

State Registration
Number
B2015

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-B2015-2019

Dock Foundry LLC dba Metal Technologies, Inc. - Three Rivers Gray Iron

State Registration Number (SRN): B2015

Located at

429 Fourth Street, Three Rivers, St. Joseph County, Michigan 49093

Permit Number: MI-ROP-B2015-2019

Staff Report Date: February 18, 2019

This Staff Report is published in accordance with Sections 5506 and 5511 of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Specifically, Rule 214(1) of the administrative rules promulgated under Act 451, requires that the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), prepare a report that sets forth the factual basis for the terms and conditions of the Renewable Operating Permit (ROP).

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Michigan Department of Environmental Quality
Air Quality Division

State Registration Number

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February 18, 2019 STAFF REPORT

Purpose

Major stationary sources of air pollutants, and some non-major sources, are required to obtain and operate in compliance with an ROP pursuant to Title V of the federal Clean Air Act; and Michigan's Administrative Rules for Air Pollution Control promulgated under Section 5506(1) of Act 451. Sources subject to the ROP program are defined by criteria in Rule 211(1). The ROP is intended to simplify and clarify a stationary source's applicable requirements and compliance with them by consolidating all state and federal air quality requirements into one document.

This Staff Report, as required by Rule 214(1), sets forth the applicable requirements and factual basis for the draft ROP terms and conditions including citations of the underlying applicable requirements, an explanation of any equivalent requirements included in the draft ROP pursuant to Rule 212(5), and any determination made pursuant to Rule 213(6)(a)(ii) regarding requirements that are not applicable to the stationary source.

General Information

Stationary Source Mailing Address:	Dock Foundry LLC dba Metal Technologies, Inc. - Three Rivers Gray Iron 429 Fourth Street Three Rivers, Michigan 49093
Source Registration Number (SRN):	B2015
North American Industry Classification System (NAICS) Code:	331511
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	201800042
Responsible Official:	David Bent, Plant Manager 269-279-3769
AQD Contact:	Amanda Chapel, Environmental Quality Analyst 269-910-2109
Date Application Received:	March 23, 2018
Date Application Was Administratively Complete:	March 23, 2018
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	February 18, 2019
Deadline for Public Comment:	March 20, 2019

Source Description

Dock Foundry LLC dba Metal Technologies, Inc.-Three Rivers Gray Iron Plant (Facility), is located in the city of Three Rivers, St. Joseph County, Michigan. The Facility is approximately four-tenths of a mile southeast of downtown Three Rivers in an industrial zoned area, with the nearest private residence located 400 feet east to northeast of the Facility. The Facility is a gray iron foundry that heats scrap in a gas fired pre-heater that feeds iron into four electric induction melt furnaces. Each induction furnace is equipped with a smoke ring to capture emissions when the charge lid is in the closed position, and all four furnaces and the gas fired pre-heater exhaust to the South Fuller baghouse and Small Duster baghouse that share a common stack. Molten iron is tapped into a ladle and is then manually transferred to one of four green sand mold pouring lines to produce castings. Molds are then allowed to cool on conveyors that exhaust to an uncontrolled stack for each conveyor line. Cooled molds are then conveyed to the shakeout process to separate castings from sand and shakeout emissions are routed to the 2014 North Duster baghouse. Casting and sand transfer operations exhaust to either the East and West Fuller, or West Duster baghouses. Four wheelabrator machines used to shot blast clean the rough castings have emissions that exhaust to the North Fuller baghouse. Stand grinders on the east-west finishing line and the north-south finishing line exhaust to internally vented baghouse controls for each finishing line.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year 2017.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	126.3
Lead (Pb)	0.04
Nitrogen Oxide (NO _x)	1.95
Particulate Matter (PM)	13.26
Sulfur Dioxide (SO ₂)	0.01
Volatile Organic Compounds (VOC)	135.0

The following table lists Hazardous Air Pollutant (HAP) emissions as reported to MAERS for the year 2017 by the Facility:

Individual HAPs **	Tons per Year
Manganese	0.02
Lead	0.04
Total HAPs	0.06

**As listed pursuant to Section 112(b) of the federal Clean Air Act.

See Parts C and D in the ROP for summary tables of all processes at the stationary source that are subject to process-specific emission limits or standards.

Regulatory Analysis

The following is a general description and history of the source. Any determinations of regulatory non-applicability for this source are explained below in the Non-Applicable Requirement part of the Staff Report and identified in Part E of the ROP.

The stationary source is in St. Joseph County, which is currently designated by the United States Environmental Protection Agency (USEPA) as attainment/unclassified for all criteria pollutants.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because the potential to emit of CO, PM and VOC exceeds 100 tons per year.

The stationary source is a major source of HAPs because the potential to emit of any single HAP regulated by Section 112 of the federal Clean Air Act, is equal to or more than 10 tons per year and/or the potential to emit of all HAPs combined is equal to or more than 25 tons per year.

The stationary source is an existing major source subject to the Prevention of Significant Deterioration regulations under 40 CFR 52.21 with the potential to emit of CO, PM, and VOC greater than 100 tons per year, which is the threshold for secondary metal production plants. In September 2014, the stationary source submitted Permit to Install Application No. 137-14 to propose several changes to equipment, including replacement of mold making machines, automated mold conveyors associated with FGGRAYIRON, and replacement of the dust collector (i.e., 2014 North Dustar) on EUSHAKEOUT. The mold making machines and automated mold conveyor equipment technology was old and needed to be updated. The equipment changes will not increase the production capacity or debottleneck the process. Since the equipment does not generate emissions by itself, and because the emissions of FGGRAYIRON will not change as a result of the equipment replacements, no changes were made to the permit conditions for FGGRAYIRON. The new dust collector has a higher airflow rate than the existing dust collector; therefore, the potential to emit for PM will increase.

The Facility calculated the Actual to Projected Actual (A2A) emissions increase is below significance levels. Several permit conditions were added to EUSHAKEOUT in the ROP through a minor modification issued on March 10, 2015, as a result of the A2A analysis including a one-time performance test of PM, PM10, and PM2.5 emission rates from the new dust collector to demonstrate that the actual concentration of PM, PM10, and PM2.5 (lb./1000 lb. dry exhaust gases) is not greater than the value used to calculate the projected actual emissions, and that the A2A analysis was valid. The Facility is also required to maintain monthly and 12-month rolling records of hours of operation and emission calculations for EUSHAKEOUT for a period of 10 years after the installation of the 2014 North Dustar collector since these records are required for a project where the potential to emit from the process has increased.

FGGRAYIRON at the stationary source is subject to the National Emission Standard for Hazardous Air Pollutants for Iron and Steel Foundries promulgated in 40 CFR Part 63, Subparts A and EEEEE. In September 2017, the stationary source removed equipment associated with EUCORE1, EUCORE2, and FGCOREMAKE from the Facility that was also subject to 40 CFR Part 63, Subparts A and EEEEE.

EUEMERGEN at the stationary source is subject to the National Emission Standard for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines promulgated in 40 CFR Part 63, Subparts A and ZZZZ.

On February 28, 2018, the MDEQ, AQD, Kalamazoo District Office, received several citizen complaints regarding fallout damage to vehicles. On March 5, 2018, AQD, Kalamazoo District Office staff collected fallout samples from five vehicles that appeared to have exterior finish damage. Kalamazoo District Office staff also collected a sample from the dust discharge bin for the North Fuller baghouse associated with the Facility's shot blast cleaning process, and all samples were sent to a laboratory in New Hampshire for particulate analysis. Based on the lab analysis report, favorable meteorological conditions along with two known baghouse control issues determined during the fallout complaint investigation that coincides within the time period when the complainants noticed damage to their vehicles, the MDEQ, AQD, Kalamazoo District Office, issued a Violation Notice to the Facility on April 23, 2018, for Rule 901(b), causing an unreasonable interference with the comfortable enjoyment of life and property. The Facility replaced the pulse jet tubing and all the bags in the North Fuller baghouse in response to the complaint investigation.

On June 26, 2018, the MDEQ, AQD, Kalamazoo District Office, received an additional citizen complaint regarding fallout damage to their personal vehicles. On June 27, 2018, AQD, Kalamazoo District Office staff notified the Facility of the most recent fallout complaint and requested visible emission observation records for the North Fuller baghouse and associated exhaust stack, along with any maintenance and inspection records for the time period June 4-22, 2018.

On July 2, 2018, AQD, Kalamazoo District Office staff conducted a follow-up complaint investigation. Based on similarities in vehicle exterior finish damage between the complaint investigations, favorable meteorological conditions and identified baghouse control issues that coincide within the complaint time period, the MDEQ, AQD, Kalamazoo District Office, issued a second Violation Notice to the Facility on July 16, 2018, for Rule 901(b), causing an unreasonable interference with the comfortable enjoyment of life and property. The Facility's response to the second Violation Notice stated that their baghouse contractor had conducted four additional internal inspections of the North Fuller baghouse between June 23 and July 22, 2018, and a total of four bags and seventeen bad venturies were replaced based on these inspections. Additionally, the Facility installed a bag leak detection monitor in the common exhaust stack for the North Fuller and West Dustar baghouses.

On July 25, 2018, the Facility submitted a Notification of Change Application for installation of the South ETA baghouse. The baghouse project was determined to be exempt from permitting requirements under Rule 285(2)(f). The installed baghouse will collect and control what was formerly fugitive particulate emissions from the furnace melt deck and scrap bay area. The pre-control potential to emit for PM from the South ETA baghouse was calculated to be 4.38 tons/year; therefore, the control equipment is not subject to the federal Compliance Assurance Monitoring rule pursuant to 40 CFR Part 64.

On August 22, 2018, the MDEQ, AQD, notified the Facility of commencement of escalated enforcement action. On September 17, 2018, an initial settlement meeting was held with the Facility to offer entry into a voluntary Administrative Consent Order to resolve the cited violations. The Draft Administrative Consent Order No. 2018-20 went through a 30-day public comment period and was issued on December 20, 2018. The Facility and the MDEQ, AQD, agree that the signing of the Administrative Consent Order is for settlement purposes only and does not constitute an admission by the Facility that the law has been violated.

The Facility completed PM emission testing of EUSHAKEOUT, FGMOLDCOOLING, FGCLEANING, FGWDUSTAR (shared stack), and FGEWFULLER between September 5-11, 2018, per test requirements under MI-ROP-B2015-2013c. The Emission Test Report was submitted to the MDEQ, AQD, Kalamazoo District Office, on October 11, 2018. Per the PM Emission Test Report summary, EUSHAKEOUT was 97 percent of its 0.04 lb./1000 lb. emission limit and 71 percent of its 11.9 lb./hour emission limit; FGMOLDCOOLING (4 uncontrolled exhaust stacks) were between 7-14 percent of the emission limit (0.10 lb./1000 lb. exhaust gas); FGCLEANING and FGWDUSTAR were 9.5 percent of their respective 0.02 lb./1000 lb. exhaust gas emission limit and 7.2 percent of FGWDUSTAR's 13.5 lb./hour emission limit; and FGEWFULLER was 19 percent of its 0.04 lb./1000 lb. exhaust gas and 16 percent of its 15.8 lb./hour emission limit.

The monitoring conditions contained in the ROP are necessary to demonstrate compliance with all applicable requirements and are consistent with the "Procedure for Evaluating Periodic Monitoring Submittals."

EUSHAKEOUT, EUSAND1, EUCASTTRANSFER1, EUVANETTA, EUBBFURN1, EUBBFURN2, EUBBFURN3, EUBBFURN4, EUSAND2, EUCASTTRANSFER2, EUBLAST1, EUBLAST2, EUBLAST3, and EUBLAST4 have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring (CAM) rule pursuant to 40 CFR Part 64, because the unit(s) have calculated potential pre-control emissions of PM over the major source thresholds. The listed emission units exhaust to individual baghouse controls.

The following Emission Units/Flexible Groups are subject to CAM:

Emission Unit/Flexible group ID	Pollutant/ Emission Limit	UAR(s)	Control Equipment	Monitoring (Include Monitoring Range)	Emission Unit/Flexible Group for CAM	PAM?*
EUSHAKEOUT	Particulate Matter/ 0.04 lb./1000 lb. of exhaust gases, calculated on a dry gas basis; and 11.9 pounds/hour	R336.1 331(1)(c)	2014 North Duster Baghouse	Differential Pressure: 1-8" w.c., record once daily; and six-minute visible emissions observations: Normal/Abnormal; record observation once daily	FGCAM_UNITS	No
FGEWFULLER	Particulate Matter/ 0.04 lb./1000 lb. of exhaust gases, calculated on a dry gas basis; and 15.8 pounds/hour	R336.1 331(1)(c); R336.1 205	East and West Fuller Baghouses	Differential Pressure: 2-8" w.c., record once daily; and six-minute visible emissions observations: Normal/Abnormal; record observation once daily	FGCAM_UNITS	No
FGGRAYIRON	Particulate Matter/ 0.01 lb./1000 lb. of exhaust gases, calculated on a dry gas basis; and 1.7 pounds/hour	R336.1 331(1)(c); R336.1 205	South Fuller and Small Duster Baghouses	Differential Pressure: Small Duster 0.5-8" w.c., South Fuller 1-8" w.c.; record once daily; and six-minute visible emissions observations: Normal/Abnormal; record observation once daily	FGCAM_UNITS	No
FGWDUSTAR	Particulate Matter/ 0.02 lb./1000 lb. of exhaust gases, calculated on a dry gas basis; and 13.5 pounds/hour	R336.1 331(1)(c)	West Duster Baghouse	Differential Pressure: 1-10" w.c., record once daily; and six-minute visible emissions observations: Normal/Abnormal; record observation once daily	FGCAM_UNITS	No

Emission Unit/Flexible group ID	Pollutant/Emission Limit	UAR(s)	Control Equipment	Monitoring (Include Monitoring Range)	Emission Unit/Flexible Group for CAM	PAM?*
FGCLEANING	Particulate Matter/ 0.02 lb./1000 lb. of exhaust gases, calculated on a dry gas basis; and 13.5 pounds/hour	R336.1 331(1)(c); R336.1 205	North Fuller Baghouse	Differential Pressure: 2-10" w.c., record once daily; and six-minute visible emissions observations: Normal/Abnormal; record observation once daily	FGCAM_UNITS	No

*Presumptively Acceptable Monitoring (PAM)

The melt, sand system, shakeout, and cleaning operations at gray iron foundries emit fine particles of sand, clay, and metal that are captured and controlled with fabric filter baghouses. Visible emissions were selected as a performance indicator because it is indicative of good operation and maintenance of the baghouse. When the baghouse is operating optimally, there will be little visible emissions from the exhaust stack. In general, an increase in visible emissions indicates reduced performance of the baghouse (i.e., loose or torn bags). Pressure drop was also selected because an increase in pressure drop can indicate that the cleaning cycle is not frequent enough; the cleaning equipment is damaged; or the bags are becoming blinded. Decreases in pressure drop may indicate significant holes and tears or dropped bags. Implementation of the baghouse inspection and maintenance program provides assurance that the baghouses are in good repair and operating properly.

Please refer to Parts B, C, and D in the draft ROP for detailed regulatory citations for the stationary source. Part A contains regulatory citations for general conditions.

Source-Wide Permit to Install (PTI)

Rule 214a requires the issuance of a Source-Wide PTI within the ROP for conditions established pursuant to Rule 201. All terms and conditions that were initially established in a PTI are identified with a footnote designation in the integrated ROP/PTI document.

The following table lists all individual PTIs that were incorporated into previous ROPs. The PTIs issued after the effective date of ROP No. MI-ROP-B2015-2013 are identified in Appendix 6 of the ROP.

PTI Number			
120-86	1152-91	565-93	430-94A
84-95A	272-97	261-06	262-06
263-06			

Streamlined/Subsumed Requirements

This ROP does not include any streamlined/subsumed requirements pursuant to Rules 213(2) and 213(6).

Non-applicable Requirements

Part E of the ROP lists requirements that are not applicable to this source as determined by the AQD, if any were proposed in the ROP Application. These determinations are incorporated into the permit shield provision set forth in Part A (General Conditions 26 through 29) of the ROP pursuant to Rule 213(6)(a)(ii).

Processes in Application Not Identified in Draft ROP

The following table lists processes that were included in the ROP Application as exempt devices under Rule 212(4). These processes are not subject to any process-specific emission limits or standards in any applicable requirement.

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
EUSPACEHTRS	Six space heaters all with a rated capacity < 0.1 MMBtu/hour.	R 336.1212(4)(b)	R 336.1282(2)(b)(i)

Draft ROP Terms/Conditions Not Agreed to by Applicant

This draft ROP does not contain any terms and/or conditions that the AQD and the applicant did not agree upon pursuant to Rule 214(2).

Compliance Status

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements as of the effective date of this ROP.

Action Taken by the MDEQ, AQD

The AQD proposes to approve this ROP. A final decision on the ROP will not be made until the public and affected states have had an opportunity to comment on the AQD's proposed action and draft permit. In addition, the USEPA is allowed up to 45 days to review the draft ROP and related material. The AQD is not required to accept recommendations that are not based on applicable requirements. The delegated decision maker for the AQD is Rex Lane, Kalamazoo District Supervisor. The final determination for ROP approval/disapproval will be based on the contents of the ROP Application, a judgment that the stationary source will be able to comply with applicable emission limits and other terms and conditions, and resolution of any objections by the USEPA.

Michigan Department of Environmental Quality
Air Quality Division

State Registration Number
B2015

RENEWABLE OPERATING PERMIT

ROP Number
MI-ROP-B2015-2019

March 26, 2019 - STAFF REPORT ADDENDUM

Purpose

A Staff Report dated February 18, 2019, was developed to set forth the applicable requirements and factual basis for the draft Renewable Operating Permit (ROP) terms and conditions as required by Rule 214(1) of the administrative rules promulgated under Act 451. The purpose of this Staff Report Addendum is to summarize any significant comments received on the draft ROP during the 30-day public comment period as described in Rule 214(3). In addition, this addendum describes any changes to the draft ROP resulting from these pertinent comments.

General Information

Responsible Official:	David Bent, Plant Manager 269-279-3769
AQD Contact:	Amanda Chapel, Environmental Quality Analyst 269-910-2109

Summary of Pertinent Comments

No pertinent comments were received during the 30-day public comment period.

Changes to the February 18, 2019 Draft ROP

No changes were made to the draft ROP.