



John R. Kasich, Governor
 Mary Taylor, Lt. Governor
 Craig W. Butler, Director

2/9/2018

Mr. Jason Aagenes
 IronUnits LLC - Toledo HBI
 P.O. Box 180
 Eveleth, MN 55734

RE: FINAL AIR POLLUTION PERMIT-TO-INSTALL
 Facility ID: 0448011992
 Permit Number: P0123395
 Permit Type: Initial Installation
 County: Lucas

Certified Mail

Yes	TOXIC REVIEW
Yes	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
Yes	MACT/GACT
Yes	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
Yes	MODELING SUBMITTED
Yes	MAJOR GHG
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) Air Pollution Permit-to-Install (PTI) which will allow you to install or modify the described emissions unit(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, we urge you to read it carefully. Because this permit contains conditions and restrictions, please read it very carefully. In this letter you will find the information on the following topics:

- **How to appeal this permit**
- **How to save money, reduce pollution and reduce energy consumption**
- **How to give us feedback on your permitting experience**
- **How to get an electronic copy of your permit**
- **What should you do if you notice a spill or environmental emergency?**

How to appeal this permit

The issuance of this PTI is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
 30 East Broad Street, 4th Floor
 Columbus, OH 43215

How to save money, reduce pollution and reduce energy consumption

The Ohio EPA is encouraging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. Additionally, all or a portion of the capital expenditures related to installing air pollution control equipment under this permit may be eligible for financing and State tax exemptions through the Ohio Air Quality Development Authority (OAQDA) under Ohio Revised Code Section 3706. For more information, see the OAQDA website: www.ohioairquality.org/clean_air

How to give us feedback on your permitting experience

Please complete a survey at www.epa.ohio.gov/survey.aspx and give us feedback on your permitting experience. We value your opinion.

How to get an electronic copy of your permit

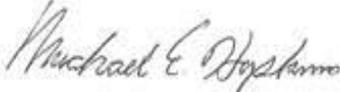
This permit can be accessed electronically via the eBusiness Center: Air Services in Microsoft Word format or in Adobe PDF on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

What should you do if you notice a spill or environmental emergency?

Any spill or environmental emergency which may endanger human health or the environment should be reported to the Emergency Response 24-HOUR EMERGENCY SPILL HOTLINE toll-free at (800) 282-9378. Report non-emergency complaints to the appropriate district office or local air agency.

If you have any questions regarding your permit, please contact Toledo Department of Environmental Services at (419)936-3015 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Michael E. Hopkins, P.E.
Assistant Chief, Permitting Section, DAPC

Cc: U.S. EPA
TDES; Michigan; Indiana; Canada



Response to Comments

Facility ID:	0448011992
Facility Name:	IronUnits LLC - Toledo HBI
Facility Description:	Hot briquetted iron manufacturing facility
Facility Address:	bound by Front St. and Millard Ave. Toledo, OH 43605 Lucas County
Permit:	P0123395, Permit-To-Install - Initial Installation
A public notice for the draft permit issuance was published in the Ohio EPA Weekly Review and appeared in the Toledo Blade on 12/13/2017. The comment period ended on 01/22/2018.	
Hearing date (if held)	01/18/2018
Hearing Public Notice Date (if different from draft public notice)	

The following comments were received during the comment period specified. Ohio EPA reviewed and considered all comments received during the public comment period. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health. Often, public concerns fall outside the scope of that authority. For example, concerns about zoning issues are addressed at the local level. Ohio EPA may respond to those concerns in this document by identifying another government agency with more direct authority over the issue.

To help you review this document, the questions are grouped by topic and organized in a consistent format. Copies of the original comments in the format submitted are available upon request.

1. Topic: Permit Requirements

- a. Comment: The draft permit was not provided during the presentation. The permit listed tons per year as allowable facility emissions, what is the parts per million (ppm) allowable of each pollutant per day? Is there a maximum for short term of any sort? The refinery nearby has specific targets for each of the pollutants that include short term limits to avoid the noxious yellow haze produced from an emission all at once. Ohio EPA must require all emissions sources to have per hour and annual limitations. Some have only annual limitations. Reformer Exhaust – there are no per hour emission limitations – there has to be time rate process limits based on heat input.
- b. *Response: The public notice, news release and citizen advisory for the issuance of the draft permit and public hearing included an internet link to download a copy of the draft air permit. A copy of the draft permit was not included in the PowerPoint presentation, since it was made available for download from the internet.*

Ohio EPA expresses emissions limitations in air permits in a variety of ways, which can include ppm concentration limits and many other types of limits. The limits chosen to be placed into the permit come from either applicable rules or applicable guidance. In the IronUnits air permit there are only three emissions units where concentration limits are specified: a maximum sulfur



concentration of 15 ppm contained in ultra-low sulfur fuel used by the emergency electrical generator and emergency fire water pump; and a maximum total dissolved solids concentration of 1,100 ppm contained in cooling water.

Other forms of emissions limitations contained in the IronUnits air permit include the following: pounds per hour; tons per rolling, 12-month period; tons per month averaged over a twelve-month rolling period; pound per million Btu; tons per year; grains per dry standard cubic foot; grams per kilowatt-hour. The IronUnits permit has specific emissions limitations for pollutants regulated in the permit.

There is a comment indicating that all emissions limitations need to be specified both as an hourly and an annual emission limitation. Ohio EPA established the emission limits found in the permit based on the applicable rules and guidance. There is no applicable rule or guidance that requires both an annual and hourly limit to be established.

- c. *Comment: It would be good to compare these proposed limits with the other manufacturers in the area. What are the permit limits for the Bayshore power plant? How does the amount of pollutant emissions compare to the Bayshore electric facility when it was operating at full capacity? What are the ppm of SO₂ and NO_x allowed on the on-line testing that will be done at the facility? How does this compare to the allowable limits for local refineries? I am concerned that the emissions reduction from reduced operations at the Bay Shore Plant are being replaced by emissions from the proposed IronUnits facility.*
- d. *Response: Our current computer records go back to 1995. It is possible that years prior to 1995 had higher actual emissions than what is contained in the electronic records we have for more recent operation. The highest actual annual emission rate at the Bay Shore power plant for all pollutants combined occurred in 1996 with the following actual emissions when four coal-fired boilers were in operation. The table below also lists the current Bay Shore annual permitted emission limits for comparison.*

<u>Pollutant</u>	<u>1996 Actual Emissions tons per year</u>	<u>1996 Potential Emissions tons per year</u>	<u>2018 Current Permit Limits tons per year</u>
CO	301	731	1,326
NO _x	15,441	28,098	1,951
PM ₁₀	938*	1,544*	399*
PM _{2.5}	467*	676*	278*
SO ₂	25,026	44,800	6,059
VOC	43	76	20
GHGs	3,090,000	6,517,000	1,618,000

**filterable and condensable PM are listed. The PM₁₀ and PM_{2.5} limits contained in the 2018 permit were specified as filterable only limits. The combined filterable and condensable emissions are listed here for easier comparison to the IronUnits permit which has allowable emissions based on combined filterable and condensable emissions.*



Note: For pollutants where permit allowable emissions are not specified in a permit, the potential to emit was calculated based on available information. In 2000, one of the coal-fired boilers was replaced with a petroleum coke fired boiler. In 2012, the three coal-fired boilers were permanently shut down leaving the petroleum coke-fired boiler as the last remaining utility boiler in operation.

The reforming unit (B001) is the largest SO₂ and NO_x emitting unit at the proposed IronUnits facility. Allowable emissions for the reformer were based on the following maximum concentrations.

SO₂: 1.4 ppm

NO_x: 45.5 ppm

The most similar emissions unit to the IronUnits reformer would be the Reformer 3 Heater at BP-Husky Refining which has the allowable concentrations.

SO₂ 20 ppm

NO_x 43.3 ppm

- e. Comment: If these emission limits are lower than others, there is less of a concern. Is there a combined limit within the geographical area for these pollutants? We have several manufacturing plants already.
- f. *Response: Ohio EPA establishes emissions limitations for individual facilities and does not establish combined emissions limitations for different geographic locations; however, Ohio EPA required IronUnits to conduct computer modeling of the expected maximum emissions coming from the facility to determine downwind concentrations of the various pollutants expected to be released. This modeling also includes emissions from other large air pollution sources in the area so that combined impacts can be evaluated. Based on this modeling, the pollution from this facility is not expected to cause any adverse health or welfare effects to people in the surrounding area. This modeling was conducted utilizing U.S. EPA approved models and was reviewed by U.S. EPA.*
- g. Comment: There is a one-time-only stack test on just a few emission units with no requirement for periodic testing of each stack.
- h. *Response: Stack testing is required for the larger emitting emissions units. Ohio EPA does not consider it necessary to require stack testing of every emissions unit. For emissions units where stack testing is not required, Ohio EPA uses other methods to determine compliance. This can include emission factor calculations, visible emissions observations, air pollution control equipment parametric monitoring, and facility records. It is normal procedure for Ohio EPA to not include ongoing testing requirements in a Permit-to-Install. A determination of future testing requirements will be made after the results of the initial stack test are reviewed. The facility is required to apply for a Title V operating permit in the future that will specify ongoing compliance requirements for the facility.*

- i. Comment: There is little to no information about the conveyer's height, fugitive dust etc. The conveyer appears to be an open conveyer, if this is the case then how is fugitive dust controlled with various wind speeds? The permit and application do not assess height options for stock piling of materials that impact fugitive dust dispersion.

I'm very concerned and didn't realize that the conveyance was going to go over the road. It's awful on Bayshore Road what happened between the Bay Shore Power Plant, when they did the pet coke, and BP. And that's just been a really nasty process. I don't like the idea of the conveyer and I don't believe that you'll be able to contain the dust and whatever there.

- j. *Response: The air permit application identifies in Appendix E the release height of emission points at the proposed IronUnits facility, which also includes the drop height from various conveyors at the facility and maximum storage pile heights. All of the oxide, fines and REMET handling conveyors will be equipped with galvanized steel top covers. The air permit does not require all conveyors to be fully enclosed. However, approximately 900 feet of conveyor in the vicinity of Front Street will be fully enclosed (top, bottom, and sides) in order to eliminate the potential risk of any falling debris (oxide, water, etc.) from reaching Front Street or the rail tracks west of Front Street. The current engineered design anticipates that the oxide conveyor will be completely enclosed beginning approximately 500 feet to 600 feet west of Front Street and terminating approximately 300 feet to 400 feet east of Front Street. The oxide conveyor which crosses Front Street will be approximately 30 feet above the road elevation. Please see Response 1.p. below for a description of dust control measures that will be implemented at the facility.*
- k. Comment: Do the CEMs (Continuous Emissions Monitors) have a requirement to be calibrated daily? Are there opacity monitors to detect exceedances? There is no continuous monitoring required at this site and there has to be for compliance determinations. Also, there should be fence line monitoring for hexane and PM_{2.5} for the nearly adjoining Environmental Justice neighborhood, for the north side and Point Place in Toledo and for the Oregon neighborhoods within two miles of the facility. The permit does not require effective continuous monitoring for emissions and the permit is unenforceable under the Clean Air Act. There are no continuous monitors at this facility that would provide data to assess if emission limits are being exceeded. Ambient monitor use will not document compliance and is unacceptable.
- l. *Response: There are no legal requirements for this facility to install continuous opacity monitors or continuous emissions monitors. Opacity or continuous emissions monitors are generally only required for use on specific types of emissions units where U.S. EPA regulations require their installation, such as fluidized catalytic cracking units at petroleum refineries and at large power plants that use coal or other solid fuel. Ohio EPA disagrees that a permit is required to have continuous emissions monitors for the permit to be enforceable under the Clean Air Act. The vast majority of air permits issued in Ohio do not have a requirement to install continuous emissions monitors and this does not make the permits unenforceable under the Clean Air Act. Also, as suggested in the comment, Ohio EPA is not relying on ambient air monitors as a means of documenting compliance at the proposed IronUnits facility. Several different methods will be used to demonstrate compliance at the facility including stack testing, facility parameter monitoring records, emissions calculations, production records, fuel analysis records, visual observations for the presence of visible emissions, fuel usage, and work practice plan records. Computer modeling results indicate that the expected maximum ground-level concentration of hexane is one-tenth of one percent of the maximum acceptable ground-level concentration for hexane, and does not warrant the installation of fence line monitoring. There are several factors*



involved in determining site locations for PM_{2.5} monitors. Ohio EPA already has an ambient PM_{2.5} monitoring site located at 163 Lee Street in East Toledo, less than one-half mile from the proposed IronUnits facility. More PM_{2.5} monitors at the facility are not needed.

- m. Comment: Does the flare have monitoring (cameras, heat sensors, etc.) to determine if it is lit and is there a requirement that it be relit in a specific time frame to avoid uncombusted fuel into the atmosphere?
- n. *Response: The flare does have a requirement to install a device to monitor the presence of a pilot flame. Ohio EPA's standard terms for flares were added, similar to the permit terms used for refinery flares regarding monitoring the presence of a pilot flame. The permit states, "The flare shall be operated with a flame present at all times when gases are vented to it". The permit does not specify a period of time for allowing the flare to extinguish and then be re-lit, because this would be less stringent than requiring continuous operation of the flame.*
- o. Comment: What are the limitations on the dust and mitigation factors for the pellet piles and conveyor? Wetting was suggested, but the piles of iron ore that are already at the shipyard are covered in tarps with tires holding them down. There was no confirmation that the conveyor would be completely enclosed. Finally, I would like to emphasize that a presentation which included the basic manufacturing process and controls, the specific language in the air permit and the mitigation steps for each pollutant, I assume would have answered most of the questions posed in this letter. Extending the review process would be a good first step. There are a large number of material handling - PM emitting emission units and questions of monitoring and enforceability. There are unenclosed outdoor material storage piles. The technology to mitigate environmental pollutant concentrations was not presented, including the specific monitoring that would be required with limits. Since NO_x is one of the pollutants, are low NO_x burners part of the plan? Are there precipitators on the stack to remove as much particulates as possible?
- p. *Response: The proposed IronUnits facility will receive iron oxide pellets and convert the pellets into highly metalized iron briquettes. A natural gas and process gas fueled reformer will convert natural gas to a reducing gas consisting primarily of carbon monoxide and hydrogen. The reformer will use low NO_x burners to reduce the formation of NO_x emissions. Particulate emissions from the reformer will be minimized by using natural gas as fuel and using process gas that has been cleaned by a scrubber prior to being combusted at the reformer. Sulfur dioxide emissions from the reformer will be minimized by using natural gas and process gas as fuel because these fuels contain very little sulfur. Reducing gas that is made at the reformer is used in the DRI Reactor to convert the iron oxide to a purer form of iron. Wet venturi scrubbers are used to control dust emissions at the DRI reactor from the charge hopper and from the bottom seal gas exhaust. Emissions from the DRI reactor are minimized by using seal gas at the top of the furnace and nitrogen at bottom of the furnace to minimize emissions from reducing gas. Spent reducing gas from the DRI reactor is re-used as fuel by the reformer. The IronUnits facility will install a flare to control emissions from the DRI unit during a startup, shutdown or malfunction.*
- A *description of the material handling operations is provided here to explain numerous requirements for controlling dust emissions from material handling and storage piles. As is explained below, the permit requires each of the storage piles or material handling steps to employ various control techniques or control measures to control any dust that might be generated.*



The iron oxide pellets will be transferred by overhead conveyor across Front Street to the IronUnits facility. Approximately 900 feet of the oxide conveyor in the vicinity of Front Street will be completely enclosed (top, bottom, sides) in order to eliminate the risk of any falling debris (oxide, water, etc.) from reaching Front Street or the rail tracks west of Front Street. The current engineered design anticipates that the oxide conveyor will be completely enclosed beginning approximately 500 feet to 600 feet west of Front Street and terminating approximately 300 feet to 400 feet east of Front Street.

At Stacker Transfer Tower I, pellets will be transferred to the stacking conveyor. Fugitive emissions from transfer to the Stacker Transfer Tower I will be vented to a baghouse for control. Pellets will then be transferred from the stacking conveyor to one of the two iron oxide storage piles or to another conveyor for further processing. Water or chemical stabilization agent will be applied to the iron oxide pellet storage pile to reduce fugitive dust emissions caused by wind. As pellets are dropped from the reclaimer conveyor to the storage pile, dust suppressant will be applied to prevent fugitive dust emissions.

When pellets are needed from the storage pile, a bucket wheel reclaimer will be used to transfer pellets from the storage pile to conveyor and dust suppressant will be applied to prevent fugitive emissions. The transfer point of pellets from the bucket wheel reclaimer to conveyor will be enclosed to prevent emissions of fugitive dust. The next two conveyor transfer points (Transfer Towers II and III) will be enclosed and vented to a baghouse to prevent fugitive emissions.

Iron oxide pellets will pass through a screener to remove over-sized (lump) iron oxide and the lump iron oxide will be directed to a storage pile. Dust suppressant will be applied to the lump iron oxide to prevent fugitive emissions as it is dropped to the storage pile. Water or chemical stabilization agent will be applied to the lump iron oxide storage pile to reduce dust generated by wind. The iron oxide screener will be enclosed and vented to a baghouse to control dust emissions resulting from the iron oxide screener. After being screened, the iron oxide pellets will be transferred to day bins and dust emissions resulting from transfer to the day bins are controlled by a baghouse. Dust emissions resulting from transfer of iron oxide pellets from the day bins to conveyor will be captured and vented to a baghouse for control of dust emissions. Iron oxide pellets will be conveyed to be screened again to remove fines from the iron oxide pellets. The screening operation will be enclosed and dust emissions vented to a baghouse for control. As fines are dropped to a conveyor from the screener, dust emissions will be captured and vented to a baghouse for control.

Fines will be conveyed and transferred to another conveyor and, at the conveyor transfer point, any resulting dust emissions will be captured and vented to a baghouse for control of dust emissions. Fines will then be conveyed to a storage pile and dust suppressant applied to the fines to prevent dust emissions as they are dropped to the storage pile. Fines from the storage pile will be loaded-out by front-end loader to trucks and shipped offsite. Water or chemical dust suppressant will be applied periodically to the fines storage pile to prevent fugitive dust emissions caused by wind. After fines are separated at the screener, iron oxide pellets will be transferred to a conveyor and dust emissions resulting from transfer to the conveyor will be captured and vented to a baghouse to control dust emissions. Pellets will then be coated with a calcium carbonate and water solution. Iron oxide pellets will be conveyed and transferred to another conveyor. At the conveyor transfer point, dust emissions will be captured and vented to a baghouse for control of dust emissions. The coated pellets will be conveyed to the charge hopper of the DRI Reactor.



All conveyors handling iron oxide, fines and REMET will be equipped with top covers. The charge hopper is vented to a wet venturi scrubber to control dust emissions. After the pellets are processed in the DRI Reactor, they are compressed into iron briquettes.

Off-spec material from the briquetting unit called REMET will be dropped to a conveyor and dust generated from the drop to the conveyor will be captured and vented to a wet venturi scrubber for control of dust emissions. The REMET is conveyed to a storage pile that will be enclosed on three sides to reduce wind generated dust emissions. REMET will be transferred by front-end loader back to be re-processed with iron oxide pellets through the DRI Reactor. Dust emissions from the iron briquetting unit will be vented to a wet venturi scrubber to control dust emissions. The hot briquetted iron product (HBI) from the iron briquetting unit will be transferred to a cooling conveyor and the dust emissions from the cooling conveyor are captured and vented to a wet venturi scrubber. HBI will be transferred to a stacking conveyor and dust emissions generated from dropping material at the conveyor transfer point are captured and vented to a wet venturi scrubber for the control of dust emissions. Dust suppressant is also applied to HBI to reduce dust emissions generated when HBI is dropped to the HBI storage pile. Water or chemical stabilization agent will be applied to the HBI storage pile to reduce dust emissions. HBI will be loaded out from the storage pile by front end loader to a conveyor and dust suppressant will be applied to reduce dust emissions generated by dropping HBI from front end-loader to the conveyor. HBI will be transferred to another conveyor and dust generated at the conveyor transfer point will be captured and vented to a wet venturi scrubber.

HBI is conveyed to the HBI loading bin and dust generated from dropping HBI into the loading bin will be captured and vented to a wet venturi scrubber for the control of dust emissions. HBI will then be transferred to either trucks or railcars for shipment out of the facility. HBI truck loading will be done inside a full enclosure with dust emissions captured and vented to a wet venturi scrubber for control of dust emissions. HBI railcar loading will be done inside a shed open on each end. Strip curtains will be added to the entrance and exit of each end of the shed to reduce the amount of wind entering the shed to reduce dust emissions. Inside the shed, an enclosed telescoping loading chute will be lowered to the railcar to reduce dust emissions from HBI transferred to the railcar and dust suppressant will also be added to HBI to further reduce dust emissions from HBI loading.

Regarding the comment suggesting that "iron ore piles in the shipyard are already covered with a tarp"; there are no iron oxide storage piles located at the proposed IronUnits facility. Perhaps the commenter is referring to the Midwest Terminals of Toledo facility. The Midwest Terminals of Toledo facility currently has a limestone storage pile that is covered with a tarp, but does not have any iron oxide pellet piles on site.

Iron oxide pellets will be unloaded from barges or ships at the Midwest Terminals of Toledo facility located on the Maumee River directly across Front Street from the proposed IronUnits facility. When iron oxide is unloaded from barges or ships at the Midwest Terminals of Toledo facility for IronUnits, it will be conveyed directly to the IronUnits facility and stored on the IronUnits property.

IronUnits is required to develop and implement a site-specific work practice plan that is designed to minimize or eliminate fugitive dust from roadways, front-end loader traffic, and the storage piles. The work practice plans are required to be submitted to Ohio EPA for approval at least 90 days before facility startup. The facility will reduce dust emissions from roadways by watering and sweeping the paved roadways at the facility. Vehicles on paved roadways

transporting materials that are likely to become airborne are required to be covered. Semi-annual reporting is required to identify if any inspections required in the work practice plan were missed or a required control measure was not implemented. The facility is required to conduct daily visible emissions checks on material handling operations and note the presence or absence of visible emissions in a log. Visible emissions incidents are required to be reported to Ohio EPA semi-annually.

- q. Comment: There should be filterable and condensable determinations for each component for the 96.7 tons of particulate matter that will be emitted. The permit should require fabric filtration for some emission sources – fabric filtration and other additional options for control technology should be stated for each emission source.
- r. *Response: Ohio EPA is requiring filterable and condensable stack testing for particulates at the reformer, DRI Reactor and the iron briquetting machine. Only filterable particulate testing is required at the iron briquette cooling system since this is not expected to be a source of condensable particulates. The permittee is required to continuously monitor and record the total dissolved solids concentration in the cooling water used at the cooling tower. The concentration of dissolved solids contained in the cooling water correlates to the particulate emissions from the cooling tower. Ohio EPA has determined that particulate testing at the other particulate sources is not necessary because of the low level of emissions.*

Extensive use of fabric filters is required on multiple sources of emission within the plant. See Response 1.p. above for a detailed explanation.

- s. Comment: I get that the air permit is just about how much pollution we can we put in the environment, but I think we should put no more in it.
- t. *Response: While we understand you would like no more pollution to be emitted, Ohio EPA is legally obligated to evaluate all proposed sources and determine whether or not the permittee is able to comply with all applicable state and federal air pollution control regulations. The IronUnits air permit describes what the permittee must do in order to comply with these regulations. If the proposed emission sources meet the permit terms and conditions, the allowable emissions are not expected to cause adverse health and welfare effects. Pursuant to ORC 3704.03(F)(2)(a): “No installation permit shall be issued except in accordance with all requirements of this chapter and rules adopted thereunder. No application shall be denied or permit revoked or modified without a written order stating the findings upon which denial, revocation, or modification is based.” Ohio EPA has no findings that support a denial of the permit application for the IronUnits facility, and; therefore, Ohio EPA is legally obligated to issue the air permit to the IronUnits facility because the potential air contaminants from this facility are within the emission thresholds allowed under state and federal air pollution control regulations.*
- u. Comment: There is no analysis of emissions from the offloading from the ships and any stockpiling and transfer to the conveyor. This will increase the amounts of particulate emissions that need to be factored into the permit. Additional fugitive dust will require more controls because these particulate limits are already maxed out.
- v. *Response: Midwest Terminals of Toledo Inc. has an existing permitted material handling operation that presently serves various customers in the area. IronUnits will be a new operation served by Midwest Terminals in terms of raw material unloading and transfers to the site. There will be no changes in the existing Midwest Terminals ship or barge unloading and transfer rates*



on a daily basis. Therefore, no secondary PM_{10} and $PM_{2.5}$ emissions increases at the existing Midwest Terminals operations were conservatively included in the air quality modeling analysis on a short term (24-hour) basis. However, the new transfer tower that will be constructed for serving the IronUnits operations was included in the air quality modeling for short term impacts. Secondary PM_{10} and $PM_{2.5}$ emissions increases at the existing Midwest Terminals of Toledo facility were included for unloading of ships or barges, and conveyor transfers to the IronUnits facility in the air quality modeling analysis on a long term (annual) basis. The modeling report in Appendix E of the application identifies the existing Midwest Terminals of Toledo in the table titled Volume Source Inputs as MTR_1 Boat unloading, MTR_2 Hopper to Conveyor Drop, MTR_3 Conveyor to Stacker Drop, and MTR_4 Stacker to Hopper.

IronUnits conservatively assumed that the annual PM_{10} and $PM_{2.5}$ emissions increases at Midwest Terminal associated with the unloading and the transfers of 3.59 million tons of oxide pellets per year will be "secondary emissions" (defined in OAC 3745-31-01(SSSSS)) caused by the proposed project.¹ Therefore, air quality modeling analysis for the IronUnits project included the secondary PM_{10} and $PM_{2.5}$ emissions at the Midwest Terminal in the annual PM_{10} and $PM_{2.5}$ national ambient air quality standard (NAAQS) and increment demonstrations. The air quality modeling confirmed that the PM_{10} and $PM_{2.5}$ emissions from the IronUnits' proposed operations and the secondary emissions at the Midwest Terminal will not cause or contribute to the violations of the PM_{10} and $PM_{2.5}$ NAAQS or increment in the area.

Midwest will be controlling fugitive particulate matter emissions from the oxide pellets boat unloading and subsequent transfers using water sprays or chemical suppressants. For the new transfer tower serving the oxide conveyor, Midwest is proposing to control particulate matter emissions from the material drop by a baghouse. These emissions controls were considered in estimating emissions increases from the Midwest operations.

- w. Comment: The permit and the application fail to use available real-time data from continuous monitors at the Portland, Texas facility to use for emission estimates in the Toledo permit.
- x. *Response: The IronUnits application used emission factors from the company's technology supplier and other available resources (such as AP-42 publication) when preparing emission estimates for the application. The applicant indicated that the supplier determined emission factors based on the information from the Texas facility and other operations based on same technology worldwide where performance data was available to the supplier. Ohio EPA uses the best information available to determine expected emissions. Then, for the larger sources, the agency requires companies to test the emissions to determine if the sources meet the established limits. Ohio EPA does not require applicants to obtain monitoring data from other facilities to prepare emission estimates used in an air permit application.*
- y. Comment: To control fugitive dust from stockpiles, water and/or chemicals will be added to reduce dispersions. What are the chemicals that will be used? Where is the analysis for this? What is the content and impacts of water/chemicals mixed with the fugitive dust?
- z. *Response: The facility plans to use either water or commercially available non-toxic dust*

¹ OAC 3745-31-10(SSSSS) "Secondary emissions" means emissions that occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. For the purpose of this rule, secondary emissions must be specific, well defined, quantifiable, and impact the same general areas as the stationary source or major modification that causes the secondary emissions.

suppressants. The exact dust suppressants to be used will be determined later.

- aa. Comment: There needs to be a determination of sulfur content in the pipeline gas that could produce iron pyrites. It was assumed that there are no sulfur inputs from ore when iron pyrites are likely to be present...and effect of this on both SO₂ and H₂S and TRS emissions.
- bb. *Response: Since the facility will be using pipeline-quality natural gas, Ohio EPA has determined that it is not necessary for the facility to conduct sampling of the sulfur content of natural gas due to the low concentration of sulfur contained in pipeline-quality natural gas. The applicant has indicated that the DR-grade iron oxide pellets used at the facility will not be a source of sulfur dioxide emissions and that the sulfur dioxide emissions from the process/reformer originate from the natural gas that is used. Based the information we have, Ohio EPA does not expect significant quantities of sulfur-bearing compounds to be emitted.*
- cc. Comment: The permit assumes 100 percent oxidation of gas – this is questionable.
- dd. *Response: The commenter has not indicated which emissions unit is being referred to regarding 100 percent oxidation and has not indicated which pollutant is being referred to with regards to a 100 percent oxidation assumption. This comment may be referring to process gas containing carbon monoxide (CO) that is being burned in the reformer or process gas burned in the pressure relief vent flare during a startup, shutdown or malfunction. In either case, there was not an assumption of 100 percent oxidation, since the air permit contains emissions limitations for CO emissions from both the reformer and the pressure relief vent flare. If 100 percent oxidation was assumed for these emissions units, CO limitations would not have been established in the permit, since all CO would be converted to CO₂ emissions if 100 percent oxidation of the process gas was assumed.*

2. Best Available Control Technology (BACT)

- a. Comment: Ohio EPA failed to require the Best Available Control Technology (BACT), and Ohio EPA allows exceedances of PSD's, therefore, there is no pollution room for other facilities to locate in this area. Ohio EPA failed to require BACT technology for NO_x emissions from the gas reformer exhaust:
 - 1. Table 5-5 in the application shows that nearly all recent BACT on gas reformers incorporate Selective Catalytic Reduction for NO_x control.
 - 2. Applicant did not explain or show that the predominant control for this type of technology that demonstrates that they should not use NO_x control and NO_x BACT for this process.
 - 3. Applicant did not consider predicted NO₂ NAAQS violations in the BACT determination process as required by EPA top down BACT procedure.
 - 4. Applicant did not use an uncontrolled NO_x emission rate such as AP42 rate of 0.186 lbs NO_x per million BTU in the average cost effectiveness calculation; thus rendering applicant's determination of average cost effectiveness to be grossly overstated. Applicant did not consider UNB.
 - 5. Applicant should be required to incorporate SCR controls and BACT determination of 0.009 lbs. of NO_x per million BTU as the selected NO_x BACT for the gas reformer discharge.

There must be a BACT determination for NOx emissions. Table 5.5 from the company Summary of NOx Control Precedence for Gas Fired Reformers shows that Selective Catalytic Reduction (SCR) technology is used at all but the Texas facility – and that permits issued for these facilities made the determination that these controls are economically feasible. There is no spread sheet for top down BACT Analysis. This is required.

The important issues to focus on for this plant should focus on BACT determinations for criteria pollutants, notably NOx, PM/PM_{2.5}/PM₁₀; failure to conform to top down BACT procedure for NOx from gas reformer exhaust, failure to address the fact that all but one catalytic gas reformer BACT determinations showed Selective Catalytic Reduction for NOx control - but the applicant portrayed that control as uneconomic and not feasible for the MIDREX NG catalytic gas reformer (largest NOx source on site).

- b. *Response: The draft permit requires BACT for each pollutant for which the project results in significant emissions increases. Ohio EPA reviewed the BACT analyses included in the Prevention of Significant Deterioration (PSD) application for the proposed project. The BACT determinations summarized in the staff determination (included at the beginning of the draft permit) are based on the review and evaluation of the information submitted by the applicant. Ohio EPA disagrees that BACT technology was not required for NOx emissions from the reformer. Regarding NOx emissions from the gas-fired reformer unit, the draft permit requires BACT as use of low NOx burners and good combustion practices meeting the NOx emission rate of 0.06 lb/MMBtu. The applicant evaluated the potential application of SCR to control NOx from the reformer as part of the BACT analysis. Section 5.5 of the permit application outlines the five steps that were taken to determine that installation of low NOx burners was BACT for NOx emissions from the reformer, and these steps identified in the application are summarized in this response. In the first step, available NOx control options are listed. In Step 2, technically infeasible NOx control options listed in Step 1 were eliminated with low NOx burner and SCR being identified as technically feasible. Step 3 ranked the technically feasible NOx control options in order of decreasing effectiveness. Step 4 evaluated the environmental and economic impacts of the technically feasible control options. In step 4, the applicant considered energy, environmental, and economic factors per the BACT definition in OAC 3745-31-01(S). These factors are described in section Step 4 in the application. Based on the high cost effectiveness value for an SCR installation at the reformer at \$15,656 per ton of NOx controlled, SCR was rejected as BACT for the reformer. Appendix D of the application contains the spreadsheet that was used by the applicant to make the cost determination. The cost determination followed U.S. EPA recommendations for determining the cost of the SCR unit.*

Finally, the commenter is incorrect in asserting that the NO₂ NAAQS violation should have been considered in evaluating the NOx BACT for the project. As noted in section 6.2.2 of the permit application and under the NAAQS section of the staff determination for the draft permit, the proposed project will not cause or contribute to a modeled exceedance of the NO₂ NAAQS. Therefore, consistent with the U.S. EPA guidance, no additional consideration of the NO₂ ambient impacts is required in the reformer BACT analysis.²

- c. *Comment: NOx Baseline. NOx BACT must be determined from uncontrolled baseline not a modeled modified control limit. The baseline for the uncontrolled BACT determination should be 0.06 lbs./BTU unit per hour. This permit failed to meet this requirement. The determination of*

² Letter regarding BACT determinations, Gary McCutchen, Chief, New Source Review Section, U.S. EPA, July 28, 1987.
<https://www.epa.gov/sites/production/files/2015-07/documents/crucial.pdf>



BACT is spelled out in the 1990 draft NSR manual. Cost for SCR compares a cost effectiveness of \$9,700, if the uncontrolled emission of 0.186 were used, then the cost would be \$4,509 and well under the \$9,700 stated on page 5-20.

Page 5-19 shows that SCR for this site is too expensive - \$15,656 using the wrong baseline which increases cost to make it not feasible. The uncontrolled NOx rate is 0.186 per million BTU – not .06. If the 0.186, then the cost per unit is decreased to \$4,509 instead of the \$15,560. Therefore, the Selective Catalytic Reduction (SCR) technology is economically, engineering and environmentally feasible.

There needs to be consideration of SCR using the 0.06 per million BTU uncontrolled emission rate as required rather than the modified rate used in calculations. AP 42 – emission factors from U.S. EPA requires using the uncontrolled emission rate – not a modified rate that is used in the application and permit.

- d. *Response: As noted in sections 2.5.3 and 5.5.1 of the permit application, the proposed reformer design includes burners specifically designed for this source by MIDREX to meet the critical flame and temperature requirements for the reformer when combusting both process gas and natural gas as fuel in the heater. The proposed burners' design will meet 0.06 lb NOx/MMBtu in the reformer application. This is the baseline NOx emission rate used to determine if add-on controls are cost effective.*

The U.S. EPA's draft New Source Review Workshop Manual starts the discussion of baseline emission rate determination by stating at B.37:

<https://www.epa.gov/sites/production/files/2015-07/documents/1990wman.pdf>)

"The baseline emissions rate represents a realistic scenario of upper boundary uncontrolled emissions for the source. The NSPS/NESHAP requirements or the application of controls, including other controls necessary to comply with state or local air pollution regulations, are not considered in calculating the baseline emissions."

However, the manual goes on to say at B.37:

"When calculating the cost effectiveness of adding post process emissions controls to certain inherently lower polluting processes, baseline emissions may be assumed to be the emissions from the lower polluting process itself. In other words, emission reduction credit can be taken for use of inherently lower polluting processes."

U.S. EPA has outlined its position regarding the BACT 'baseline emission rate' in cases involving lower polluting processes in various determinations as discussed below. Examples of inherently less polluting processes include low NOx burners, water injection on combustion turbines, limestone injection on fluidized bed boilers, and inherently low VOC inks/solvent.

For example, in a permitting determination regarding adjustments to PSD BACT determinations for Knauf, U.S. EPA Region IX used the emission rates for low NOx burners (LNB) to establish

the baseline emission rate for the curing ovens used in the process.³ In the response to comments, U.S. EPA further outlined its position regarding the BACT baseline rate as follows.⁴

In this case, LNB are constructed into the design of Knauﬀ's curing oven. LNB are typically included in numerous combustion units, such as the curing oven used at Knauﬀ, and U.S. EPA, therefore, calculates the baseline emissions for BACT cost effectiveness using LNB. U.S. EPA correctly used LNB in the curing oven as the BACT cost effectiveness baseline emissions rate.

In another example, in a letter providing comments on the SCR cost effectiveness evaluation for a NO_x BACT analysis for the Calvert City Project, U.S. EPA accepted the baseline NO_x emission rate for the combustion turbines at 25 ppm corresponding to the use of water injection control.⁵ The Environmental Appeals Board (EAB) confirmed this approach for BACT baseline in responding to a petition regarding the Commonwealth Chesapeake Corporation Project in Virginia.⁶ The EAB accepted Virginia's determination that the SCR was not cost effective for the proposed combustion turbines that will use water injection to control NO_x as an integral component of the combustion turbine.⁷

Finally, Ohio EPA issued permits for PSD projects at the BP-Husky facility and Lima Refining Company in 2013.⁸ In both BACT determinations, the projects included gas-fired heaters where the emission rates for low NO_x burners were used as baselines for determining cost effectiveness for SCR as part of the NO_x BACT analyses

- e. Comment: For control efficiency, 85 percent was arbitrarily determined and is not supported. This does not meet NO_x BACT requirements. SCR has a range of 80 percent to 90 percent for controlling uncontrollable emissions. An achievement of a 90 percent reduction would be a substantial reduction to the uncontrolled emissions.
- f. *Response: As noted in Appendix D of the application, the 85 percent control efficiency for SCR was based on the information provided by the equipment vendor to the applicant. This estimate is higher than the 80 percent SCR control efficiency used in the Voestalpine permit application for establishing BACT cost effectiveness.⁹ Also, in a 2013 permit for Lima Refining, Ohio EPA relied on 86 percent SCR control efficiency for a crude heater firing refinery fuel gas and natural gas.¹⁰*

³ *Ambient Air Quality Impact Report - NSR 4-4-4, SAC 03-01*, for Knauﬀ Insulation GmbH, 3100 District Drive, Shasta Lake, California 96019, US EPA Region 9, Undated, page 22.

⁴ *Response to Public Comments for the Knauﬀ Insulation GmbH Proposed Prevention of Significant Deterioration (PSD) Permit Revision, U.S. EPA Region 9, Permit No. NSR 4-4-4, SAC 03-01, May 11, 2006, page 6.*

⁵ *Draft PSD/Title V Permit for Calvert City Power I, L.L.C. Combustion Turbine Facility, Calvert City, Kentucky (Permit No. V-99-037)*, from Winston A. Smith, Director, Air, Pesticides & Toxics, Management Division, U.S. EPA, August 23, 1999.

<https://www.epa.gov/sites/production/files/2015-07/documents/calvert.pdf>

⁶ *In Re Commonwealth Chesapeake Corp. Order Denying Review*, EAB, PASD Appeal No. 96-2, 96-3, 96-4, 96-5, February 19, 1997.

⁷ *Ibid*, footnote 16.

[https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/CAA~Decisions/6BF64E10907D3AD485257069005F7C69/\\$File/commonwe.pdf](https://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/CAA~Decisions/6BF64E10907D3AD485257069005F7C69/$File/commonwe.pdf)

⁸ BP Husky Permit P0111667, Lima Refining Company Permit P0114527.

http://wwwapp.epa.ohio.gov/dapc/permits_issued/1054363.pdf

http://wwwapp.epa.ohio.gov/dapc/permits_issued/1086135.pdf

⁹ *Appendix C Criteria Pollutant BACT* for the Voestalpine facility, prepared by Environmental Resource Management, submitted to Texas Commission on Environmental Quality, August 26, 2013.

¹⁰ Table 5-1.5 attached to the final permit number P0114527, issued by Ohio EPA to Lima Refining Company on December 23, 2013.

If required, SCR application to the reformer will have to meet the BACT requirements for the life of the unit. Therefore, consideration of long-term performance of a control device is important. The range of 80 percent to 90 percent in the literature reflects anticipated variability over the life of the unit. A brand-new SCR may be able to reach 90 percent control efficiency, but it is unlikely that such a high control efficiency can be maintained in the long-term when the equipment is likely to see some level of degradation and other performance issues are likely to occur. In addition, use of top gas as fuel, with its elevated particulate concentration, will add additional unknown performance issues for the SCR as this control technology is yet to be applied to a reformer in DRI production. As such, the 85 percent control efficiency provided by the equipment vendor is properly supported.

- g. Comment: The permit implies that there is a difference in heat transferred technology for iron briquette plants and refineries and other industries using heat transferred technology. There is no evidence that this is a true statement and, therefore, technologies used by other industries such as Controlled Selective Reduction must be used. DRI big tall furnaces receive top gas from bottom for heating catalyst. This is the same process and there is no difference in off gas, but this permit says there is.
- h. *Response: The draft permit document or the permit application do not make any distinctions with respect to the 'heat transfer technology' between DRI process and refineries. The heat transfer mechanism to reform the natural gas is similar in either application.*

The difference lies in the process gas that is used as fuel in the heater in the reformer unit. At the refineries, the refinery fuel gas is a byproduct of catalytic cracking of crude oil and other refining processes such as distillation towers etc. Gas generated in these operations has very low particulate matter concentration. When the refinery fuel gas or natural gas is fired in the reformer heaters at the refinery, the heater exhaust contains minimal or very low particulate matter concentration. This makes control technology applications, such as SCR, technically feasible as the catalyst is not adversely affected.

On the other hand, in the DRI process, process gas is generated in the DRI furnace where the iron pellets are reduced to iron using the reformed natural gas as reducing gas (H₂ and CO). The iron oxide pellets raw material at the top of the furnace will contribute to higher particulate matter loading in the process gas or top gas. Although, the system will be designed with an internal gas cooling and cleaning system, the particulate matter concentration in the process gas from the DRI furnace is expected to be substantially higher than in the refinery fuel gas making technologies, like SCR, that rely on a clean gas stream to protect the catalyst technically infeasible.

However, even though the SCR is not demonstrated for this type of reformer application, IronUnits conservatively analyzed SCR application for the reformer heater as part of the NO_x BACT for reformer as if the technology is technically feasible and concluded that it also failed the cost effectiveness test for BACT.

- i. Comment: Page 5-19 Catalysts using natural gas can last up to 60,000 hours which can extend the life and reduce capital costs. SCR is determined at \$24 million which assume a 10 to 15-year life with no basis for this determination.

- j. *Response: For SCR systems, catalyst life span and cost to replace the same is an operational cost that is not considered in capital costs. See Appendix D of the IronUnits application. IronUnits assumed a catalyst life of four years which is equivalent to 35,040 hours. This is consistent with the NOx SCR BACT analysis prepared by Voestalpine where they assumed a catalyst life of 32,000 hours.*¹¹

Like the Voestalpine facility, the reformer at the proposed DRI facility will primarily use cleaned top gas (or process gas) from the DRI reactor as fuel. The low heating value top gas will be supplemented by natural gas fuel in the reformer heater. There is no known application for SCR for this type of operation. The commenter's unsupported assertion of 60,000 hours catalyst life, which is presumably derived from vendors serving virgin natural gas fueled units, is not relevant in this case.

*The commenter is incorrect that the applicant assumed the SCR cost effectiveness using the assumed equipment lifespan of 10-15 years. As noted on page 5-20 of the application for the proposed facility, an equipment life of 20 years was assumed for SCR BACT cost effectiveness determination. This is consistent with the guidance and control cost manual issued by the U.S. EPA used for preparing cost effectiveness calculations for BACT determinations.*¹²

- k. Comment: Pounds/hour calculations never made finding that these limitations reflected BACT.
- l. *Response: The procedure followed by the applicant in the application to determine BACT is explained in Response 2.b. above.*
- m. Comment: The permit does not consider both ultra-low NOx burners and low NOx burners. Ultra-low NOx burners must be considered alone or in combination with low NOx burners associated with internal flow gas recirculation. Not considering ultra-low NOx burners is in violation of Step 1 5-12.
- n. *Response: Although the term ultra-low NOx burners (ULNB) is commonly used, there is no industry standard that distinguishes low NOx burners (LNB) from ULNB for the DRI/HBI industry sector. For combustion units at refineries and other natural gas fired applications, burner vendors are providing ULNB that achieve relatively lower NOx performance by employing flue gas recirculation and high excess air to achieve staged combustion. However, as explained below, such applications are not suitable for the MIDREX reformer application.*

For MIDREX DRI process applications, standard burners are custom-engineered to produce a desired flame profile and heat release that effectively and efficiently transfers heat to the reformer's tubes. The standard burners, which are currently used in the majority of MIDREX reformers, can produce NOx emissions as low as 125 ppmvd.

MIDREX has worked with a burner manufacturer to design and develop a proprietary, customized low NOx burner that produces less than half of the NOx emissions from the standard burner while maintaining the requisite flame shape and heat release characteristics that are critical to the reformer's operation. The low NOx burner was designed specifically for the MIDREX reformer, and is only utilized in MIDREX reformers. The low NOx burners are

¹¹ Appendix C Criteria Pollutant BACT for the Voestalpine facility, prepared by Environmental Resource Management, submitted to Texas Commission on Environmental Quality, August 26, 2013.

¹² Letter with comments on the draft permit for Lima Refining Company, from Genevieve Damico, Chief Air Permit Section, U.S. EPA Region 5, to Andrew Hall, Ohio EPA, November 1, 2013.

specifically fabricated for individual projects and are not an “off the shelf” item that can be purchased for another process, nor can other, third-party burners be used in the proprietary MIDREX reformer system. Therefore, because the MIDREX low NOx burner technology represents the lowest available NOx emission rate, is process specific, and is not considered an off-the-shelf burner, the low NOx vs. ultra-low NOx burner distinction is not meaningful in this particular application.

- o. Comment: The Toledo HBI/DRI permit application contains a BACT analysis for greenhouse gasses (GHGs), and their analysis rules out add-on controls or CO₂e sequestration. The PSD permit must include BACT for CO₂ as a regulated New Source Review pollutant. I cannot find where this was done in the permit anywhere since the carbon dioxide equivalent (CO₂e) limits appear to be for the uncontrolled emissions from the facility.
- p. *Response: Greenhouse gases are a regulated pollutant, but CO₂ is not, by itself, a regulated pollutant under the New Source Review Program, unless it is being used as a surrogate for a greenhouse gas emission limitation. Greenhouse gases are regulated as carbon dioxide equivalent (CO₂e). Section 5.7 of the permit application discusses the BACT analysis for greenhouse gases for the reformer. Section 5.9 of the permit application contains the BACT analysis for greenhouse gases from the pressure relief vent flare. Section 5.12 of the permit application contains the greenhouse gas BACT analysis for the charge hopper, bottom seal gas, and hot briquette exhausts. Section 5.14.2 of the application contains the BACT analysis for greenhouse gas emissions from the degasser. Section 5.16.4 contains the BACT analysis for greenhouse gas emissions from the emergency electrical generator and emergency fire pump. Section 5.17 of the permit application contains the BACT analysis for fugitive equipment leaks. There is no add-on air pollution control equipment being installed on the equipment. The staff determination contained at the beginning of the draft air permit issued to the IronUnits facility describes the emissions control technology that will be used to minimize greenhouse gas emissions.*
- q. Comment: U.S. EPA has required energy efficiency measures for facility equipment at an iron briquette facility as CO₂ BACT where the CO₂ was from natural gas combustion used to fuel the equipment: <https://archive.epa.gov/region6/6pd/air/pd-r/ghg/web/pdf/voestalpine-sob-04242014.pdf>. It is not clear that the company included energy efficient equipment as a potential GHG BACT measure (which was done in the Texas permit Table 1 page 14). Ohio EPA should reissue the draft permit to allow comment on whether measures should be included as GHG BACT.
- r. *Response: The production of DRI/HBI for Electric Arc Furnaces has been identified by U.S. EPA as an important technology for reducing GHG emissions because this approach provides considerable reduction in GHG emissions relative to traditional steelmaking methods. Therefore, mandates that increase the cost of making HBI generate adverse environmental impacts by making this low-GHG technology incrementally less competitive in the steel industry.*

Per definition in OAC 3745-31-01 (S), BACT is determined on a case-by-case basis by the director of Ohio EPA, considering energy, environmental and economic impacts and other costs for proposed major stationary source. In this case, Ohio EPA evaluated energy integration and other optimum equipment design aspects of the project and concluded that the proposed measures meet BACT for GHGs from the proposed operations. Staff determinations provided along with the draft permit specifies the BACT determinations for various operations proposed as part of the IronUnits operations. Energy integration and optimum equipment design is

considered BACT control technology for GHGs from the proposed operations. In addition, like the Voestalpine facility permit, annual GHG emission limits in terms of CO₂e are also specified for these operations.

3. Environmental Compliance

- a. Comment: Cliffs Natural Resources (renamed Cleveland-Cliffs, Inc.) environmental compliance – My understanding is that this is the company's first Iron Briquette plant here in the U.S. Who is building and operating this facility? What is their environmental track record? If it is great – awesome. If not, I'm not sure why we should be exposed to exceedances while the system (EPA) tries to get them in compliance. I looked up the history of this company. And in their 10K, it shared that there were major violations and fines in Alabama for dust in the neighborhood. Similar permit, environmental permit, violations were in Ontario, Canada. The track record of this company is something at least we all should be concerned about. In addition, there were concerns about dust/dirt on Front Street.
- b. *Response: The technology provider for the IronUnits core plant is MIDREX. Ohio EPA does not know what contractors will be selected to construct the facility. The facility will be operated by IronUnits LLC. The applicable rules or laws do not allow Ohio EPA to consider a company's environmental compliance record when deciding if a permit should be issued. Instead, we make sure the permit contains all the applicable air pollution requirements and then we enforce those requirements to ensure public health and welfare is protected. Regarding the complaint about dirt on Front Street, Ohio EPA requests assistance from the public in reporting air pollution complaints that you have as you see them since Ohio EPA inspectors are not able to see events happening at the facility all hours of the day. To report an air pollution complaint in Lucas County, please call the Toledo Division of Environmental Services during normal business hours (Monday through Friday 8 a.m.-4:45 p.m.) at 419-936-3015. After hours, on weekends, and holidays, please call 419-936-2020. Air complaints also can be reported to env.information@toledo.oh.gov.*
- c. Comment: Public Hearing - False Statements by Ohio EPA – Failure to disclose about the Portland, Texas facility and acknowledge and address the problems there. Representatives from Ohio EPA made false statements at the hearing; saying that this would be the first Iron Briquette plant with this technology in the U.S. when, in fact, an iron briquette plant with the same MIDREX technology went on-line in Portland, Texas in 2016 and is the subject of lawsuits because of black dirt in homes and businesses and excessive noise. The Portland, Texas facility has a lower emission rate than the one proposed in Toledo and had requirements with some aspects at the Texas facility to have lower rates which Ohio EPA said in the permit it did not understand and so the lower rates were unilaterally dismissed. Table 5-4 page 5-11. Also, the Texas plant is located on 470 acres, while the Toledo plant, which is bigger, is squeezed on 130 acres.

Ohio EPA telling the public that there is no facility like this in the country and not reviewing the Texas and other permits with similar technology and emission limits is unacceptable. This permit should be sent back to the company requiring the Texas problems to be addressed as well as the baseline use of uncontrolled technology rather than modeling using partial controls which is not allowed in the BACT determination process.



The following paper titled HBI – Hot Briquetting of Direct Reduced Iron Technology and Status of Industrial Applications was also submitted with comments: <http://www.koepfern-international.com/uploads/media/HBI - Hot Briquetting of Direct Reduced Iron 04.pdf>

- d. *Response: Ohio EPA closely reviewed the hearing transcript, and discussed the “false statement” concern with those who attended the hearing. We are confident that Ohio EPA staff did not make any false statements about this proposed facility or the fact that another similar facility exists in Texas. Ohio EPA did review the permit for the Voestalpine hot iron briquetting facility located in Texas prior to issuing a draft permit as part of the permit review process. It is true that allowable emissions for some pollutants at the proposed Toledo IronUnits facility are higher than the Texas facility. It is also true that there are allowable emissions for some pollutants at the Texas iron briquette plant that are higher than allowable emissions for the proposed Toledo IronUnits facility. There are some operational differences between the facilities, and the proposed Toledo IronUnits facility has a higher maximum production limitation than the Texas iron briquette facility. Ohio EPA was aware of the Portland, Texas facility and its initial compliance problems. Most of the Portland, Texas facility’s compliance problems had to do with uncontrolled storage piles and material handling operations. Based on our understanding, the Portland, Texas facility installed uncontrolled and unpermitted storage piles and material handling operations that caused significant dust issues. Ohio EPA thinks that the dust control requirements detailed in the draft permit for IronUnits will prevent similar compliance problems. The draft permit requires IronUnits to implement various dust control measures for material storage piles, for material handling and on roadways. Representatives of the proposed IronUnits facility indicated to Ohio EPA that they were also already aware of the fugitive dust issues at the Texas facility and that they have taken into consideration measures needed to control fugitive dust emissions from material handling operations and storage piles.*

The draft permit requires IronUnits to install air pollution control measures that meet U.S. EPA’s Best Available Control Technology requirements and Ohio EPA’s Best Available Technology requirements for all the equipment expected to emit pollution. These control measures will significantly reduce any particulate emissions that might come from the facility.

In addition, Ohio EPA required IronUnits to conduct computer modeling of the expected maximum emissions coming from the facility to determine downwind concentrations of the various pollutants expected to be released. Based on this modeling, the pollution from this facility is not expected to cause any adverse health or welfare effects to citizens in the surrounding area. This modeling was conducted utilizing U.S. EPA approved models and was reviewed by U.S. EPA.

One of the comments was regarding noise concerns at the Texas facility. Ohio EPA does not have authority to regulate noise. There may be local noise ordinances that would apply to the IronUnits facility if constructed.

4. Specific Permit Term Change Requests

- a. *Comment: Annual limitations for fugitive CO₂e emissions from equipment leaks associated with natural gas equipment are currently described at the emission unit level, specifically under the requirements for B001, P-2 (reformer). Since some of the components in natural gas service may be considered outside the scope of B001, we now agree that it is more appropriate for these fugitive CO₂e requirements to be captured as a facility-wide requirement, not at the emission unit level. Please transfer the CO₂e requirements associated with natural gas*

equipment leaks from Section C. 1. (B001, P2) to Section B, Facility-Wide Terms and Conditions.

Please also increase the estimated, total facility-wide fugitive CO₂e emissions associated with leaks from natural gas equipment components by 20 percent from 446 tons/yr of CO₂e to 535 tons/yr of CO₂e. This adjustment is warranted in order to account for uncertainty with the calculation methodology and the final installed component count.

b. *Response: The requested changes to the permit will be made.*

5. Environmental Impact

a. Comment: There was no economic and environmental impact analysis on areas around the plant and boaters on the Maumee River and failure to discuss stack height and related pollutant fallout. There is no analysis in the application or permit on the number of houses, businesses, schools, boaters and tours on the river in various mile radiuses from the Toledo plant and the impacts of pollution dispersion with regard to various stack heights.

b. *Response: Ohio EPA does not have the authority to evaluate property values. However, based on the expected control requirements and the resulting computer modeling conducted, Ohio EPA does not expect significant quantities of dust to impact nearby boats or other equipment.*

6. Public Comment Period

a. Comment: The public's ability to review this permit was not sufficient due to issuing the draft permit Dec. 11, 2017, just before the holidays.

I would request for the extension period to the comment period. This permit was issued right before the holidays and I always think that's not right. Before Christmas and New Year's which takes a couple weeks out for the public to be able to gear up and look at this.

We're given just a very short period of time to take a look at this and begin trying to formulate some kind of an answer or response. I want a 30-day extension.

And I don't know if this is part of the process, but I would like our leaders to inform our community about these things.

b. *Response: Ohio EPA understands that it can be frustrating to find out about a project late in the game. We work hard to notify people about proposed projects in their area. In this case there were multiple opportunities to become aware of the project. For instance, Ohio EPA followed the minimum legal requirements for notice which included:*

- *A notice in the Toledo Blade on Sept. 15, 2017, that Ohio EPA had received the air permit application, and*
- *A notice in the Toledo Blade on Dec. 13, 2017, announcing the draft permit, the 30-day comment period and the public hearing.*

In addition to the above required notices, there were several other opportunities to become aware of the project including:

- *Ohio EPA issued a news release to local news outlets and citizen advisory to our interested*

parties list on Jan. 4, 2018.

- There were several articles in the local papers over the past year announcing and discussion the project.*
- IronUnits announced and conducted several information sessions and presentations to inform interested parties and the public about the project in the Toledo area.*
- IronUnits also held multiple meetings and presentations with local officials to inform them of the project.*

Ohio EPA encourages citizens to contact our Public Interest Center with questions about facilities proposed in their communities at 614-644-2160. Our staff will be glad to provide any interested person information we have regarding any new project.

7. Toxic Air Contaminants

- a. Comment: This draft permit fails to discuss mercury content in the iron ore/taconite which could be a major mercury source to the Maumee River and Lake Erie. Minnesota and others have documented the mercury content in iron ore/taconite. This permit needs to know the source of the iron ore/taconite and the amount of mercury in these sources that will be discharged in the plant processing, and then determine if the mercury is controlled.

Mercury will be introduced into the DRI processes of this plant because iron ore and taconite pellets are known to contain mercury. Taconite plants, ore and taconite plant emissions are all known to contain mercury as shown by the Minnesota paper attached. A factor of 30 ppb mercury content in the iron ore/taconite would result in 215 lbs. per year input into the process. Content of mercury in iron ore/taconite has been documented at 70 ppb. The Minnesota paper shows that iron pyrites are sometimes present in iron ore and that the applicant never considered this process sulfur input when determining SO₂ emission rates. Also, the reducing atmosphere in the DRI process will cause the formation of hydrogen sulfide and other total reduced sulfur compounds and the applicant failure to address such H₂S and TRS emissions.

The commenter included the following report titled Mercury Mining in Minnesota with comments submitted.

http://files.dnr.state.mn.us/lands_minerals/reclamation/reclamation_report_6067_berndt_2003.pdf

- b. *Response: The draft air permit does not have requirements for mercury since the IronUnits facility is not a significant source of mercury. The commenter is correct that iron ore and taconite ore contain mercury. It is important to note that the IronUnits facility will be using iron oxide pellets, and will not be using unprocessed taconite ore or unprocessed iron ore as a raw material. However, there is some confusion with the commenter in that mercury references above are the mercury concentrations in unprocessed iron ore and unprocessed taconite ore. It is important to note that there is a significant difference in unprocessed iron ore and unprocessed taconite ore directly mined from the earth when compared to taconite ore that is processed at pellet manufacturing plants prior to being shipped to the IronUnits facility.*

Taconite ore is a sedimentary rock found in the earth that generally contains around 25-30 percent iron in the form of magnetite. Taconite ore is mined and is used in a manufacturing process to produce iron oxide pellets. To make iron oxide pellets, taconite ore is ground into a powder and magnetite is removed from the taconite powder by magnets. The magnetite is then

combined with a binding material and rolled into pellets. The pellets containing magnetite are then heated in a furnace at a temperature of 2,350-2,500 degrees F. The high furnace temperature acts to both harden the pellets and convert the magnetite (Fe_3O_4) to hematite (Fe_2O_3). The pellets that would be used by the IronUnits facility would be manufactured in Minnesota from taconite ore mined in Minnesota. Mercury and sulfur contained in the taconite ore would be released at the pellet manufacturing plant in the high temperature furnace prior in Minnesota to the pellets being shipped to the IronUnits facility. The mercury content of the DR-grade iron oxide pellets received by IronUnits pellets is nil and the pellets received at the facility are not expected to be a source of mercury. Similarly, the applicant has indicated that the temperature of the DRI reactor at the proposed IronUnits facility would be operated at a much lower temperature than their Minnesota pellet manufacturing furnaces. Thus, sulfur in the ore is preferentially released during pellet making and not in the DRI reactor. The sulfur dioxide emissions from the reformer/process result from sulfur contained in pipeline natural gas. Sulfur dioxide emissions resulting from sulfur contained in fuel burned will be minimized by using natural gas as fuel.

Ohio EPA does not dispute the information contained in the Minnesota paper submitted by the commenter; however, Ohio EPA does not agree with the commenter that the mercury concentrations and iron pyrite concentrations of taconite ore mined from the earth will all be emitted as air pollution at the proposed IronUnits facility.

To summarize, the iron oxide pellets that will be used by the IronUnits facility are commonly referred to as iron ore or taconite. But, as indicated above, it is important to note that the pellets used by the IronUnits facility are not the same as unprocessed iron ore or unprocessed taconite ore that is mined from the earth.

- c. Comment: The permit discusses time rate of emission limitations in grams/second -- this is no basis to determine a limit.
- d. *Response: Ohio EPA could not find a reference to an emission limitation being set in the draft permit as grams per second.*

8. Computer Modeling

- a. Comment: Ohio EPA failed to require BACT and allows exceedances of PSDs, therefore, there is no pollution room for other facilities to locate in this area. Ohio EPA should not allow exceedances for PSDs in this permit. This is in violation of the U.S. EPA allowable standards.
- b. *Response: The cumulative modeling analysis did not predict an exceedance of any PSD increment for any pollutant for which the project was significant. Ohio EPA has a policy that is designed to make sure one facility does not consume all the clean air in an area. The policy restricts the pollution concentrations to no more than one-half of the available clean air except for very localized areas near the plant. For the localized areas, certain criteria must be met. These criteria include:*
 - 1. *No more than 83 percent of the increment (clean air) can be consumed;*
 - 2. *The exceedances of the 50 percent increment policy are limited in areal extent;*
 - 3. *The source is in an area where another major source is unlikely to locate;*



4. *The source is temporary; and*
5. *The source is locating in a "brownfield" area.*

For this project, no criteria pollutant exceeded 83 percent of the increment, and any exceedances of the 50 percent increment policy were located either on the facility fence line or within approximately 200 meters of the fence line, indicating limited areal extent. Moreover, the facility is proposing to locate on a brownfield parcel of land known as "Ironville." Based on these criteria, Ohio EPA determined that the limited modeled exceedances of 50 percent of the PSD increment were acceptable.

- c. Comment: Why is only hexane modeled in the permit?
- d. *Response: Ohio EPA requires a modeling analysis to be performed to assess the impact of any air toxic that is released in quantities greater than one ton per year. For this project, the only air toxic exceeding the one ton per year threshold was hexane.*
- e. Comment: PSD limits should be exceeded and impacts on the community are woefully missing in this permit.
- f. *Response: No exceedance of any PSD limit was modeled for this facility for any criteria pollutant. PSD increments themselves are not a health-based standard.*
- g. Comment: I want and understand and know what was or wasn't factored into this permit regarding the FDS Coke Plant permit which is still, as I understand it, okay and could be constructed; and, secondly, the Bay Shore Power Plant and how those emissions are either reduced in this permit or what is going on with that air permit as it relates to this one. Were these (FDS Coke and Bayshore) taken into consideration when the modeling that was done for Iron Units? Could all three facilities operate (assuming FDS and Iron Units were built) at the same time? Has the modeling been done for this? I was told the coke plant permit is no longer valid. This appears to say the permit is valid and would require changes. Which is it?
- h. *Response: The Bay Shore Plant was included in the modeling but the FDS Coke plant was not. Modeling also included emissions from BP Husky, as well as many surrounding facilities. The modeling completed demonstrated that operating the IronUnits facility in addition to other significant operating emissions sources (including Bay Shore) in the area passes all modeling requirements. The FDS Coke permit is no longer valid. If the FDS Coke applicant wanted to build the facility, the applicant would need to remodel and submit that with a new permit application.*
- i. Comment: The permit and the application fail to assess and discuss the three-mile fugitive dust dispersion to people's homes and businesses.
- j. *Response: This comment appears to be about complaints received by the Texas Commission of Environmental Quality (TCEQ) that led to enforcement action by TCEQ against the iron briquette facility discussed in Comment 3.c. above. As discussed in Response 3.d. above, the Texas facility was cited for failure to implement control measures on 20 unpermitted and uncontrolled storage piles, as well as failure to prevent nuisance dust conditions. Ohio EPA required the IronUnits facility to conduct computer modeling of the particulate matter emissions and modeling was shown to not cause any exceedances of the air quality requirements. In the case of the Texas facility, publicly available information states that there were 20 storage piles*

where no measures were taken to reduce emissions and that the facility failed to prevent nuisance dust conditions. The IronUnits facility has indicated that it has accounted for all of its storage pile needs in the permit application. These storage piles at the proposed IronUnits facility were included in the computer model for air quality dispersion modeling that was used to determine the impact of emissions on a receptor grid that extended up to 15km from the site.

- k. Comment: There are four scrubber stacks of 433', 450', 450' and 447'. It is unclear in the permit and application where these are located. Also, the reformer height is 196' – is this the optimum height to minimize impacts from reformer emissions?
- l. *Response: The coordinates for all egress points associated with both the project and offsite sources were provided in the application as attachment A to appendix E. For the egress points specifically referenced in the comment, the coordinates (Universal Transverse Mercator system) are as follows:*

	<i>Easting (X)</i>	<i>Northing (Y)</i>
<i>Source ID</i>	<i>(m)</i>	<i>(m)</i>
<i>Charge Hopper Scrubber</i>	<i>293732.7</i>	<i>4616396.04</i>
<i>Bottom Seal Gas Scrubber</i>	<i>293758.67</i>	<i>4616428.67</i>
<i>Hot Briquette Scrubber</i>	<i>293763.04</i>	<i>4616425.42</i>
<i>Briquette Cooling System Vent</i>	<i>293745.75</i>	<i>4616397.67</i>

Stack heights of each of the sources at facilities are selected by the applicant considering factors like engineering, cost and modeling of the emissions. If the selected stack heights pass modeling, and, therefore, demonstrate that health and welfare will be protected, then Ohio EPA does not have the authority to require the facility to raise or lower their stacks. The proposed stacks meet the good engineering practices stack height requirements under OAC 3745-16-02. In this case, the modeling with the selected stack heights demonstrated public health and welfare will be protected.

- m. Comment: The modeling used nine miles per hour for wind which it said covered 23 percent of the time. How much fugitive dust will be dispersed when the winds will exceed nine mph and how far will the dust disperse?
- n. *Response: This comment suggests that a fixed value of nine miles per hour was used in the modeling analysis of the facility. This is not an accurate interpretation of the modeling analysis, which utilized five years of measured meteorological data, including wind speed, recorded at the National Weather Service station located at the Toledo Metcalf Field airport, in accordance with U.S. EPA and Ohio EPA modeling guidance.*

The nine miles per hour number was used to calculate the emission rates for the fugitive dust sources at the project. Although 30-year climate normal data on wind speed are not available for the Toledo Metcalf Field, this data is readily available from the National Climatic Data Center for the nearby Toledo Express airport. These data indicate that the 30-year average wind speed, years 1984-2015, is 8.7 miles per hour. This is very similar to the nine miles per hour value utilized in the emission rate calculation. Further, wind speed data at the Toledo Express Airport is collected at a height of 10 meters, or approximately 33 feet above the ground. At this elevation, the impacts of surface roughness and terrain, which serve to decrease wind speeds, is significantly diminished. Closer to the ground, where the fugitive sources for this facility are



proposed to be located, the effects of surface roughness and terrain are expected to diminish observed wind speeds. This suggests that the nine miles per hour wind speed used to calculate the emission rate of the fugitive sources is conservative.

- o. Comment: The application indicates a predicted violation of NO_x, predicted area violation of 1-hr NO₂ NAAQS and predicted area violation of 24-hr PM_{2.5} NAAQS and predicted marginal area compliance with annual PM_{2.5} NAAQS.
- p. *Response: Based on the modeled exceedances, the facility conducted a culpability analysis which demonstrated that facility impacts contribute insignificantly to the modeled exceedances. In other words, the modeled exceedances were from other existing sources, not from the IronUnits facility.*

9. Environmental Justice

- a. Comment: I would really like to find someone who could for the area and environmental justice area and the Birmingham area look at this permit to see if in fact this is really best available technology and there could be improvements to this plant; if it's built, to make sure citizens are okay. The issue is environmental justice for East Toledo.

I am a citizen concerned about low income people in neighborhoods suffering from the results of decisions that are made that they're not aware of. And I'm one of those people who just kind of heard something just a few days ago and wondering what's going on and not having the resources to really process this information.

The permit does not address Environmental Justice to the community across the rail road tracks and the impacts to the quality of their lives and the reduction in property values.

- b. *Response: We have fully reviewed the guidance developed by U.S. EPA for states regarding environmental justice. We meet our legal obligations and implement federal guidance through both our technical review and our public involvement activities on permit applications.*

Additionally, any recipient of federal funding, such as Ohio EPA, must comply with Title VI of the Civil Rights code. Under U.S. EPA's Title VI implementing regulations, states are prohibited from using criteria or methods of administering its program which have the effect of subjecting individuals to discrimination because of their race, color or national origin. As a result, states may not issue permits that are intentionally discriminatory, or issue permits that have a discriminatory effect based on race, color or national origin. While we do not have a specific environmental justice policy in Ohio, we consider all comments raised regarding Environmental Justice to ensure we comply with Title VI.

For more information on Environmental Justice, please visit U.S. EPA's website: <http://www.epa.gov/oecaerth/environmentaljustice/index.html>

In terms of protecting public health and welfare, Ohio EPA's air permit evaluation process applies equally to all areas of Ohio, including communities with potential Environmental Justice concerns. The program is designed to ensure that no matter where the new facility is located, public health and welfare will be protected.

10. Water Quality

- a. Comment: I suspect that the reason that they chose this site is because this company can then put their large straw into the lake, use the water for their process. (Of course that's not part of this permit, but I'm going to make a comment anyway.) And they're going to be expelling this back into the lake, which brings me back to the issue of Canada and the \$7.5 million fine that this company has received due to fish kills in the lake.

But the air permit, of course, that's a lot of pollution to be spewing out all over the lake. A lot of the pollution in the lake does come from down the river, but air sources and air sources from this facility and from other facilities like it, we don't need more of this kind of pollution in Lake Erie, because that makes Lake Erie just as sick as anything else does. There is no analysis of emission impacts on the Maumee River/Bay and Lake Erie, and what the impacts on the drinking water intakes may be from the additional air born pollution sources to the Maumee River/ Bay and Lake Erie from this facility.

- b. *Response: The facility will not be emitting phosphorus compounds that would impact algal growth. The facility will be emitting significant quantities of nitrogen oxides (NOx) but these compounds will be quickly dispersed into the air so no impacts, including algal growth impacts, on the waterways are expected. The computer modeling of the emissions expected from the facility demonstrates that no adverse health or welfare effects to citizens in the surrounding area are expected. We do not expect any adverse impact to the local environment, including the Maumee River/Bay or Lake Erie.*
- c. Comment: There is no analysis of emission impacts on the marinas and yacht clubs that will be impacted by fugitive dust within a three mile or more radius and on the waters inside the marinas that have little flow.
- d. *Response: The computer modeling of the emissions expected from the facility demonstrates that no adverse health or welfare effects to citizens in the surrounding area are expected. We do not expect any adverse impact to the local environment, including the local marinas or yacht clubs.*
- e. Comment: The application and the permit fail to include Duck Creek in facility diagrams in Appendix E and in the permit.
- f. *Response: Ohio EPA has no requirement for creeks to be identified in an air permit application because the location of the creeks does not impact air emissions. Ohio EPA, Division of Surface Water has been involved to evaluate any surface water impacts due to this facility.*
- g. Comment: There is no emission impact analysis of this facility on the Duck Creek watershed including the City of Toledo water treatment facility and open storage areas.
- h. *Response: The computer modeling of the air emissions expected from the facility demonstrates that no adverse health or welfare effects to citizens in the surrounding area are expected. We do not expect any adverse impact to the local environment, including the Duck Creek watershed, the City of Toledo water treatment facility or open water storage areas.*

11. Location

- a. Comment: I don't believe it's a good idea for our area. Our whole area has been more focused on different kinds of industries and having the birders come in and things like that. And this



whole heavy industry, more heavy industry coming into this area, I don't believe is in the best interest of the community.

I'm emailing you today to urge the Ohio EPA to not allow the permit for the iron briquette manufacturer in East Toledo. Please prioritize the people and the good of our environment over profit. We can survive without this manufacturer's products. It will do more harm than good.

- b. *Response: Ohio EPA is required by law to evaluate proposed sources and determine if they can comply with all applicable state and federal air pollution control regulations. We do not have the authority to deny any permit because local communities may not want additional industrial facilities. The air permit application for the proposed IronUnits facility emissions sources indicates that the requirements can be met, and provided the facility is installed and operated in accordance with the air permit, the potential emissions are not expected to cause adverse health and welfare effects.*

Pursuant to ORC 3704.03(F)(2)(a): "No installation permit shall be issued except in accordance with all requirements of this chapter and rules adopted thereunder. No application shall be denied or permit revoked or modified without a written order stating the findings upon which denial, revocation, or modification is based."

Ohio EPA has no findings to support a permit denial for the IronUnits facility. Therefore, the Agency is legally obligated to issue the permit.

- c. Comment: The Toledo facility is 131 acres and the Texas facility is 470 acres. There needs to be a physical layout of the facility and the ship loading area to scale. It is questionable that there is enough space for this facility on the smaller parcel.
- d. *Response: The IronUnits permit application contained a facility layout diagram in Appendix B to their permit application.*
- e. Comment: There is no identification of setbacks from property lines, roads, right of ways, easements etc.
- f. *Response: Setbacks from property lines, roads, right of ways, easements, etc. are not part of the Ohio EPA's air permit review process. The City of Toledo manages these local land use issues. The application includes preliminary site layout for the proposed facility.*
- g. Comment: The handout said, "Computer modeling was done to ensure local air quality will be protected" – this was not shown at the meeting. Although this project is primarily in Toledo – it is on the border with Oregon. The prevailing wind will take this pollutant air stream over Oregon and Lake Erie which is highly utilized by fishermen, duck hunters and recreational boaters. Oregon residents that reside near the lake use the Mallard overpass to get to the expressway and will drive by this plant frequently.
- h. *Response: Ohio EPA required IronUnits to conduct computer modeling of the expected maximum emissions coming from the facility to determine downwind concentrations of the various pollutants expected to be released. Based on this modeling, the pollution from this facility is not expected to cause any adverse health or welfare effects to citizens in the surrounding area. This modeling was conducted utilizing U.S. EPA approved models and was reviewed by U.S. EPA.*



Response to Comments
IronUnits LLC - Toledo HBI
Permit Number: P0123395
Facility ID: 0448011992

12. Comments in Support of the IronUnits Project

- a. Comment: There were five commenters submitting either written comments or oral testimony in support of the project.
- b. *Response: Thank you for your comments.*



FINAL

**Division of Air Pollution Control
Permit-to-Install
for
IronUnits LLC - Toledo HBI**

Facility ID:	0448011992
Permit Number:	P0123395
Permit Type:	Initial Installation
Issued:	2/9/2018
Effective:	2/9/2018



Division of Air Pollution Control
Permit-to-Install
for
IronUnits LLC - Toledo HBI

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Final Permit-to-Install
IronUnits LLC - Toledo HBI
Permit Number: P0123395
Facility ID: 0448011992
Effective Date: 2/9/2018

Authorization

Facility ID: 0448011992
Facility Description:
Application Number(s): A0059022, A0059559
Permit Number: P0123395
Permit Description: Installation of a hot briquetted iron manufacturing facility.
Permit Type: Initial Installation
Permit Fee: \$14,525.00
Issue Date: 2/9/2018
Effective Date: 2/9/2018

This document constitutes issuance to:

IronUnits LLC - Toledo HBI
bound by Front St and Millard Ave
Toledo, OH 43605

of a Permit-to-Install for the emissions unit(s) identified on the following page.

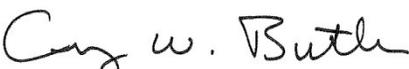
Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Toledo Department of Environmental Services
348 South Erie St.
Toledo, OH 43604
(419)936-3015

The above named entity is hereby granted a Permit-to-Install for the emissions unit(s) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency


Craig W. Butler
Director



Authorization (continued)

Permit Number: P0123395

Permit Description: Installation of a hot briquetted iron manufacturing facility.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

Emissions Unit ID:	B001
Company Equipment ID:	P-2
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	F001
Company Equipment ID:	HR-1, HR-2, HR-3, HR-4
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	F002
Company Equipment ID:	TR-3, WE-1
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P001
Company Equipment ID:	P-1
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P002
Company Equipment ID:	P-3
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P003
Company Equipment ID:	P-4
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P004
Company Equipment ID:	P-5
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P005
Company Equipment ID:	P-7
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P006
Company Equipment ID:	P-8
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P007
Company Equipment ID:	P-9
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable



Final Permit-to-Install
IronUnits LLC - Toledo HBI
Permit Number: P0123395
Facility ID: 0448011992
Effective Date: 2/9/2018

Emissions Unit ID:	P008
Company Equipment ID:	P-6
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P901
Company Equipment ID:	TR-1, TR-6, TR-7
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P902
Company Equipment ID:	TR-17, TR-18
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable



Final Permit-to-Install
IronUnits LLC - Toledo HBI
Permit Number: P0123395
Facility ID: 0448011992
Effective Date: 2/9/2018

A. Standard Terms and Conditions

1. Federally Enforceable Standard Terms and Conditions

- a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:
 - (1) Standard Term and Condition A.2.a), Severability Clause
 - (2) Standard Term and Condition A.3.c) through A. 3.e) General Requirements
 - (3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements
 - (4) Standard Term and Condition A.9., Reporting Requirements
 - (5) Standard Term and Condition A.10., Applicability
 - (6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install
 - (7) Standard Term and Condition A.14., Public Disclosure
 - (8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations
 - (9) Standard Term and Condition A.16., Fees
 - (10) Standard Term and Condition A.17., Permit Transfers

2. Severability Clause

- a) A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.
- b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

3. General Requirements

- a) Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and re-issuance, or modification.
- b) It shall not be a defense for the permittee in an enforcement action that it would have been

necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.

- c) This permit may be modified, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.
- d) This permit does not convey any property rights of any sort, or any exclusive privilege.
- e) The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

4. Monitoring and Related Record Keeping and Reporting Requirements

- a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:
 - (1) The date, place (as defined in the permit), and time of sampling or measurements.
 - (2) The date(s) analyses were performed.
 - (3) The company or entity that performed the analyses.
 - (4) The analytical techniques or methods used.
 - (5) The results of such analyses.
 - (6) The operating conditions existing at the time of sampling or measurement.
- b) Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.
- c) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:
 - (1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Toledo Department of Environmental Services.
 - (2) Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations,

excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the Toledo Department of Environmental Services. The written reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.

- (3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the Toledo Department of Environmental Services every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.
 - (4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
- d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the Toledo Department of Environmental Services in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

6. Compliance Requirements

- a) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the appropriate Ohio EPA District Office or contracted local air agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule

3745-15-03, the electronic signature date shall constitute the date that the required application, notification or report is considered to be "submitted". Any document requiring signature may be represented by entry of the personal identification number (PIN) by responsible official as part of the electronic submission process or by the scanned attestation document signed by the Authorized Representative that is attached to the electronically submitted written report.

Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a Responsible Official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.

- b) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:
- (1) At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.
 - (2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.
 - (3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
 - (4) As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.
- c) The permittee shall submit progress reports to the Toledo Department of Environmental Services concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:
- (1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
 - (2) An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

7. Best Available Technology

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

8. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

9. Reporting Requirements

The permittee shall submit required reports in the following manner:

- a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Toledo Department of Environmental Services.
- b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Toledo Department of Environmental Services. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

10. Applicability

This Permit-to-Install is applicable only to the emissions unit(s) identified in the Permit-to-Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s) not exempt from the requirement to obtain a Permit-to-Install.

11. Construction of New Sources(s) and Authorization to Install

- a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.
- b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. This deadline may be extended by up to 12 months if application is made to the

Director within a reasonable time before the termination date and the permittee shows good cause for any such extension.

- c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in "Air Services" along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update electronically will constitute notifying the Director of the permanent shutdown of the affected emissions unit(s).
- d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

Unless otherwise exempted, no emissions unit certified by the responsible official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31 and OAC Chapter 3745-77 if the restarted operation is subject to one or more applicable requirements.

- e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

12. Permit-To-Operate Application

The permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77. The permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if operation of the proposed new or modified source(s) as authorized by this permit would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d) must be obtained before operating the source in a manner that would violate the existing Title V permit requirements.

13. Construction Compliance Certification

The applicant shall identify the following dates in the "Air Services" facility profile for each new emissions unit identified in this permit.

- a) Completion of initial installation date shall be entered upon completion of construction and prior to start-up.
- b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

14. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

16. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable permit-to-install fees within 30 days after the issuance of any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

17. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the "Owner/Contact Change" functionality in "Air Services" once the transfer is legally completed. The change must be submitted through "Air Services" within thirty days of the ownership transfer date.

18. Risk Management Plans

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

19. Title IV Provisions

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.



Final Permit-to-Install
IronUnits LLC - Toledo HBI
Permit Number: P0123395
Facility ID: 0448011992
Effective Date: 2/9/2018

B. Facility-Wide Terms and Conditions



1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:
 - a) None.
2. The following emissions units contained in this permit are subject to 40 CFR Part 60 Subpart A and IIII: P006 and P007. The complete NSPS requirements, including the NSPS General Provisions may be accessed via the internet from the electronic Code of Federal Regulations (e-CFR) website www.ecfr.gov or by contacting the appropriate Ohio EPA district or local air agency.
3. The following emissions unit contained in this permit is subject to 40 CFR Part 63 Subpart A and ZZZZ: P006 and P007. The complete MACT requirements, including the MACT General Provisions may be accessed via the internet from the electronic Code of Federal Regulations (e-CFR) website www.ecfr.gov or by contacting the appropriate Ohio EPA district or local air agency.
4. **Facility-wide Equipment Leaks**
 - a) Carbon dioxide equivalent (CO₂e) emissions from facility-wide equipment leaks shall not exceed 535 tons per rolling, 12-month period.
 - b) The annual emission limitation was established for PTI purposes to reflect the uncontrolled potential to emit for this emissions unit. Therefore, it is not necessary to develop monitoring, record keeping and/or reporting requirements to ensure compliance with these limitations.
 - c) Compliance with the (CO₂e) emissions limitation specified in Section 4.a) of these terms and conditions shall be determined in accordance with the following methods:

(1) Emission Limitation:

CO₂e emissions from equipment leaks shall not exceed 535 tons per rolling, 12-month period.

Applicable Compliance Method:

The ton per rolling, 12-month period emission limitation was developed by calculating the potential methane emissions, and then converting the calculated methane emissions to carbon dioxide equivalent emissions. Potential TOC emissions were calculated using the SOCMI Average Emission Factors from Table 2-1 of *Protocol for Equipment Leak Emission Estimates* (EPA 453/R-95-017). The mass fraction of methane in fugitive TOC emissions was determined by subtracting the VOC content from the total organic compound (TOC) emission factor of 0.0277 lb VOC/lb methane obtained from Table 5-4, 2011 Oil and Natural Gas Sector: Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution; U.S. EPA, Sector Policies and Programs Division, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina 27711; July 2011; EPA-453/R-11-0002.

Equipment Type Total Equipment kg/hr/component TOC

Valves (gas service) 22 0.00597

Pressure relief valves 7 0.104



Connectors 568 0.00183

$$(22)(0.00597 \text{ kg/hr})(2.2046 \text{ lb/kg})(\text{ton}/2000 \text{ lbs})(8760 \text{ hrs/yr})(1-0.0277) \\ = 1.23 \text{ tpy CH}_4$$

$$(7)(0.104 \text{ kg/hr})(2.2046 \text{ lb/kg})(\text{ton}/2000 \text{ lbs})(8760 \text{ hrs/yr})(1-0.0277) = 6.84 \text{ tpy CH}_4$$

$$(568)(0.00183 \text{ kg/hr})(2.2046 \text{ lb/kg})(\text{ton}/2000 \text{ lbs})(8760 \text{ hrs/yr})(1-0.0277) \\ = 9.77 \text{ tpy CH}_4$$

$$\text{Methane emissions} = 1.23 \text{ tons/yr} + 6.84 \text{ ton/yr} + 9.77 \text{ tons/yr} = 17.84 \text{ tons/yr}$$

To account for uncertainty in the final installed equipment count, the permittee has requested that the fugitive equipment leak emissions be increased by a factor of 20%.

$$\text{CO}_2\text{e} = (17.84 \text{ tons/yr})(25)(1.20) = 535 \text{ tons/yr CO}_2\text{e}$$

Where 25 = greenhouse gas warming potential for methane as specified in Table A-1 to 40 CFR 98.

Compliance with this emission limitation shall be demonstrated by the above emission calculation using the actual number of each equipment type installed.



Final Permit-to-Install
IronUnits LLC - Toledo HBI
Permit Number: P0123395
Facility ID: 0448011992
Effective Date: 2/9/2018

C. Emissions Unit Terms and Conditions

1. B001, P-2

Operations, Property and/or Equipment Description:

1,687 mmBtu/hr natural gas and process gas fired reformer with low-NOx burners. Process gas is top gas that has been cleaned by the top gas scrubber.

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(1)c., b)(1)h., d)(5) through d)(8) and e)(3).

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	ORC 3704.03(T)	1.56 tons SO ₂ per month averaged over a twelve-month rolling period. See b)(2)a.
b.	OAC rule 3745-31-05(A)(3) June 30, 2008	0.664 ton volatile organic compounds (VOC) per month averaged over a twelve-month rolling period. See b)(2)b.
c.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the VOC emissions from this air contaminant source since the potential to emit is less than 10 tons per year. See b)(2)c.
d.	OAC rules 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	Carbon monoxide (CO) emissions shall not exceed 0.031 lb/mmBtu heat input as a 30-day rolling average, 52.35 pounds per hour (lbs/hr), and 229.29 tons per rolling, 12-month period. Nitrogen oxides (NO _x) emissions shall not exceed 0.06 lb/mmBtu as a 30-day rolling average, 99.75 lbs/hr, and 436.89 tons per rolling, 12-month period

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>Particulate matter emissions less than or equal to 10 microns in aerodynamic diameter (PM₁₀) and particulate matter less than or equal to 2.5 microns in aerodynamic diameter (PM_{2.5}) shall not exceed 0.012 lb/mmBtu, 18.71 lbs/hr, and 81.96 tons per rolling, 12-month period.</p> <p>Carbon dioxide equivalent (CO_{2e}) emissions from the reformer exhaust stack shall not exceed 1,554,047 tons per rolling, 12-month period.</p> <p>See b)(2)e., b)(2)f. and b)(2)g.</p>
e.	OAC rule 3745-17-07(A)	Visible particulate emissions from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.
f.	OAC rule 3745-17-10(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-10 through 20.
g.	OAC rule 3745-18-06	See b)(2)d.
h.	ORC 3704.03(F)(4)(d)	See d)(5) through d)(8) and e)(4)

(2) Additional Terms and Conditions

- a. Compliance with the requirements of this rule also includes compliance with the lb/mmBtu emissions limitations for CO, PM₁₀, PM_{2.5}, and NO_x established under OAC rules 3745-10 through 20.
- b. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
- c. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
- d. This rule does not establish an allowable SO₂ emission limitations for fuel burning equipment that burns gaseous fuel.
- e. The maximum annual natural gas fuel usage for the reformer heater shall not exceed 2,955,624 mmBtu heat input, based upon a rolling, 12-month summation of natural gas usage.

- f. To ensure enforceability during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the fuel usage levels specified in the following table:

Month(s)	Maximum Allowable Cumulative Fuel Usage of natural gas, mmBtu heat input
1	600,000
1-2	820,000
1-3	1,040,000
1-4	1,260,000
1-5	1,480,000
1-6	1,700,000
1-7	1,920,000
1-8	2,140,000
1-9	2,360,000
1-10	2,580,000
1-11	2,800,000
1-12	2,955,624

After the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, compliance with the annual fuel usage limitation for natural gas shall be based upon a rolling, 12-month summation of the monthly usage.

- g. The annual emission limitation for CO₂e emissions from equipment leaks was established for PTI purposes to reflect the uncontrolled potential to emit for this emissions unit. Therefore, it is not necessary to develop monitoring, record keeping and/or reporting requirements to ensure compliance with these limitations.

c) Operational Restrictions

- (1) The permittee shall burn only natural gas and/or top gas that has been cleaned by the top gas scrubber in this emissions unit.

d) Monitoring and/or Recordkeeping Requirements

- (1) For each day during which the permittee burns a fuel other than natural gas and/or top gas that has been cleaned by the top gas scrubber in this emissions unit, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- (2) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. whether the emissions are representative of normal operations;
 - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
 - d. the total duration of any visible emissions incident; and
 - e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

(3) Fuel Monitoring

- a. The reformer heater shall have fuel metering for natural gas (auxiliary fuel) and top gas. The Permittee shall measure and record the fuel flow rates using an operational non-resettable elapsed flow meter or by recording the flow rate data in an electronic format with individual flow measurements being taken no less frequently than once every 15 minutes. Electronic data may be reduced to hourly averages for recordkeeping.
- b. The Permittee shall determine the pipeline quality natural gas fuel gross calorific value (GCV) [high heat value (HHV)], carbon content and, if applicable, molecular weight, shall be determined, at a minimum, semiannually by the procedures contained in 40 CFR § 98.34(b)(3).
- c. Pipeline quality natural gas shall be exempt from the requirement of subparagraph b. of this paragraph provided the Permittee receives and maintains

semiannual records of the vendor's analysis, and the data is of sufficient quality to yield further analysis as required above.

- d. The Permittee shall calibrate and perform preventative maintenance checks of the natural gas and process flow meters and document at the minimum frequency established per the manufacturer's recommendation, or at the interval specified per 40 CFR 98.34(b)(1)(ii).
- e. The permittee shall maintain daily records of the total fuel heat input to the reformer heater (natural gas and top gas that has been cleaned by the top gas scrubber) and the total heat input in mmBtu per 30-day rolling period.
- f. The permittee shall maintain monthly records of the following information:
 - i. the natural gas fuel usage for each month in cubic feet and mmBtu; and
 - ii. beginning after the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the rolling, 12-month summation of the natural gas usage in mmBtu.

Also, during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall record the cumulative natural gas fuel usage for each calendar month in mmBtu.

- (4) The permittee shall calculate monthly the CO₂e emissions from this emissions unit in tons per month and tons per rolling, 12-month period according to the procedures described in 40 CFR 98 dated July 1, 2017.
- (5) The PTI application for this/these emissions unit(s), B001, was evaluated based on the actual materials and the design parameters of the emissions unit(s)' exhaust system, as specified by the permittee. The "Toxic Air Contaminant Statute", ORC 3704.03(F), was applied to this/these emissions unit(s) for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant(s) emitted at over one ton per year using an air dispersion model such as SCREEN3, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA guidance document entitled "Review of New Sources of Air Toxic Emissions, Option A", as follows:
 - a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):
 - i. threshold limit value (TLV) from the American Conference of Governmental Industrial Hygienists (ACGIH) "Threshold Limit Values for

Chemical Substances and Physical Agents Biological Exposure Indices”;
or

ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Industrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.

b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).

c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “X” hours per day and “Y” days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

$$\text{TLV}/10 \times 8/X \times 5/Y = 4 \text{ TLV}/XY = \text{MAGLC}$$

d. The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or “worst case” toxic contaminant(s):

Toxic Contaminant: hexane

TLV (mg/m³): 115 for hexane

Maximum Hourly Emission Rate (lbs/hr): 0.6 lb/hr hexane

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m³): 0.09

MAGLC (ug/m³): 2,700

The permittee, has demonstrated that emissions of hexane, from emissions unit(s) B001, is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the “Toxic Air Contaminant Statute”, ORC 3704.03(F).

(6) Prior to making any physical changes to or changes in the method of operation of the emissions unit(s), that could impact the parameters or values that were used in the predicted 1-hour maximum ground-level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:

a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a new toxic air contaminant with a lower Threshold Limit Value (TLV) than the lowest TLV previously modeled;

- b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last) application; and
- c. physical changes to the emissions unit(s) or its/their exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Toxic Air Contaminant Statute" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to a non-restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), has been documented. If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final PTI prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

- (7) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):
 - a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);
 - b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);
 - c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and
 - d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.
- (8) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.

e) Reporting Requirements

- (1) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas or top gas that has been cleaned by the top gas scrubber in this emissions unit was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
- (2) The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the rolling 12-month fuel usage limitations and/or fuel usage limitations established for the first 12 calendar months of operation following issuance of this permit. These reports are due by the date described in Part 1 - General Terms and Conditions of this permit.
- (3) The permittee shall submit annual reports that include any changes to any parameter or value used in the dispersion model used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1 hour maximum concentration. The report should include:
 - a. the original model input;
 - b. the updated model input;
 - c. the reason for the change(s) to the input parameter(s); and
 - d. a summary of the results of the updated modeling, including the input changes; and
 - e. a statement that the model results indicate that the 1-hour maximum ground-level concentration is less than 80% of the MAGLC.

If no changes to the emissions, emissions unit(s), or the exhaust stack have been made during the reporting period, then the report shall include a statement to that effect. This report shall be postmarked or delivered no later than January 31 following the end of each calendar year.

- (4) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:
 - a. Emission Limitation:

CO emissions shall not exceed 0.031 lb/mmBtu heat input as a 30-day rolling average, 52.35 pounds per hour (lbs/hr), and 229.29 tons per rolling, 12-month period.

Applicable Compliance Method:

The lb/mmBtu emission limitation is based on vendor information for the burners as specified in the application. The hourly emission limitation was developed by dividing the CO emission factor provided by the vendor (39.33 ppmv) by 1E06, multiplied by the maximum exhaust flow rate (305,346.7 scfm) multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole) and multiplied by the molecular weight of CO (28 lb/lb-mole) to determine the hourly emissions.

The annual emission limitation was developed by multiplying the hourly emission limitation (52.35 lbs/hr) by the maximum annual operating hours (8,760 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation will be assumed if compliance with the hourly limitation is shown.

Compliance with the lb/mmBtu 30-day rolling average and lb/hr emission limitations will be determined according to f)(2) below.

b. Emission Limitation:

NO_x emissions shall not exceed 0.06 lb/mmBtu of heat input as a 30-day rolling average, 99.75 lbs/hr, and 436.89 ton per rolling, 12-month period.

Applicable Compliance Method:

The lb/mmBtu emission limitation is based on vendor information for the burners as specified in the application. The hourly emission limitation was developed by dividing the NO_x emission factor provided by the vendor (45.516 ppmv) by 1E06, multiplied by the maximum exhaust flow rate (305,346.7 scfm) multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole) and multiplied by the molecular weight of NO_x (46.1 lb/lb-mole) to determine the hourly emissions.

The annual emission limitation was developed by the maximum calculated hourly emissions (99.747 lb/hr) by the maximum annual operating hours (8,760 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation will be assumed if compliance with the hourly limitation is shown.

Compliance with the lb/mmBtu 30-day rolling average and lb/hr emission limitations will be determined according to f)(2) below.

c. Emission Limitation:

PM₁₀ and PM_{2.5} shall not exceed 0.012 lb/mmBtu of heat input, 18.71 lbs/hr, and 81.96 tons per rolling, 12-month period.

Applicable Compliance Method:

The lb/mmBtu emission limitation is based on the below calculation of lbs/hr divided by the maximum heat input rounded up to 0.012. The hourly emission limitation was developed by multiplying the sum of the vendor-supplied filterable

and condensable PM emission factors (0.00308 gr/dscf + 0.00407 gr/dscf) by the maximum exhaust flow rate (305,346.7 scfm) multiplied by 60 minutes per hour, and dividing by 7,000 grains/pound to determine the hourly emissions.

The annual emission limitation was developed by the maximum calculated hourly emissions (18.713 lb/hr) by the maximum annual operating hours (8760 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation will be assumed if compliance with the hourly limitation is shown

The permittee shall demonstrate compliance with these emission limitations using Method 5 of 40 CFR Part 60, Appendix A and Method 202 of 40 CFR Part 51, Appendix M. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

d. Emission Limitation:

1.56 tons SO₂ per month averaged over a twelve-month rolling period.

Applicable Compliance Method:

This emission limitation was established based on a vendor-supplied emission factor of 1.403 ppm SO₂ in the exhaust from this emissions unit. Divide the vendor-supplied SO₂ emission factor (1.403 ppmv) by 1E06, multiplied by the maximum exhaust flow rate (305,346.7 scfm) multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of SO₂ (64 lb/lb-mole), multiplied by the maximum annual operating hours (8,760 hours/yr) divided by 2,000 pounds per ton, and divide by 12 months per year to determine the monthly emissions averaged over a rolling, 12-month period.

If required, the permittee shall determine a site-specific emission factor for SO₂ in lb/mmBtu actual heat input using methods 1 through 4 and 6C. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

e. Emission Limitation:

0.664 ton VOC per month averaged over a twelve-month rolling period

Applicable Compliance Method:

This emission limitation is based on the permittee's assumption that: combustion of top gas in the reformer results in negligible VOC emissions; and the heat input to the reformer from the combustion of natural gas is approximately equal to 20% of the maximum heat input to the reformer (1,687 mmBtu/hr x 0.20 = 337.4 mmBtu/hr from natural gas. The hourly emission limitation was developed by multiplying the maximum heat input from natural gas combustion (337.4 mmBtu/hr) by the VOC emission factor from AP-42 5th Edition Table 1.4-2 dated 7/98 (0.0054 lb/mmBtu) multiplied by the maximum annual operating hours

(8,760 hours per year) divided by 2,000 pounds per ton, and divided by 12 months per year.

If required, the permittee shall determine a site-specific emission factor for VOC emissions in pounds per hour through emission testing performed in accordance with Methods 1 through 4 and 25 or 25A, as appropriate, of 40 CFR Part 60, Appendix A. Use of Method 25 or 25A is to be selected based on the results of pre-survey stack sampling and U.S.EPA guidance documents. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

f. Emission Limitation:

CO₂e emissions from the reformer exhaust stack shall not exceed 1,554,047 tons per rolling, 12-month period.

Applicable Compliance Method:

This emission limitation was established to reflect the potential to emit for this emissions unit and was determined as the summation of the product of the CO₂, N₂O, and CH₄ emissions multiplied by the respective global warming potential. The maximum CO₂ emissions were calculated by dividing the vendor supplied CO₂ emission factor of 169,572.7 ppm in the exhaust gases by 1E06 multiplied by the maximum exhaust flow rate (305,346.7 scfm) multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole) and multiplied by the molecular weight of CO₂ (44.01 lb/lb-mole) multiplied by 8,760 hours per year and divided by 2,000 pounds per ton to determine the maximum annual emissions (1,553,868.4 tons/yr CO₂).

The permittee has assumed that emissions of nitrous oxide (N₂O) and methane (CH₄) from the combustion of top gas in this emissions unit are negligible, and emissions of these pollutants only result from the portion of total heat input (20%) from combustion of natural gas (0.2 x 1687 mmBtu/hr = 337.4 mmBtu/hr).

The emission factors for N₂O and CH₄ were obtained from 40 CFR 98 Table C-2 for natural gas (1.0E-04 kg/mmBtu and 1.0E-03 kg/mmBtu, respectively).

The global warming potential for the above pollutants was obtained from Table A-1 to Subpart A of 40 CFR Part 98.

$$GWP_{CO_2} = 1$$

$$GWP_{N_2O} = 298$$

$$GWP_{CH_4} = 25$$

$$CO_2e = 1,553,868.4 \text{ tons/yr}(1) + [(1.0E-04)(298) + (1.0E-03)(25) \text{ kg/mmBtu}](337.4 \text{ mmBtu/hr})(8760 \text{ hrs/yr})(1.102E-3 \text{ ton/kg}) = 1,554,047 \text{ tons/yr}$$

If required, the permittee shall conduct emissions testing using Methods 1, 2, 3A and 4 of 40 CFR Part 60, Appendix A, to determine the CO₂ emission rate in pounds per hour. Alternative U.S. EPA-approved test methods may be used with

prior approval from the Ohio EPA. Since the CO₂e emissions are estimated to consist of more than 99% CO₂, compliance with this emission limitation will be assumed provided that the lb/hr CO₂ emission rate does not exceed 354,764.4 lbs/hr.

g. Emission Limitation:

Visible particulate emissions from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.

Applicable Compliance Method:

(2) If required, compliance with the stack visible particulate emissions limitation shall be determined through visible emissions observations performed in accordance with U.S. EPA Method 9. The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

a. The emission testing shall be conducted within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial startup of the emissions unit.

The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate(s) for CO, NO_x, PM₁₀ and PM_{2.5}, in the appropriate averaging period(s). The emission testing shall also be conducted to determine the opacity and a site-specific emission factor for CO₂ emissions in lb/mmBtu heat input.

b. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):

For PM₁₀ and PM_{2.5}, Method 5 of 40 CFR Part 60, Appendix A and Method 202 of 40 CFR Part 51 Appendix M or Method 201 A and Method 202 of 40 CFR Part 51 Appendix M.

For Opacity, Method 9 of 40 CFR Part 60, Appendix A
For CO₂, Methods 1, 2, 3A and 4 of 40 CFR Part 60, Appendix A

For CO and NO_x, the permittee shall submit for approval a test plan using a temporary continuous emissions monitoring system for the determination of the 30-day rolling average emission rate in lb/mmBtu heat input and to demonstrate compliance with the hourly emission limitation.

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

c. During the emission testing, the emissions unit shall be operated under operational conditions approved in advance by the appropriate Ohio EPA District Office or local air agency. Operational conditions that may need to be approved include, but are not limited to, the production rate, the type of material processed, material make-up (solvent content, etc.), or control equipment operational

limitations (burner temperature, precipitator voltage, etc.). In general, testing shall be done under “worst case” conditions expected during the life of the permit. As part of the information provided in the “Intent to Test” notification form described below, the permittee shall provide a description of the emissions unit operational conditions they will meet during the emissions testing and describe why they believe “worst case” operating conditions will be met. Prior to conducting the test(s), the permittee shall confirm with the appropriate Ohio EPA District Office or local air agency that the proposed operating conditions constitute “worst case”. Failure to test under the approved conditions may result in Ohio EPA not accepting the test results as a demonstration of compliance.

- d. Not later than 60 days prior to the proposed test date, the permittee shall submit to Ohio EPA Central Office for approval a test plan for using a temporary continuous emissions monitoring system for the determination of the 30-day average emission rate in lb/mmBtu heat input for CO and NO_x emissions and to demonstrate compliance with the hourly emission limitations for CO and NO_x.
 - e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).
 - f. Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
 - g. The permittee shall record and include in the written emission test report the natural gas fuel usage in cubic feet for each run, the top gas fuel usage in cubic feet for each run, the total heat input for each run in mmBtu, and the HBI production rate for each run (including all HBI passing through the DRI reactor, including commercial, off-specification or unsaleable product).
 - h. A comprehensive written report on the results of the emission test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.
- g) Miscellaneous Requirements
- (1) None.

2. F001, HR-1, HR-2, HR-3, HR-4

Operations, Property and/or Equipment Description:

Paved roadways and parking areas

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(1)b.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) June 30, 2008	See b)(2)a. and b)(2)b.
b.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM _{2.5} or PM ₁₀ emissions from this air contaminant source since the potential to emit is less than 10 tons per year. See b)(2)c.
c.	OAC rule 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	0.63 ton/year of fugitive particulate matter emissions less than or equal to 10 microns in aerodynamic diameter (PM ₁₀) 0.15 ton/yr of fugitive particulate matter emissions less than or equal to 2.5 microns in aerodynamic diameter (PM _{2.5}) Develop and implement a site-specific work practice plan designed as described in paragraph d)(1) below to minimize or eliminate fugitive dust emissions. See b)(2)d.
d.	OAC rule 3745-17-07(B)(4)	There shall be no visible particulate matter emissions except for six minutes during any 60-minute period, except as provided by rule.
e.	OAC rule 3745-17-08(B)	See b)(2)d. through b)(2)f.

(2) Additional Terms and Conditions

- a. Compliance with the requirements of this rule for PM10 and PM2.5 emissions also includes compliance with the requirements established under OAC rules 3745-31-10 through 20.
- b. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
- c. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
- d. The permittee shall employ best available control measures on all paved roadways and parking areas for the purpose of ensuring compliance with the above-mentioned applicable requirements. In accordance with the permittee's application, the permittee has committed to treat the paved roadways and parking areas by watering and sweeping at sufficient treatment frequencies to ensure compliance. Nothing in this paragraph shall prohibit the permittee from employing other control measures to ensure compliance.
- e. The permittee shall promptly remove, in such a manner as to minimize or prevent re-suspension, earth and/or other material from paved streets onto which such material has been deposited by trucking or earth moving equipment or erosion by water or other means.
- f. Open-bodied vehicles transporting materials likely to become airborne shall have such materials covered at all times if the control measure is necessary for the materials being transported.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) Work Practice Plan

The permittee shall develop and implement a site-specific work practice plan designed to minimize or eliminate fugitive dust from the permittees paved roadways and parking areas. This work practice plan shall include, at a minimum, the following elements:

- a. An identification of each roadway or parking area, or segment of roadway or parking area, for which the plan applies. The permittee can select whether to develop a plan based on segments or entire roads.
- b. A determination of the frequency that each roadway, parking area or segment will be inspected to determine if additional control measures are needed. The

frequency of inspection can either be common for all segments of the roadway or parking areas or may be identified separately for various segments of the roadway or parking areas.

- c. The identification of the record keeping form/record that will be used to track the inspection and treatment of the roadways. This form/record should include, at a minimum, the following elements:
 - i. Roadway, parking area, or segment inspected;
 - ii. Date inspected;
 - iii. Name of employee responsible for inspection
 - iv. Result of the inspection (needs treated or does not need treated);
 - v. A description of why no treatment was needed;
 - vi. Date treated;
 - vii. Name of employee responsible for roadway, parking area, or segment treatment; and
 - viii. Method used to treat the roadway, parking area, or segment.
- d. A description of how and where the records shall be maintained.

The permittee shall begin using the Work Practice Plan within 30 days from the date Ohio EPA approved the initial plan. As needs warrant, the permittee can modify the Work Practice Plan. The permittee shall submit a copy of proposed revisions to the Work Practice Plan to the Toledo Division of Environmental Services (TDES) for review and approval. The permittee can begin using the revised Work Practice Plan once TDES has approved its use.

(2) Work Practice Plan Inspections

Except as otherwise provided in this section, the permittee shall perform inspections of each of the roadway segments and parking areas at frequencies described in the Work Practice Plan. The purpose of the inspections is to determine the need for implementing control measures. The inspections shall be performed during representative, normal traffic conditions. No inspection shall be necessary for a roadway or parking area that is covered with snow and/or ice or if precipitation has occurred that is sufficient for that day to ensure compliance with the above-mentioned applicable requirements. Any required inspection that is not performed due to any of the above-identified events shall be performed as soon as such event(s) has (have) ended, except if the next required inspection is within one week.

(3) Work Practice Plan Record Keeping

The permittee shall maintain records of the following information:

- a. The records required to be collected under the Work Practice Plan, and
- b. The date and reason any element of the Work Practice Plan was not implemented.

The permittee shall maintain these records in accordance to the Standard Terms and Conditions of Part A of this permit.

e) Reporting Requirements

- (1) Within 90 days prior to startup, the permittee shall submit their proposed Work Practice Plan to the Ohio EPA through the Ohio EPA's eBusiness Center: Air Services online web portal.
- (2) The permittee shall submit semiannual deviation reports that identify any of the following occurrences:
 - a. each day during which an inspection was not performed by the required frequency, excluding an inspection which was not performed due to an exemption for snow and/or ice cover or precipitation; and
 - b. each instance when a control measure, that was to be implemented as a result of an inspection, was not implemented.

The deviation reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (3) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:
 - a. Emission Limitation:

0.63 ton/year of fugitive PM₁₀; 0.15 ton/yr of fugitive PM_{2.5}

Applicable Compliance Method:

Compliance with fugitive PM₁₀ and PM_{2.5} limitations shall be determined by using the emission factor equations in Section 13.2.1, in Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume 1 (revised 1/11) for paved roadways. These emission limits were based on the following assumptions by the permittee:

10 miles traveled per year for lump iron oxide transport vehicles;

2,918 miles traveled per year for iron oxide fines transport vehicles;

377 miles traveled per year for iron oxide coating transport vehicles;

20,877 miles per year for HBI transport vehicles;

95% control efficiency for PM10, and PM2.5 emissions from iron oxide, iron oxide fines and iron oxide coating transport vehicles; and

89% control efficiency for PM10, and PM2.5 emissions from HBI transport vehicles.

b. Emission Limitation

There shall be no visible particulate matter emissions except for six minutes during any 60-minute period, except as provided by rule.

Applicable Compliance Method:

If required, compliance with the visible particulate matter emission limitation listed above shall be determined in accordance with Test Method 22 as set forth in "Appendix on Test Methods" in 40 CFR, Part 60 ("Standards of Performance for New Stationary Sources"), as such Appendix existed on July 1, 1996, and the modifications listed in paragraphs (B)(4)(a) through (B)(4)(d) of OAC rule 3745-17-03.

g) Miscellaneous Requirements

(1) None.

3. F002, Storage piles

Operations, Property and/or Equipment Description:

Storage piles including load-in, load-out, wind erosion, and front-end loader traffic on unpaved areas: WE-1, TR-3, TR-4, TR-8, WE-2, FEL-1, TR-9, TR-11, WE-3, FEL-2, TR-12, TR-15, WE-4, TR-16, FEL-3, TR-20, WE-5, FEL-4 and TR-21

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(1)b.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) June 30, 2008	See b)(2)a. and b)(2)b.
b.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM _{2.5} or PM ₁₀ emissions from this air contaminant source since the potential to emit is less than 10 tons per year. See b)(2)c.
c.	OAC rule 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	1.52 tons/year of fugitive particulate matter emissions less than or equal to 10 microns in aerodynamic diameter (PM ₁₀) 0.33 ton/yr of fugitive particulate matter emissions less than or equal to 2.5 microns in aerodynamic diameter (PM _{2.5}) See b)(2)d. through b)(2)g.
d.	OAC rule 3745-17-07(B)(5)	There shall be no visible particulate matter emissions except for thirteen minutes during any 60-minute period from front-end loader traffic on unpaved areas, except as provided by rule.
e.	OAC rule 3745-17-07(B)(6)	There shall be no visible particulate matter emissions except for thirteen

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		minutes during any 60-minute period from load-in, load-out and wind erosion, except as provided by rule.
f.	OAC rule 3745-17-08(B)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-10 through 20.

(2) Additional Terms and Conditions

- a. Compliance with the requirements of this rule for PM10 and PM2.5 emissions also includes compliance with the requirements established under OAC rules 3745-31-10 through 20.
- b. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
- c. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
- d. The permittee shall employ the following best available control measures to minimize emissions from all load-in and load-out operations associated with the storage piles for the purpose of ensuring compliance with the above-mentioned applicable requirements.

Emission Point

Control

TR-3, iron oxide load-in	water or chemical suppressants
TR-4, bucket wheel drop to conveyor	water or chemical suppressants
TR-8, lump iron oxide load-in	water or chemical suppressants
TR-9, FEL load-out iron oxide to truck	minimize drop height
TR-11, iron oxide fines load-in	water or chemical suppressants
TR-12, FEL load-out iron oxide fines to truck	minimize drop height
TR-15, REMET load-in	minimize drop height
TR-16, REMET load-out to hopper	minimize drop height
TR-20, HBI load-in	water or chemical suppressants
TR-21, FEL load-out HBI to hopper	water or chemical suppressants

In accordance with the permittee's application, the permittee has committed to maintain minimal drop heights for stackers and front-end loaders, and utilize chemical stabilization/dust suppressants and/or watering systems as needed at sufficient treatment locations and frequencies to ensure compliance.

- e. The permittee shall employ best available control measures for wind erosion from the surfaces of all storage piles for the purpose of ensuring compliance with the above-mentioned applicable requirements. In accordance with the application, the permittee has committed to perform water or chemical stabilization of the iron oxide, lump iron oxide, iron oxide fines, and HBI storage piles to ensure compliance. In accordance with the application, there will be windshields for reducing wind erosion from the REMET storage pile. Nothing in this paragraph shall prohibit the permittee from employing other control measures to ensure compliance.
- f. The periodic application of asphalt, oil (excluding any used oil as defined in paragraph (A)(12) of rule 3745-279-01 of the Administrative Code), water or other suitable dust suppression chemicals on gravel roads and parking lots.
- g. The prompt removal, in such a manner as to minimize or prevent resuspension, earth and/or other material from paved roadways onto which such material has been deposited by trucking or earth moving equipment or erosion by water or other means.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) Work Practice Plan

The permittee shall develop and implement a site-specific work practice plan designed to minimize or eliminate fugitive dust from the permittee's material storage piles (including load-in, load-out, wind erosion, and front-end loader traffic on unpaved areas). This work practice plan shall include, at a minimum, the following elements:

- a. An identification of each storage pile or each storage pile area for which the plan applies.
- b. A determination of the frequency that each storage pile or each storage pile area will be inspected to determine if additional control measures are needed. The frequency of inspection can either be common for all storage piles or may be identified separately for various storage pile areas.
- c. The identification of the record keeping form/record that will be used to track the inspection and treatment of the storage piles. This form/record should include, at a minimum, the following elements:
 - i. Storage pile or storage pile area inspected;

- ii. Date inspected;
 - iii. Name of employee responsible for the inspection
 - iv. Result of the inspection (needs treated or does not need treated);
 - v. A description of why no treatment was needed;
 - vi. Date treated;
 - vii. Name of employee responsible for treatment of the storage pile or storage pile area; and
 - viii. Method used to treat the storage pile or storage pile area.
- d. A description of how and where the records shall be maintained.

The permittee shall begin using the Work Practice Plan within 30 days from the date Ohio EPA approved the initial plan. As needs warrant, the permittee can modify the Work Practice Plan. The permittee shall submit a copy of proposed revisions to the Work Practice Plan to TDES for review and approval. The permittee can begin using the revised Work Practice Plan once TDES has approved its use.

(2) Work Practice Plan Inspections

Except as otherwise provided in this section, the permittee shall perform inspections of each of the storage piles or storage pile areas at frequencies described in the Work Practice Plan. The purpose of the inspections is to determine the need for implementing control measures. The inspections shall be performed during representative, normal storage pile operating conditions. No inspection shall be necessary for a storage pile or storage pile area that is covered with snow and/or ice or if precipitation has occurred that is sufficient for that day to ensure compliance with the above-mentioned applicable requirements. Any required inspection that is not performed due to any of the above-identified events shall be performed as soon as such event(s) has (have) ended, except if the next required inspection is within one week.

(3) The permittee shall maintain records of the following information:

- a. The records required to be collected under the Work Practice Plan, and
- b. The date and reason any element of the Work Practice Plan was not implemented.

(4) The permittee shall maintain monthly records of the tons of each of the following materials loaded out from the facility: iron oxide lumps, fines and REMET.

e) Reporting Requirements

- (1) Within 90 days prior to startup, the permittee shall submit their proposed Work Practice Plan to the Ohio EPA through the Ohio EPA's eBusiness Center: Air Services online web portal.

- (2) The permittee shall submit semiannual deviation reports that identify any of the following occurrences:
- a. each day during which an inspection was not performed by the required frequency, excluding an inspection which was not performed due to an exemption for snow and/or ice cover or precipitation; and
 - b. each instance when a control measure, that was to be implemented as a result of an inspection, was not implemented.

The deviation reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (3) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

- a. Emissions Limitations:

1.52 tons/year of fugitive PM10

0.33 ton/year of fugitive PM2.5

Applicable Compliance Method:

Compliance with fugitive PM10, and PM2.5 limitations shall be determined by using the emission factor equations in Sections 13.2.2 and 13.2.4 in Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume 1 (revised 1/95), for load-in operations, load-out operations and front-end loader traffic. Wind erosion emission factors and rates shall be determined using the equations in 4.1.3 for continuously active piles in the EPA's *Control of Open Fugitive Dust Sources Report*, EPA-450/3-88-008. These emission limits were based on the front-end loader mileage, storage pile areas and control efficiencies stated in the calculations contained in the permit application.

- b. Emission Limitation:

There shall be no visible particulate matter emissions except for thirteen minutes during any 60-minute period from load-in, load-out, wind erosion, and front-end loader traffic on unpaved areas, except as provided by rule.



Final Permit-to-Install
IronUnits LLC - Toledo HBI
Permit Number: P0123395
Facility ID: 0448011992
Effective Date: 2/9/2018

Applicable Compliance Method:

If required, compliance with the visible particulate matter limitations for the storage piles identified above shall be determined in accordance with Test Method 22 as set forth in Appendix on Test Methods in 40 CFR, Part 60 (Standards of Performance for New Stationary Sources), and the modifications listed in paragraphs (B)(4)(a) through (B)(4)(d) of OAC rule 3745-17-03.

g) Miscellaneous Requirements

- (1) None.

4. **P001, TR-28, P-1**

Operations, Property and/or Equipment Description:

Direct Reduced Iron (DRI) reactor, this emissions unit includes emissions from the charge hopper exhaust controlled by a venturi scrubber and bottom seal gas exhaust controlled by a venturi scrubber

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(1)c.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	ORC 3704.03(T)	See b)(2)a.
b.	OAC rule 3745-31-05(A)(3) June 30, 2008	0.18 ton sulfur dioxide (SO ₂) emissions per month averaged over a twelve-month rolling period from the charge hopper exhaust and bottom seal gas exhaust combined. See b)(2)b.
c.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the SO ₂ emissions from this air contaminant source since the potential to emit is less than 10 tons per year. See b)(2)c.
d.	OAC rules 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	Charge Hopper Exhaust Stack 2.82 pounds per hour (lbs/hr) and 12.36 tons per rolling, 12-month period Carbon monoxide (CO) emissions 2.02 lbs/hr and 8.85 tons per rolling, 12-month period Nitrogen oxides (NO _x) emissions 0.00745 gr/dscf, 0.10 lb/hr and 0.44 ton per rolling, 12-month period of particulate

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>matter emissions less than or equal to 10 microns in aerodynamic diameter (PM₁₀)</p> <p>0.00745 gr/dscf, 0.10 lb/hr and 0.44 ton per rolling, 12-month period of particulate matter emissions less than or equal to 2.5 microns in aerodynamic diameter (PM_{2.5})</p> <p>5,891 tons per rolling, 12-month period carbon dioxide equivalent (CO_{2e}) emissions</p> <p>Bottom Seal Gas Exhaust Stack 43.00 pounds per hour (lbs/hr) and 188.34 tons per rolling, 12-month period Carbon monoxide (CO) emissions.</p> <p>0.43 lbs/hr and 1.88 tons per rolling, 12-month period Nitrogen oxides (NO_x) emissions</p> <p>0.00749 gr/dscf, 2.61 lbs/hr and 11.44 tons per rolling, 12-month period of particulate matter emissions less than or equal to 10 microns in aerodynamic diameter (PM₁₀)</p> <p>0.00749 gr/dscf, 2.61 lbs/hr and 11.44 tons per rolling, 12-month period of particulate matter emissions less than or equal to 2.5 microns in aerodynamic diameter (PM_{2.5})</p> <p>170 tons per rolling, 12-month period carbon dioxide equivalent (CO_{2e}) emissions</p> <p>See b)(2)e. and b)(2)f.</p>
e.	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.
f.	OAC rule 3745-17-11(B)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		rules 3745-31-10 through 20.
g.	OAC rule 3745-18-06(E)	See b)(2)d.

(2) Additional Terms and Conditions

- a. Compliance with the requirements of this rule for CO, NOx, PM10 and PM2.5 emissions also includes compliance with the requirements of OAC rules 3745-31-10 through 20.
- b. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
- c. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
- d. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
- e. The emissions from the charge hopper exhaust shall be vented to a wet venturi scrubber at all times the emissions unit is in operation. The emissions from the bottom seal exhaust shall be vented to a wet venturi scrubber at all times the emissions unit is in operation.
- f. The permittee shall use nitrogen seal gas for the furnace bottom seal leg. In the event of a process malfunction or disruptions in nitrogen seal gas availability, the permittee may use reformer flue gas as seal gas for safe operation of the DRI reactor.
- g. The maximum annual HBI production rate (including all HBI passing through the DRI reactor, including commercial, off-specification, or unsaleable product) for this emissions unit shall not exceed 2,479,080 tons based upon a rolling, 12-month summation of the production rates.

To ensure enforceability during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the production levels specified in the following table:

Maximum Allowable Cumulative	
Month	<u>HBI Production, tons</u>
1	500,000
1-2	680,000
1-3	860,000



1-4	1,040,000
1-5	1,220,000
1-6	1,400,000
1-7	1,580,000
1-8	1,760,000
1-9	1,940,000
1-10	2,120,000
1-11	2,300,000
1-12	2,479,080

After the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, compliance with the annual production rate limitation shall be based upon a rolling, 12-month summation of the production rates.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range or limit for the pressure drop across the scrubber and the scrubber liquid flow rate shall be based upon the manufacturer's specifications until such time as any required performance testing is conducted and the appropriate range for each parameter is established to demonstrate compliance.
- (2) The permittee shall properly install, operate, and maintain equipment to continuously monitor the pressure drop across each scrubber (in pounds per square inch, gauge) and each scrubber's liquid flow rate (in gallons per minute) during operation of this/these emissions unit(s), including periods of startup and shutdown. The permittee shall record the pressure drop across each scrubber and each scrubber liquid's flow rate on a daily basis. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee. The acceptable range or limit for the pressure drop across each scrubber and each scrubber's liquid flow rate shall be based upon the manufacturer's specifications until such time as any required performance testing is conducted and the appropriate range for each parameter is established to demonstrate compliance.

Whenever the monitored value for any parameter deviates from the range(s) or minimum limit(s) established in accordance with this permit, the permittee shall promptly

investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. the date and time the deviation began;
- b. the magnitude of the deviation at that time;
- c. the date the investigation was conducted;
- d. the name(s) of the personnel who conducted the investigation; and
- e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the control equipment parameters within the acceptable range(s), or at or above the minimum limit(s) specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- f. a description of the corrective action;
- g. the date the corrective action was completed;
- h. the date and time the deviation ended;
- i. the total period of time (in minutes) during which there was a deviation;
- j. the pressure drop and flow rate readings immediately after the corrective action was implemented; and
- k. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

These range(s) and/or limit(s) for the pressure drop and liquid flow rate are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the permitted range or limit for the pressure drop or liquid flow rate based upon information obtained during future performance tests that demonstrate compliance with the allowable particulate emission rate for this/these emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

- (3) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be

noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

- a. the color of the emissions;
- b. whether the emissions are representative of normal operations;
- c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
- d. the total duration of any visible emissions incident; and
- e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

(4) Seal Gas Monitoring

- a. The permittee shall maintain a record of each time period (date, start time and end time) that nitrogen seal gas was not used for the bottom seal leg.

(5) The permittee shall maintain monthly records of the following information:

- a. the HBI production rate for each month (including all HBI passing through the DRI reactor, including commercial, off-specification, or unsaleable product); and
- b. beginning after the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the rolling, 12-month summation of the HBI production rate for each month (including all HBI passing through the DRI reactor, including commercial, off-specification, or unsaleable product).

Also, during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall record the cumulative HBI production rates for each calendar month (including all HBI passing through the DRI reactor, including commercial, off-specification, or unsaleable product).

e) Reporting Requirements

- (1) The permittee shall submit quarterly deviation (excursion) reports that identify the following for each scrubber:

- a. each period of time (start time and date, and end time and date) when the pressure drop across the scrubber and/or the liquid flow rate was outside of the appropriate range or limit specified by the manufacturer and outside of the acceptable range following any required compliance demonstration;
- b. any period of time (start time and date, and end time and date) when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;
- c. each incident of deviation described in “a” or “b” (above) where a prompt investigation was not conducted;
- d. each incident of deviation described in “a” or “b” where prompt corrective action, that would bring the pressure drop and/or liquid flow rate into compliance with the acceptable range, was determined to be necessary and was not taken; and
- e. each incident of deviation described in “a” or “b” where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (2) The permittee shall submit quarterly deviation (excursion) reports that identify the following for the bottom seal gas system:

any period of time (start time and date, and end time and date) when the emissions unit(s) was/were in operation and the nitrogen was not being used as bottom seal gas.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (3) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

all exceedances of the rolling, 12-month HBI production rate limitation; and for the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, all exceedances of the maximum allowable cumulative HBI production rate levels.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (4) The permittee shall submit semiannual written reports that identify:
 - a. all days during which any visible particulate emissions were observed from the stack(s) serving this emissions unit; and
 - b. any corrective actions taken to minimize or eliminate the visible particulate emissions.

These reports shall be submitted to the Director (the appropriate Ohio EPA District Office or local air agency) by January 31 and July 31 of each year and shall cover the previous 6-month period.

- (5) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.
- f) Testing Requirements
- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:
- a. Emission Limitation:
- 0.18 ton SO₂ emissions per month averaged over a twelve-month rolling period from the charge hopper exhaust and bottom seal gas exhaust combined
- Applicable Compliance Method:
- This emission limitation was established as the sum of the potential emissions from the charge hopper exhaust and the bottom seal gas exhaust. The potential emissions from the charge hopper were determined by dividing the SO₂ emission factor from the technology vendor (15.3 ppmv) by 1,000,000, multiplying by the maximum exhaust flow rate (1,579 scfm), multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of SO₂ (64 lb/mole) resulting in 0.241 lb/hr SO₂ emissions. The potential emissions from the bottom seal gas exhaust were determined by dividing the SO₂ emission factor from the technology vendor (0.59 ppmv) by 1,000,000, multiplying by the maximum exhaust flow rate (40,678 scfm), multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of SO₂ (64 lb/mole) resulting in 0.239 lb/hr SO₂ emissions. The sum of the potential charge hopper and bottom seal gas exhaust emissions (0.241 + 0.239 lb/hr) was multiplied by the maximum annual hours of operation (8,760 hrs/yr), divided by 2,000 pounds per ton, and divided by 12 months per year.
- If required, the permittee shall determine a site specific emission factor for SO₂ emissions from the charge hopper exhaust and the bottom seal gas exhaust using Methods 1 through 4 and 6C of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.
- b. Emission Limitation
- 2.82 pounds per hour (lbs/hr) and 12.36 tons per rolling, 12-month period CO emissions from the charge hopper exhaust; 43.00 pounds per hour (lbs/hr) and 188.34 tons per rolling, 12-month period CO emissions from the bottom seal gas exhaust

Applicable Compliance Method:

The hourly emissions limitation from the charge hopper exhaust was determined by dividing the CO emission factor from the technology vendor (410 ppmv) by 1,000,000, multiplying by the maximum exhaust flow rate (1,579 scfm), multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of CO (28 lb/mole).

The hourly emissions limitation from the bottom seal gas exhaust was determined by dividing the CO emission factor from the technology vendor (242.5 ppmv) by 1,000,000, multiplying by the maximum exhaust flow rate (40,678 scfm), multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of CO (28 lb/mole).

If required, the permittee shall demonstrate compliance with the hourly CO emissions limitations using Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

The ton per rolling, 12-month period emission limitations were developed by multiplying the short-term allowable CO emission limitation by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

c. Emission Limitation

2.02 lbs/hr and 8.85 tons per rolling, 12-month period NO_x emissions from the charge hopper exhaust; 0.43 lbs/hr and 1.88 tons per rolling, 12-month period NO_x emissions from the bottom seal gas exhaust

Applicable Compliance Method:

The hourly emissions limitation from the charge hopper exhaust was determined by dividing the NO_x emission factor from the technology vendor (178.3 ppmv) by 1,000,000, multiplying by the maximum exhaust flow rate (1,579 scfm), multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of NO_x (46.1 lb/mole).

The hourly emissions limitation from the bottom seal gas exhaust was determined by dividing the NO_x emission factor from the technology vendor (1.47 ppmv) by 1,000,000, multiplying by the maximum exhaust flow rate (40,678 scfm), multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of NO_x (46.1 lb/mole).

If required, the permittee shall demonstrate compliance with the hourly NO_x emissions limitations using Methods 1 through 4 and 7E of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

The ton per rolling, 12-month period emission limitations were developed by multiplying the short-term allowable NO_x emission limitation by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

d. Emission Limitation:

0.00745 gr/dscf, 0.10 lb/hr and 0.44 ton per rolling, 12-month period of PM₁₀ from the charge hopper exhaust; 0.00745 gr/dscf, 0.10 lb/hr and 0.44 ton per rolling, 12-month period of PM_{2.5} emissions from the charge hopper exhaust

Applicable Compliance Method:

The hourly emission limitation for the charge hopper exhaust was determined by multiplying the design PM grain loading (0.00745 gr/dscf) by the design stack flow rate (1,579 scfm), multiplied by 60 minutes per hour, and divided by 7,000 grains per pound. The permittee has assumed that there are no condensable PM emissions from this emissions unit, and that all PM is emitted as PM_{2.5}.

If required, the permittee shall demonstrate compliance with the allowable gr/dscf and hourly PM₁₀ and PM_{2.5} emission limitation using Method 5 of 40 CFR Part 60, Appendix A and Method 202 of 40 CFR Part 51, Appendix M. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

The ton per rolling, 12-month period emission limitations were developed by multiplying the short-term allowable PM₁₀ emission limitation by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

e. Emission Limitation:

0.00749 gr/dscf, 2.61 lbs/hr and 11.44 tons per rolling, 12-month period of particulate matter emissions less than or equal to 10 microns in aerodynamic diameter (PM₁₀) from the bottom seal gas exhaust; 0.00749 gr/dscf, 2.61 lbs/hr and 11.44 tons per rolling, 12-month period of particulate matter emissions less than or equal to 2.5 microns in aerodynamic diameter (PM_{2.5})

Applicable Compliance Method:

The hourly PM₁₀ and PM_{2.5} emissions were determined as the sum of the filterable PM emissions calculated by multiplying the design PM grain loading (0.00734 gr/dscf) by the design stack flow rate (40,678 scfm), multiplied by 60 minutes per hour, and divided by 7,000 grains per pound plus condensable PM emissions. Condensable PM emissions were determined by multiplying the condensable PM emission factor from the technology provider (0.00015 gr/dscf) by the design stack flow rate (40,678 scfm) multiplied by 60 minutes per hour and

divided by 7,000 grains per pound resulting in potential condensable PM emissions of 0.052 lb/hr.

If required, the permittee shall demonstrate compliance with the allowable gr/dscf, and hourly PM₁₀ and PM_{2.5} emission limitation using Method 5 of 40 CFR Part 60, Appendix A and Method 202 of 40 CFR Part 51, Appendix M. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

The ton per rolling, 12-month period emission limitations were developed by multiplying the short-term allowable emission limitations by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

f. Emission Limitation:

5,891 tons per rolling, 12-month period carbon dioxide equivalent (CO₂e) from the charge hopper exhaust; 170 tons per rolling, 12-month period CO₂e emissions from the bottom seal gas exhaust

Applicable Compliance Method:

The CO₂e emissions limitation was determined by calculating the sum of the potential emissions from the charge hopper exhaust and bottom seal gas exhaust.

The potential CO₂ emissions from the charge hopper exhaust were determined by dividing the CO₂ emission factor from the technology vendor (124,320 ppmv) by 1,000,000, multiplying by the maximum exhaust flow rate (1,579 scfm), multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of CO₂ (44.01 lb/mole), multiplied by 8760 hours per year and dividing by 2,000 pounds per ton.

The potential hourly CO₂ emissions from the bottom seal gas exhaust were determined by dividing the CO₂ emission factor from the technology vendor (139.5 ppmv) by 1,000,000, multiplying by the maximum exhaust flow rate (40,678 scfm), multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of CO₂ (44.01 lb/mole) resulting in 38.9 lbs/hr from the bottom seal gas exhaust.

The potential CO₂ emissions from the charge hopper exhaust and bottom seal gas vent exhaust combined was determined by multiplying the sum of the charge hopper and bottom seal gas exhaust (1345 lbs/hr + 38.9 lbs/hr) by 8,760 hours per year and dividing by 2,000 pounds per ton.

The permittee has not identified available emission factors for other potential greenhouse gases, so it was assumed that CO₂ emissions were equal to CO₂e. If required, the permittee shall conduct emissions testing using Methods 1, 2, 3A and 4 of 40 CFR Part 60, Appendix A to determine a site-specific emission factor

for CO₂ emissions. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The ton per rolling, 12-month period emission limitations were developed by multiplying the short-term allowable CO emission limitation by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

g. Emission Limitation:

Visible particulate emissions from any stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance with the stack visible particulate emissions limitation shall be determined through visible emissions observations performed in accordance with Method 9 of 40 CFR Part 60, Appendix A.

(2) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. The emission testing shall be conducted within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial startup of the emissions unit.
- b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate(s) for CO, PM₁₀, and PM_{2.5}, in the appropriate averaging period(s) from the bottom seal gas exhaust and with the allowable mass emission rate(s) for CO in the charge hopper exhaust. The emission testing shall also include a determination of opacity from the bottom seal gas vent.
- c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):

For CO, Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A

For PM₁₀ and PM_{2.5}, Method 5 of 40 CFR Part 60, Appendix A and Method 202 of 40 CFR Part 51 Appendix M

For Opacity, Method 9 of 40 CFR Part 60, Appendix A

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

- d. During the emission testing, the emissions unit shall be operated under operational conditions approved in advance by the appropriate Ohio EPA District Office or local air agency. Operational conditions that may need to be approved include, but are not limited to, the production rate, the type of material processed,

material make-up (solvent content, etc.), or control equipment operational limitations (burner temperature, precipitator voltage, etc.). In general, testing shall be done under “worst case” conditions expected during the life of the permit. As part of the information provided in the “Intent to Test” notification form described below, the permittee shall provide a description of the emissions unit operational conditions they will meet during the emissions testing and describe why they believe “worst case” operating conditions will be met. Prior to conducting the test(s), the permittee shall confirm with the appropriate Ohio EPA District Office or local air agency that the proposed operating conditions constitute “worst case”. Failure to test under the approved conditions may result in Ohio EPA not accepting the test results as a demonstration of compliance.

- d. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).
- e. Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- f. The permittee shall record and include in the written emission test report the HBI production rate for each test run (including all HBI passing through the shaft furnace, including commercial, off-specification or unsaleable product and the volume of reformer flue gas bleed off for use as seal gas during each test run.

The permittee shall record the scrubber water flow rate and pressure drop across each scrubber during each test run and include these values in the written test report.

- g. A comprehensive written report on the results of the emission test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.

g) Miscellaneous Requirements

- (1) None.

5. P002, P-3

Operations, Property and/or Equipment Description:

Iron briquetting machine vented to venturi scrubber

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(1)c.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	ORC 3704.03(T)	See b)(2)a.
b.	OAC rule 3745-31-05(A)(3) June 30, 2008	0.07 ton sulfur dioxide (SO ₂) emissions per month averaged over a twelve-month rolling period from the charge hopper exhaust and bottom seal gas exhaust combined. See b)(2)b.
c.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the SO ₂ emissions from this air contaminant source since the potential to emit is less than 10 tons per year. See b)(2)c.
d.	OAC rules 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	2.07 pounds per hour (lbs/hr) and 9.07 tons per rolling, 12-month period Carbon monoxide (CO) emissions 3.94 lbs/hr and 17.25 tons per rolling, 12-month period Nitrogen oxides (NO _x) emissions 0.00757 gr/dscf, 4.10 lbs/hr and 17.96 tons per rolling, 12-month period of particulate matter emissions less than or equal to 10 microns in aerodynamic diameter (PM ₁₀)

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		0.00757 gr/dscf, 4.10 lbs/hr and 17.96 tons per rolling, 12-month period of particulate matter emissions less than or equal to 2.5 microns in aerodynamic diameter (PM _{2.5}) 54,072 tons per rolling, 12-month period carbon dioxide equivalent (CO _{2e}) emissions See b)(2)e. and b)(2)f.
e.	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.
f.	OAC rule 3745-17-11(B)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rules 3745-31-10 through 20.
g.	OAC rule 3745-18-06(E)	See b)(2)d.

(2) Additional Terms and Conditions

- a. Compliance with the requirements of this rule for CO, NOx, PM10 and PM2.5 emissions also includes compliance with the requirements of OAC rules 3745-31-10 through 20.
- b. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
- c. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
- d. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
- e. The emissions from this emissions unit shall be vented to a wet venturi scrubber at all times the emissions unit is in operation.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range or limit for the pressure drop across the scrubber and the scrubber liquid flow rate shall be based upon the manufacturer's specifications until such time as any required performance testing is conducted and the appropriate range for each parameter is established to demonstrate compliance.
- (2) The permittee shall properly install, operate, and maintain equipment to continuously monitor the pressure drop across the scrubber (in pounds per square inch, gauge) and the scrubber liquid flow rate (in gallons per minute) during operation of this/these emissions unit(s), including periods of startup and shutdown. The permittee shall record the pressure drop across the scrubber and the scrubber liquid's flow rate on a daily basis. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee. The acceptable range or limit for the pressure drop across the scrubber and the scrubber liquid flow rate shall be based upon the manufacturer's specifications until such time as any required performance testing is conducted and the appropriate range for each parameter is established to demonstrate compliance.

Whenever the monitored value for any parameter deviates from the range(s) or minimum limit(s) established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. the date and time the deviation began;
- b. the magnitude of the deviation at that time;
- c. the date the investigation was conducted;
- d. the name(s) of the personnel who conducted the investigation; and
- e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the control equipment parameters within the acceptable range(s), or at or above the minimum limit(s) specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- f. a description of the corrective action;
- g. the date the corrective action was completed;
- h. the date and time the deviation ended;
- i. the total period of time (in minutes) during which there was a deviation;

- j. the pressure drop and flow rate readings immediately after the corrective action was implemented; and
- k. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

These range(s) and/or limit(s) for the pressure drop and liquid flow rate are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the permitted range or limit for the pressure drop or liquid flow rate based upon information obtained during future performance tests that demonstrate compliance with the allowable particulate emission rate for this/these emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

- (3) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. whether the emissions are representative of normal operations;
 - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
 - d. the total duration of any visible emissions incident; and
 - e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

e) Reporting Requirements

- (1) The permittee shall submit quarterly deviation (excursion) reports that identify the following for the scrubber:
 - a. each period of time (start time and date, and end time and date) when the pressure drop across the scrubber and/or the liquid flow rate was outside of the appropriate range or limit specified by the manufacturer and outside of the acceptable range following any required compliance demonstration;
 - b. any period of time (start time and date, and end time and date) when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;
 - c. each incident of deviation described in "a" or "b" (above) where a prompt investigation was not conducted;
 - d. each incident of deviation described in "a" or "b" where prompt corrective action, that would bring the pressure drop and/or liquid flow rate into compliance with the acceptable range, was determined to be necessary and was not taken; and
 - e. each incident of deviation described in "a" or "b" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (2) The permittee shall submit semiannual written reports that identify:
 - a. all days during which any visible particulate emissions were observed from the stack serving this emissions unit; and
 - b. any corrective actions taken to minimize or eliminate the visible particulate emissions.

These reports shall be submitted to the Director (the appropriate Ohio EPA District Office or local air agency) by January 31 and July 31 of each year and shall cover the previous 6-month period.

- (3) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

0.07 ton SO₂ emissions per month averaged over a twelve-month rolling period

Applicable Compliance Method:

This emission limitation was determined by dividing the SO₂ emission factor from the technology vendor (0.286 ppmv) by 1,000,000, multiplying by the maximum exhaust flow rate (63,228 scfm), multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of SO₂ (64 lb/mole), multiplied by the maximum annual hours of operation (8,760 hrs/yr), divided by 2,000 pounds per ton, and divided by 12 months per year.

If required, the permittee shall determine a site specific emission factor for SO₂ emissions using Methods 1 through 4 and 6C of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

b. Emission Limitation

2.07 pounds per hour (lbs/hr) and 9.07 tons per rolling, 12-month period CO emissions

Applicable Compliance Method:

The hourly emissions limitation was determined by dividing the CO emission factor from the technology vendor (7.51 ppmv) by 1,000,000, multiplying by the maximum exhaust flow rate (63,228 scfm), multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of CO (28 lb/mole).

If required, the permittee shall demonstrate compliance with the hourly CO emissions limitations using Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

The ton per rolling, 12-month period emission limitation was developed by multiplying the short-term allowable CO emission limitation by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

c. Emission Limitation

3.94 lbs/hr and 17.25 tons per rolling, 12-month period NO_x emissions

Applicable Compliance Method:

The hourly emissions limitation from the charge hopper exhaust was determined by dividing the NO_x emission factor from the technology vendor (8.68 ppmv) by 1,000,000, multiplying by the maximum exhaust flow rate (63,228 scfm),

multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of NO_x (46.1 lb/mole) resulting in 3.306 lbs/hr NO_x.

If required, the permittee shall demonstrate compliance with the hourly NO_x emissions limitations using Methods 1 through 4 and 7E of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

The ton per rolling, 12-month period emission limitation was developed by multiplying the short-term allowable NO_x emission limitation by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

d. Emission Limitation:

0.00757 gr/dscf, 4.10 lbs/hr and 17.96 tons per rolling, 12-month period of PM₁₀;
0.00757 gr/dscf, 4.10 lbs/hr and 17.96 tons per rolling, 12-month period of particulate matter emissions less than or equal to 2.5 microns in aerodynamic diameter (PM_{2.5})

Applicable Compliance Method:

The hourly PM₁₀ and PM_{2.5} emission limitation were determined by multiplying the design PM grain loading (0.00733 gr/dscf) by the design stack flow rate (63,228 scfm), multiplied by 60 minutes per hour, and divided by 7,000 grains per pound for a total of 3.97 lbs/hr PM plus the condensable PM emissions. The potential condensable PM emissions were determined by multiplying the condensable PM grain loading (0.00024 gr/dscf) provided by the technology supplier by the design stack flow rate (63,228 scfm), multiplied by 60 minutes per hour, and divided by 7,000 grains per pound resulting in 0.13 lb/hr condensable PM emissions.

If required, the permittee shall demonstrate compliance with the allowable gr/dscf and hourly PM₁₀ and PM_{2.5} emission limitation using Method 5 of 40 CFR Part 60, Appendix A and Method 202 of 40 CFR Part 51, Appendix M. If required, the permittee shall demonstrate compliance with the allowable hourly PM_{2.5} emission limitation using Methods 201A and 202 of 40 CFR Part 51, Appendix M. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

The ton per rolling, 12-month period emission limitations were developed by multiplying the short-term allowable emission limitations by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

e. Emission Limitation:

54,072 tons per rolling, 12-month period carbon dioxide equivalent (CO₂e)

Applicable Compliance Method:

The allowable emission limitation was determined by dividing the CO₂ emission factor from the technology vendor (28,497 ppmv) by 1,000,000, multiplying by the maximum exhaust flow rate (63,228 scfm), multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of CO₂ (44.01 lb/mole), multiplying by 8760 hours per year and dividing by 2,000 pounds per ton.

The permittee has not identified available emission factors for other potential greenhouse gases, so it was assumed that CO₂ emissions were equal to CO₂e. If required, the permittee shall conduct emissions testing using Methods 1, 2, 3A and 4 of 40 CFR Part 60, Appendix A to determine a site-specific emission factor for CO₂ emissions. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

f. Emission Limitation:

Visible particulate emissions from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.

Applicable Compliance Method:

If required, compliance with the stack visible particulate emissions limitation shall be determined through visible emissions observations performed in accordance with Method 9 of 40 CFR Part 60, Appendix A.

(2) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. The emission testing shall be conducted within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial startup of the emissions unit.
- b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate(s) for CO, PM₁₀, and PM_{2.5}, in the appropriate averaging period(s). The emission testing shall also include a determination of opacity.
- c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):

For CO, Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A

For PM₁₀ and PM_{2.5}, Method 5 of 40 CFR Part 60, Appendix A and Method 202 of 40 CFR Part 51 Appendix M

For Opacity, Method 9 of 40 CFR Part 60, Appendix A

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

- d. During the emission testing, the emissions unit shall be operated under operational conditions approved in advance by the appropriate Ohio EPA District Office or local air agency. Operational conditions that may need to be approved include, but are not limited to, the production rate, the type of material processed, material make-up (solvent content, etc.), or control equipment operational limitations (burner temperature, precipitator voltage, etc.). In general, testing shall be done under "worst case" conditions expected during the life of the permit. As part of the information provided in the "Intent to Test" notification form described below, the permittee shall provide a description of the emissions unit operational conditions they will meet during the emissions testing and describe why they believe "worst case" operating conditions will be met. Prior to conducting the test(s), the permittee shall confirm with the appropriate Ohio EPA District Office or local air agency that the proposed operating conditions constitute "worst case". Failure to test under the approved conditions may result in Ohio EPA not accepting the test results as a demonstration of compliance.
- d. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).
- e. Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- f. The permittee shall record and include in the written emission test report the HBI production rate for each test run (including all HBI passing through the shaft furnace, including commercial, off-specification or unsaleable product.

The permittee shall record the scrubber water flow rate and pressure drop across the scrubber during each test run and include these values in the written test report.
- g. A comprehensive written report on the results of the emission test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.



Final Permit-to-Install
IronUnits LLC - Toledo HBI
Permit Number: P0123395
Facility ID: 0448011992
Effective Date: 2/9/2018

g) Miscellaneous Requirements

(1) None.

6. P003, P-4

Operations, Property and/or Equipment Description:

Iron briquette cooling system vented to venturi scrubber

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	ORC 3704.03(T)	See b)(2)a.
b.	OAC rules 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	0.00763 gr/dscf, 3.80 lbs/hr and 16.64 tons per rolling, 12-month period of particulate matter emissions less than or equal to 2.5 microns in aerodynamic diameter (PM _{2.5}) See b)(2)b. and b)(2)c.
c.	OAC rule 3745-17-07(A)	Visible particulate emissions from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.
d.	OAC rule 3745-17-11(B)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rules 3745-31-10 through 20.

(2) Additional Terms and Conditions

a. Compliance with the requirements of this rule for PM10 and PM2.5 emissions also includes compliance with the requirements of OAC rules 3745-31-10 through 20.

b. The emissions from this emissions unit shall be vented to a wet venturi scrubber at all times the emissions unit is in operation.

c. The permittee has indicated that all PM emissions are emitted as PM2.5.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range or limit for the pressure drop across the scrubber and the scrubber liquid flow rate shall be based upon the manufacturer's specifications until such time as any required performance testing is conducted and the appropriate range for each parameter is established to demonstrate compliance.
- (2) The permittee shall properly install, operate, and maintain equipment to continuously monitor the pressure drop across the scrubber (in pounds per square inch, gauge) and the scrubber liquid flow rate (in gallons per minute) during operation of this/these emissions unit(s), including periods of startup and shutdown. The permittee shall record the pressure drop across the scrubber and the scrubber liquid's flow rate on a daily basis. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee. The acceptable range or limit for the pressure drop across the scrubber and the scrubber liquid flow rate shall be based upon the manufacturer's specifications until such time as any required performance testing is conducted and the appropriate range for each parameter is established to demonstrate compliance.

Whenever the monitored value for any parameter deviates from the range(s) or minimum limit(s) established in accordance with this permit, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. the date and time the deviation began;
- b. the magnitude of the deviation at that time;
- c. the date the investigation was conducted;
- d. the name(s) of the personnel who conducted the investigation; and
- e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the control equipment parameters within the acceptable range(s), or at or above the minimum limit(s) specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

- f. a description of the corrective action;
- g. the date the corrective action was completed;

- h. the date and time the deviation ended;
- i. the total period of time (in minutes) during which there was a deviation;
- j. the pressure drop and flow rate readings immediately after the corrective action was implemented; and
- k. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

These range(s) and/or limit(s) for the pressure drop and liquid flow rate are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA District Office or local air agency. The permittee may request revisions to the permitted range or limit for the pressure drop or liquid flow rate based upon information obtained during future performance tests that demonstrate compliance with the allowable particulate emission rate for this/these emissions unit(s). In addition, approved revisions to the range or limit will not constitute a relaxation of the monitoring requirements of this permit and may be incorporated into this permit by means of an administrative modification.

- (3) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

- a. the color of the emissions;
- b. whether the emissions are representative of normal operations;
- c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
- d. the total duration of any visible emissions incident; and
- e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

e) Reporting Requirements

- (1) The permittee shall submit quarterly deviation (excursion) reports that identify the following for the scrubber:
 - a. each period of time (start time and date, and end time and date) when the pressure drop across the scrubber and/or the liquid flow rate was outside of the appropriate range or limit specified by the manufacturer and outside of the acceptable range following any required compliance demonstration;
 - b. any period of time (start time and date, and end time and date) when the emissions unit(s) was/were in operation and the process emissions were not vented to the scrubber;
 - c. each incident of deviation described in "a" or "b" (above) where a prompt investigation was not conducted;
 - d. each incident of deviation described in "a" or "b" where prompt corrective action, that would bring the pressure drop and/or liquid flow rate into compliance with the acceptable range, was determined to be necessary and was not taken; and
 - e. each incident of deviation described in "a" or "b" where proper records were not maintained for the investigation and/or the corrective action(s), as identified in the monitoring and record keeping requirements of this permit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (2) The permittee shall submit semiannual written reports that identify:
 - a. all days during which any visible particulate emissions were observed from the stack serving this emissions unit; and
 - b. any corrective actions taken to minimize or eliminate the visible particulate emissions.

These reports shall be submitted to the Director (the appropriate Ohio EPA District Office or local air agency) by January 31 and July 31 of each year and shall cover the previous 6-month period.

- (3) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

0.00763 gr/dscf, 3.80 lbs/hr and 16.64 tons per rolling, 12-month period of PM2.5 emissions

Applicable Compliance Method:

The hourly emission limitation was determined by multiplying the design PM grain loading (0.00763 gr/dscf) by the design stack flow rate (58,111 scfm), multiplied by 60 minutes per hour, and divided by 7,000 grains per pound. The permittee assumes that all PM emissions will be emitted as PM2.5.

If required, the permittee shall demonstrate compliance with the allowable hourly PM emission limitation using Method 5 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

The ton per rolling, 12-month period emission limitations were developed by multiplying the short-term allowable PM10 emission limitation by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

b. Emission Limitation:

Visible particulate emissions from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.

Applicable Compliance Method:

Compliance with the stack visible particulate emissions limitation shall be determined through visible emissions observations performed in accordance with Method 9 of 40 CFR Part 60, Appendix A.

(2) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

- a. The emission testing shall be conducted within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial startup of the emissions unit.
- b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate(s) for PM2.5, in the appropriate averaging period(s). The emission testing shall also include a determination of opacity.
- c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):

For PM2.5, Method 5 of 40 CFR Part 60, Appendix A

For Opacity, Method 9 of 40 CFR Part 60, Appendix A

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

- d. During the emission testing, the emissions unit shall be operated under operational conditions approved in advance by the appropriate Ohio EPA District Office or local air agency. Operational conditions that may need to be approved include, but are not limited to, the production rate, the type of material processed, material make-up (solvent content, etc.), or control equipment operational limitations (burner temperature, precipitator voltage, etc.). In general, testing shall be done under "worst case" conditions expected during the life of the permit. As part of the information provided in the "Intent to Test" notification form described below, the permittee shall provide a description of the emissions unit operational conditions they will meet during the emissions testing and describe why they believe "worst case" operating conditions will be met. Prior to conducting the test(s), the permittee shall confirm with the appropriate Ohio EPA District Office or local air agency that the proposed operating conditions constitute "worst case". Failure to test under the approved conditions may result in Ohio EPA not accepting the test results as a demonstration of compliance.
- d. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).
- e. Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- f. The permittee shall record and include in the written emission test report the HBI production rate for each test run (including all HBI passing through the shaft furnace, including commercial, off-specification or unsaleable product.

The permittee shall record the scrubber water flow rate and pressure drop across the scrubber during each test run and include these values in the written test report.
- g. A comprehensive written report on the results of the emission test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.



Final Permit-to-Install
IronUnits LLC - Toledo HBI
Permit Number: P0123395
Facility ID: 0448011992
Effective Date: 2/9/2018

- g) Miscellaneous Requirements
 - (1) None.

7. P004, P-5

Operations, Property and/or Equipment Description:

Process water degasser

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	ORC 3704.03(T)	See b)(2)a.
b.	OAC rules 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	24.26 pounds per hour (lbs/hr) and 106.24 tons per rolling, 12-month period Carbon monoxide (CO) emissions 1,105 tons per rolling, 12-month period carbon dioxide equivalent (CO ₂ e) emissions

(2) Additional Terms and Conditions

a. Compliance with the requirements of this rule for CO emissions also includes compliance with the requirements of OAC rules 3745-31-10 through 20.

b. The emissions limitations for CO and CO₂e were established to reflect the emission unit's uncontrolled potential to emit. Therefore, no monitoring, record keeping, and reporting requirements are necessary to ensure ongoing compliance with these emissions limitations.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) None.

e) Reporting Requirements

(1) None.

f) Testing Requirements

(1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation

24.26 pounds per hour (lbs/hr) and 106.24 tons per rolling, 12-month period CO emissions

Applicable Compliance Method:

The hourly emissions limitation was determined by dividing the CO emission factor from the technology vendor (370.92 ppmv) by 1,000,000, multiplying by the maximum exhaust flow rate (15,002 scfm), multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of CO (28 lb/mole) resulting in 24.256 lbs/hr CO.

If required, the permittee shall demonstrate compliance with the hourly CO emissions limitations using Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA.

The ton per rolling, 12-month period emission limitation was developed by multiplying the short-term allowable CO emission limitation by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation, compliance shall also be shown with the annual emission limitation.

b. Emission Limitation:

1,105 tons per rolling, 12-month period carbon dioxide equivalent (CO₂e)

Applicable Compliance Method:

The CO₂e emissions limitation was determined by dividing the CO₂ emission factor from the technology vendor (2,454.48 ppmv) by 1,000,000, multiplying by the maximum exhaust flow rate (15,002 scfm), multiplied by 60 minutes per hour, divided by the standard molar volume (385.4 ft³/lb-mole), multiplied by the molecular weight of CO₂ (44.01 lb/mole), multiplying by 8760 hours per year and dividing by 2,000 pounds per ton.

The permittee has not identified available emission factors for other potential greenhouse gases, and assumed that CO₂ emissions were equal to CO₂e. If required, the permittee shall conduct emissions testing using Methods 1, 2, 3A and 4 of 40 CFR Part 60, Appendix A to determine a site-specific emission factor

for CO₂ emissions. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

- (2) The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:
- a. The emission testing shall be conducted within 60 days after achieving the maximum production rate at which the emissions unit will be operated, but not later than 180 days after initial startup of the emissions unit.
 - b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rate(s) for CO, in the appropriate averaging period(s).
 - c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s):

For CO, Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

- d. During the emission testing, the emissions unit shall be operated under operational conditions approved in advance by the appropriate Ohio EPA District Office or local air agency. Operational conditions that may need to be approved include, but are not limited to, the production rate, the type of material processed, material make-up (solvent content, etc.), or control equipment operational limitations (burner temperature, precipitator voltage, etc.). In general, testing shall be done under "worst case" conditions expected during the life of the permit. As part of the information provided in the "Intent to Test" notification form described below, the permittee shall provide a description of the emissions unit operational conditions they will meet during the emissions testing and describe why they believe "worst case" operating conditions will be met. Prior to conducting the test(s), the permittee shall confirm with the appropriate Ohio EPA District Office or local air agency that the proposed operating conditions constitute "worst case". Failure to test under the approved conditions may result in Ohio EPA not accepting the test results as a demonstration of compliance.
- d. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit



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and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

- e. A comprehensive written report on the results of the emission test(s) shall be signed by the person or persons responsible for the tests and submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the appropriate Ohio EPA District Office or local air agency.

g) Miscellaneous Requirements

- (1) None.

8. P005, P-7

Operations, Property and/or Equipment Description:

4 cell wet cooling tower equipped with a high efficiency drift eliminator

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(1)b.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) June 30, 2008	See b)(2)a. and b)(2)b.
b.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM _{2.5} or PM ₁₀ emissions from this air contaminant source since the potential to emit is less than 10 tons per year. See b)(2)c.
c.	OAC rules 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	Particulate matter emissions less than or equal to 10 microns in aerodynamic diameter (PM ₁₀) shall not exceed 0.02 pound per hour (lb/hr) and 0.09 ton per rolling, 12-month period. Particulate matter emissions less than or equal to 2.5 microns in aerodynamic diameter (PM _{2.5}) shall not exceed 0.01 lb/hr and 0.06 ton per rolling, 12-month period. The permittee shall install a drift eliminator with a maximum drift rate of 0.0005% on this emissions unit.
d.	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.
e.	OAC rule 3745-17-11(B)	See b)(2)d.

- (2) Additional Terms and Conditions
 - a. Compliance with the requirements of this rule for PM10 and PM2.5 emissions also includes compliance with the requirements of OAC rules 3745-31-10 through 20.
 - b. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
 - c. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
 - d. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rules 3745-31-10 through 20.
- c) Operational Restrictions
 - (1) The permittee shall maintain the total dissolved solids (TDS) concentration of the cooling water less than or equal to 1,100 parts per million by weight (ppmw).
- d) Monitoring and/or Recordkeeping Requirements
 - (1) The permittee shall properly install, operate, and maintain a conductivity meter or other equipment to continuously monitor and record the TDS concentration of the cooling tower water. The monitoring devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.
 - (2) Since the TDS data measured by the conductivity meter or other equipment is based on a correlation between conductivity and TDS, an exceedance measured by the conductivity meter or equivalent is not a violation of the TDS operational restriction, but rather serves as an indicator to initiate corrective action by the permittee to reduce the TDS concentration.
- e) Reporting Requirements
 - (1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
 - a. Any exceedances of the TDS content restriction of 1,100 mg/l.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.
 - (2) Prior to startup, the permittee shall submit written documentation provided by the vendor/manufacturer of the maximum drift rate of 0.0005% for the drift eliminator and the premise, basis and justification for the drift rate.

- (3) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

PM10 emissions shall not exceed 0.02 lb/hr and 0.09 tons per rolling, 12-month period.

Applicable Compliance Method:

The potential lb/hr PM10 emissions were calculated by multiplying the maximum re-circulating water flow rate (24,766 gal/min) by the maximum TDS concentration (1,100 ppmw) dividing by 10^6 , multiplying by the density of water (8.345 lb/gal), multiplying by the decimal fraction drift loss (0.0005/100) and multiplying by the particle size multiplier (0.315 for PM10 from Maricopa County Arizona Air Quality Department) to obtain the pound per hour PM10 emissions.

The annual emission limitation was established by multiplying the hourly emission limitation (0.02 lb/hr) by the maximum annual hours of operation (8,760 hrs/yr) and dividing by (2,000 lbs/ton).

Compliance with the hourly and annual emission limitation will be assumed provided that the TDS concentration recorded in d) remains less than 1,100 ppmw.

b. Emission Limitation:

PM2.5 emissions shall not exceed 0.01 lb/hr and 0.06 tons per rolling, 12-month period.

Applicable Compliance Method:

The potential lb/hr PM2.5 emissions were calculated by multiplying the maximum re-circulating water flow rate (24,766 gal/min) by the maximum TDS concentration (1,100 ppmw) dividing by 10^6 , multiplying by the density of water (8.345 lb/gal), multiplying by the decimal fraction drift loss (0.0005/100) and multiplying by the particle size multiplier (0.189 for PM2.5 from Maricopa County Arizona Air Quality Department) to obtain the pound per hour PM10 emissions.

The annual emission limitation is based on multiplying the hourly emission limitation (0.01 lb/hr) by the maximum annual hours of operation (8,760 hrs/yr) and dividing by (2,000 lbs/ton).



Compliance with the hourly and annual emissions limitation will be assumed provided that the TDS concentration recorded in d) remains less than 1,100 mg/l.

c. Emission Limitation:

The permittee shall install a drift eliminator with a maximum drift rate of 0.0005% on this emissions unit.

Applicable Compliance Method:

Manufacturer's emissions data shall be used to demonstrate compliance with this limitation.

d. Emission Limitation:

The permittee shall maintain the TDS concentration of the cooling water less than or equal to 1,100 ppmw.

Applicable Compliance Method:

Compliance shall be demonstrated based upon the monitoring and record keeping requirements specified in d)(1) and d)(2).

If required, compliance shall be demonstrated using test procedures that conform to regulation 40 CFR Part 136, "Test Procedures for the Analysis of Pollutants". Alternative U.S. EPA-approved test methods may be used with prior written approval from the Ohio EPA.

e. Emission Limitation:

Visible particulate emissions shall not exceed 20% opacity as a 6-minute average. The presence of condensed water vapor shall not be deemed a violation for failure of stack emissions meeting this visible emission limitation.

Applicable Compliance Method:

If required, compliance with the stack visible particulate emission limitation shall be demonstrated through visible emission observations performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

g) Miscellaneous Requirements

(1) None.

9. P006, P-8

Operations, Property and/or Equipment Description:

250 hp emergency diesel-fueled fire pump

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(1)b.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) June 30, 2008	See b)(2)a. and b)(2)b.
b.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM _{2.5} , PM ₁₀ , NO _x , CO, SO ₂ , or VOC emissions from this air contaminant source since the potential to emit is less than 10 tons per year. See b)(2)c.
c.	OAC rules 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	Carbon monoxide (CO) emissions shall not exceed 3.5 g/kW-hr, 1.4 pounds per hour (lbs/hr), and 0.36 ton per rolling, 12-month period. Nitrogen oxides (NO _x) emissions shall not exceed 4.0 g/kW-hr, 1.6 lbs/hr, and 0.41 ton per rolling, 12-month period. Particulate matter emissions less than or equal to 10 microns in aerodynamic diameter (PM ₁₀) and particulate matter less than or equal to 2.5 microns in aerodynamic diameter (PM _{2.5}) shall not exceed 0.24 g/kW-hr, 0.10 lb/hr, and 0.02 ton per rolling, 12-month period. Carbon dioxide equivalent (CO ₂ e)

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		emissions shall not exceed 163.6 lb/mmBtu heat input and 79 tons per rolling, 12-month period. See b)(2)d.
d.	OAC rule 3745-17-07(A)	Visible particulate emissions from the stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
e.	OAC rule 3745-17-11(B)(5)(a)	See b)(2)e.
f.	OAC rule 3745-18-06(B)	Exemption due to having a maximum heat input less than 10 mmBtu/hr
g.	OAC rule 3745-110-03(K)(16) and (K)(19)	Exemption. See b)(2)f.
h.	40 CFR Part 60, Subpart A (40 CFR 60.1 - 60.19)	Table 8 to Subpart IIII of 40 CFR Part 60 – Applicability of General Provisions to Subpart IIII shows which parts of the General Provisions in 40 CFR 60.1 - 60.19 apply.
i.	40 CFR Part 60, Subpart IIII (40 CFR 60.4200 – 60.4219) [In accordance with 40 CFR 60.4200(a)(2), this emissions unit is a compression ignition stationary internal combustion fire pump engine for which construction commenced after July 11, 2005 subject to the emissions limitation/control measures specified in this section.]	Non-methane hydrocarbon (NMHC) + NO _x emissions shall not exceed 4.0 g/kW-hr (3.0 g/hp-hr). CO emissions shall not exceed 3.5 g/kW-hr (2.6 g/hp-hr). PM emissions shall not exceed 0.20 g/kW-hr (0.15 g/hp-hr). See b)(2)g. and b)(2)h. [60.4205(c) and 60.4207(b)]
j.	40 CFR Part 63, Subpart ZZZZ (40 CFR 63.6580 - 63.6675) [In accordance with 40 CFR 63.6590(c)(1), this emissions unit is a new stationary reciprocating internal combustion engine (RICE) located at an area source of HAP emissions subject to the emissions limitation/control measures specified in this section.]	See b)(2)h. [63.6580, 63.6585 and 63.6590(c)(1)]
k.	40 CFR Part 63, Subpart A (40 CFR 63.1 - 63.16)	Table 8 to Subpart ZZZZ of 40 CFR Part 63 – Applicability of General Provisions to Subpart ZZZZ shows which parts of the



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		General Provisions in 40 CFR 63.1 - 63.16 apply.

(2) Additional Terms and Conditions

- a. Compliance with the requirements of this rule also includes compliance with the g/kW-hr emissions limitations for CO and NOx established under OAC rules 3745-10 through 20.
- b. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
- c. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
- d. The maximum annual operating hours for this emissions unit shall not exceed 500 hours, based upon a rolling, 12-month summation of the operating hours.
- e. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rules 3745-31-10 through 20.
- f. The requirements of this rule do not apply since:
 - i. NOX emissions are restricted to less than 25 tons per year; and
 - ii. the emissions unit is subject to a BACT limitation for NOX.
- g. The permittee shall only combust ULSD fuel in this emissions unit meeting the following standards:
 - i. 15 ppm maximum sulfur content; and
 - ii. a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.

Compliance with the above-mentioned specifications shall be determined by using the analytical results provided by the permittee or oil supplier for each shipment of oil.

The permittee will require ULSD suppliers to provide certified test data indicating compliance with the permit sulfur content specifications prior to accepting ULSD delivery (noncompliant ULSD will not be accepted).

If noncompliant ULSD is mistakenly taken, the permittee will not combust any of the delivered ULSD upon discovery of any deviation from permit terms and conditions, and will require the supplier to remove the ULSD from the tank or

provide other corrective action (such as adding cleaner fuel to the tank) to allow the overall tank contents to comply with the permit.

If the ULSD supplier information is not available, the permittee will take ULSD samples upon delivery and obtain results using the "quick" turnaround option from a certified laboratory.

- h. The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart IIII, including the following sections.

60.4218	General Provisions
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- c) Operational Restrictions

- (1) See 40 CFR Part 60, Subpart IIII (40 CFR 60.4200 through 60.4219).

- d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall maintain monthly records of the following information:
 - a. the operating hours for each month; and
 - b. beginning after the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the rolling, 12-month summation of the operating hours.

Also, during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall record the cumulative operating hours for each calendar month.

- (2) For each shipment of ULSD fuel received for burning in this emissions unit, the permittee shall maintain records of the oil supplier's (or permittee's) analyses for sulfur content in parts per million (40 CFR 80.510). The permittee shall perform or require the supplier to perform the analyses for sulfur content in accordance with 40 CFR 80.585.
 - (3) The permittee shall also maintain documentation of supplier verification that the ULSD fuel as purchased has a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.
 - (4) See 40 CFR Part 60, Subpart IIII (40 CFR 60.4200 through 60.4219)..

- e) Reporting Requirements

- (1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
 - a. each shipment of ULSD fuel received for burning in this emissions unit that did not comply with the standards specified in b)(2)h;

- b. the permittee shall report any ULSD deviation within 30 days of receiving noncompliant ULSD; and
- c. all exceedances of the rolling, 12-month limitation on the hours of operation for this emissions unit.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (2) See 40 CFR Part 60, Subpart IIII (40 CFR 60.4200 through 60.4219).
- (3) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) **Testing Requirements**

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

- a. **Emission Limitation:**

CO emissions shall not exceed 3.5 g/kW-hr, 1.4 lbs/hr, and 0.36 ton per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr limitation is based on the standard specified in Table 4 to 40 CFR Part 60, Subpart IIII. The hourly emission limitation was developed by multiplying the maximum operating load (186 kW mechanical) by the g/kW-hr CO emission limitation (3.5 g/kW-hr), and then dividing by (454 g/lb) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the g/kW-hr limitation and hourly emission limitation using Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (1.4 lbs/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation and operating hours restriction is shown.

- b. **Emission Limitation:**

NOX emissions shall not exceed 4.0 g/kW-hr, 1.6 lbs/hr, and 0.41 ton per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr limitation is based on the combined NOX + NMHC emission limitation specified by the Table 4 to 40 CFR Part 60, Subpart IIII (4.0 g/kW-hr) which within the application all 4.0 g/kW-hr is NOX, based off the worst case scenario. The hourly emission limitation was developed by multiplying the maximum operating load (186 kW mechanical) by the g/kW-hr NOX emission limitation (4.0 g/kW-hr), and then dividing by (454 g/lb) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the g/kW-hr limitation and hourly emission limitation using Methods 1 through 4 and 7E of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (1.6 lbs/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation and operating hours restriction is shown.

c. Emission Limitation:

PM10/PM2.5 emissions shall not exceed 0.24 g/kW-hr, 0.10 lb/hr, and 0.02 ton per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr limitation is based on potential emissions calculated using the filterable PM limitation specified by Table 4 to 40 CFR Part 60 Subpart IIII (0.2 g/kW-hr) plus the condensable PM emission factor specified in AP-42 Table 3.4-2 dated 10/96 (0.0077 lb/mmBtu) multiplied by 454 g/lb divided by the maximum operating load (186 kW) and multiplied by the maximum heat input (1.93 mmBtu/hr). The hourly emission limitation was determined by multiplying the maximum operating load (186 kW mechanical) by the PM10/PM2.5 emission limitation (0.24 g/kW-hr) divided by (454 g/lb) to determine the potential hourly filterable PM10/PM2.5 emissions.

If required, the permittee shall demonstrate compliance with the g/kW-hr limitation and hourly emission limitation using Methods 201 or 201A and 202 of 40 CFR Part 51, Appendix M. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the g/kW limitation (0.24 g/kW-hr) by the maximum operating load (186 kW), divided by 454 grams per pound, multiplied by the maximum annual operating hours (500 hrs/yr) divided by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation is shown.

d. Emission Limitation:

CO₂e emissions shall not exceed 163.6 lb/mmBtu and 79 tons per rolling, 12-month period.

Applicable Compliance Method:

This lb/mmBtu emission limitation was established to reflect the potential to emit for this emissions unit using the emission factors from Tables C-1 and C-2 to 40 CFR Part 98 Subpart C for CO₂ (73.96 kg/mmBtu), N₂O (6.0E-04 kg/mmBtu), and CH₄ (3.0E-03 kg/mmBtu, multiplied by the global warming potentials for CO₂, N₂O, and CH₄ (1, 298, and 25, respectively) from Table A-1 to Subpart A of 40 CFR 98).

$$\left[\left(73.96 \frac{kg}{mmBtu} (1) \right) + \left(6.0E - 04 \frac{kg}{(mmBtu)} \right) (298) \right. \\ \left. + \left(3.0E - 03 \frac{kg}{mmBtu} \right) x (25) \right] x \left(\frac{2.2046 lb}{kg} \right) = 163.6 \frac{lb}{mmBtu} CO_2e$$

If required, the permittee shall conduct emissions testing using Methods 1, 2, 3A and 4 of 40 CFR Part 60, Appendix A to determine the lb/hr CO₂ emission rate. Since the CO₂e emissions are estimated to consist of over 99% CO₂, compliance with this emission limitation will be assumed provided that the CO₂ emission rate does not exceed 163 lbs/mmBtu. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was determined by multiplying the CO₂e emission factor (163.6 lb/mmBtu) by the maximum heat input (1.93 mmBtu/hr), multiplied by the maximum annual hours of operation of 500 hrs/yr and divided by 2,000 pounds per ton.

e. Emission Limitation:

The permittee shall only combust ultra low sulfur fuel (ULSD) fuel in this emissions unit meeting the following standard: 15 ppm maximum sulfur content.

Applicable Compliance Method:

Compliance shall be demonstrated based upon the record keeping requirements specified in d)(2).

f. Emission Limitation:

The permittee shall only combust ULSD fuel in this emissions unit meeting the following standard: a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.

Applicable Compliance Method:

Compliance shall be demonstrated based upon the record keeping requirements specified in d)(2) and d)(3).

g. Emission Limitation:

Visible particulate emissions from the stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

h. Emission Limitation:

NMHC + NOX emissions shall not exceed 4.0 g/kW-hr (3.0 g/hp-hr).

CO emissions shall not exceed 3.5 g/kW-hr (2.6 g/hp-hr).

PM emissions shall not exceed 0.20 g/kW-hr (0.15 g/hp-hr).

Applicable Compliance Method:

According to 40 CFR 60.4211(c), the permittee shall demonstrate compliance with these emission limitations by purchasing an engine certified to the emission standards in 40 CFR 60.4205(c) for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in 40 CFR 60.4211(g).

g) Miscellaneous Requirements

(1) None.

10. P007, P-9

Operations, Property and/or Equipment Description:

2,000 kW (2,682 hp) emergency diesel-fired generator

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(1)b.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) June 30, 2008	Volatile organic compound (VOC) emissions shall not exceed 0.04 ton per month averaged over a twelve-month rolling period See b)(2)a. through and b)(2)c.
b.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the CO, NO _x , PM _{2.5} , PM ₁₀ , SO ₂ , or VOC emissions from this air contaminant source since the potential to emit is less than 10 tons per year. See b)(2)d.
c.	OAC rules 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	Carbon monoxide (CO) emissions shall not exceed 3.5 g/kW-hr, 15.4 pounds per hour (lbs/hr), and 3.86 tons per rolling, 12-month period. Nitrogen oxides (NO _x) emissions shall not exceed 6.4 g/kW-hr, 28.2 lbs/hr, and 7.05 tons per rolling, 12-month period Particulate matter emissions less than or equal to 10 microns in aerodynamic diameter (PM ₁₀) and particulate matter less than or equal to 2.5 microns in aerodynamic diameter (PM _{2.5}) shall not

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>exceed 0.23 g/kW-hr, 1.01 lb/hr, and 0.25 ton per rolling, 12-month period.</p> <p>Carbon dioxide equivalent (CO₂e) emissions shall not exceed 163.6 lb/mmBtu heat input and 683 tons per rolling, 12-month period.</p> <p>See b)(2)e..</p>
d.	OAC rule 3745-17-07(A)	Visible particulate emissions from the stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
e.	OAC rule 3745-17-11(B)(5)(a)	See b)(2)f.
f.	OAC rule 3745-18-06(G)	Less stringent than 40 CFR Part 60, Subpart IIII.
g.	OAC rule 3745-110-03(K)(2)	Exemption. See b)(2)g.
h.	40 CFR Part 60, Subpart A (40 CFR 60.1 - 60.19)	Table 8 to Subpart IIII of 40 CFR Part 60 – Applicability of General Provisions to Subpart IIII shows which parts of the General Provisions in 40 CFR 60.1 - 60.19 apply.
i.	<p>40 CFR Part 60, Subpart IIII (40 CFR 60.4200 – 60.4219)</p> <p>[In accordance with 40 CFR 60.4200(a)(2), this emissions unit is a compression ignition emergency stationary internal combustion engine (CI ICE) for which construction commenced after July 11, 2005 subject to the emissions limitation/control measures specified in this section.]</p>	<p>Non-methane hydrocarbon (NMHC) + NO_x emissions shall not exceed 6.4 g/kW-hr.</p> <p>CO emissions shall not exceed 3.5 g/kW-hr.</p> <p>PM emissions shall not exceed 0.20 g/kW-hr.</p> <p>Exhaust opacity shall not exceed: 20 percent during acceleration mode; 15 percent during lugging mode; and 50 percent during the peaks in either the acceleration or lugging modes.</p> <p>See b)(2)h. and b)(2)i.</p> <p>[60.4205(b) and 60.4207(b)]</p>
j.	<p>40 CFR Part 63, Subpart ZZZZ (40 CFR 63.6580 - 63.6675)</p> <p>[In accordance with 40 CFR 63.6590(c)(1), this emissions unit is</p>	<p>See b)(2)i.</p> <p>[63.6580, 63.6585 and 63.6590(c)(1)]</p>

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	a new stationary internal combustion engine (RICE) located at an area source of HAP emissions subject to the emissions limitation/control measures specified in this section.]	
k.	40 CFR Part 63, Subpart A (40 CFR 63.1 – 40 CFR 63.16)	Table 8 to Subpart ZZZZ of 40 CFR Part 63 – Applicability of General Provisions to Subpart ZZZZ shows which parts of the General Provisions in 40 CFR 63.1 - 63.16 apply.

(2) Additional Terms and Conditions

- a. Compliance with the requirements of this rule also includes compliance with the g/kW-hr emissions limitations for CO and NOx established under OAC rules 3745-10 through 20.
- b. Compliance with the requirements of this rule also includes compliance with the g/kW-hr emissions limitations for PM10 and PM2.5 established under OAC rules 3745-31-10 through 20.
- c. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
- d. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
- e. The maximum annual operating hours for this emissions unit shall not exceed 500 hours, based upon a rolling, 12-month summation of the operating hours.
- f. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rules 3745-31-10 through 20.
- g. The requirements of this rule do not apply since this emissions unit is an emergency stationary internal combustion engine which operates less than five hundred hours during any consecutive twelve-month period.
- h. The permittee shall only combust ultra low sulfur diesel (ULSD) fuel in this emissions unit meeting the following standards:
 - i. 15 ppm maximum sulfur content; and
 - ii. a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.



Compliance with the above-mentioned specifications shall be determined by using the analytical results provided by the permittee or oil supplier for each shipment of oil.

The permittee will require ULSD suppliers to provide certified test data indicating compliance with the permit sulfur content specifications prior to accepting ULSD delivery (noncompliant ULSD will not be accepted).

If noncompliant ULSD is mistakenly taken, the permittee will not combust any of the delivered ULSD upon discovery of any deviation from permit terms and conditions, and will require the supplier to remove the ULSD from the tank or provide other corrective action (such as adding cleaner fuel to the tank) to allow the overall tank contents to comply with the permit.

If the ULSD supplier information is not available, the permittee will take ULSD samples upon delivery and obtain results using the "quick" turnaround option from a certified laboratory.

- i. The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart IIII, including the following sections.

60.4218	General Provisions
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c) Operational Restrictions

- (1) See 40 CFR Part 60, Subpart IIII (40 CFR 60.4200 through 60.4219).

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall maintain monthly records of the following information:
 - a. the operating hours for each month; and
 - b. beginning after the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the rolling, 12-month summation of the operating hours.

Also, during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall record the cumulative operating hours for each calendar month.

- (2) For each shipment of ULSD fuel received for burning in this emissions unit, the permittee shall maintain records of the oil supplier's (or permittee's) analyses for sulfur content in parts per million (40 CFR 80.510). The permittee shall perform or require the supplier to perform the analyses for sulfur content in accordance with 40 CFR 80.585.
- (3) The permittee shall also maintain documentation of supplier verification that the ULSD fuel as purchased has a minimum cetane index of 40 or a maximum aromatic content of ≤ 35 volume percent.

(4) See 40 CFR Part 60, Subpart IIII (40 CFR 60.4200 through 60.4219).

e) Reporting Requirements

(1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

- a. each shipment of ULSD fuel received for burning in this emissions unit that did not comply with the standards specified in b)(2)h; and
- b. all exceedances of the rolling, 12-month limitation on the hours of operation for this emissions unit; and for the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, all exceedances of the maximum allowable cumulative hours of operation.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

(2) See 40 CFR Part 60, Subpart IIII (40 CFR 60.4200 through 60.4219).

(3) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

(1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

CO emissions shall not exceed 3.5 g/kW-hr, 15.4 lbs/hr, and 3.86 tons per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr limitation is based on the standard specified in Table 4 to 40 CFR Part 60, Subpart IIII. The hourly emission limitation was developed by multiplying the maximum operating load (2,000 kW mechanical) by the g/kW-hr CO emission limitation (3.5 g/kW-hr), and then dividing by (454 g/lb) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the g/kW-hr limitation and hourly emission limitation using Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (15.4 lbs/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual

limitation shall be demonstrated if compliance with the hourly limitation and operating hours restriction is shown.

b. Emission Limitation:

NO_x emissions shall not exceed 6.4 g/kW-hr, 28.2 lbs/hr, and 7.05 tons per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr limitation is based on the combined NO_x + NMHC emission limitation specified by the Tier 2 standard in 40 CFR 89.112(a) Table 1 (6.4 g/kW-hr), which within the application all 6.4 g/kWh is NO_x, based off the worst case scenario. The hourly emission limitation was developed by multiplying the maximum operating load (2,000 kW mechanical) by the NO_x g/kW-hr emission limitation (6.4 g/kW-hr) divided by (454 g/lb) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the g/kW-hr limitation and hourly emission limitation using Methods 1 through 4 and 7E of 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (28.2 lbs/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation and operating hours restriction is shown.

c. Emission Limitation:

PM₁₀/PM_{2.5} emissions shall not exceed 0.23 g/kW-hr, 1.01 lb/hr, and 0.25 ton per rolling, 12-month period.

Applicable Compliance Method:

The g/kW-hr limitation is based on potential emissions calculated using the filterable PM limitation specified by the Tier 2 standard in 40 CFR 89.112(a) Table 1 (0.2 g/kW-hr) plus the potential emissions calculated using the condensable PM emission factor specified in AP-42 Table 3.4-2 dated 10/96 (0.0077 lb/mmBtu) multiplied by 454 g/lb divided by the maximum operating load (2,000 kW) and multiplied by the maximum heat input (16.7 mmBtu/hr).

The hourly emission limitation was developed by multiplying the g/kW-hr emission limitation (0.23 g/kW-hr) by the maximum operating load (2,000 kW) and divided 454 g/lb.

If required, the permittee shall demonstrate compliance with the g/kW-hr limitation and hourly emission limitation using Methods 201 or 201A and 202 of 40 CFR Part 51, Appendix M. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (1.01 lb/hr) by the maximum annual operating hours (500 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation and operating hours restriction is shown.

d. Emission Limitation:

VOC emissions shall not exceed 0.04 ton per month averaged over a twelve-month rolling period

Applicable Compliance Method:

This emission limitation was established to reflect the potential to emit for VOC by multiplying the maximum operating load (2,682 hp) by the VOC emission factor from AP-42 Table 3.4-1 dated 10/96 (0.00064 lb/hp-hr) multiplied by 500 hours per year, divided by 2,000 pounds per ton and divided by 12 months per year.

If required, the permittee shall determine a site-specific emission factor for VOC emissions using Methods 1 through 4 and 18, 25 or 25A, as appropriate, of 40 CFR Part 60, Appendix A. Use of Method 18, 25 or 25A is to be selected based on the results of pre-survey stack sampling and U.S. EPA guidance documents. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

e. Emission Limitation:

CO₂e emissions shall not exceed 163.6 lb/mmBtu and 683 tons per rolling, 12-month period.

Applicable Compliance Method:

This lb/mmBtu emission limitation was established to reflect the potential to emit for this emissions unit using the emission factors from Tables C-1 and C-2 to 40 CFR Part 98 Subpart C for CO₂ (73.96 kg/mmBtu), N₂O (6.0E-04 kg/mmBtu), and CH₄ (3.0E-03 kg/mmBtu, multiplied by the global warming potentials for CO₂, N₂O, and CH₄ (1, 298, and 25, respectively) from Table A-1 to Subpart A of 40 CFR 98).

$$\left[\left(73.96 \frac{kg}{mmBtu} (1) \right) + \left(6.0E - 04 \frac{kg}{(mmBtu)} \right) (298) + \left(3.0E - 03 \frac{kg}{mmBtu} \right) x (25) \right] x \left(\frac{2.2046 lb}{kg} \right) = 163.6 \frac{lb}{mmBtu} CO_2e$$

If required, the permittee shall conduct emissions testing using Methods 1, 2, 3A and 4 of 40 CFR Part 60, Appendix A to determine the lb/hr CO₂ emission rate. Since the CO₂e emissions are estimated to consist of over 99% CO₂, compliance with this emission limitation will be assumed provided that the CO₂ emission rate

does not exceed 163 lb/mmBtu. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was determined by multiplying the CO₂e emission factor (163.6 lb/mmBtu) by the maximum heat input (16.7 mmBtu/hr), multiplied by the maximum annual hours of operation of 500 hrs/yr and divided by 2,000 pounds per ton.

f. Emission Limitation:

The permittee shall only combust ULSD fuel in this emissions unit meeting the following standard: 15 ppm maximum sulfur content.

Applicable Compliance Method:

Compliance shall be demonstrated based upon the record keeping requirements specified in d)(2).

g. Emission Limitation:

The permittee shall only combust ULSD fuel in this emissions unit meeting the following standard: a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.

Applicable Compliance Method:

Compliance shall be demonstrated based upon the record keeping requirements specified in d)(2) and d)(3).

h. Emission Limitation:

Visible particulate emissions from the stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance based upon an emission test performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Method 9.

i. Emission Limitation:

NMHC + NOX emissions shall not exceed 6.4 g/kW-hr.

CO emissions shall not exceed 3.5 g/kW-hr.

PM emissions shall not exceed 0.20 g/kW-hr.

Exhaust opacity shall not exceed:

20 percent during acceleration mode;



15 percent during lugging mode; and

50 percent during the peaks in either the acceleration or lugging modes.

Applicable Compliance Method:

According to 40 CFR 60.4211(c), the permittee shall demonstrate compliance with these emission limitations by purchasing an engine certified to the emission standards in 40 CFR 60.4205(b) for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in 40 CFR 60.4211(g). The permittee shall maintain documentation of certification to the emission standards in 40 CFR 60.4205.

g) Miscellaneous Requirements

- (1) None.

11. P008, P-6

Operations, Property and/or Equipment Description:

Pressure Relief Vent Flare

- a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (1) b)(1)c.
- b) Applicable Emissions Limitations and/or Control Requirements
 - (1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	ORC 3704.03(T)	See b)(2)a.
b.	OAC rule 3745-31-05(A)(3) June 30, 2008	Sulfur dioxide (SO ₂) emissions shall not exceed 0.004 ton per month averaged over a twelve-month rolling period Volatile organic compounds (VOC) emissions shall not exceed 0.38 ton per month averaged over a twelve-month rolling period See b)(2)b. and b)(2)c.
c.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the NO _x , PM ₁₀ , PM _{2.5} , SO ₂ and VOC emissions from this air contaminant source since the potential to emit is less than 10 tons per year. See b)(2)d.
d.	OAC rules 3745-31-10 through 20 (Prevention of Significant Deterioration of Air Quality)	552.64 pounds per hour (lbs/hr) and 27.49 tons per rolling, 12-month period Carbon monoxide (CO) emissions 121.21 lbs/hr and 6.03 tons per rolling, 12-month period Nitrogen oxides (NO _x) emissions 13.28 lbs/hr and 0.66 ton per rolling, 12-month period of particulate matter

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>emissions less than or equal to 10 microns in aerodynamic diameter (PM₁₀)</p> <p>13.28 lbs/hr and 0.66 ton per rolling, 12-month period of particulate matter emissions less than or equal to 2.5 microns in aerodynamic diameter (PM_{2.5})</p> <p>10,386 tons per rolling, 12-month period carbon dioxide equivalent (CO_{2e}) emissions</p> <p>See b)(2)f.</p>
e.	OAC rule 3745-17-07(A)	Visible particulate emissions from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.
f.	OAC rule 3745-17-11(B)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rules 3745-31-10 through 20.

(2) Additional Terms and Conditions

- a. Compliance with the requirements of this rule also includes compliance with the emissions limitations for CO established under OAC rules 3745-10 through 20.
- b. Compliance with the requirements of this rule also includes compliance with the pound per hour emissions limitations for NO_x, PM₁₀ and PM_{2.5} established under OAC rules 3745-31-10 through 20.
- c. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
- d. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
- e. The permittee shall properly install, operate, and maintain a device to continuously monitor the pilot flame when the emissions unit is in operation. The monitoring device and any recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

- f. The maximum annual process gas flaring operating hours for this emissions unit shall not exceed 96, based upon a rolling, 12-month summation of the operating hours.

To ensure enforceability during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the operating hours levels specified in the following table:

<u>Month(s)</u>	<u>Maximum Allowable Cumulative Operating Hours</u>
1	60
1-2	60
1-3	72
1-4	80
1-5	88
1-6	96
1-7	96
1-8	96
1-9	96
1-10	96
1-11	96
1-12	96

After the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, compliance with the annual process gas flaring operating hours limitation shall be based upon a rolling, 12-month summation of the operating hours.

c) Operational Restrictions

- (1) All collected gas shall be vented to a flare designed and operated as follows:
 - a. The flare shall be designed for and operated with no visible emissions, as determined by Method 22 of Appendix A of 40 CFR Part 60, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
 - b. The flare shall be operated with a flame present at all times when gases are vented to it. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame. The net heating value of the gas being combusted and the actual exit velocity shall be calculated as required in the Testing Section of this permit.
 - c. The net heating value (H_T) of the gas being combusted and actual exit velocity of the flare shall be calculated as required in the Testing Section of this permit.
- (2) The non-assisted flare shall comply with the following requirements for the heat content in paragraph "a" **and** the maximum tip velocity in paragraph "b", **or** shall comply with the alternative requirements in paragraph "c":

- a. The flare shall have a net heating value of 200 Btu/scf (7.45 MJ/scm) for the gas being combusted.
- b. The flare shall be designed for and operated with an exit velocity of less than 18.3 m/sec (60 ft/sec), with the following exceptions:
 - i. nonassisted flares, having a net heating value of 1,000 Btu/scf (37.3 MJ/scm) for the gas being combusted, can be designed for and operated with an exit velocity equal to or greater than 18.3 m/sec (60 ft/sec), but less than 122 m/sec (400 ft/sec); and

nonassisted flares can be designed for and operated with an exit velocity of less than the velocity calculated below for V_{max} , and less than 122 m/sec (400 ft/sec):

$$\text{Log}_{10} (V_{max}) = (H_T + 28.8)/31.7$$

where:

V_{max} = maximum permitted velocity, m/sec;

28.8 = constant;

31.7 = constant; and

H_T = the net heating value as determined in the Testing Section of this permit.

OR

- c. Nonassisted flares that have a diameter of 3 inches or greater and a hydrogen content of 8.0 percent (by volume), or greater, shall be designed for and operated with an exit velocity of less than 37.2 m/sec (122 ft/sec) and less than the velocity, V_{max} , as determined by the following equation:

$$V_{max} = (X_{H_2} - K_1) K_2$$

where:

V_{max} = maximum permitted velocity, m/sec;

K_1 = constant, 6.0 volume-percent hydrogen;

K_2 = constant, 3.9 (m/sec)/volume-percent hydrogen; and

X_{H_2} = the volume-percent of hydrogen, on a wet basis, as calculated by using the ASTM Method D1946-90.

- (3) A pilot flame shall be maintained at all times in the flare's pilot light burner. The presence of the pilot flame shall be monitored using a thermocouple or other equivalent device to detect the presence of a flame.

d) **Monitoring and/or Recordkeeping Requirements**

- (1) The permittee shall monitor the flare to ensure that it is operated and maintained in conformance with its design and the requirements contained in this permit.
- (2) The permittee shall record all periods of time during which there was no pilot flame or the flare was inoperable.
- (3) The permittee shall maintain monthly records of the following information:
 - a. the process gas flaring operating hours for each month; and
 - b. beginning after the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the rolling, 12-month summation of the process gas flaring operating hours.

Also, during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall record the cumulative process gas flaring operating hours for each calendar month.

e) **Reporting Requirements**

- (1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

all periods of time during which the pilot flame was not functioning properly or the flare was not maintained as required in this permit. The reports shall include the date, time, and duration of each such period.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (2) The permittee shall submit quarterly reports that identify the following:

all periods where flaring of process gas exceeded 96 hours per rolling, 12-month period.

If there were no periods where flaring of process gas exceeded 96 hours per rolling, 12-month period, the permittee shall submit a quarterly report, indicating that process gas was not flared for more than 96 hours per rolling, 12-month period during that quarter. The reports shall be submitted quarterly by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. The written reports shall be submitted quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

- (3) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation

552.56 pounds per hour (lbs/hr) and 27.49 tons per rolling, 12-month period CO emissions

Applicable Compliance Method:

The hourly emissions limitation was determined as the sum of the heat input from flaring process gas and the flare pilot flame (1,781.736 mmBtu/hr from process + 0.723 mmBtu/hr from pilot) multiplied by the CO emission factor from AP-42 Fifth Edition Table 13.5-2 dated 12/16 (0.31 lb/mmBtu).

The ton per rolling, 12-month period emission limitations were developed as the sum of the potential emissions from process gas flaring and the potential emissions from the flare pilot flame. The potential emissions from process gas flaring was determined by multiplying the maximum heat input from flaring process gas (1,781.736 mmBtu/hr) by the CO emission factor from AP-42 Fifth Edition Table 13.5-2 dated 12/16 (0.31 lb/mmBtu) multiplied by 96 hours of flaring per year and divided by 2,000 pounds per ton. The potential emissions from the flare pilot flame was determined by multiplying the maximum heat input from the pilot flame (0.723 mmBtu/hr) by the CO emission factor from AP-42 Fifth Edition Table 13.5-2 dated 12/16 (0.31 lb/mmBtu) multiplied by 8,760 hours per year and divided by 2,000 pounds per ton. Compliance with the annual emission limitation will be assumed provided that compliance is maintained with the hourly emission limitation and the annual flaring hours does not exceed 96 hours per rolling, 12-month period.

b. Emission Limitation

121.21 lbs/hr and 6.03 tons per rolling, 12-month period NO_x emissions

Applicable Compliance Method:

The hourly emissions limitation was determined as the sum of the heat input from flaring process gas and the flare pilot flame (1,781.736 mmBtu/hr from process + 0.723 mmBtu/hr from pilot) multiplied by the NO_x emission factor from AP-42 Fifth Edition Table 13.5-1 dated 12/16 (0.068 lb/mmBtu)

The ton per rolling, 12-month period emission limitations were developed as the sum of the potential emissions from process gas flaring and the potential emissions from the flare pilot flame. The potential emissions from process gas flaring was determined by multiplying the maximum heat input from flaring process gas (1,781.736 mmBtu/hr) by the NO_x emission factor from AP-42 Fifth Edition Table 13.5-1 dated 12/16 (0.068 lb/mmBtu) multiplied by 96 hours of

flaring per year and divided by 2,000 pounds per ton. The potential emissions from the flare pilot flame was determined by multiplying the maximum heat input from the pilot flame (0.723 mmBtu/hr) by the NO_x emission factor from AP-42 Fifth Edition Table 13.5-2 dated 12/16 (0.068 lb/mmBtu) multiplied by 8,760 hours per year and divided by 2,000 pounds per ton. Compliance with the annual emission limitation will be assumed provided that compliance is maintained with the hourly emission limitation and the annual flaring hours does not exceed 96 hours per rolling, 12-month period.

c. Emission Limitation:

13.28 lbs/hr and 0.66 ton per rolling, 12-month period of PM₁₀;

Applicable Compliance Method:

The hourly emissions limitation was determined as the sum of the heat input from flaring process gas and the flare pilot flame (1,781.736 mmBtu/hr from process + 0.723 mmBtu/hr from pilot) multiplied by the PM₁₀ emission factor from AP-42 Fifth Edition Table 1.4-2 dated July, 1998 (7.6 lb/mmscf) and divided by 1,020 mmBtu/mmscf.

The ton per rolling, 12-month period emission limitations were developed as the sum of the potential emissions from process gas flaring and the potential emissions from the flare pilot flame. The potential emissions from process gas flaring was determined by multiplying the maximum heat input from flaring process gas (1,781.736 mmBtu/hr) by the PM₁₀ emission factor from AP-42 Fifth Edition Table 1.4-2 dated July, 1998 (7.6 lb/mmscf), divided by 1,020 mmBtu/mmscf, multiplied by 96 hours of flaring per year and divided by 2,000 pounds per ton. The potential emissions from the flare pilot flame was determined by multiplying the maximum heat input from the pilot flame (0.723 mmBtu/hr) by the PM₁₀ emission factor from AP-42 Fifth Edition Table 1.4-2 dated July, 1998 (7.6 lb/mmscf), divided by 1,020 mmBtu/mmscf, multiplied by 8,760 hours per year and divided by 2,000 pounds per ton. Compliance with the annual emission limitation will be assumed provided that compliance is maintained with the hourly emission limitation and the annual flaring hours does not exceed 96 hours per rolling, 12-month period.

d. Emission Limitation:

SO₂ emissions shall not exceed 0.004 ton per month averaged over a twelve-month rolling period

Applicable Compliance Method:

This emission limitation was developed as the emissions from flaring process gas and from natural gas burned at the flare pilot flame. The flaring emissions were determined by multiplying the maximum heat input from flaring process gas (1,781.736 mmBtu/hr) multiplied by the SO₂ emission factor from AP-42 Fifth Edition Table 1.4-2 dated July, 1998 (0.6 lb/mmscf), divided by 1,020 mmBtu/mmscf, multiplied 96 hours of flaring per year and divided by 2,000

pounds per ton, resulting in 0.05 ton per year of SO₂ emissions. The emissions from the flare pilot flame were determined by multiplying the maximum heat input (0.723 mmBtu/hr) multiplied by the SO₂ emission factor from AP-42 Fifth Edition Table 1.4-2 dated July, 1998 (0.6 lb/mmscf), divided by 1,020 mmBtu/mmscf, multiplied 8,760 hours per year and divided by 2,000 pounds per ton resulting, in 0.002 ton per year of SO₂ emissions. The sum of the emissions from flaring process gas and the pilot flame (0.05 ton/yr + 0.002 ton/yr) was divided by 12 months per year to determine the SO₂ emissions per month averaged over a twelve-month rolling, period.

e. Emission Limitation:

VOC emissions shall not exceed 0.38 ton per month averaged over a twelve-month rolling period

Applicable Compliance Method:

This emission limitation was developed as the emissions from flaring process gas and from natural gas burned at the flare pilot flame. The permittee supplied a VOC emission factor of 0.0518 lb/mmBtu based on an older version of AP-42 Tables 13.5-1 and 13.5-2 dated 9/91 where the total hydrocarbon emission factor was used minus methane and ethane. The emissions from flaring process gas were determined by multiplying the maximum heat input from flaring process gas (1,781.736 mmBtu/hr) multiplied by the above VOC emission factor (0.0518 lb/mmBtu), multiplied 96 hours of flaring per year and divided by 2,000 pounds per ton, resulting in 4.430 tons per year of VOC emissions from flaring process gas. The emissions from the flare pilot flame were determined by multiplying the maximum heat input (0.723 mmBtu/hr) by the above VOC emission factor (0.0518 lb/mmBtu), multiplied 8,760 hours per year and divided by 2,000 pounds per ton resulting, in 0.164 ton per year of VOC emissions. The sum of the emissions from flaring process gas and the pilot flame (4.430 ton/yr + 0.164 ton/yr) was divided by 12 months per year to determine the VOC emissions per month averaged over a twelve-month rolling, period.

f. Emission Limitation:

10,386 tons per rolling, 12-month period carbon dioxide equivalent (CO₂e)

Applicable Compliance Method:

This emission limitation was developed as the emissions from flaring process gas and from natural gas burned at the flare pilot flame. The flaring emissions were determined by multiplying the maximum heat input from flaring process gas (1,781.736 mmBtu/hr) multiplied by the CO₂e emission factor calculated from Tables A-1 of 40 CFR Part 98 Subpart A and, Tables C-1, and C-2 of 40 CFR Part 98 Subpart C (117.1 lb CO₂e /mmBtu), multiplied 96 hours of flaring per year and divided by 2,000 pounds per ton, resulting in 10,015 ton per year of CO₂e emissions. The emissions from the flare pilot flame were determined by multiplying the maximum heat input (0.723 mmBtu/hr) multiplied by the CO₂e emission factor calculated from Tables A-1 of 40 CFR Part 98 Subpart A and,

Tables C-1, and C-2 of 40 CFR Part 98 Subpart C (117.1 lb CO₂e /mmBtu), multiplied 8,760 hours per year and divided by 2,000 pounds per ton resulting, in 3701 tons per year of CO₂e emissions. The sum of the emissions from flaring process gas and the pilot flame was determined (10,015 tons/yr + 371 tons/yr).

g. Emission Limitation:

Visible particulate emissions from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average.

Applicable Compliance Method:

If required, compliance with the visible emissions limitation shall be determined in accordance with U.S. EPA Method 9 in Appendix A of 40 CFR Part 60.

(2) The net heating value of the gas being combusted at the flare shall be calculated as follows:

$$H_T = k \sum_{i=1}^n C_i H_i$$

where:

H_T = net heating value of the sample, MJ/scm; where the net enthalpy per mole of off gas is based on combustion at 25 degrees Celsius and 760 mm Hg, but the standard temperature of 20 degrees Celsius is used for determining the volume corresponding to one mole;

k = constant, 1.740×10^{-7} (1/ppm) (g mole/scm) (MJ/kcal), where the standard temperature for "g mole/scm" is 20 degrees Celsius;

C_i = concentration of sample component "i" in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946-90;

H_i = net heat of combustion of sample component "i", kcal/g mole at 25 degrees Celsius and 760 mm Hg. The heats of combustion may be determined using ASTM D4809-95 if published values are not available or cannot be calculated;

i = subscript denoting a specific component in the sample; and

n = total number of components within the sample.

The conversion factor of "26.84 Btu scm/MJ scf" can be used to convert the net heating value of the gas (H_T) from MJ/scm to Btu/scf.

(3) The actual exit velocity of the flare shall be determined by dividing the volumetric flow rate (in units of standard temperature and pressure) of the flare header or headers that feed the flare, as determined by Reference Methods 2, 2A, 2C, or 2D (found in 40 CFR

60, Appendix A), as appropriate, by the unobstructed (free) cross-sectional area of the flare tip.

The conversion factor of 3.281 ft/m can be used to convert the velocity from m/sec to ft/sec.

g) Miscellaneous Requirements

(1) None.

12. P901, TR-1,TR-2,TR-5,TR-6,TR-7,TR10,SR1,TR13,TR14

Operations, Property and/or Equipment Description:

Iron oxide material handling consisting of: TR-1 (conveyor to Transfer Tower I with baghouse), TR-2 (conveyor to stack machine conveyor fully enclosed), TR-5 (conveyor from reclaim machine to conveyor fully enclosed), TR-6 and TR-7 (conveyor from reclaim to Transfer Tower II and III with baghouses), TR-10 (oxide day bins to conveyors with baghouses), SR-1 (oxide screen with baghouse), TR-13 (oxide transfer to bucket elevator with baghouse), and TR-14 (coating storage and mixing and fines transfer tower with baghouse)

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(1)b.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) June 30, 2008	See b)(2)a. and b)(2)b.
b.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM10 and PM2.5 emissions from this air contaminant source since the potential to emit is less than 10 tons per year. See b)(2)c.
c.	OAC rule 3745-31-10 through 20	1.92 lbs/hr and 5.50 tons per rolling, 12-month period of particulate matter emissions less than or equal to 10 microns in aerodynamic diameter (PM ₁₀) 1.32 lbs/hr and 5.19 tons per rolling, 12-month period of particulate matter emissions less than or equal to 2.5 microns in aerodynamic diameter (PM _{2.5}) Develop and implement a site-specific work practice plan designed as described in paragraph d)(1) below to minimize or eliminate fugitive dust emissions. See b)(2)d. and b)(2)e.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
d.	OAC rule 3745-17-07(A)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-10 through 20.
e.	OAC rule 3745-17-07(B)	Visible emissions of fugitive dust from this emissions unit shall not exceed twenty percent opacity as a three-minute average.
f.	OAC rule 3745-17-11(B)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant OAC rule 3745-31-10 through 20.

(2) Additional Terms and Conditions

- a. Compliance with the requirements of this rule for PM10 and PM2.5 emissions also includes compliance with the requirements of OAC rules 3745-31-10 through 20.
- b. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
- c. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
- d. The permittee shall employ the following best available control measures for the purpose of ensuring compliance with the above-mentioned applicable requirements.

Company ID	Description of control measure
TR-1, TR-6, TR-7, TR-10, SR-1, TR-13, TR-14	Full enclosures vented to baghouses designed to meet an outlet grain loading of not more than 0.0025 grains per dry standard cubic foot (gr/dscf) of exhaust each at all times the emissions unit is in operation. All PM is assumed to be emitted as PM2.5.
TR-2, TR-5	full enclosure

Nothing in this paragraph shall prohibit the permittee from employing additional control measures to ensure compliance.

e. Iron oxide coating materials shall be transferred pneumatically to silos. The pneumatic system shall be adequately enclosed so as to eliminate at all times visible emissions of fugitive dust. Any visible emissions of coating material dust emanating from the delivery vehicle during transfer shall be cause for the immediate halt of the unloading process and the refusal of the load until the situation is corrected.

(3) The maximum annual iron oxide received at this facility shall not exceed 3,594,666 tons, based upon a rolling, 12-month summation of the tons received.

To ensure enforceability during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the tons received specified in the following table:

Maximum Allowable Cumulative	
Month	<u>Tons of Iron Oxide Received</u>
1	800,000
1-2	1,060,000
1-3	1,320,000
1-4	1,580,000
1-5	1,840,000
1-6	2,100,000
1-7	2,360,000
1-8	2,620,000
1-9	2,880,000
1-10	3,140,000
1-11	3,400,000
1-12	3,594,666

After the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, compliance with the annual tons received limitation shall be based upon a rolling, 12-month summation of the tons received.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack and for any visible emissions of fugitive dust from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

- a. the location and color of the emissions;
- b. whether the emissions are representative of normal operations;
- c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
- d. the total duration of any visible emissions incident; and
- e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

- (2) The permittee shall maintain monthly records of the following information:

- a. the tons of iron oxide received at the facility for each month;
- b. beginning after the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the rolling, 12-month summation of tons of iron oxide received at the facility; and

Also, during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall record the cumulative tons of iron ore received at the facility for each calendar month.

e) Reporting Requirements

- (1) The permittee shall submit semiannual written reports that identify:



- a. all days during which any visible emissions of fugitive dust were observed from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit; and
- b. any corrective actions taken to minimize or eliminate the visible emissions of fugitive dust.

These reports shall be submitted to the Director (the appropriate Ohio EPA District Office or local air agency) by January 31 and July 31 of each year and shall cover the previous 6-month period.

- (2) The permittee shall submit quarterly deviation (excursion) reports that identify the following:

all exceedances of the rolling, 12-month tons of iron oxide received at the facility limitation; and for the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, all exceedances of the maximum allowable cumulative tons of iron ore received at the facility.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit

- (3) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

- a. Emission Limitation:

0.0025 grain PM/dscf; 1.92 lbs/hr and 5.50 tons per rolling, 12-month period of particulate matter emissions less than or equal to 10 microns in aerodynamic diameter (PM₁₀); 1.32 lbs/hr and 5.19 tons per rolling, 12-month period of particulate matter emissions less than or equal to 2.5 microns in aerodynamic diameter (PM_{2.5})

Applicable Compliance Method:

This emission limitation was established calculating the sum of the fugitive and stack emissions from TR-1, TR-2, TR-5, TR-6, TR-7, TR-10, SR-1, TR-13, and TR-14.

For stack emissions from TR-1, TR-6, TR-7, TR-10, SR-1, TR-13, and TR-14, multiply the design PM grain loading (0.0025 gr/dscf) by the associated maximum stack flow rate in dry standard cubic feet per minute, multiplied by 60 minutes per hour, and divided by 7,000 grains per pound. For these emission points, the permittee has assumed that all PM emissions are PM_{2.5} emissions.

For fugitive emissions from TR-2 and TR-5 the maximum hourly throughput in tons/hr for each transfer point by the emission factor for material drop operations determined using Equation 1 Chapter 13.2.4 of AP-42 Fifth Edition dated 11/06. A 1 mph wind speed may be used for TR-2 and TR-5 based on these points being fully enclosed.

If required, the permittee shall determine the PM and PM10 emission rate from the baghouses serving TR-1, TR-6, TR-7, TR-10, SR-1, TR-13 and TR-14 using Method 5 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

The annual emissions limitation was based on the above calculation methods for hourly emissions rates adjusted for the maximum tons of iron ore received at HBI railcar and truck loading restriction contained in b)(2). Compliance with the annual emission limitation will be assumed if compliance with the hourly emission limitation and the HBI truck and railcar loading restrictions are maintained.

b. Emission Limitation:

visible particulate matter emissions of fugitive dust shall not exceed 20% opacity as a three-minute average

Applicable Compliance Method:

Compliance with the visible emissions limitation for fugitive dust from material handling operations shall be determined through visible emissions observations performed in accordance U.S. EPA Method 9 and the procedures specified in OAC rule 3745-17-03(B)(3).

g) Miscellaneous Requirements

(1) None.

13. P902, TR-17,TR-18,TR-19,TR-22,TR-23,TR-24,TR-25,TR-26,TR-27

Operations, Property and/or Equipment Description:

Hot briquetted iron (HBI)/Direct reduced iron (DRI) material handling consisting of: TR-17 & TR-18 (three HBI conveyor transfer towers with two venturi scrubbers), TR-19 (HBI Conveyor to Stacker Machine), TR-22 (HBI drop from hopper to conveyor), TR-23 (HBI conveyor from transfer tower to HBI loadout building with venturi scrubber), TR-24 (Conveyor transfer to loading bin with venturi scrubber), TR-25 (HBI truck loadout vented to venturi scrubber), TR-26 (HBI railcar loading inside shed with two sides and roof, strip curtains at the entrance and exit of the loading shed, use of a telescoping loading chute, and use of water or chemical spray during loading), and TR-27 (HBI truck loading fugitive emissions)

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(1)b.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3) June 30, 2008	See b)(2)a.
b.	OAC rule 3745-31-05(A)(3)(a)(ii) June 30, 2008	See b)(2)b. and b)(2)c.
c.	OAC rule 3745-31-10 through 20	0.47 lbs/hr and 1.51 tons per rolling, 12-month period of particulate matter emissions less than or equal to 10 microns in aerodynamic diameter (PM ₁₀) 0.43 lbs/hr and 1.41 tons per rolling, 12-month period of particulate matter emissions less than or equal to 2.5 microns in aerodynamic diameter (PM _{2.5}) See b)(2)d. and b)(2)e.
d.	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
e.	OAC rule 3745-17-07(B)	Visible emissions of fugitive dust from this emissions unit shall not exceed twenty percent opacity as a three-minute average.
f.	OAC rule 3745-17-11(B)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant OAC rule 3745-31-10 through 20.

(2) Additional Terms and Conditions

- a. Compliance with the requirements of this rule for PM10 and PM2.5 emissions also includes compliance with the requirements of OAC rules 3745-31-10 through 20.
- b. The BAT emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).
- c. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than ten tons per year BAT exemption) as part of the Ohio SIP.
- d. The permittee shall employ the following best available control measures for the purpose of ensuring compliance with the above-mentioned applicable requirements.

Company ID	Description of control measure
TR-17, TR-18, TR-23, TR-24, TR-25	Full enclosure vented to a scrubber designed to meet outlet grain loading of not more than 0.0025 grains per dry standard cubic foot (gr/dscf) of exhaust each at all times the emissions unit is in operation. All PM is assumed to be emitted as PM2.5.
TR-19, TR-22	full enclosure
TR-26	railcar loading shed with two sides and roof, strip curtains at the entrance and exit of the loading shed, use of a telescoping loading chute, and use of water or chemical suppressants during loading.



TR-27	enclosure with doors that will remain closed during loading
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Nothing in this paragraph shall prohibit the permittee from employing additional control measures to ensure compliance.

- e. The maximum annual truck HBI loading rate for this emissions unit shall not exceed 743,724 tons based upon a rolling, 12-month summation of the loading rates.

To ensure enforceability during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall not exceed the loading levels specified in the following table:

Maximum Allowable Cumulative	
Month	<u>HBI Truck Loading, tons</u>
1	200,000
1-2	250,000
1-3	300,000
1-4	350,000
1-5	400,000
1-6	450,000
1-7	500,000
1-8	550,000
1-9	600,000
1-10	650,000
1-11	700,000
1-12	743,724

After the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, compliance with the annual loading rate limitation shall be based upon a rolling, 12-month summation of the loading rates.

- f. The maximum HBI railcar loading rate shall not exceed 6,792 tons per day.

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stack and for any visible emissions of fugitive dust from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

- a. the location and color of the emissions;
- b. whether the emissions are representative of normal operations;
- c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
- d. the total duration of any visible emissions incident; and
- e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emissions incident has occurred. The observer does not have to document the exact start and end times for the visible emissions incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emissions incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

- (2) The permittee shall maintain monthly records of the following information:

- a. the railcar loading rate for each month;
- b. the truck loading rate for each month;
- c. beginning after the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the rolling, 12-month summation of the railcar loading rates; and
- d. beginning after the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the rolling, 12-month summation of the truck loading rates.

Also, during the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, the permittee shall record the cumulative railcar and truck loading rates for each calendar month.

- (3) The permittee shall maintain daily records of amount of HBI loaded into railcars in tons per day.

e) Reporting Requirements

- (1) The permittee shall submit semiannual written reports that identify:
 - a. all days during which any visible particulate emissions were observed from the stack serving this emissions unit;
 - b. all days during which any visible emissions of fugitive dust were observed from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit; and
 - c. any corrective actions taken to minimize or eliminate the visible particulate emissions from the stack and/or visible emissions of fugitive dust.

These reports shall be submitted to the Director (the appropriate Ohio EPA District Office or local air agency) by January 31 and July 31 of each year and shall cover the previous 6-month period.

- (2) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
 - a. all exceedances of the rolling, 12-month truck loading rate limitation; and for the first 12 calendar months of operation or the first 12 calendar months following the issuance of this permit, all exceedances of the maximum allowable cumulative truck loading rate levels; and
 - b. all exceedances of the daily railcar HBI loading limitation.

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

- (3) Unless other arrangements have been approved by the Director, all notifications and reports shall be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

0.0025 grain PM/dscf; 0.47 lbs/hr and 1.51 tons per rolling, 12-month period of particulate matter emissions less than or equal to 10 microns in aerodynamic diameter (PM₁₀); 0.43 lbs/hr and 1.41 tons per rolling, 12-month period of particulate matter emissions less than or equal to 2.5 microns in aerodynamic diameter (PM_{2.5})

Applicable Compliance Method:

Compliance shall be determined by determining the sum of the stack and fugitive emissions from TR-17, TR-18, TR-19, TR-22, TR-23, TR-24, TR-25, and TR-26.

For stack emissions from TR-17, TR-18, TR-23, TR-24, and TR-25, multiply the design PM grain loading (0.0025 gr/dscf) by the associated maximum stack flow rate in dry standard cubic feet per minute, multiplied by 60 minutes per hour, and divided by 7,000 grains per pound. For these emission points, the permittee has assumed that all PM emissions are PM2.5 emissions.

For fugitive emissions from TR-19, TR-22, TR-26, and TR-27 multiply the maximum hourly throughput in tons/hr for each transfer point by the emission factor for material drop operations determined using Equation 1 Chapter 13.2.4 of AP-42 Fifth Edition dated 11/06. A 1 mph wind speed was used for TR-19 and TR-22, and TR-27 based on these points being fully enclosed. A 1 mph wind speed for TR-26 was used based on using an adjustable chute railcar loading being done inside a 2-sided shed with roof, and strip curtains used at the entrance and exit of the railcar loading shed. A 95% control efficiency was applied to the railcar loading emission factor for use of water or chemical spray during railcar loading. The permittee shall use data from tumble testing conducted 4/2017 to determine PM10 emissions as being 16% of PM emissions, and PM2.5 emissions as being 7% of PM emissions.

If required, the permittee determine the gr/dscf PM and hourly PM10 and PM2.5 emission rates from the scrubbers serving TR-17, TR-18, TR-23, TR-24, and TR-25 using Method 5 of 40 CFR Part 60, Appendix A and Method 202 of 40 CFR Part 51, Appendix M. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

The annual emissions limitation was based on the above calculation methods for hourly emissions rates adjusted for the HBI railcar and truck loading restriction contained in b)(2). Compliance with the annual emission limitation will be assumed if compliance with the hourly emission limitation and the HBI truck and railcar loading restrictions are maintained.

b. Emission Limitation:

Visible particulate emissions from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.



Applicable Compliance Method:

Compliance with the stack visible particulate emissions limitation shall be determined through visible emissions observations performed in accordance with Method 9 of 40 CFR Part 60, Appendix A.

c. Emission Limitation:

visible particulate matter emissions of fugitive dust shall not exceed 20% opacity as a three-minute average

Applicable Compliance Method:

If required, compliance with the visible emissions limitation for fugitive dust from material handling operations shall be determined through visible emissions observations performed in accordance U.S. EPA Method 9 and the procedures specified in OAC rule 3745-17-03(B)(3).

g) Miscellaneous Requirements

(1) None.