following operational controls:

- Develop site map(s) that identify what activities are conducted in what area(s), including traffic patterns, material storage areas, torch-cutting areas (along with alternative torch-cutting areas to be used when wind conditions result in excessive VEs), and torch-cutting equipment areas.
- Continuously analyze traffic patterns and determine ways to limit or eliminate traffic in and around the torch-cutting areas to minimize emissions of fugitive dust.
- Conduct daily wind pattern analyses through onsite wind socks, wind charts, and/or weather reports and adjust torch-cutting operations, as necessary, to prevent VEs.
- Use water turbines, water trucks, and/or sprinklers in and around torch-cutting areas, when appropriate, to help minimize emissions of fugitive dust.
- Periodically evaluate the feasibility of erecting portable or temporary structures designed to help prevent fugitive emissions from escaping the property.

- Conduct and document preventive maintenance of all torch-cutting equipment, to maintain them in proper working order. Torch-cutting equipment shall be inspected before and after every use for damaged hoses, regulators, valves, or tips, along with any oil or grease contamination. If any damage is observed, FPT shall not use the equipment until it is in proper working order.
- Use proper torch-cutting methods to prevent VEs due to excessive flame length/strength and/or building of torch-cutting gasses, which shall include, at a minimum, purging hose lines individually before lighting the torch with the proper flint-type device to ensure that no oxy-fuel gas mixture is present in the hoses and using fuels only at proper operation pressures.
- The yard manager will signal torch cutters if excessive smoking or other conditions occur that necessitate changes in torch cutting activities. If excessive VEs are observed, or if there is a change in wind patterns that could cause excessive VEs, the yard manager will notify torch cutters of the need to stop cutting and when it can begin again.

2.5 Fire Safety

FPT shall implement the following actions related to fire safety:

- Ensure that the torch-cutting areas have readily-available access to water, fire extinguishers, or other fire-suppression methods to be used if there is a flare-up during or after torch-cutting activities. FPT shall regularly inspect all fire extinguishers and ensure that they are properly maintained.
- Place oxygen and fuel gas cylinders far enough away from the torch-cutting area that they will not be unduly heated by radiating from torched materials, by sparks, or by misdirection of the torch flame.
- Ensure no torch-cutting shall be done in or near locations where flammable liquids or vapors, lint, dust, or loose combustible materials are located or arranged that sparks or hot metal from the cutting activities could cause ignition or explosion of such materials.
- Personnel who are torch-cutting shall wear appropriate personal protective equipment (PPE), including eye and face protection and non-flammable gloves/clothing.

2.6 Training

Appropriate FPT personnel and contractors will be trained on the procedures outlined in Section 2.0. FPT shall ensure that its employees and subcontractors are aware of which materials are likely to produce higher VEs when torch cut and shall develop protocols to manage VEs when cutting those materials. Training will be documented and maintained.

3.0 Plan Implementation and Maintenance

The SMP will be adhered to by FPT personnel and contractors. The SMP Plan will be updated consistent with any changes in outlined procedures or practices, as necessary.

Technical Memo

SUBJECT: Exemption Record Rule 291
Torch Cutting Operations
Ferrous Processing & Trading Company, Genesee Recycling
Genesee, Michigan

FROM: Lillian L. Woolley, PE – Fishbeck

DATE: November 29, 2021

PROJECT NO.: 211414

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Introduction

Torch cutting operations at the Ferrous Processing and Trading – Genesee Division (FPT) is exempt under either Michigan Rule 36 or the current Michigan Rule 291. FPT retained Fishbeck to document use of either exemption as it relates to the torch cutting operations and to perform emission calculations showing that use of either exemption is appropriate under Rule 278 and Rule 278a.

Background

FPT has been handling recyclable metals at this location for more than 50 years and has employed torch cutting as a method of dismantling or resizing material the entire time. When evaluating an activity to determine whether it is exempt, the exemptions in place at the time the activity began or the exemptions in place at the time of the evaluation can be reviewed. At the time this activity started, torch cutting was exempt under Rule 36(h)(vi), which simply lists metal cutting activities as being exempt from the Michigan PTI Program (see Attachment 1).

Therefore, FPT could argue that this activity is exempt under this Michigan Rule as it read when torch cutting operations began at the site.

That being said, because emissions from the torch cutting operations are so low, FPT can also demonstrate that these operations are exempt under Rule 291 (see Attachment 2), as its emissions are below emission thresholds in Rule 291 that would require a PTI.

Process Description and Emission Calculation Methodology

Torch cutting is performed at scrap metal facilities to dismantle and resize large pieces of metal, mostly steel, to make the metals saleable to mills and foundries, who then melt the material into new metal, which starts the life cycle of the metal again. At scrap metal facilities, oxy-fuel torches are used for rough cutting larger scrap items into smaller pieces. Oxy-fuel torches are the most common means of cutting metals in the scrap yard for numerous reasons. Torches are available in extended lengths to keep the operator at a distance from the heat, flames, and slag produced while cutting. Different tips can be used on the torch to facilitate cutting different materials or materials of different thicknesses.

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The size and thickness of the scrap being cut can vary, though emissions tend to increase or decrease proportionally with changing plate thickness. It also takes longer to cut thicker pieces. For example, cutting a 2-inch plate would take at least twice as long as cutting a 1-inch plate and emissions would be twice as high. Calculations documenting the Facility's potential to emit are provided in Table 1. Emissions were calculated using *Compilation of Air Pollutant Emission Factors (Fifth Edition) Table 12.5.1* including emission factors for billet cutting at mini mills – an excerpt is provided as Attachment 2. Metal emissions were estimated using *Clarification and Guidance for the Metal Fabrication Industry* (USEPA, January 1990). An excerpt of the section outlining emission estimates is provided as Attachment 3.

The Facility is aware of the challenges of Michigan Rules 301 and 901 and has implemented a Scrap Metal Management Plan (SMP) to address air emissions and smoke opacity.

Michigan Rule 291

Michigan Rule 291 exempt sources based on their potential emissions as outlined in Table 1:

Michigan Rule 291 Exempt Sources

| Air Contaminant | Potential Emissions (tpy) |
|---|---------------------------|
| CO ₂ e | 75,000 |
| CO | 10 |
| NO _x | 10 |
| SO ₂ | 10 |
| VOC | 5 |
| PM | 10 |
| PM ₁₀ | 5 |
| PM _{2.5} | 3 |
| Lead | 0.1 |
| Fluorides | 1 |
| Sulfuric acid mist | 0.12 |
| Hydrogen sulfide | 2 |
| Total reduced sulfur | 2 |
| Reduced sulfur compounds | 2 |
| Total mercury | 0.12 |
| Total TACs not listed in Table 23 with any screening level | 5 |
| Total air contaminants not listed in Table 23 that are non-carcinogenic and do not have a screening level | 6 |

An individual torch cutting process has potential emissions less than the Rule 291 thresholds presented in Table 1. TAC emissions also meet the requirements of Rule 291 (2)(a), (b) and (c). Torch cutting emits no asbestos or other TACs that would prohibit use of this exemption. Emissions from the torch cutting activity are included in Table 1.

Michigan Rule 278a(1)(a) Scope of Permit Exemptions – Description

To qualify for permit exemptions under Michigan Air Pollution Control Rules, emission units must meet the scope of permit exemptions identified in Rule 336.1278a, which states:

R 336.1278a Scope of Permit Exemptions

(1) *To be eligible for a specific exemption listed in R 336.1280 to R 336.1291, any owner or operator of an exempt process or exempt process equipment must be able to provide information demonstrating the applicability of the exemption. The demonstration may include the following information:*

- (a) *A description of the exempt process or process equipment, including the date of installation.*
- (b) *The specific exemption being used by the process or process equipment.*
- (c) *An analysis demonstrating that R 336.1278 does not apply to the process or process equipment.*

The process equipment description is provided in the *Process Description and Emission Calculation Methodology* section of this document and demonstrates eligibility for the specific exemption outlined in Rule 291.

Rule 278a(1)(c) Scope of Permit Exemptions – Rule 278 Exclusions

In addition to the Rule 336.1278a(1)(a) and (b) scope of permit exemptions previously identified, Rule 336.1278a(1)(c), requires an analysis demonstrating that R 336.1278 does not apply to any of the processes or process equipment. A copy of Rule 278 is included as Attachment 6. Rule 336.1278 states:

Rule 278.

- (1) *The exemptions specified in R 336.1280 to R 336.1291 do not apply to either of the following:*
 - (a) *Any activity that is subject to prevention of significant deterioration of air quality regulations or new source review for major sources in nonattainment areas regulations.*
 - (b) *Any activity that results in an increase in actual emissions greater than the significance levels defined in R 336.1119. For the purpose of this rule, "activity" means the concurrent and related installation, construction, reconstruction, relocation, or modification of any process or process equipment.*
- (2) *The exemptions specified in R 336.1280 to R 336.1291 do not apply to the construction of a new major source of hazardous air pollutants or reconstruction of a major source of hazardous air pollutants, as defined in 40 C.F.R. §63.2 and subject to §63.5(b)(3), national emission standards for hazardous air pollutants, adopted by reference in R 336.1902.*
- (3) *The exemptions specified in R 336.1280 to R 336.1291 do not apply to a construction or modification as defined in and subject to 40 C.F.R. part 61, national emission standards for hazardous air pollutants, adopted by reference in R 336.1902.*
- (4) *The exemptions in R 336.1280 to R 336.1291 apply to the requirement to obtain a permit to install only and do not exempt any source from complying with any other applicable requirement or existing permit limitation.*

As demonstrated in Table 1, none of the torch cutting equipment has a potential to emit more than the major source thresholds.

Rule 278a(2) Scope of Permit Exemptions – Records

R 336.1278a Scope of Permit Exemptions

- (2) *The demonstration required by this rule shall be provided within 30 days of a written request from the department. Any other records required within a specific exemption shall be provided within timeframes established within that specific exemption.*

This memorandum and its attachments serve as the required Rule 278 demonstration. As long as the process description is accurate, this memorandum and its attachments provide adequate documentation for demonstrating that each torch cutting activity is exempt from permitting.

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Table 1 – Torch Cutting Rule 291 Emissions Estimate

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Attachment 1 – Michigan Rule 36

Attachment 2 – Information on Torch Cutting Emissions

Attachment 3 – Metal Emissions from Torch Cutting

List of Abbreviations and Acronyms

| | |
|-------------------|---|
| CO | carbon monoxide |
| CO _{2e} | carbon dioxide equivalent (greenhouse gas) |
| FPT | Ferrous Processing & Trading Company |
| NO _x | nitrogen oxides |
| PM | particulate matter |
| PM ₁₀ | fine particulate matter less than 10 microns |
| PM _{2.5} | fine particulate matter less than 2.5 microns |
| PTI | Permit to Install |
| SO ₂ | sulfur dioxide |
| TAC | toxic air contaminant |
| tpy | tons per year |
| VOC | volatile organic compound |

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List of Abbreviations/Acronyms

- FPT Ferrous Processing and Trading Company
- PPE personal protective equipment
- PTI Permit to Install
- SMP Scrap Metal Management Plan
- VE visible emission

1.0 Introduction

Fishbeck has been retained by Ferrous Processing and Trading Company (FPT) to prepare a Scrap Metal Management Plan (SMP) for the torch-cutting activities taking place at G-5107 North Dort Highway, Flint, Michigan. The torch-cutting activities are exempt from an Air Use Permit to Install (PTI) under both Rule 285(j) and the current Michigan Rule 291. Documentation associated with these exemptions is filed separately and available for review.

Torch cutting is performed at metal recycling facilities to dismantle and resize large pieces of metal, mainly steel. Oxy-fuel torches can also be used for rough cutting larger metal items into smaller pieces. Oxy-fuel torches are the most common means of cutting metals in metal recycling facilities for a variety of reasons:

- Oxy torches are portable and can be used on large pieces of metal of different sizes and thicknesses.
- Oxy torches are available in extended lengths to keep the operator at a distance from the heat, flames, and slag produced while cutting.
- Different tips can be used on an oxy torch to facilitate cutting different materials or materials of different thicknesses.

This SMP has been developed to ensure that the torch-cutting activity is conducted in a manner to minimize air emissions and smoke opacity.

Air emissions associated with torch cutting include particulate matter and metals such as lead, chromium, cadmium, manganese, beryllium, aluminum, and nickel.

Opacity is the measurement of how dense the dust particles are in the air and takes into account how much light is obscured by the rising dust when looking at a solid colored background. Opacity is measured in percentages from 0 to 100%; measurement is performed by visible observation. When there is no visible smoke, the opacity is 0%, meaning all of the light is able to pass through the air. Therefore, when the statement is made that an activity is operating at a 20% opacity level, that means that the dust, soot, and smoke levels are blocking only 20% of the visual background light, leaving 80% of the background light clearly visible. The more dust or smoke that is generated, the more difficult it is to see the landscape opposite the observer's position.

Michigan Rule 301(a) limits opacity from torch cutting to *...a 6-minute average of 20% opacity, except one 6-minute average of per hour not more than 27%*. Following procedures outlined in this document will ensure compliance with the exemption outlined in Rule 291 as well as the opacity limits in Rule 301.

2.0 Scrap Metal Management Procedures

Oxy-fuel torches are most commonly used with 75- to 100-foot hoses, although, in some operations, torch hoses of up to 200 feet may be used. Torch hoses are connected to a portable fuel source. The use of long hoses allows greater portability.

If a fire starts, FPT keeps a tub of water nearby with which to douse the material. FPT also keeps portable fire extinguishers in the vicinity of the torch cutting area.

FPT will follow best management practices, as required, for torch cutting to minimize emissions including:

- Selective cutting of materials
- Metal cleaning/housekeeping
- Use of aggregate
- Operational controls
- Fire Safety
- Training

2.1 Selective Cutting of Materials

FPT shall continuously analyze all of its metal recycling activities and shall determine ways to minimize torch cutting whenever possible (e.g., by shearing, cutting, breaking, etc., the recyclable metals to be processed). Torch cutting will only be done as needed on metals which are too large to otherwise process. Only metal materials will be cut with a torch, not plastics, wood, etc. When possible, FPT will avoid torching materials that could smoke.

2.2 Metal Cleaning/Housekeeping

FPT will communicate with its customers that recyclable metal needs to be free of debris before it can be accepted. Only recyclable metals which are free of debris will be cut with a torch. If debris is present, FPT personnel will attempt to remove the debris by hand or other means.

FPT shall ensure that recyclable metals are drained of all fluids, have had all non-metal material removed, to the extent practicable, and have been properly and thoroughly cleaned prior to torch cutting. Flammable, combustible, or explosive fluids and materials will be properly disposed by FPT in approved receptacles or disposal facilities in accordance with applicable local, state, and/or federal laws. When recyclable metals contain non-metal materials, like hoses, insulation, or other material, personnel will use a torch to cut around the non-metal.

FPT shall conduct good housekeeping practices in the torch-cutting areas to eliminate, to the extent practicable, foreign material which could create visible emissions (VEs) if it were to come into contact with torch flames. If combustible materials begin to burn, the material will be immediately doused with water or extinguished using a portable fire extinguisher.

2.3 Use of Aggregate

FPT shall use only crushed concrete, aggregate, crushed limestone, slag, or gravel as ground cover in high-traffic areas and shall replace the material, as necessary, to help control emissions of fugitive dust. FPT may also apply calcium chloride to these areas to control fugitive dust.

FPT shall perform torch cutting only on surfaces of crushed concrete, aggregate, hard-packed clay, crushed limestone, slag, or gravel, unless there is no longer any space for cutting on such surfaces. The area will be free of debris that could accidentally catch fire.

2.4 Operational Controls

FPT shall implement the following operational controls:

- Develop site map(s) that identify what activities are conducted in what area(s), including traffic patterns, material storage areas, torch-cutting areas (along with alternative torch-cutting areas to be used when wind conditions result in excessive VEs), and torch-cutting equipment areas.
- Continuously analyze traffic patterns and determine ways to limit or eliminate traffic in and around the torch-cutting areas to minimize emissions of fugitive dust.
- Conduct daily wind pattern analyses through onsite wind socks, wind charts, and/or weather reports and adjust torch-cutting operations, as necessary, to prevent VEs.
- Use water turbines, water trucks, and/or sprinklers in and around torch-cutting areas, when appropriate, to help minimize emissions of fugitive dust.
- Periodically evaluate the feasibility of erecting portable or temporary structures designed to help prevent fugitive emissions from escaping the property.

- Conduct and document preventive maintenance of all torch-cutting equipment, to maintain them in proper working order. Torch-cutting equipment shall be inspected before and after every use for damaged hoses, regulators, valves, or tips, along with any oil or grease contamination. If any damage is observed, FPT shall not use the equipment until it is in proper working order.
- Use proper torch-cutting methods to prevent VEs due to excessive flame length/strength and/or building of torch-cutting gasses, which shall include, at a minimum, purging hose lines individually before lighting the torch with the proper flint-type device to ensure that no oxy-fuel gas mixture is present in the hoses and using fuels only at proper operation pressures.
- The yard manager will signal torch cutters if excessive smoking or other conditions occur that necessitate changes in torch cutting activities. If excessive VEs are observed, or if there is a change in wind patterns that could cause excessive VEs, the yard manager will notify torch cutters of the need to stop cutting and when it can begin again.

2.5 Fire Safety

FPT shall implement the following actions related to fire safety:

- Ensure that the torch-cutting areas have readily-available access to water, fire extinguishers, or other fire-suppression methods to be used if there is a flare-up during or after torch-cutting activities. FPT shall regularly inspect all fire extinguishers and ensure that they are properly maintained.
- Place oxygen and fuel gas cylinders far enough away from the torch-cutting area that they will not be unduly heated by radiating from torched materials, by sparks, or by misdirection of the torch flame.
- Ensure no torch-cutting shall be done in or near locations where flammable liquids or vapors, lint, dust, or loose combustible materials are located or arranged that sparks or hot metal from the cutting activities could cause ignition or explosion of such materials.
- Personnel who are torch-cutting shall wear appropriate personal protective equipment (PPE), including eye and face protection and non-flammable gloves/clothing.

2.6 Training

Appropriate FPT personnel and contractors will be trained on the procedures outlined in Section 2.0. FPT shall ensure that its employees and subcontractors are aware of which materials are likely to produce higher VEs when torch cut and shall develop protocols to manage VEs when cutting those materials. Training will be documented and maintained.

3.0 Plan Implementation and Maintenance

The SMP will be adhered to by FPT personnel and contractors. The SMP Plan will be updated consistent with any changes in outlined procedures or practices, as necessary.

mission at any time after notice and it to operate, and the installation shall th installation is not performing in e p. It is based.

applicability of these rules and regula when it finds that compliance with the ation, would effectuate substantial com regulations. Whenever the commission d regulations, it will, whenever it deem les and regulations, reinstate them with purposes of a specific application. The make available to the public a current th respect to which the commission ha nd regulations and will furnish to the the letterhead of the commission.

g and ventilating equipment.

y to:

t ventilating systems not designed to leased from specific units of equipment ventilation.

ng ponds not used for evaporative cooling e cooling of water from barometric jet

ng, washing and drying equipment.

y to:

clusively for industrial, commercial or

leaning.

usp n of abrasive in water and any clu J.

ying products fabricated from metal or use the process and no oil or solid

lers for fabrics cleaned with only water

ces, ovens and heaters.

ly to:

roleum gas-fired or electrically heated the use of which does not involve molten

rcelain enameling drying ovens and any

ed exclusively by natural gas or liquefied or heated electrically, and any exhaust

induction furnaces, with a capacity for eating or distilling is conducted, nor any ride and fluoride derivatives and ammonium

el-oil burning equipment used for spa power generation.

ooking equipment used in connection with s a dwelling for not more than 3 families

(h) Bakery ovens and confection cookers where the products are edible and intended for human consumption, and any exhaust system or collector serving them exclusively.

HISTORY: 1954 ACS 51, p. 24.

R 336.34. Permit system exemptions; testing and inspection equipment.

Rule 34. The permit system does not apply to:

(a) Laboratory equipment used exclusively for chemical or physical analysis or experimentation except that used for controlling radioactive air contaminants.

(b) Equipment used for hydraulic or hydrostatic testing.

(c) Equipment for inspection of metal products.

HISTORY: 1954 ACS 51, p. 25.

R 336.35. Permit system exemptions; containers.

Rule 35. The permit system does not apply to containers, reservoirs or tanks used exclusively for:

(a) Dipping operations for coating objects with oils, waxes or greases, or natural or synthetic resins containing no organic solvents.

(b) Electrolytic plating with, electrolytic polishing of, or electrolytic stripping of the following metals: brass, bronze, cadmium, copper, iron, lead, nickel, tin, zinc and precious metals.

(c) Storage of butane, propane or liquefied petroleum gas.

(d) Storage of lubricating oils.

HISTORY: 1954 ACS 51, p. 25.

R 336.36. Permit system exemptions; miscellaneous.

Rule 36. The permit system does not apply to:

(a) Maintenance structural changes or minor repairs not involving any change in the quality, nature or quantity of the emission of air contaminants therefrom.

(b) Equipment used for any mode of transportation.

(c) Internal combustion engines.

(d) Vacuum pumps in laboratory or pilot plant operations.

(e) Unheated solvent dispensing containers or unheated solvent rinsing containers of 60 gallons capacity or less.

(f) Portable brazing, soldering or welding equipment.

(g) Grain, metal or mineral extrusion presses.

(h) The following equipment and an exhaust system or collector serving it exclusively:

(i) Drop hammers or hydraulic presses for forging or metal working.

(ii) Die casting machines.

(iii) Equipment for surface preparation of metals by use of aqueous solutions, except for acid solutions.

(iv) Atmosphere generators used in connection with metal heat treating processes.

(v) Equipment used exclusively for sintering of glass or metals, but not exempting equipment used for sintering metal bearing ores, metal scale, clay, flyash or metal compounds.

(vi) Equipment for carving, cutting, routing, turning, drilling, machining, sawing, surface grinding, sanding, planing, buffing or polishing of ceramic artwork, leather, metals, plastics, rubber, wood or wood products.

(vii) Photographic process equipment by which an image is reproduced upon material sensitized to radiant energy.

HISTORY: 1954 ACS 51, p. 25.

PART 3. EMISSION LIMITATIONS AND PROHIBITIONS

R 336.41. Standards for density of emissions.

Rule 41. No person shall cause or permit to be discharged into the atmosphere from any single source of emission, smoke of a density equal to or darker than No. 2 of the Ringelmann chart except:

(a) Smoke of a density equal to but not darker than No. 2 of the Ringelmann chart may be emitted for not more than 3 minutes in any 30 minute period.

(b) Smoke of a density equal to but not darker than No. 3 of the Ringelmann chart may be emitted for not more than 3 minutes in any 60 minute period, but such emissions shall not be permitted on more than 3 occasions during any 24 hour period.

HISTORY: 1954 ACS 51, p. 25.

Rule 285. The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following:

- (a) Routine maintenance, parts replacement, or other repairs that are considered by the department to be minor, or relocation of process equipment within the same geographical site not involving any appreciable change in the quality, nature, quantity, or impact of the emission of an air contaminant therefrom. Examples of parts replacement or repairs considered by the department to be minor include the following:
 - (i) Replacing bags in a baghouse.
 - (ii) Replacing wires, plates, rappers, controls, or electric circuitry in an electrostatic precipitator which does not measurably decrease the design efficiency of the unit.
 - (iii) Replacement of fans, pumps, or motors which does not alter the operation of a source or performance of air pollution control equipment.
 - (iv) Boiler tubes.
 - (v) Piping, hoods, and ductwork.
 - (vi) Replacement of engines, compressors, or turbines as part of a normal maintenance program.
- (b) Changes in a process or process equipment which do not involve installing, constructing, or reconstructing an emission unit and which do not involve any meaningful change in the quality and nature or any meaningful increase in the quantity of the emission of an air contaminant therefrom. Examples of such changes in a process or process equipment include the following:
 - (i) Change in the supplier or formulation of similar raw materials, fuels, or paints and other coatings.
 - (ii) Change in the sequence of the process.
 - (iii) Change in the method of raw material addition.
 - (iv) Change in the method of product packaging.
 - (v) Change in process operating parameters.
 - (vi) Installation of a floating roof on an open top petroleum storage tank.
 - (vii) Replacement of a fuel burner in a boiler with an equally or more thermally efficient burner.
 - (viii) Lengthening a paint drying oven to provide additional curing time.
- (c) Changes in a process or process equipment which do not involve installing, constructing, or reconstructing an emission unit and which involve a meaningful change in the quality and nature, or a meaningful increase in the quantity, of the emission of an air contaminant resulting from any of the following:
 - (i) Changes in the supplier or supply of the same type of virgin fuel, such as coal, no. 2 fuel oil, no. 6 fuel oil, or natural gas.
 - (ii) Changes in the location, within the storage area, or configuration of a material storage pile or material handling equipment.
 - (iii) Changes in a process or process equipment to the extent that such changes do not alter the quality and nature, or increase the quantity, of the emission of the air contaminant beyond the level which has been described in and allowed by an approved permit to install, permit to operate, or order of the department.
- (d) Reconstruction or replacement of air pollution control equipment with equivalent or more efficient equipment.
- (e) Installation, construction, or replacement of air pollution control equipment for an existing process or process equipment for the purpose of complying with the national emission standards of hazardous air pollutants regulated under section 112 of part A of title I of the clean air act, 84 Statutes 1685, 42 U.S.C. §7412.
- (f) Installation or construction of air pollution control equipment for an existing process or process equipment if the control equipment itself does not actually generate a significant amount of criteria air contaminants as defined in R 336.1119(e) or a meaningful quantity of toxic air contaminants.
- (g) Internal combustion engines that have less than 10,000,000 Btu/hour maximum heat input.
- (h) Vacuum pumps in laboratory or pilot plant operations.
- (i) Brazing, soldering, welding, or plasma coating equipment.
- (j) Portable cutting torches

Technical Memo

SUBJECT: Exemption Record Rule 291
Torch Cutting Operations
Ferrous Processing & Trading Company, Genesee Recycling
Genesee, Michigan

FROM: Lillian L. Woolley, PE – Fishbeck

DATE: November 29, 2021

PROJECT NO.: 211414

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Introduction

Torch cutting operations at the Ferrous Processing and Trading – Genesee Division (FPT) is exempt under either Michigan Rule 36 or the current Michigan Rule 291. FPT retained Fishbeck to document use of either exemption as it relates to the torch cutting operations and to perform emission calculations showing that use of either exemption is appropriate under Rule 278 and Rule 278a.

Background

FPT has been handling recyclable metals at this location for more than 50 years and has employed torch cutting as a method of dismantling or resizing material the entire time. When evaluating an activity to determine whether it is exempt, the exemptions in place at the time the activity began or the exemptions in place at the time of the evaluation can be reviewed. At the time this activity started, torch cutting was exempt under Rule 36(h)(vi), which simply lists metal cutting activities as being exempt from the Michigan PTI Program (see Attachment 1).

Therefore, FPT could argue that this activity is exempt under this Michigan Rule as it read when torch cutting operations began at the site.

That being said, because emissions from the torch cutting operations are so low, FPT can also demonstrate that these operations are exempt under Rule 291 (see Attachment 2), as its emissions are below emission thresholds in Rule 291 that would require a PTI.

Process Description and Emission Calculation Methodology

Torch cutting is performed at scrap metal facilities to dismantle and resize large pieces of metal, mostly steel, to make the metals saleable to mills and foundries, who then melt the material into new metal, which starts the life cycle of the metal again. At scrap metal facilities, oxy-fuel torches are used for rough cutting larger scrap items into smaller pieces. Oxy-fuel torches are the most common means of cutting metals in the scrap yard for numerous reasons. Torches are available in extended lengths to keep the operator at a distance from the heat, flames, and slag produced while cutting. Different tips can be used on the torch to facilitate cutting different materials or materials of different thicknesses.

Oxy-fuel torches are most commonly used with 75- to 100-foot hoses, though in some operations torch hoses of up to 200 feet may be used. Torch hoses are connected to a portable fuel source. The use of long hoses allows greater portability than is afforded by other metal cutting options, which may require electrical power and a compressed air source. In the event a fire starts, FPT keeps a tub of water nearby with which to douse material. FPT also keeps portable fire extinguishers in the vicinity of the torch cutting area.

The size and thickness of the scrap being cut can vary, though emissions tend to increase or decrease proportionally with changing plate thickness. It also takes longer to cut thicker pieces. For example, cutting a 2-inch plate would take at least twice as long as cutting a 1-inch plate and emissions would be twice as high. Calculations documenting the Facility's potential to emit are provided in Table 1. Emissions were calculated using *Compilation of Air Pollutant Emission Factors (Fifth Edition) Table 12.5.1* including emission factors for billet cutting at mini mills – an excerpt is provided as Attachment 2. Metal emissions were estimated using *Clarification and Guidance for the Metal Fabrication Industry* (USEPA, January 1990). An excerpt of the section outlining emission estimates is provided as Attachment 3.

The Facility is aware of the challenges of Michigan Rules 301 and 901 and has implemented a Scrap Metal Management Plan (SMP) to address air emissions and smoke opacity.

Michigan Rule 291

Michigan Rule 291 exempt sources based on their potential emissions as outlined in Table 1:

Michigan Rule 291 Exempt Sources

| Air Contaminant | Potential Emissions (tpy) |
|---|---------------------------|
| CO ₂ e | 75,000 |
| CO | 10 |
| NO _x | 10 |
| SO ₂ | 10 |
| VOC | 5 |
| PM | 10 |
| PM ₁₀ | 5 |
| PM _{2.5} | 3 |
| Lead | 0.1 |
| Fluorides | 1 |
| Sulfuric acid mist | 0.12 |
| Hydrogen sulfide | 2 |
| Total reduced sulfur | 2 |
| Reduced sulfur compounds | 2 |
| Total mercury | 0.12 |
| Total TACs not listed in Table 23 with any screening level | 5 |
| Total air contaminants not listed in Table 23 that are non-carcinogenic and do not have a screening level | 6 |

An individual torch cutting process has potential emissions less than the Rule 291 thresholds presented in Table 1. TAC emissions also meet the requirements of Rule 291 (2)(a), (b) and (c). Torch cutting emits no asbestos or other TACs that would prohibit use of this exemption. Emissions from the torch cutting activity are included in Table 1.

Michigan Rule 278a(1)(a) Scope of Permit Exemptions – Description

To qualify for permit exemptions under Michigan Air Pollution Control Rules, emission units must meet the scope of permit exemptions identified in Rule 336.1278a, which states:

R 336.1278a Scope of Permit Exemptions

(1) *To be eligible for a specific exemption listed in R 336.1280 to R 336.1291, any owner or operator of an exempt process or exempt process equipment must be able to provide information demonstrating the applicability of the exemption. The demonstration may include the following information:*

- (a) *A description of the exempt process or process equipment, including the date of installation.*
- (b) *The specific exemption being used by the process or process equipment.*
- (c) *An analysis demonstrating that R 336.1278 does not apply to the process or process equipment.*

The process equipment description is provided in the *Process Description and Emission Calculation Methodology* section of this document and demonstrates eligibility for the specific exemption outlined in Rule 291.

Rule 278a(1)(c) Scope of Permit Exemptions – Rule 278 Exclusions

In addition to the Rule 336.1278a(1)(a) and (b) scope of permit exemptions previously identified, Rule 336.1278a(1)(c), requires an analysis demonstrating that R 336.1278 does not apply to any of the processes or process equipment. A copy of Rule 278 is included as Attachment 6. Rule 336.1278 states:

Rule 278.

- (1) *The exemptions specified in R 336.1280 to R 336.1291 do not apply to either of the following:*
 - (a) *Any activity that is subject to prevention of significant deterioration of air quality regulations or new source review for major sources in nonattainment areas regulations.*
 - (b) *Any activity that results in an increase in actual emissions greater than the significance levels defined in R 336.1119. For the purpose of this rule, "activity" means the concurrent and related installation, construction, reconstruction, relocation, or modification of any process or process equipment.*
- (2) *The exemptions specified in R 336.1280 to R 336.1291 do not apply to the construction of a new major source of hazardous air pollutants or reconstruction of a major source of hazardous air pollutants, as defined in 40 C.F.R. §63.2 and subject to §63.5(b)(3), national emission standards for hazardous air pollutants, adopted by reference in R 336.1902.*
- (3) *The exemptions specified in R 336.1280 to R 336.1291 do not apply to a construction or modification as defined in and subject to 40 C.F.R. part 61, national emission standards for hazardous air pollutants, adopted by reference in R 336.1902.*
- (4) *The exemptions in R 336.1280 to R 336.1291 apply to the requirement to obtain a permit to install only and do not exempt any source from complying with any other applicable requirement or existing permit limitation.*

As demonstrated in Table 1, none of the torch cutting equipment has a potential to emit more than the major source thresholds.

Rule 278a(2) Scope of Permit Exemptions – Records

R 336.1278a Scope of Permit Exemptions

- (2) *The demonstration required by this rule shall be provided within 30 days of a written request from the department. Any other records required within a specific exemption shall be provided within timeframes established within that specific exemption.*

This memorandum and its attachments serve as the required Rule 278 demonstration. As long as the process description is accurate, this memorandum and its attachments provide adequate documentation for demonstrating that each torch cutting activity is exempt from permitting.

List of Tables

Table 1 – Torch Cutting Rule 291 Emissions Estimate

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Attachment 1 – Michigan Rule 36

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Attachment 3 – Metal Emissions from Torch Cutting

List of Abbreviations and Acronyms

| | |
|-------------------|---|
| CO | carbon monoxide |
| CO _{2e} | carbon dioxide equivalent (greenhouse gas) |
| FPT | Ferrous Processing & Trading Company |
| NO _x | nitrogen oxides |
| PM | particulate matter |
| PM ₁₀ | fine particulate matter less than 10 microns |
| PM _{2.5} | fine particulate matter less than 2.5 microns |
| PTI | Permit to Install |
| SO ₂ | sulfur dioxide |
| TAC | toxic air contaminant |
| tpy | tons per year |
| VOC | volatile organic compound |

Table 1 - Torch Cutting Rule 291 Emissions Estimate

Ferrous Processing and Trading Company
Genesee, Michigan

| Air Contaminant | Throughput (tons/mo) | Emission Factor (lb/ton) | Emissions per Unit (lb/hr) | Annual Emissions (tpy) | Rule 291 Limit (tpy) |
|--------------------|----------------------|--------------------------|----------------------------|------------------------|----------------------|
| Particulate Matter | 1000 | 0.032 | 0.04 | 0.19 | 10.0 |

Emissions calculated using *Compilation of Air Pollutant Emission Factors (Fifth Edition) Table 12.5.1*

Metal emissions calculated using *Using Fumes and Gases in the Welding Environment, as outlined in Section 313 Reporting; Clarification and Guidance for the Metal Fabrication Industry published by USEPA in Januarv. 1990*

| Air Contaminant | CAS No. | % Metal | Initial Threshold Screening Level (mg/m ³) | Secondary Threshold Screening Level (mg/m ³) | Initial Risk Screening Level (mg/m ³) | Minimum Screening Level (mg/m ³) | Maximum Short-Term Emissions per Unit (lb/hr) | Annual Emissions per Unit (tpy) | Rule 291 Limit (tpy) |
|---|------------|---------|--|--|---|--|---|---------------------------------|----------------------|
| Barium | 7440-39-3 | 0.01% | 5 | | | 5 | 4.30E-06 | 0.00 | D |
| Manganese | 7439-96-5 | 0.3% | 0.3 | | | 0.3 | 1.29E-04 | 0.00 | A |
| Chromium | 18540-29-9 | 0.2% | 0.1 | | 0.000083 | 0.000083 | 8.60E-05 | 0.00 | C |
| Nickel | 7440-02-0 | 0.05% | | | 0.0058 | 0.0058 | 2.15E-05 | 0.00 | C |
| Aluminum | 7429-90-5 | 0.02% | | | | | 8.60E-06 | 0.00 | E |
| Vanadium | 1314-62-1 | 0.01% | 0.5 | | | 0.5 | 4.30E-06 | 0.00 | A |
| Copper | 7440-50-8 | 0.1% | 2 | | | 2 | 4.30E-05 | 0.00 | D |
| Zinc | 7440-66-6 | 0.1% | | | | | 4.30E-05 | 0.00 | E |
| Cobalt | 7440-48-4 | 0.02% | 0.2 | | 0.00013 | 0.00013 | 8.60E-06 | 0.00 | C |
| Combined potential emissions of TACs with 0.04 µg/m ³ ≤ SL <2 µg/m ³ (tpy) | | | | | | | | 0.00 | 0.12 |
| Combined potential emissions of TACs with 0.005 µg/m ³ ≤ SL < 0.04 µg/m ³ (tpy) | | | | | | | | 0.00 | 0.06 |
| Combined potential emissions of TACs with SL <0.005 µg/m ³ (tpy) | | | | | | | | 0.000 | 0.006 |
| TACs not listed in Table 23 with any SL (R 291(2), Table 23) | | | | | | | | 0.00 | 5.000 |
| Non-Carcinogen air contaminants not listed in Table 23 without a SL (R 291(2), Table 23) | | | | | | | | 0.00 | 6.000 |

A - Per R 336.1291(2)(a), the combined potential emissions of all toxic air contaminants with screening levels greater than or equal to 0.04 micrograms per cubic meter and less than 2 micrograms per cubic meter shall not exceed 0.12 tons per year.

B - Per R 336.1291(2)(a), the combined potential emissions of all toxic air contaminants with screening levels greater than or equal to 0.005 micrograms per cubic meter and less than 0.04 micrograms per cubic meter shall not exceed 0.06 tons per year.

C - Per R 336.1291(2)(c), the combined potential emissions of all toxic air contaminants with screening levels less than 0.005 micrograms per cubic meter shall not exceed 0.006 tons per year.

D - Per R 336.1291(2) and Table 23, the combined potential emissions of all toxic air contaminants not listed in Table 23 with any screening level shall not exceed 5 tons per year.

E - Per R 336.1291(2) and Table 23, the combined potential emissions of all non-carcinogenic toxic air contaminants not listed in Table 23 which do not have a screening level shall not exceed 6 tons per year.

mission at any time after notice and it to operate, and the installation shall th installation is not performing in e p. at is based.

e r.
applicability of these rules and regula when it finds that compliance with the ation, would effectuate substantial com regulations. Whenever the commission d regulations, it will, whenever it deem les and regulations, reinstate them with purposes of a specific application. The make available to the public a curren th respect to which the commission ha nd regulations and will furnish to th the letterhead of the commission.

g and ventilating equipment.

y to:

t ventilating systems not designed b leased from specific units of equipment ventilation.

g ponds not used for evaporative cooling e cooling of water from barometric jet

ng, washing and drying equipment.

y to:

clusively for industrial, commercial m

leaning.

usp n of abrasive in water and any clu J.

ying products fabricated from metal or use the process and no oil or solid

lers for fabrics cleaned with only water

ces, ovens and heaters.

ly to:

roleum gas-fired or electrically heated the use of which does not involve molten

rcelain enameling drying ovens and any

ed exclusively by natural gas or liquefied or heated electrically, and any exhaust

induction furnaces, with a capacity fo eating or distilling is conducted, nor an ride and fluoride derivatives and ammonium

el-oil burning equipment used for spa power generation.

ooking equipment used in connection with s a dwelling for not more than 3 families

(h) Bakery ovens and confection cookers where the products are edible and intended for human consumption, and any exhaust system or collector serving them exclusively.

HISTORY: 1954 ACS 51, p. 24.

R 336.34. Permit system exemptions; testing and inspection equipment.

Rule 34. The permit system does not apply to:

(a) Laboratory equipment used exclusively for chemical or physical analysis or experimentation except that used for controlling radioactive air contaminants.

(b) Equipment used for hydraulic or hydrostatic testing.

(c) Equipment for inspection of metal products.

HISTORY: 1954 ACS 51, p. 25.

R 336.35. Permit system exemptions; containers.

Rule 35. The permit system does not apply to containers, reservoirs or tanks used exclusively for:

(a) Dipping operations for coating objects with oils, waxes or greases, or natural or synthetic resins containing no organic solvents.

(b) Electrolytic plating with, electrolytic polishing of, or electrolytic stripping of the following metals: brass, bronze, cadmium, copper, iron, lead, nickel, tin, zinc and precious metals.

(c) Storage of butane, propane or liquefied petroleum gas.

(d) Storage of lubricating oils.

HISTORY: 1954 ACS 51, p. 25.

R 336.36. Permit system exemptions; miscellaneous.

Rule 36. The permit system does not apply to:

(a) Maintenance structural changes or minor repairs not involving any change in the quality, nature or quantity of the emission of air contaminants therefrom.

(b) Equipment used for any mode of transportation.

(c) Internal combustion engines.

(d) Vacuum pumps in laboratory or pilot plant operations.

(e) Unheated solvent dispensing containers or unheated solvent rinsing containers of 60 gallons capacity or less.

(f) Portable brazing, soldering or welding equipment.

(g) Grain, metal or mineral extrusion presses.

(h) The following equipment and an exhaust system or collector serving it ex- clusively:

(i) Drop hammers or hydraulic presses for forging or metal working.

(ii) Die casting machines.

(iii) Equipment for surface preparation of metals by use of aqueous solutions, except for acid solutions.

(iv) Atmosphere generators used in connection with metal heat treating processes.

(v) Equipment used exclusively for sintering of glass or metals, but not exempting equipment used for sintering metal bearing ores, metal scale, clay, flyash or metal compounds.

(vi) Equipment for carving, cutting, routing, turning, drilling, machining, sawing, surface grinding, sanding, planing, buffing or polishing of ceramic artwork, leather, metals, plastics, rubber, wood or wood products.

(vii) Photographic process equipment by which an image is reproduced upon material sensitized to radiant energy.

HISTORY: 1954 ACS 51, p. 25.

PART 3. EMISSION LIMITATIONS AND PROHIBITIONS

R 336.41. Standards for density of emissions.

Rule 41. No person shall cause or permit to be discharged into the atmosphere from any single source of emission, smoke of a density equal to or darker than No. 2 of the Ringelmann chart except:

(a) Smoke of a density equal to but not darker than No. 2 of the Ringelmann chart may be emitted for not more than 3 minutes in any 30 minute period.

(b) Smoke of a density equal to but not darker than No. 3 of the Ringelmann chart may be emitted for not more than 3 minutes in any 60 minute period, but such emissions shall not be permitted on more than 3 occasions during any 24 hour period.

HISTORY: 1954 ACS 51, p. 25.

12.5.1-1. FILTERABLE PM EMISSION FACTORS FOR MINIMILLS

| Source | EMISSION FACTOR RATING | Emission Factor | Unit ^a |
|---|------------------------|------------------|--------------------|
| Electric arc furnace, ladle metallurgy, and melt shop (SCC 3-04-003-04) Charging, melting, slagging, tapping, ladle transfer to ladle furnace, ladle preheater, alloy addition to ladle furnace, ladle furnace melting, continuous casting Controlled by direct shell evacuation and roof canopy hood exhausted to baghouse | B | 2.0E-2 | lb/ton |
| Metallized briquetter (SCC 3-04-003-19) Controlled by wet scrubber | E | 1.5E-1 | lb/ton |
| Reheat furnace, natural gas-fired (SCC 3-04-003-14) Uncontrolled | E | 3.2E-2 3.5E-3 | lb/ton lb/MMBtu |
| Cold reversing mill (SCC 3-04-003-30) Controlled by high efficiency mist eliminator | E | 1.9E-2 | lb/ton |
| Billet cutting torches, natural gas-fired (SCC 3-04-003-60) Uncontrolled | E | 3.2E-2 | lb/ton |
| Ladle metallurgy station (SCC 3-04-003-17) Controlled by baghouse | E | 3.4E-3 | lb/ton |
| Ladle heating and transfer and continuous casting (SCC 3-04-003-17) Uncontrolled | E | 1.2E-1 | lb/ton |

^a Unit of lb/ton is lb/ton of steel produced.
Unit of lb/MMBtu is calculated based on MMBtu/hr heat input.

Oxygen Cutting Releases

The following release rates are based on information contained in Fumes and Gases in the Welding Environment (see bibliography). The values shown are calculated based on the percent metal in the fume and a fume generation rate of 2.1 grams per meter for oxyacetylene cutting and 0.037 grams per inch for oxymethane cutting. Releases are affected by the percent of the listed section 313 chemical present in the metal. The values for carbon steel are presented below.

Release rates for oxyacetylene cutting were found to increase and decrease proportionally with changing plate thickness (e.g., cutting a 2 inch plate would result in twice the release rate shown in the table below). Rates of release for oxymethane cutting are independent and not affected by plate thickness.

| <u>Listed Section 313 Metal</u> | <u>Percent Metal in Fume</u> | <u>Oxyacetylene Cutting of Carbon Steel</u> | <u>Oxymethane Cutting of Carbon Steel</u> |
|---|--------------------------------------|---|---|
| | | <u>lbs 313 metal emitted per million feet of cut plate (1" thick)</u> | <u>lbs 313 metal emitted per million feet of cut plate (1" thick)</u> |
| Ba | 0.01 | 0.14 | 0.1 |
| Mn | 0.3 | 4.2 | 2.9 |
| Cr | 0.2 | 2.8 | 2.0 |
| Ni | 0.05 | 0.7 | 0.5 |
| Al | 0.02 | 0.3 | 0.2 |
| V | <0.01 | <0.14 | <0.1 |
| Cu | 0.1 | 1.4 | 1.0 |
| Zn | <0.1 | <1.4 | <1.0 |
| Co | 0.02 | 0.3 | 0.2 |

Total annual releases of each of the listed section 313 chemicals in the plate would be found by multiplying the emission factor by the total amount of cut plate (in million feet/year).



Scrap Metal Management Plan

Ferrous Processing & Trading Company
Genesee Recycling
Flint, Michigan

Project No. 211414
November 29, 2021

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List of Abbreviations/Acronyms

- FPT Ferrous Processing and Trading Company
- PPE personal protective equipment
- PTI Permit to Install
- SMP Scrap Metal Management Plan
- VE visible emission

1.0 Introduction

Fishbeck has been retained by Ferrous Processing and Trading Company (FPT) to prepare a Scrap Metal Management Plan (SMP) for the torch-cutting activities taking place at G-5107 North Dort Highway, Flint, Michigan. The torch-cutting activities are exempt from an Air Use Permit to Install (PTI) under both Rule 285(j) and the current Michigan Rule 291. Documentation associated with these exemptions is filed separately and available for review.

Torch cutting is performed at metal recycling facilities to dismantle and resize large pieces of metal, mainly steel. Oxy-fuel torches can also be used for rough cutting larger metal items into smaller pieces. Oxy-fuel torches are the most common means of cutting metals in metal recycling facilities for a variety of reasons:

- Oxy torches are portable and can be used on large pieces of metal of different sizes and thicknesses.
- Oxy torches are available in extended lengths to keep the operator at a distance from the heat, flames, and slag produced while cutting.
- Different tips can be used on an oxy torch to facilitate cutting different materials or materials of different thicknesses.

This SMP has been developed to ensure that the torch-cutting activity is conducted in a manner to minimize air emissions and smoke opacity.

Air emissions associated with torch cutting include particulate matter and metals such as lead, chromium, cadmium, manganese, beryllium, aluminum, and nickel.

Opacity is the measurement of how dense the dust particles are in the air and takes into account how much light is obscured by the rising dust when looking at a solid colored background. Opacity is measured in percentages from 0 to 100%; measurement is performed by visible observation. When there is no visible smoke, the opacity is 0%, meaning all of the light is able to pass through the air. Therefore, when the statement is made that an activity is operating at a 20% opacity level, that means that the dust, soot, and smoke levels are blocking only 20% of the visual background light, leaving 80% of the background light clearly visible. The more dust or smoke that is generated, the more difficult it is to see the landscape opposite the observer's position.

Michigan Rule 301(a) limits opacity from torch cutting to *...a 6-minute average of 20% opacity, except one 6-minute average of per hour not more than 27%*. Following procedures outlined in this document will ensure compliance with the exemption outlined in Rule 291 as well as the opacity limits in Rule 301.

2.0 Scrap Metal Management Procedures

Oxy-fuel torches are most commonly used with 75- to 100-foot hoses, although, in some operations, torch hoses of up to 200 feet may be used. Torch hoses are connected to a portable fuel source. The use of long hoses allows greater portability.

If a fire starts, FPT keeps a tub of water nearby with which to douse the material. FPT also keeps portable fire extinguishers in the vicinity of the torch cutting area.

FPT will follow best management practices, as required, for torch cutting to minimize emissions including:

- Selective cutting of materials
- Metal cleaning/housekeeping
- Use of aggregate
- Operational controls
- Fire Safety
- Training

2.1 Selective Cutting of Materials

FPT shall continuously analyze all of its metal recycling activities and shall determine ways to minimize torch cutting whenever possible (e.g., by shearing, cutting, breaking, etc., the recyclable metals to be processed). Torch cutting will only be done as needed on metals which are too large to otherwise process. Only metal materials will be cut with a torch, not plastics, wood, etc. When possible, FPT will avoid torching materials that could smoke.

2.2 Metal Cleaning/Housekeeping

FPT will communicate with its customers that recyclable metal needs to be free of debris before it can be accepted. Only recyclable metals which are free of debris will be cut with a torch. If debris is present, FPT personnel will attempt to remove the debris by hand or other means.

FPT shall ensure that recyclable metals are drained of all fluids, have had all non-metal material removed, to the extent practicable, and have been properly and thoroughly cleaned prior to torch cutting. Flammable, combustible, or explosive fluids and materials will be properly disposed by FPT in approved receptacles or disposal facilities in accordance with applicable local, state, and/or federal laws. When recyclable metals contain non-metal materials, like hoses, insulation, or other material, personnel will use a torch to cut around the non-metal.

FPT shall conduct good housekeeping practices in the torch-cutting areas to eliminate, to the extent practicable, foreign material which could create visible emissions (VEs) if it were to come into contact with torch flames. If combustible materials begin to burn, the material will be immediately doused with water or extinguished using a portable fire extinguisher.

2.3 Use of Aggregate

FPT shall use only crushed concrete, aggregate, crushed limestone, slag, or gravel as ground cover in high-traffic areas and shall replace the material, as necessary, to help control emissions of fugitive dust. FPT may also apply calcium chloride to these areas to control fugitive dust.

FPT shall perform torch cutting only on surfaces of crushed concrete, aggregate, hard-packed clay, crushed limestone, slag, or gravel, unless there is no longer any space for cutting on such surfaces. The area will be free of debris that could accidentally catch fire.

2.4 Operational Controls

FPT shall implement the following operational controls:

- Develop site map(s) that identify what activities are conducted in what area(s), including traffic patterns, material storage areas, torch-cutting areas (along with alternative torch-cutting areas to be used when wind conditions result in excessive VEs), and torch-cutting equipment areas.
- Continuously analyze traffic patterns and determine ways to limit or eliminate traffic in and around the torch-cutting areas to minimize emissions of fugitive dust.
- Conduct daily wind pattern analyses through onsite wind socks, wind charts, and/or weather reports and adjust torch-cutting operations, as necessary, to prevent VEs.
- Use water turbines, water trucks, and/or sprinklers in and around torch-cutting areas, when appropriate, to help minimize emissions of fugitive dust.
- Periodically evaluate the feasibility of erecting portable or temporary structures designed to help prevent fugitive emissions from escaping the property.

- Conduct and document preventive maintenance of all torch-cutting equipment, to maintain them in proper working order. Torch-cutting equipment shall be inspected before and after every use for damaged hoses, regulators, valves, or tips, along with any oil or grease contamination. If any damage is observed, FPT shall not use the equipment until it is in proper working order.
- Use proper torch-cutting methods to prevent VEs due to excessive flame length/strength and/or building of torch-cutting gasses, which shall include, at a minimum, purging hose lines individually before lighting the torch with the proper flint-type device to ensure that no oxy-fuel gas mixture is present in the hoses and using fuels only at proper operation pressures.
- The yard manager will signal torch cutters if excessive smoking or other conditions occur that necessitate changes in torch cutting activities. If excessive VEs are observed, or if there is a change in wind patterns that could cause excessive VEs, the yard manager will notify torch cutters of the need to stop cutting and when it can begin again.

2.5 Fire Safety

FPT shall implement the following actions related to fire safety:

- Ensure that the torch-cutting areas have readily-available access to water, fire extinguishers, or other fire-suppression methods to be used if there is a flare-up during or after torch-cutting activities. FPT shall regularly inspect all fire extinguishers and ensure that they are properly maintained.
- Place oxygen and fuel gas cylinders far enough away from the torch-cutting area that they will not be unduly heated by radiating from torched materials, by sparks, or by misdirection of the torch flame.
- Ensure no torch-cutting shall be done in or near locations where flammable liquids or vapors, lint, dust, or loose combustible materials are located or arranged that sparks or hot metal from the cutting activities could cause ignition or explosion of such materials.
- Personnel who are torch-cutting shall wear appropriate personal protective equipment (PPE), including eye and face protection and non-flammable gloves/clothing.

2.6 Training

Appropriate FPT personnel and contractors will be trained on the procedures outlined in Section 2.0. FPT shall ensure that its employees and subcontractors are aware of which materials are likely to produce higher VEs when torch cut and shall develop protocols to manage VEs when cutting those materials. Training will be documented and maintained.

3.0 Plan Implementation and Maintenance

The SMP will be adhered to by FPT personnel and contractors. The SMP Plan will be updated consistent with any changes in outlined procedures or practices, as necessary.