Ohio Environmental Protection Agency

Mike DeWine, Governor
Jon Husted, Lt. Governor
Laurie A. Stevenson, Director

09/20/2022

Certified Mail

Rafe Christopherson
Intel Ohio Site
3100 NE Shute Rd
RS5, Mail Stop 115
Hillsboro, OR 97124

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

RE: FINAL AIR POLLUTION PERMIT-TO-INSTALL
Facility ID: 0145000588
Permit Number: P0132323
Permit Type: Initial Installation
County: Licking

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 may contain several conditions and restrictions, we urge you to read it 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 Robert Sprague," 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

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) permit search webpage: https://epa.ohio.gov/dapc/permitsonline.

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 at Ohio EPA DAPC, Central District Office at (614)728-3778 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
Ohio EPA-CDO

Response to Comments

Facility ID:	0145000588
Facility Name:	Intel Ohio Site
Facility Description:	Semiconductor Chip Manufacturing Facilities
Facility Address:	Intersection Miller & Clover Valley Roads New Albany, OH 43031 Licking County
Permit:	P0132323, Air Pollution 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 Newark Advocate on 07/27/2022. The comment period ended on 09/06/2022.	
Hearing date (if held)	08/30/2022
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. PDF copies of the original comments in the format submitted are available upon request.

1. Topic: U.S. EPA Comments on Dispersion Modeling:

a. Comment: Boilers B001-B028: NOx modeled at approximately 0.02 g/s (approx. 0.158 lb/hr) but permit limits NOx emissions to 0.32 lb/hr (= 29.4 MMBtu/hr * 0.011 lb/MMBtu).

Response: Ohio EPA contends that the 0.158 lb NOx/hr emission rate modeled for each of the 28 boilers (B001 – B028) is a more accurate reflection of the limits and operational restrictions included in the terms and conditions of the draft permit. The 29.4 MMBtu/hr value for each boiler is not included in any permit term or condition for these boilers and represents only the manufacturer's rating of these pieces of equipment. Emission limits and operational restrictions appearing in the terms and conditions for these units are as follows:

- 0.011 lb NOx/MMBtu for each emissions unit,
- 9.74 tons of NOx per rolling, 12-month period from emissions units B001 – B014 combined,
- 9.74 tons of NOx per rolling, 12-month period from emissions units B015 – B028 combined,

- 1,767 MMscf of natural gas combusted on a rolling, 12-month period in B001 – B014 combined, and

- 1,767 MMscf of natural gas combusted on a rolling, 12-month period in B015 – B028 combined.

The 0.158 lb NOx/hr modeled for each emissions unit can derived as follows:

(1,767 MMscf/yr + 1,767 MMscf/yr) x (11.02 lb NOx/MMscf) = 38,944.68 lb NOx/yr for all 28 boilers

Assuming 8,760 hours of annual operation and dividing by 28 to reflect the hourly emissions for a single boiler, an emission rate of 0.158 lb NOx/hr is obtained. It should be noted that these boilers are equipped with ultra-low NOx (9 ppm) burners. The 0.011 lb NOx/MMBtu emissions limit is obtained by dividing the 9 ppm emissions rating by the natural gas conversion factor of 833. From the 0.011 lb NOx/MMBtu short-term emission limit, the 11.02 lb NOx/MMscf utilized in the above calculation is derived using the natural gas heating value of 1,020 Btu/scf. Therefore, the modeled value of 0.158 lb NOx/hr is derived directly from the short-term emissions limit of 0.011 lb NOx/MMBtu rather than the manufacturer's rating.

b. Comment: Nitrogen Vaporizers B029 – B032: NOx modeled at approximately 0.0186 g/s (approx. 0.1478 lb/hr), but permit limits NOx emissions to 0.50 lb/hr (= 45.6 MMBtu/hr * 0.011 lb/MMBtu).

Response: As with boilers B001 – B028, the 45.6 MMBtu/hr rating is not included in the permit terms and conditions for B029 – B032 and is reflective only of the manufacturer's rating for these pieces of equipment. Emission limits and operational restrictions appearing in the terms and conditions for these units are as follows:

- 0.011 lb NOx/MMBtu for each emissions unit,

- 2.59 tons of NOx per rolling, 12-month period from emissions units B029 – B032 combined, and

- 470.0 MMscf of natural gas combusted on a rolling, 12-month period in B029 – B032 combined.

The 0.1478 lb NOx/hr modeled for each emissions unit can be derived as follows:

(470.0 MMscf/yr) x (11.02 lb NOx/MMscf) = 5,179.4 lb NOx/yr for all 4 nitrogen vaporizers

Assuming 8,760 hours of annual operation and dividing by 4 to reflect the hourly emissions for a single nitrogen vaporizer, an emission rate of 0.1478 lb NOx/hr is obtained. As with boilers B001 – B028, the modeled emission rate is derived directly from the short-term emissions limit of 0.011 lb NOx/hr rather than the manufacturer's rating.

c. Comment: Fabs 37.1 and 37.2 (P181 and P182): The combined PM_{10} emissions limited to 2.9 lb/hr (see draft permit page 79). The individual year PM_{10} modeling in the AAQS folder (filenames Cardinal_V5_ST_AAQS(indiv yrs_PM10)_20XX_PM10.DTA) appear to modeled at a slightly different combined emission rate based on the following:

- 8 acid gas scrubbers EXSC_09 – EXSC_16 each modeled at approximately 0.0146 g/s (approx. 0.115 lb/hr). Combined emission rate is approximately 0.92 lb/hr (= 0.115 * 8). This appears to be where the different in modeled emission rate exists?

- 6 ammonia scrubbers EXAM_07 – EXSC_12 each modeled at approximately 0.0333 g/s (approx. 0.26 lb/hr). Combined emission rate is approximately 1.588 lb/hr (= 0.26 * 6).

- Adding the 8 acid gas scrubber and 6 ammonia scrubber emissions together yields 1.588 lb/hr + 0.92 lb/hr = 2.51 lb/hr.

- Note that the SIL and PSD increment modeling do not have this issue since the acid gas scrubbers EXSC_09 – EXSC_16 are modeled at a slightly different PM_{10} emission rate.

Response: Ohio EPA inadvertently sent a prior copy of the PM_{10} modeling to U.S. EPA Region 5. A corrected and up-to-date version of the modeling was provided to U.S. EPA and resolves the comment(s). The corrected modeling accurately includes the combined emission rate of 2.9 lb PM_{10}/hr from emissions units P181 and P182.

2. Topic: Public Health:

a. Comment: One commenter stated, “My concern is for the people who still live in Johnstown. My Mother and Stepfather have lived on Miller Road just east of Mink for 30 years for the quality of a quiet and safe life. Now in the last years of their lives, not strong enough to move, the traffic and chemicals that will flow from the west to the east will make them vulnerable in innumerable ways. As it will all the other people who will live there over the lifetime of these 8 plants.”

Another commenter stated, “I also think that the world we are leaving for our children and grandchildren is going to cause them great strife, stress, and disease. I do not think the OEPA is doing much to ‘PROTECT’ us.”

Response: The facility is required to comply with all applicable air pollution rules and laws. These rules and laws are designed to ensure public health and welfare are protected. Ohio EPA has conducted a detailed review of the maximum emissions expected from the facility. Based on this review, Ohio EPA believes this facility will not cause any adverse health or welfare effects to citizens in the area. For a more detailed explanation of the requirements and analysis, see the following.

Air Quality Standards that Must be Met

The facility is subject to Prevention of Significant Deterioration (PSD) regulations, which prohibit a new or modified source to cause, or contribute to, air pollution in excess of any National Ambient Air Quality Standard (NAAQS).

> Primary NAAQS are designed to protect human health with an adequate margin of safety, especially for sensitive groups in the population such as children, the elderly, and individuals suffering from respiratory diseases.
>
> Secondary NAAQS are designed to protect public welfare (the environment), including protection against visibility impairment, damage to animals, soils, water, crops, vegetation, and buildings.

NAAQS are set at a level to protect public health, including the health of at-risk populations, with an adequate margin of safety.

The Clean Air Act requires U.S. EPA to review air quality standards every five years to determine if they are still protective of human health and the environment. During these reviews, U.S. EPA conducts comprehensive reviews of the scientific literature on health and welfare effects associated with exposure to the criteria air pollutants (particulate matter, ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, and lead). The resulting assessments serve as the basis for making regulatory decisions about whether to retain or revise the NAAQS that specify the allowable concentrations of each of these pollutants in the ambient air.

Air Quality Analysis for the Intel Facility

The facility's application was reviewed and it was determined that the level of emissions will not result in an exceedance of any NAAQS. The amount of PM_{10}, $PM_{2.5}$, and nitrogen oxides is considered significant for this project, requiring dispersion modeling (computer modeling). Predicted concentrations were compared to short term (hourly or 24-hour) and long term (annual) NAAQS. The hourly standard is designed to be protective of health effects from short-term exposure and the annual standard is designed to be protective of health effects from long-term exposure. The results and standards are in the following table:

Pollutant/Averaging Period	NAAQS (ug/m^3)	Cumulative Impact Including Background (ug/m^3)	Exceeds NAAQS?
PM_{10} 24-hr	150	36.910	No
$PM_{2.5}$ 24-hr	35	27.087	No
$PM_{2.5}$ Annual	12	8.838	No
NO_2 1-hr	188	180.072	No
NO_2 Annual	100	61.745	No

Cumulative modeling indicated no exceedance of any NAAQS, inclusive of off-site sources and conservative background concentrations. Based on this analysis, the emissions of regulated pollutants from this facility are not expected to cause any long-term or short-term adverse health or welfare effects.

Ambient Monitoring that is Done

Ohio EPA monitors the air and analyzes the data to determine compliance with NAAQS. The closest monitors to the location of this facility are in New Albany (for ozone and $PM_{2.5}$), Centerburg (ozone), Reynoldsburg (ozone), and Heath (ozone). The public can access real-time monitor data online at AirNow.gov. This website provides current air quality information as well as an air quality forecast for the upcoming days.

Analysis for Potentially Toxic Compounds

In addition to evaluating compliance with the NAAQS, Ohio EPA's permitting process for new air pollution sources includes evaluating toxic air contaminants to ensure new sources do not cause any significant adverse human health impacts. The regulations and requirements for evaluating air toxics (typically called air toxic analysis) are contained in Ohio Administrative Code (OAC) rule 3745-114-01 and Ohio Revised Code (ORC) 3704.03(F)(3)(c) and (F)(4). The air toxic analysis requires computer modeling to demonstrate expected concentrations conform to a value called the Maximum Acceptable Ground Level Concentration (MAGLC). MAGLCs are concentration screening values which are applied to determine that the level of air toxics emitted will not cause any significant adverse human health impacts. Ohio EPA has determined that when an air toxic compound is emitted at a level less than 1.0 ton per year the modeling analysis is not required, and the level of air toxic emission will not cause any significant adverse human health impacts. For additional information regarding the implementation of an air toxic analysis refer to Ohio EPA Engineering Guide #70 – Air Toxic Analysis, which can be accessed at https://epa.ohio.gov/static/Portals/27/engineer/eguides/Guide70Final20170509.pdf.

The following table provides the air toxic analysis results as well as the MAGLC for each pollutant.

Pollutant/Averaging Period	MAGLC (µg/m³)	Modeled Result (µg/m³)
Ammonia 1-hr	414.597	25.812
Fluorine 1-hr	3.700	2.245
Hydrogen Chloride 1-hr	52.349	10.217
Hydrogen Fluoride 1-hr	9.743	9.441
Sulfuric Acid 1-hr	4.762	0.929

The air toxic analysis indicated no exceedance of any MAGLC. Based on this analysis, the toxic air contaminant emissions from this facility are not expected to cause any adverse health effects.

b. Comment: Two commenters were concerned about impacts to the neighboring farmlands surrounding the facility. The commenters were concerned about chemical exposures and the related health impacts to the people and animals living in the area. They were also concerned about air emissions contaminating soil, crops, and water.

Response: Very little of the emissions will end up in the ground so there is not a concern with soil or water contamination. Therefore, inhalation is the primary route of exposure which has been reviewed in detail as discussed in the response to 2.a. above. Additionally, U.S. EPA has established secondary NAAQS that are designed to protect public welfare (the environment), including animals, soil, water, crops, and vegetation. The computer modeling of the emissions expected from the facility demonstrates that no adverse health or welfare effects in the surrounding area are expected.

c. Comment: Knowing what we know about the chemicals and the Intel plants themselves, can the Ohio EPA ask for greater controls and oversight to make this relationship safe for the people who will live here, including the people who will work at Intel? What processes will be used to protect humanity?

Response: Ohio EPA believes it is important for any facility to comply with rules and regulations associated with the safe operation of a facility. We believe compliance with the terms and conditions of the permit-to-install (PTI) will protect human health and the environment from air emissions from the proposed project. The air permit, however, covers air pollution requirements only. It is not designed to cover other health and safety rules and regulations that apply.

There are many federal, state, and local programs that are designed to protect the safety of both workers at the facility and citizens near the facility, and they each have their own mechanism that is used to enforce those requirements. The Occupational Safety and Health Administration (OSHA) regulates safety aspects of workers in the plant. Section 112(r) of the Clean Air Act requires facilities to assess potential risks posed by an accidental release from the plant and to develop a plan that addresses hazard assessment of accidental releases, a prevention program inclusive of safety precautions, maintenance, etc., and an emergency response program including the involvement of local response agencies (i.e., fire department, EMS, etc.). Ohio EPA operates this program, but it is through a separate mechanism from the air permit. Additional information regarding these requirements can be accessed at https://epa.ohio.gov/divisions-and-offices/air-pollution-control/dapc-programs/risk-management-planning. The State Emergency Response Commission (SERC) is an organization that works closely with Local Emergency Planning Committees (LEPCs) to improve hazard communications and emergency planning. These programs as well as others, all have rules and regulations that are designed to promote the safe operation of industrial facilities.

In terms of asking Intel to control emissions beyond that required by law, Ohio EPA does not have the authority to require any facility to control emissions beyond that required by law. However, companies, like Intel, do control emissions beyond that required in several ways. For instance, the control equipment is designed to control the emissions below the allowed emissions with a built-in margin of safety. The margin of safety helps ensure compliance at all times but also results in emissions below that allowed. Another example is for companies to install duplicate control. In Intel's case, they have chosen to install duplicate control equipment in some cases. The duplicate control is used whenever the main control equipment fails or needs to go down for maintenance. Duplicate control is typically not required by any rule or law, but Intel chose to install it as added protection. As a last example, companies typically do not operate equipment at its maximum rate. Instead, they often operate equipment less than the maximum it could operate either due to production requirements or due to the need to shutdown the equipment for set up or maintenance. This means that actual emissions from any plant are typically significantly less than the allowed emissions found in the permit. This provides another level of safety.

d. Comment: Has the facility given any indication that they will go above and beyond what is required by law to protect the area?

I would like to address Intel officials and ask that Intel go above and beyond the minimum requirements of OEPA permitting. It's now time that Corporate America becomes more responsible and more respectful of our Earth's climate and pollution crisis. Intel has a great opportunity now to set as example do what is right and responsible, rather that just meeting the minimal standards of the law. Intel, please set a example for other corporations to follow. We need your bold ingenuity and leadership now. Please, Intel, now.

Response: Ohio EPA's review focused how the facility will achieve compliance with air pollution rules and regulations. Ohio EPA believes compliance with the terms and conditions of the PTI will protect human health and the environment from air emissions from the proposed project.

The facility's website, exploreintel.com, provides information about Intel's environmental policies and initiatives. Some specific efforts the facility is making to use renewable energy and natural gas are discussed in the response to 4.b. below.

See also the response to 2.c. above.

e. Comment: I request Ohio EPA to be extremely conservative when deciding the allowable levels of pollution that Intel will be authorized to emit into the Johnstown, Ohio neighborhoods.

Response: Ohio EPA does not have the authority to set limits beyond what it required by law. The emissions limits in the permit were established in accordance with air pollution rules and regulations that were designed to protect human health and the environment.

See also the response to 2.c. above.

f. Comment: I would like to know what the EPA minimum standards are for Intel? Also what will the PFOA levels be when they return the water to Hoover? Will this be like Dupont? Are they going to poison the ground with various forever chemicals because they aren't specifically regulated? Will the EPA look the other way?

Response: The facility's PTI establishes the maximum allowable air emissions that the facility may release. A copy of the draft PTI is available online at https://epa.ohio.gov/divisions-and-offices/air-pollution-control/permitting/issued-air-permits by clicking on "Search Issued Permits" and then searching "Intel Ohio Site" under Facility Name. Any future air permit issuances will also be available on that website.

Please see the response to 7.a. below for information about the facility's wastewater management and the associated treatment standards.

The facility will not be using perfluorooctanoic acid (PFOA).

All wastewater and solid wastes from the facility will be sent off-site for proper treatment and/or disposal. Additionally, the facility will be subject to regulations that require the immediate containment and cleanup of any spills should they occur. Therefore, we do not expect the facility to be a source of soil or ground water contamination.

Under the Toxic Substances Control Act, EPA is continually evaluating potential risks from new and existing chemicals and acts to address any unreasonable risks chemicals may have on human health and the environment.

We are not currently aware of any unregulated pollutants that pose a risk to human health or the environment from this facility. If we become aware of such pollutants, Ohio EPA will take the steps necessary to ensure that human health and the environment are protected. In accordance with Ohio Revised Code (ORC) 3704.02(A)(1), the director of Ohio EPA has the broad authority "to protect and enhance the quality of the state's air resources so as to promote the public health, welfare, economic vitality and productive capacity of the people of the state". This authorization, as well as others spelled out in the ORC, provide Ohio EPA with the power to implement the Agency's mission and values, as follows. "The Ohio Environmental Protection Agency is a trusted leader and environmental steward using innovation, quality service and public involvement to ensure a safe and healthy environment for all Ohioans. Ohio EPA's goal is to protect the environment and public health by ensuring compliance with environmental laws and demonstrating leadership in environmental stewardship."

3. Topic: Permitting and Compliance Inspections:

a. Comment: This is a huge facility and one of the biggest in the state. For that reason alone, I request that each semiconductor fabrication plant or FAB, and two will be built and operated initially, require separate Air Permits. Given the size of each FAB, it is certainly reasonable, more fair, and more responsible that these two separate FABs need separate permits for enhanced protection and monitoring of air emissions here.

Secondly, in the public hearing it was stated that a permit of this scale would require only 2 regulatory inspections per year. Two inspections annually for a FAB of this huge size appears to be grossly inadequate. Again, require separate permits for each FAB would double the required inspections and double the required monitoring of air emissions. If OEPA does not require two separate permits for this two large FABs, please justify that decision in your comments prior to permit issuance.

Response: Splitting the permit up into separate documents/decisions would have no impact on the content of the permit(s). In general, larger facilities are subject to more requirements than smaller facilities. This PTI was written taking into consideration the size of the facility and contains the strictest requirements that are authorized by law.

Similar to permit requirements, the frequency of compliance inspections is based on the size of the facility. This facility will be inspected once every two years which is the most frequent inspection schedule Ohio EPA's Division of Air Pollution Control performs. However, Ohio EPA uses multiple other methods to confirm the facility is operating in compliance. For instance, the permit requires the facility to conduct emissions testing of stack emissions every 2.5 years to verify that emissions levels are below emission standards established in the permit. Ohio EPA anticipates being heavily involved in the emissions testing, including being on site to witness testing. In addition, the permit requires the facility to monitor and record operating conditions set forth in the permit and to report any deviations from those operating conditions. The facility is required to report deviations quarterly, semi-annually, and annually. They are also required to notify Ohio EPA immediately of a malfunction that results in an emissions exceedance. If Ohio EPA receives a complaint about the facility, we will investigate that complaint which could include an on-site inspection.

Intel's air permit contains a long list of requirements described above to make sure the facility is operated in compliance with the applicable air pollution laws.

4. Topic: Natural Gas and Greenhouse Gases:

a. Comment: One comment was received asking where the natural gas will come from.

Response: While this is not under Ohio EPA's regulations, the natural gas will be piped to the facility by the Columbia Gas of Ohio. Underground pipelines will be installed to bring the gas to the facility.

b. Comment: Five commenters were concerned about the greenhouse gas emissions from this facility and thought the facility should be using renewable energy instead of natural gas.

Two of the five commenters stated, "I would like to request that a BACT analysis be conducted regarding the natural gas powered boilers and evaporators that are part of the Intel proposal. I believe that the choice of natural gas to power this equipment is not the only or best alternative, as this would be a very significant portion of the allowed air emissions of more than 1.8 million tons/year of greenhouse gases."

Another one of the five commenters had the following questions. Will Intel be installing any carbon capture technology to reduce CO_2e emissions? What green energy initiatives or renewable energy sources will be utilized at this new facility?

That commenter also stated, "Battelle Institute is right here in Columbus, Ohio and they are highly experienced in the area of carbon capture. There are a lot brilliant minds at this organization and they could help Intel reduce greenhouse gas and CO_2e emissions. They should partner with Battelle.

https://www.battelle.org/markets/industry/energy/carbon-storage-solutions

I would also ask that Intel explore using 'Green Hydrogen' as an alternative to natural gas. This is the fuel for the 21st century if we want to reduce greenhouse gas emissions.

https://www.youtube.com/watch?v=JGe8R0N20ps

I applaud Intel's Environmental Initiatives and Sustainability Goals 'Rise 2030' that focus on improving air quality and water quality where they operate. This is great. But I would hope they will do more and move away from burning fossil fuels and shift towards renewable energy sources, like wind and solar, hydro-electric, geothermal, hydrogen fuel cells, and green hydrogen gas as a power source."

Response: The facility is subject to federal PSD regulations, which include requirements for controlling greenhouse gas (GHG) emissions. GHG emissions are regulated through the application of Best Available Control Technology (BACT) and the establishment of carbon dioxide equivalent (CO_2e) emission limitations. CO_2e emission limitations represent the level of GHG emissions from the application of BACT. A BACT analysis has been performed on all the permitted sources at the facility, including the natural gas-fired equipment. Ohio EPA determined that BACT includes energy-efficient fuel combustion, proper maintenance and operation of engines, and the use of point-of-use abatement devices that are specifically designed to control GHG emissions from the fabs.

The facility will not be installing any carbon capture technology. Carbon capture and sequestration is typically a consideration for fossil fuel-fired power plants and industrial facilities with high-purity CO_2 streams (e.g., hydrogen production, ammonia production, natural gas processing, ethanol production, ethylene oxide production, cement production, and iron and steel manufacturing). Even though the sources at this facility do not fit into those categories, carbon capture and sequestration was considered as part of the BACT analysis for the natural gas-fired boilers and nitrogen vaporizers. This control technology was determined to be technically and economically infeasible.

Regulating GHGs through a PSD permit is the only legal mechanism Ohio EPA has to regulate GHGs. We do not have the legal authority to evaluate any additional GHG emission reductions that might come from using renewable sources of energy as opposed to natural gas. While we encourage the adoption of measures that would minimize or eliminate air emissions, we do not have the authority to require a specific type of source be installed or a specific type of fuel be used. The Agency can only require the proposed source meet specific emissions limitations and/or control techniques/measures.

While it is not a requirement of the air permit, Intel plans to use 100 percent renewable electricity for all the power demands at this facility. This will mainly come from Renewable Electricity Credits (RECs) and will be from a mixture of renewable electricity production, including wind and solar. Intel is also researching the ability to source or fund renewable natural gas projects to reduce GHG emissions in the future. The facility's website, exploreintel.com, provides information about Intel's environmental policies and initiatives. One of the available documents on this website is the annual Corporate Responsibility Report (CSR Report). This report provides additional details about Intel's use of renewable electricity.

5. Topic: Facility Size and Future Expansion:

a. Comment: I would like to refer to the EPA presentation Page 6, Slides #11 & #12. Slide #11 "Allowed Air Emissions" indicates that this new facility will produce 1,206 tons per year of NOx and a total of 1,852,957 tons of CO_2e greenhouse gas emissions per year. (according to modeling data and EPA research) Slide #12 "Air Pollution Size Comparison" indicates this new facility falls in the "Medium-Large" category or a range of 100-500 tons per year of any single pollutant. NOx is 1,206 tons, if I am not mistaken, puts this facility in the "Extra Large" category of 1,000-10,000 tons per year (for a single pollutant). I believe this is an error in the document/presentation.

Response: The main purpose of Slide #12 was to help the audience get an understanding of the air pollution "size" of the Intel facility compared to facilities that citizens might be more familiar with. By comparing to other known facilities, citizens can get a better sense for what to expect from an air emission standpoint. The size category descriptions (small, medium, etc.) are intended as general descriptors and should be considered as "ballpark" size descriptors. So, even though the ton/yr values one of the criteria pollutants (NOx, CO, VOC, PM and SO_2) are not in the "Medium-Large" range of 100-500 tons per year (we will talk about CO_2e below), we feel that the overall plant is still appropriately described as a Medium-Large air pollution source.

The other factor that we considered when we decided on the Medium-Large size, is that the NOx emissions are not going to be emitted anywhere near the allowed limit found in the permit. That is because a large share of the NOx emissions come from the emergency generators. The emergency generators are operated for short times each month to make sure they are ready and then only when there is a power outage. In reality the NOx emissions from the facility are expected to be much less than 500 tons per year.

The CO_2e pollutant is unique, so it was not used to help describe the size of the facility. The table on Slide #11 lists 1,852,957 tons of CO_2e per year as the limit in the permit. The tons of CO_2e per year is not the total tons of GHG material to be emitted. Instead, the ton/yr value is calculated based on each pollutant's Global Warming Potential (GWP). This is done because some pollutants impact global warming than others. This is easier to understand with an example:

Assume the facility is going to emit the following:

100 tons carbon dioxide (CO_2)/year, and
100 tons methane (CH_4)/year

The global warming potential for carbon dioxide is 1.0 and for methane is 25. (Methane causes 25 times the amount of global warming than carbon dioxide.)

To determine the CO_2e of each pollutant, you multiple the tons per year emitted by its GWP.

100 ton/yr CO_2 x 1.0 = 100 tons of CO_2e per year
100 ton/yr CH_4 x 25 = 2,500 tons of CO_2e per year

You then add them up, 100 + 2,500 = 2,600 tons of CO_2e per year to get the total GHG emitted.

So, in this example, even though the facility will emit 200 tons total of the two pollutants combined, the "tons" of CO_2e emitted is 2,600.

The calculation is done this way is because some pollutants, like methane in this example, cause more global warming than others so this calculation is a way of recognizing this difference.

Since the tons per year of CO_2e is calculated differently than that for the other pollutants, Ohio EPA did not use that value to make a judgement on the size of the facility.

b. Comment: Piecemealing permits makes no sense to me. So, if you say 2 fabs puts us in the medium range for air pollution, where does 8 fabs put us?

Response: The application that was submitted for the facility includes two twin-fabs (four fabs total). Based on the emissions expected from this facility, Ohio EPA considers this facility to be medium-large. The amount of emissions would be similar to glass plants and can manufacturers. This categorization was done to provide the public with a general idea of the amount of emissions that can be expected. It has no regulatory basis.

Ohio EPA does not currently have any information related to the potential future expansion of the facility. At this time, Ohio EPA cannot speculate what the potential emissions will be. We will provide the public information related to the size of the facility after we receive a permit application for any site expansion. Any future expansion will also be evaluated to ensure public health and welfare will be protected.

c. Comment: If Intel expands and builds more Fab facilities at this location, would this require a modification of the existing permit to install air permit or permit to operate? With the increased emissions from additional Fabs, would this facility become a Title 5 site requiring more frequent testing, inspections, reporting and PSD, prevention of significant deterioration requirements? Will Licking County become Non-Attainment with further expansion by Intel.

Response: If the facility decides to build more fabs at this location, they will need to apply for and obtain a separate PTI for those fabs. So, they will have a PTI that covers the first four fabs, and then one or more PTI(s) that cover future fabs.

After each PTI is issued, they will need to update their operating permit (called the Title V permit). Unlike PTIs, Title V permits contain all the air pollution requirements for the entire facility.

The facility is currently a major source under Title V so they are already subject to the highest frequency of inspections and most stringent reporting requirements. The testing frequency could increase if there is a concern about the facility's ability to demonstrate compliance. But the number of fabs and/or amount of facility-wide emissions would not factor into that determination.

New Source Review requirements (i.e., prevention of significant deterioration or non-attainment new source review) only change when a county's attainment designation changes. Based on the dispersion modeling discussed in the response to 2.a. above, the facility is not expected to cause an exceedance of any NAAQS. If the facility applies for a PTI for additional fabs, Ohio EPA will perform the same analysis to ensure Licking County remains in attainment for all NAAQS.

6. Topic: Advance Notice Not Provided:

a. Comment: One comment was received stating that Ohio EPA should have notified the public prior to New Albany annexing the land and making a deal to give away billions of dollars of resources.

Response: Ohio EPA understands that it can be frustrating to find out about a project that will significantly impact the area after so many factors have already been decided. Ohio EPA is not involved in, nor has the authority to be involved in, any annexing decisions or any incentives that might be provided so we cannot comment on those issues.

However, public involvement is an important part of Ohio EPA's air permitting process. That process begins when a permit application has been received. Ohio EPA received Intel's permit application on June 24, 2022. When we received the air permit application, we notified the public by posting a notice of receipt of the application in the Newark Advocate on July 6, 2022. When we completed our review of the application and drafted the initial permit terms, we again notified the public by publishing a notice in the Newark Advocate on July 27, 2022, announcing the draft permit, the public comment period, and the public hearing. In addition to the two required notices that were published in the Newark Advocate, Ohio EPA issued a news release to local news outlets that was also posted on our website and sent a citizen advisory directly to citizens on our Intel interested parties list on Aug. 16, 2022. All these steps were done to notify the public about the air permit so they could provide their comments and suggestions about the permit.

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. Topic: Wastewater Treatment:

a. Comment: One comment was received concerning the health impacts from discharging Intel's treated wastewater into bodies of water that will feed downstream drinking water sources.

Response: While this is not part of the air permitting review, the facility will not directly discharge wastewater to surface water. Both the sanitary sewage and industrial wastewater generated by the facility will be directed to sanitary sewers owned and operated by the city of New Albany. All of New Albany's sanitary sewers convey sewage and industrial wastes to the city of Columbus Southerly Water Reclamation Facility for treatment and discharge, per the current contractual service agreement. The Southerly treatment facility must meet the terms and conditions of its National Pollutant Discharge Elimination System (NPDES) discharge permit. This permit contains discharge limitations that are protective of the Scioto River's water quality which includes aquatic life and agricultural uses, as well as public water supply standards. The closest public water supply intake located on the Scioto River downstream to the Southerly treatment facility's outfall is over 84 river miles away, which is well beyond any statutory distance requirements contained in Ohio law. A copy of the NPDES permit can be found on Ohio EPA's website at https://epa.ohio.gov/divisions-and-offices/surface-water/permitting/individual-wastewater-discharge-permit-information.

b. Comment: One comment was received stating that the facility's wastewater should be treated by New Albany and not the city of Columbus.

Response: The city of New Albany does not have a municipal wastewater treatment system. New Albany is a satellite community to Columbus. As discussed in the response to 7.a. above, all wastewater in New Albany is conveyed to Columbus for treatment.

8. Topic: Allocation of Public Money:

a. Comment: Why is our money going to install this dirty equipment when Intel claims to be working on doing better?

Response: Ohio EPA has not been involved with the decisions to provide financial incentives to this facility.

9. Topic: Cleanup Costs:

a. Comment: Manufacturing plants come and use our resources and leave us when better resources come along. There will be site cleanup and to groundwater all over Central Ohio and the water that flows south to other states. Are we planning for the inevitable costs after Intel has gone?

Response: The Clean Air Act does not require facilities to obtain financial assurance for future clean-up costs. For information about financial assurance requirements, please visit https://epa.ohio.gov/static/Portals/34/document/guidance/FAMechanismsOverview.pdf.

Even though the air permit does not cover site closure, we do not expect the facility to be a source of soil or ground water contamination. The facility will be subject to regulations that require the immediate containment and cleanup of any spills should they occur.

FINAL

Division of Air Pollution Control
Permit-to-Install
for
Intel Ohio Site

Facility ID:	0145000588
Permit Number:	P0132323
Permit Type:	Initial Installation
Issued:	09/20/2022
Effective:	09/20/2022

Ohio Environmental Protection Agency

Division of Air Pollution Control
Permit-to-Install
for
Intel Ohio Site

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Authorization

Facility ID:	0145000588
Facility Description:	
Application Number(s):	A0071180, A0072120
Permit Number:	P0132323
Permit Description:	Permit-to-install for a semiconductor manufacturing facility including four (4) fabrication clean rooms (fabs), 28 boilers, four (4) nitrogen vaporizers, 46 emergency generators, one (1) emergency fire pump, six (6) storage silos, 125 cooling towers and roadways and parking areas.
Permit Type:	Initial Installation
Permit Fee:	$46,703.25
Issue Date:	09/20/2022
Effective Date:	09/20/2022

This document constitutes issuance to:

Intel Ohio Site
Intersection Miller & Clover Valley Rds
New Albany, OH 43031

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:

Ohio EPA DAPC, Central District Office
50 West Town St., 5th Floor
P.O. Box 1049
Columbus, OH 43216-1049
(614)728-3778

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

Laurie A. Stevenson

Laurie A. Stevenson
Director

Entered into the Journal of the Director on:

Date: 09/20/2022

Authorization (continued)

Permit Number: P0132323
Permit Description: Permit-to-install for a semiconductor manufacturing facility including four (4) fabrication clean rooms (fabs), 28 boilers, four (4) nitrogen vaporizers, 46 emergency generators, one (1) emergency fire pump, six (6) storage silos, 125 cooling towers and roadways and parking areas.

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

Emissions Unit ID:	**F001**
Company Equipment ID:	Roads
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P047**
Company Equipment ID:	Fire Pump-1
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

Group Name: Cooling Towers

Emissions Unit ID:	**P054**
Company Equipment ID:	CT-001
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P055**
Company Equipment ID:	CT-002
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
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Emissions Unit ID:	**P168**
Company Equipment ID:	CTASU-03
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P169**
Company Equipment ID:	CTASU-04
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P170**
Company Equipment ID:	CTASU-05
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P171**
Company Equipment ID:	CTASU-06
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P172**
Company Equipment ID:	CTASU-07
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P173**
Company Equipment ID:	CTASU-08
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P174**
Company Equipment ID:	CTASU-09
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P175**
Company Equipment ID:	CTASU-10
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P176**
Company Equipment ID:	CTASU-11

Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P177**
Company Equipment ID:	CTASU-12
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P178**
Company Equipment ID:	CTASU-13
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

Group Name: Emergency Generators

Emissions Unit ID:	**P001**
Company Equipment ID:	Generator-1
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P002**
Company Equipment ID:	Generator-2
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P003**
Company Equipment ID:	Generator-3
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P004**
Company Equipment ID:	Generator-4
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P005**
Company Equipment ID:	Generator-5
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P006**
Company Equipment ID:	Generator-6
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P007**
Company Equipment ID:	Generator-7
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P008**
Company Equipment ID:	Generator-8
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P009**
Company Equipment ID:	Generator-9
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P010**
Company Equipment ID:	Generator-10
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P011**
Company Equipment ID:	Generator-11
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

Emissions Unit ID:	**P012**
Company Equipment ID:	Generator-12
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P013**
Company Equipment ID:	Generator-13
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P014**
Company Equipment ID:	Generator-14
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P015**
Company Equipment ID:	Generator-15
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P016**
Company Equipment ID:	Generator-16
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P017**
Company Equipment ID:	Generator-17
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P018**
Company Equipment ID:	Generator-18
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P019**
Company Equipment ID:	Generator-19
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P020**
Company Equipment ID:	Generator-20
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P021**
Company Equipment ID:	Generator-21
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P022**
Company Equipment ID:	Generator-22
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P023**
Company Equipment ID:	Generator-23
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P024**
Company Equipment ID:	Generator-24
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P025**
Company Equipment ID:	Generator-25
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P026**

Company Equipment ID:	Generator-26
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P027**
Company Equipment ID:	Generator-27
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P028**
Company Equipment ID:	Generator-28
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P029**
Company Equipment ID:	Generator-29
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P030**
Company Equipment ID:	Generator-30
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P031**
Company Equipment ID:	Generator-31
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P032**
Company Equipment ID:	Generator-32
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P033**
Company Equipment ID:	Generator-33
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P034**
Company Equipment ID:	Generator-34
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P035**
Company Equipment ID:	Generator-35
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P036**
Company Equipment ID:	Generator-36
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P037**
Company Equipment ID:	Generator-37
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P038**
Company Equipment ID:	Generator-38
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P039**
Company Equipment ID:	Generator-39
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P040**
Company Equipment ID:	Generator-40

Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P041**
Company Equipment ID:	Generator-41
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P042**
Company Equipment ID:	Generator-42
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P043**
Company Equipment ID:	Generator-43
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P044**
Company Equipment ID:	Generator-44
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P045**
Company Equipment ID:	Generator-45
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P046**
Company Equipment ID:	Generator-46
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

Group Name: Lime Silos

Emissions Unit ID:	**P048**
Company Equipment ID:	LSILO-01
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P049**
Company Equipment ID:	LSILO-02
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P050**
Company Equipment ID:	LSILO-03
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P051**
Company Equipment ID:	LSILO-04
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P052**
Company Equipment ID:	LSILO-05
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P053**
Company Equipment ID:	LSILO-06
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

Group Name: Natural Gas-Fired Boilers

Emissions Unit ID:	**B001**

Company Equipment ID:	Boiler-01
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B002**
Company Equipment ID:	Boiler-02
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B003**
Company Equipment ID:	Boiler-03
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B004**
Company Equipment ID:	Boiler-04
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B005**
Company Equipment ID:	Boiler-05
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B006**
Company Equipment ID:	Boiler-06
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B007**
Company Equipment ID:	Boiler-07
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B008**
Company Equipment ID:	Boiler-08
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B009**
Company Equipment ID:	Boiler-09
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B010**
Company Equipment ID:	Boiler-10
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B011**
Company Equipment ID:	Boiler-11
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B012**
Company Equipment ID:	Boiler-12
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B013**
Company Equipment ID:	Boiler-13
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B014**
Company Equipment ID:	Boiler-14
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B015**
Company Equipment ID:	Boiler-15

Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B016**
Company Equipment ID:	Boiler-16
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B017**
Company Equipment ID:	Boiler-17
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B018**
Company Equipment ID:	Boiler-18
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B019**
Company Equipment ID:	Boiler-19
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B020**
Company Equipment ID:	Boiler-20
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B021**
Company Equipment ID:	Boiler-21
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B022**
Company Equipment ID:	Boiler-22
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B023**
Company Equipment ID:	Boiler-23
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B024**
Company Equipment ID:	Boiler-24
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B025**
Company Equipment ID:	Boiler-25
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B026**
Company Equipment ID:	Boiler-26
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B027**
Company Equipment ID:	Boiler-27
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B028**
Company Equipment ID:	Boiler-28
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

Group Name: Natural Gas-Fired N2 Vaporizers

Emissions Unit ID:	**B029**
Company Equipment ID:	Boiler-29
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B030**
Company Equipment ID:	Boiler-30
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B031**
Company Equipment ID:	Boiler-31
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B032**
Company Equipment ID:	Boiler-32
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

Group Name: Semiconductor Fabrication

Emissions Unit ID:	**P179**
Company Equipment ID:	FAB-27.1/27.2
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P180**
Company Equipment ID:	FAB-27.2
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P181**
Company Equipment ID:	FAB-37.1/37.2
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P182**
Company Equipment ID:	FAB-37.2
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable

List of Commonly Used Abbreviations

AP-42 = U.S. EPA's Compilation of Air Pollution Emissions Factors	IBR = Incorporation by Reference	PER = Permit Evaluation Report
ASTM = American Society for Testing and Materials	ID = Identification Number (typically referring to a facility ten-digit ID number)	PM = particulate matter
BACT = Best Available Control Technology	LAER = Lowest Achievable Emission Rate	PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns
BAT = Best Available Technology	lb(s)/hr = pound(s) per hour	$PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
CAA = Clean Air Act (1955, 70, 77, 80)	LDAR = Leak Detection and Repair	ppb = parts per billion
CAAA = Clean Air Act Amendments (1990)	LPG = liquefied petroleum gas/propane	ppm = parts per million
CAM = Compliance Assurance Monitoring	MACT = Maximum Achievable Control Technology	PSD = Prevention of Significant Deterioration
CEM = Continuous Emissions Monitor	MAGLC = Maximum Acceptable Ground Level Concentration	psi = pounds per square inch
CEMS = Continuous Emissions Monitoring System	mg/m3 = milligrams per cubic meter	psia = pounds per square inch absolute
CFC = chlorofluorocarbon	MM = million	PTE = Potential-to-Emit
CFR = Code of Federal Regulations	MMBtu = million British Thermal Units	PTI = Permit-to-Install
CH_4 = methane	MON = Miscellaneous Organic Chemical Manufacturing NESHAP	PTIO = Permit-to-Install and Operate
CI = compression ignition		PTO = Permit-to-Operate
CO = carbon monoxide	MSDS = Material Safety Data Sheet	PWR = process weight rate
CO_2 = carbon dioxide	MSW = Municipal Solid Waste	RACM = Reasonably Available Control Measures
COM = Continuous Opacity Monitor	NAAQS = National Ambient Air Quality Standard	RACT = Reasonably Available Control Technology
DAPC = Division of Air Pollution Control	NESHAP = National Emission Standard for Hazardous Air Pollutants	RATA = Relative Accuracy Test Audit
DO/LAA = District Office/Local Air Agency	NG = natural gas	RTO = regenerative thermal oxidizer
dscf = dry standard cubic foot	ng/m3 = nanograms per cubic meter	SB265 = Senate Bill 265
EAC = Emissions Activity Category	NH_3 = ammonia	scfm = standard cubic feet per minute
eDocs = Electronic Documents Database	NMHC = non-methane hydrocarbons	SI = spark ignition
ERAC = Environmental Review Appeals Commission	NMOC = non-methane organic compound	SIP = State Implementation Plan
ESP = electrostatic precipitator	NNSR = Nonattainment New Source Review	SM = Synthetic Minor
EU = Emissions Unit	NO = nitrogen oxide	SO_2 = sulfur dioxide
FEPTIO = Federally Enforceable Permit-to-Install and Operate	NO_2 = nitrogen dioxide	SOB = Statement of Basis
FER = Fee Emissions Report	NO_x = nitrogen oxides	SSMP = Startup, Shutdown and Malfunction Plan
FR = Federal Register	NSPS = New Source Performance Standard	T & C = Term and Condition
GACT = Generally Achievable Control Technology	NSR = New Source Review	TDS = total dissolved solids
GHG = greenhouse gases	NTV = Non-Title V	TLV = Threshold Limit Value
gr = grains	O&M = Operation and Maintenance	TO = thermal oxidizer
gr/dscf = grains per dry standard cubic foot	O_3 = ozone	TPH = ton(s) per hour
H_2S = hydrogen sulfide	OAC = Ohio Administrative Code	TPY = ton(s) per year
H_2SO_4 = sulfuric acid	OC = organic compound	TSP = total suspended particulates
HAP = hazardous air pollutant	OEPA = Ohio Environmental Protection Agency	VE = visible emissions
HCl = hydrochloride	ORC = Ohio Revised Code	VMT = vehicle miles traveled
HF = hydrogen fluoride	Pb = lead	VOC = volatile organic compound
Hg = mercury	PBR = Permit-By-Rule	WPP = Work Practice Plan
HON = Synthetic Organic Chemical Manufacturing NESHAP	PCB = polychlorinated biphenyl	µg/m3 = micrograms per cubic meter
hp = horsepower	PE = particulate emissions	
HVLP = high volume, low pressure	PEMS = Predictive Emissions Monitoring System	

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), Compliance Requirements

(4) Standard Term and Condition A.8., Air Pollution Nuisance

(5) Standard Term and Condition A.9., Reporting Requirements

(6) Standard Term and Condition A.10., Applicability

(7) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install

(8) Standard Term and Condition A.14., Public Disclosure

(9) 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

(10) Standard Term and Condition A.16., Fees

(11) 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 Ohio EPA DAPC, Central District Office.

(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 Ohio EPA DAPC, Central District Office. 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 DO/LAA 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 semiannual 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 Ohio EPA DAPC, Central District Office 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 shut down 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 Ohio EPA DAPC, Central District Office 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 Ohio EPA DAPC, Central District Office.

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 Ohio EPA DAPC, Central District Office. 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 once by twelve 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 shut down 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 shut down 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 any other 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 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.

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 requirements of 40 CFR Part 63, Subpart JJJJJJ do not apply to emissions units B001 through B032 pursuant to 40 CFR 63.11195(e) because they burn only natural gas.

3. The Ohio EPA has determined that this facility operates affected sources that are subject to the requirements of 40 CFR Part 63, Subpart ZZZZ, the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines. Ohio EPA is not accepting the delegation authority to implement and enforce the area source requirements of this NESHAP standard. The area source requirements of this NESHAP standard are implemented and enforced by U.S. EPA, Region 5. The promulgated version of this NESHAP standard and the 40 CFR Part 63, General Provisions may be accessed via the Internet from the Electronic Code of Federal Regulations (e-CFR) website http://www.ecfr.gov/ or by contacting the Ohio EPA, Central District Office.

C. Emissions Unit Terms and Conditions

1. 29.4 MMBtu/hr Natural Gas-Fired Boilers: B001 through B028

EU ID	Company Equipment ID
B001	Fab 27.1/27.2, BLR-115-1-10
B002	Fab 27.1/27.2, BLR-115-2-10
B003	Fab 27.1/27.2, BLR-115-3-10
B004	Fab 27.1/27.2, BLR-115-4-10
B005	Fab 27.1/27.2, BLR-115-5-10
B006	Fab 27.1/27.2, BLR-115-6-10
B007	Fab 27.1/27.2, BLR-115-7-10
B008	Fab 27.1/27.2, BLR-115-8-10
B009	Fab 27.1/27.2, BLR-115-9-10
B010	Fab 27.1/27.2, BLR-115-10-10
B011	Fab 27.1/27.2, BLR-115-11-10
B012	Fab 27.1/27.2, BLR-115-12-10
B013	Fab 27.1/27.2, BLR-115-13-10
B014	Fab 27.1/27.2, BLR-115-14-10

EU ID	Company Equipment ID
B015	Fab 37.1/37.2, BLR-115-1-10
B016	Fab 37.1/37.2, BLR-115-2-10
B017	Fab 37.1/37.2, BLR-115-3-10
B018	Fab 37.1/37.2, BLR-115-4-10
B019	Fab 37.1/37.2, BLR-115-5-10
B020	Fab 37.1/37.2, BLR-115-6-10
B021	Fab 37.1/37.2, BLR-115-7-10
B022	Fab 37.1/37.2, BLR-115-8-10
B023	Fab 37.1/37.2, BLR-115-9-10
B024	Fab 37.1/37.2, BLR-115-10-10
B025	Fab 37.1/37.2, BLR-115-11-10
B026	Fab 37.1/37.2, BLR-115-12-10
B027	Fab 37.1/37.2, BLR-115-13-10
B028	Fab 37.1/37.2, BLR-115-14-10

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:

a. 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.	OAC rules 3745-31-10 through 3745-31-20 and 3745-31-34 [Prevention of Significant Deterioration of Air Quality]	NO_X emissions shall not exceed 0.011 lb/MMBtu of actual heat input. CO emissions shall not exceed 0.037 lb/MMBtu of actual heat input. VOC emissions shall not exceed 0.005 lb/MMBtu of actual heat input. Filterable PE shall not exceed 0.002 lb/MMBtu of actual heat input. PM_{10} (filterable and condensable) emissions shall not exceed 0.00051 lb/MMBtu of actual heat input.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		$PM_{2.5}$ (filterable and condensable) emissions shall not exceed 0.00042 lb/MMBtu of actual heat input. CO_2 emissions shall not exceed 117.6 lb/MMBtu of actual heat input. Visible particulate emissions from the stack serving this emissions unit shall not exceed 5% opacity as a 6-minute average. Emissions from emissions units B001 through B014, combined, shall not exceed: 9.74 tons of NO_x per rolling, 12-month period; 33.0 tons of CO per rolling, 12-month period; 4.86 tons of VOC per rolling, 12-month period; 1.68 tons of filterable PE per rolling, 12-month period; 0.46 tons of PM_{10} (filterable and condensable) per rolling, 12-month period; 0.38 tons of $PM_{2.5}$ (filterable and condensable) per rolling, 12-month period; and 106,048 tons of CO_2 per rolling, 12-month period. Emissions from emissions units B015 through B028, combined, shall not exceed: 9.74 tons of NO_x per rolling, 12-month period; 33.0 tons of CO per rolling, 12-month period;

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		4.86 tons of VOC per rolling, 12-month period; 1.68 tons of filterable PE per rolling, 12-month period; 0.46 tons of PM_{10} (filterable and condensable) per rolling, 12-month period; 0.38 tons of $PM_{2.5}$ (filterable and condensable) per rolling, 12-month period; and 106,048 tons of CO_2 per rolling, 12-month period. See b)(2)a., b)(2)b., and c)(1) through c)(3) below.
b.	OAC rule 3745-31-05(A)(3)(a)(ii)	The BAT requirements under OAC rule 3745-31-05(A)(3) do not apply to the NO_X, CO, VOC, PM_{10}, $PM_{2.5}$ and SO_2 emissions from this air contaminant source since the potentials to emit are less than 10 tons per year taking into account the emissions limitations established under OAC rule 3745-31-10 through 20.
c.	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 rule.
d.	OAC rule 3745-17-10(B)(1)	PE shall not exceed 0.020 lb/MMBtu of actual heat input.
e.	OAC rule 3745-110-03	Exempt pursuant to OAC rule 3745-110-03(K)(18) because this emissions unit is subject to BACT requirements for NO_x emissions.
f.	40 CFR Part 60, Subpart Dc [40 CFR 60.40c – 60.48c]	See c)(1) below.
g.	40 CFR Part 60, Subpart A [40 CFR 60.1 – 60.19]	See b)(2)c. below.

(2) Additional Terms and Conditions

a. The boiler shall be installed, operated, and maintained according to the manufacturer's emission-related written instructions. As part of the BACT determination for NO_X, the boiler shall be equipped with an ultra-low NO_X burner capable of achieving 0.011 pounds of NO_X per million Btu of actual heat input. The

permittee shall operate and maintain the boiler to achieve the emissions standards established in OAC rules 3745-31-10 through 3745-31-20 and 3745-31-34 over the entire life of the boiler.

b. The permittee shall perform a tune-up on this emissions unit annually.

c. The permittee shall comply with the applicable requirements of the General Provisions of the Standards of Performance for New Stationary Sources in 40 CFR Part 60, Subpart A as they apply to the emissions unit regulated under 40 CFR Part 60, Subpart Dc.

c) Operational Restrictions

(1) The permittee shall burn only natural gas in this emissions unit.

(2) Natural gas usage in emissions units B001 through B014, combined, shall not exceed 1,767 million cubic feet per rolling, 12-month period.

(3) Natural gas usage in emissions units B015 through B028, combined, shall not exceed 1,767 million cubic feet per rolling, 12-month period.

d) Monitoring and/or Recordkeeping Requirements

(1) For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

(2) The permittee shall maintain one of the following records:

a. the amount of natural gas combusted during each calendar month in this emissions unit; or

b. the total amount of natural gas delivered for burning in this emissions unit during each calendar month.

(3) The permittee shall maintain records of the following information for each tune-up performed on this emissions unit:

a. the date of the tune-up; and

b. the name, title, and affiliation of the person who performed the tune-up and made any adjustments.

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

a. the natural gas usage in emissions units B001 through B014, combined, in MMcf;

b. the natural gas usage in emissions units B015 through B028, combined, in MMcf;

c. the rolling, 12-month natural gas usage in emissions units B001 through B014, combined, in MMcf;

d. the rolling, 12-month natural gas usage in emissions units B015 through B028, combined, in MMcf;

e. the rolling, 12-month emissions of NO_X, CO, VOC, filterable PE, PM_{10} (filterable and condensable), $PM_{2.5}$ (filterable and condensable), and CO_2 from emissions units B001 through B014, combined, in tons; and

f. the rolling, 12-month emissions of NO_X, CO, VOC, filterable PE, PM_{10} (filterable and condensable), $PM_{2.5}$ (filterable and condensable), and CO_2 from emissions units B015 through B028, combined, in tons.

e) Reporting Requirements

(1) 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.

(2) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.

(3) Pursuant to 40 CFR 60.7 and 60.48c(a), the permittee shall submit the following notifications:

a. construction date (no later than 30 days after such date);

b. actual start-up date (within 15 days after such date); and

c. the design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

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

a. all exceedances of the rolling, 12-month natural gas usage restrictions; and

b. all exceedances of the rolling, 12-month NO_X, CO, VOC, PE, PM_{10}, $PM_{2.5}$, and CO_2 emissions limitations.

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

f) Testing Requirements

(1) 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 on one of the identical emissions units, B001 through B028.

b. The emission testing shall be conducted within 365 days after initial startup of the emissions unit.

c. The emission testing shall be conducted to demonstrate compliance with the lb/MMBtu emissions limitations for NO_X and CO.

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

for NO_X, Methods 1, 3A, and 7E of 40 CFR Part 60, Appendix A; and

for CO, Methods 1, 3A, and 10 of 40 CFR Part 60, Appendix A.

The permittee shall use the F-Factor methodology and equations in sections 12.2 and 12.3 of Method 19 in 40 CFR Part 60, Appendix A to convert the measured pollutant concentrations to lb/MMBtu emission rates.

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

e. The test(s) shall be conducted under those representative conditions that challenge to the fullest extent possible a facility's ability to meet the applicable emissions limits and/or control requirements, unless otherwise specified or approved by the Ohio EPA, Central District Office. Although this generally consists of operating the emissions unit at its maximum material input/production rates and results in the highest emission rate of the tested pollutant, there may be circumstances where a lower emissions loading is deemed the most challenging control scenario. Failure to test under these conditions is justification for not accepting the test results as a demonstration of compliance.

f. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Central District Office. 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, Central District Office's refusal to accept the results of the emission test(s).

g. Personnel from the Ohio EPA, Central District Office 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.

h. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Central District Office 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 Ohio EPA, Central District Office.

(2) 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

NO_X emissions shall not exceed 0.011 lb/MMBtu of actual heat input.

CO emissions shall not exceed 0.037 lb/MMBtu of actual heat input.

Applicable Compliance Method

Compliance shall be demonstrated through the emissions testing conducted in accordance with f)(1) above.

b. Emissions Limitations

VOC emissions shall not exceed 0.005 lb/MMBtu of actual heat input.

PE shall not exceed 0.020 lb/MMBtu of actual heat input.

Filterable PE shall not exceed 0.002 lb/MMBtu of actual heat input.

PM_{10} emissions shall not exceed 0.00051 lb/MMBtu of actual heat input.

$PM_{2.5}$ emissions shall not exceed 0.00042 lb/MMBtu of actual heat input.

CO_2 emissions shall not exceed 117.6 lb/MMBtu of actual heat input.

Applicable Compliance Method

The VOC, PE, and CO_2 emissions limitations were established by dividing the emission factors for each pollutant (lb of pollutant/MMscf) found in AP-42 Table 1.4-2 by the natural gas heating value of 1,020 Btu/scf.

The PM_{10} and $PM_{2.5}$ emissions limitations were established to reflect the emission factors for each pollutant (lb of pollutant/MMscf) found in U.S. EPA's "Emissions Factors for Particulate Matter from Natural Gas Combustion" that were published for the 2014 National Emissions Inventory.

If required, the permittee shall demonstrate compliance with these emissions limitations through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 25 or 25A, as applicable, for VOC; Method 5 for PE; 40 CFR Part 51, Appendix M, Methods 201/201A and 202 for PM_{10}; 40 CFR Part 51, Appendix M, Methods 201A and 202 for $PM_{2.5}$; and 40 CFR Part 60, Appendix A, Methods 1 through 3A for CO_2. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

c. Emissions Limitations

Visible particulate emissions from the stack serving this emissions unit shall not exceed 5% opacity as a 6-minute average.

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

Applicable Compliance Method

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

d. Emissions Limitations

Emissions from emissions units B001 through B014, combined, shall not exceed:

9.74 tons of NO_X per rolling, 12-month period;

33.0 tons of CO per rolling, 12-month period;

4.86 tons of VOC per rolling, 12-month period;

1.68 tons of filterable PE per rolling, 12-month period;

0.46 tons of PM_{10} per rolling, 12-month period;

0.38 tons of $PM_{2.5}$ per rolling, 12-month period; and

106,048 tons of CO2 per rolling, 12-month period.

Emissions from emissions units B015 through B028, combined, shall not exceed:

9.74 tons of NO_X per rolling, 12-month period;

33.0 tons of CO per rolling, 12-month period;

4.86 tons of VOC per rolling, 12-month period;

1.68 tons of filterable PE per rolling, 12-month period;

0.46 tons of PM_{10} per rolling, 12-month period;

0.38 tons of $PM_{2.5}$ per rolling, 12-month period; and

106,048 tons of CO2 per rolling, 12-month period.

Applicable Compliance Method

Compliance shall be determined in accordance with the recordkeeping specified in d)(4) above.

g) Miscellaneous Requirements

(1) None.

2. 45.6 MMBtu/hr Natural Gas-Fired Nitrogen Vaporizers: B029 through B032

EU ID	Company Equipment ID
B029	B29
B030	B30

EU ID	Company Equipment ID
B031	B31
B032	B32

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:

a. 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.	OAC rules 3745-31-10 through 3745-31-20 and 3745-31-34 [Prevention of Significant Deterioration of Air Quality]	NO_X emissions shall not exceed 0.011 lb/MMBtu of actual heat input. CO emissions shall not exceed 0.037 lb/MMBtu of actual heat input. VOC emissions shall not exceed 0.005 lb/MMBtu of actual heat input. Filterable PE shall not exceed 0.002 lb/MMBtu of actual heat input. PM_{10} (filterable and condensable) emissions shall not exceed 0.00051 lb/MMBtu of actual heat input. $PM_{2.5}$ (filterable and condensable) emissions shall not exceed 0.00042 lb/MMBtu of actual heat input. CO_2 emissions shall not exceed 117.6 lb/MMBtu of actual heat input. Visible particulate emissions from the stack serving this emissions unit shall not exceed 5% opacity as a 6-minute average.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		Emissions from emissions units B029 through B032, combined, shall not exceed: 2.59 tons of NO_x per rolling, 12-month period; 8.76 tons of CO per rolling, 12-month period; 1.29 tons of VOC per rolling, 12-month period; 0.45 tons of filterable PE per rolling, 12-month period; 0.12 tons of PM_{10} (filterable and condensable) per rolling, 12-month period; 0.10 tons of $PM_{2.5}$ (filterable and condensable) per rolling, 12-month period; and 28,200 tons of CO_2 per rolling, 12-month period. See b)(2)a., b)(2)b., c)(1), and c)(2) below.
b.	OAC rule 3745-31-05(A)(3)(a)(ii)	The BAT requirements under OAC rule 3745-31-05(A)(3) do not apply to the NO_X, CO, VOC, PM_{10}, $PM_{2.5}$ and SO_2 emissions from this air contaminant source since the potentials to emit are less than 10 tons per year taking into account the emissions limitations established under OAC rule 3745-31-10 through 20.
c.	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 rule.
d.	OAC rule 3745-17-10(B)(1)	PE shall not exceed 0.020 lb/MMBtu of actual heat input.
e.	OAC rule 3745-110-03	Exempt pursuant to OAC rule 3745-110-03(K)(18) because this emissions unit is subject to BACT requirements for NO_x emissions.
f.	40 CFR Part 60, Subpart Dc [40 CFR 60.40c – 60.48c]	See c)(1) below.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
g.	40 CFR Part 60, Subpart A [40 CFR 60.1 – 60.19]	See b)(2)c. below.

(2) Additional Terms and Conditions

a. The nitrogen vaporizer shall be installed, operated, and maintained according to the manufacturer's emission-related written instructions. As part of the BACT determination for NO_X, the nitrogen vaporizer shall be equipped with an ultra-low NO_X burner capable of achieving 0.011 pounds of NO_X per million Btu of actual heat input. The permittee shall operate and maintain the nitrogen vaporizer to achieve the emissions standards established in OAC rules 3745-31-10 through 3745-31-20 and 3745-31-34 over the entire life of the nitrogen vaporizer.

b. The permittee shall perform a tune-up on this emissions unit annually.

c. The permittee shall comply with the applicable requirements of the General Provisions of the Standards of Performance for New Stationary Sources in 40 CFR Part 60, Subpart A as they apply to the emissions unit regulated under 40 CFR Part 60, Subpart Dc.

c) Operational Restrictions

(1) The permittee shall burn only natural gas in this emissions unit.

(2) Natural gas usage in emissions units B029 through B032, combined, shall not exceed 470.0 million cubic feet per rolling, 12-month period.

d) Monitoring and/or Recordkeeping Requirements

(1) For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

(2) The permittee shall maintain one of the following records:

a. the amount of natural gas combusted during each calendar month in this emissions unit; or

b. the total amount of natural gas delivered for burning in this emissions unit during each calendar month.

(3) The permittee shall maintain records of the following information for each tune-up performed on this emissions unit:

a. the date of the tune-up; and

b. the name, title, and affiliation of the person who performed the tune-up and made any adjustments.

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

a. the natural gas usage in emissions units B029 through B032, combined, in MMcf;

b. the rolling, 12-month natural gas usage in emissions units B029 through B032, combined, in MMcf; and

c. the rolling, 12-month emissions of NO_X, CO, VOC, filterable PE, PM_{10} (filterable and condensable), $PM_{2.5}$ (filterable and condensable), and CO_2 from emissions units B029 through B032, combined, in tons.

e) Reporting Requirements

(1) 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.

(2) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.

(3) Pursuant to 40 CFR 60.7 and 60.48c(a), the permittee shall submit the following notifications:

a. construction date (no later than 30 days after such date);

b. actual start-up date (within 15 days after such date); and

c. the design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

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

a. all exceedances of the rolling, 12-month natural gas usage restriction; and

b. all exceedances of the rolling, 12-month NO_X, CO, VOC, PE, PM_{10}, $PM_{2.5}$, and CO_2 emissions limitations.

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

f) Testing Requirements

(1) 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 on one of the identical emissions units, B029 through B032.

b. The emission testing shall be conducted within 365 days after initial startup of the emissions unit.

c. The emission testing shall be conducted to demonstrate compliance with the lb/MMBtu emissions limitations for NO_X and CO.

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

for NO_X, Methods 1, 3A, and 7E of 40 CFR Part 60, Appendix A; and

for CO, Methods 1, 3A, and 10 of 40 CFR Part 60, Appendix A.

The permittee shall use the F-Factor methodology and equations in sections 12.2 and 12.3 of Method 19 in 40 CFR Part 60, Appendix A to convert the measured pollutant concentrations to lb/MMBtu emission rates.

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

e. The test(s) shall be conducted under those representative conditions that challenge to the fullest extent possible a facility's ability to meet the applicable emissions limits and/or control requirements, unless otherwise specified or approved by the Ohio EPA, Central District Office. Although this generally consists of operating the emissions unit at its maximum material input/production rates and results in the highest emission rate of the tested pollutant, there may be circumstances where a lower emissions loading is deemed the most challenging control scenario. Failure to test under these conditions is justification for not accepting the test results as a demonstration of compliance.

f. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Central District Office. 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, Central District Office's refusal to accept the results of the emission test(s).

g. Personnel from the Ohio EPA, Central District Office 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.

h. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Central District Office 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 Ohio EPA, Central District Office.

(2) 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

NO_X emissions shall not exceed 0.011 lb/MMBtu of actual heat input.

CO emissions shall not exceed 0.037 lb/MMBtu of actual heat input.

Applicable Compliance Method

Compliance shall be demonstrated through the emissions testing conducted in accordance with f)(1) above.

b. Emissions Limitations

VOC emissions shall not exceed 0.005 lb/MMBtu of actual heat input.

PE shall not exceed 0.020 lb/MMBtu of actual heat input.

Filterable PE shall not exceed 0.002 lb/MMBtu of actual heat input.

PM_{10} emissions shall not exceed 0.00051 lb/MMBtu of actual heat input.

$PM_{2.5}$ emissions shall not exceed 0.00042 lb/MMBtu of actual heat input.

CO_2 emissions shall not exceed 117.6 lb/MMBtu of actual heat input.

Applicable Compliance Method

The VOC, PE, and CO_2 emissions limitations were established by dividing the emission factors for each pollutant (lb of pollutant/MMscf) found in AP-42 Table 1.4-2 by the natural gas heating value of 1,020 Btu/scf.

The PM_{10} and $PM_{2.5}$ emissions limitations were established to reflect the emission factors for each pollutant (lb of pollutant/MMscf) found in U.S. EPA's "Emissions Factors for Particulate Matter from Natural Gas Combustion" that were published for the 2014 National Emissions Inventory.

If required, the permittee shall demonstrate compliance with these emissions limitations through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 25 or 25A, as applicable, for VOC; Method 5 for PE; 40 CFR Part 51, Appendix M, Methods 201/201A and 202 for PM_{10}; 40 CFR Part 51, Appendix M, Methods 201A and 202 for $PM_{2.5}$; and 40 CFR Part 60, Appendix A, Methods 1 through 3A for CO_2. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

c. Emissions Limitations

Visible particulate emissions from the stack serving this emissions unit shall not exceed 5% opacity as a 6-minute average.

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

Applicable Compliance Method

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

d. Emissions Limitations

Emissions from emissions units B029 through B032, combined, shall not exceed:

2.59 tons of NO_X per rolling, 12-month period;

8.76 tons of CO per rolling, 12-month period;

1.29 tons of VOC per rolling, 12-month period;

0.45 tons of filterable PE per rolling, 12-month period;

0.12 tons of PM_{10} per rolling, 12-month period;

0.10 tons of $PM_{2.5}$ per rolling, 12-month period; and

28,200 tons of CO_2 per rolling, 12-month period.

Applicable Compliance Method

Compliance shall be determined in accordance with the recordkeeping specified in d)(4) above.

g) Miscellaneous Requirements

(1) None.

3. 5,051 bhp (3,768 kWm) Diesel-Fired Emergency Generators: P001 through P046

EU ID	Company Equipment ID
P001	Fab 27.1/27.2, EGEN01
P002	Fab 27.1/27.2, EGEN02
P003	Fab 27.1/27.2, EGEN03
P004	Fab 27.1/27.2, EGEN04
P005	Fab 27.1/27.2, EGEN05
P006	Fab 27.1/27.2, EGEN06
P007	Fab 27.1/27.2, EGEN07
P008	Fab 27.1/27.2, EGEN08
P009	Fab 27.1/27.2, EGEN09
P010	Fab 27.1/27.2, EGEN10
P011	Fab 27.1/27.2, EGEN11
P012	Fab 27.1/27.2, EGEN12
P013	Fab 27.1/27.2, EGEN13
P014	Fab 27.1/27.2, EGEN14
P015	Fab 27.1/27.2, EGEN15
P016	Fab 27.1/27.2, EGEN16
P017	Fab 27.1/27.2, EGEN17
P018	Fab 27.1/27.2, EGEN18
P019	Fab 27.1/27.2, EGEN19
P020	Fab 27.1/27.2, EGEN20
P021	Fab 27.1/27.2, EGEN21
P022	Fab 37.1/37.2, EGEN22
P023	Fab 37.1/37.2, EGEN23

EU ID	Company Equipment ID
P024	Fab 37.1/37.2, EGEN24
P025	Fab 37.1/37.2, EGEN25
P026	Fab 37.1/37.2, EGEN26
P027	Fab 37.1/37.2, EGEN27
P028	Fab 37.1/37.2, EGEN28
P029	Fab 37.1/37.2, EGEN29
P030	Fab 37.1/37.2, EGEN30
P031	Fab 37.1/37.2, EGEN31
P032	Fab 37.1/37.2, EGEN32
P033	Fab 37.1/37.2, EGEN33
P034	Fab 37.1/37.2, EGEN34
P035	Fab 37.1/37.2, EGEN35
P036	Fab 37.1/37.2, EGEN36
P037	Fab 37.1/37.2, EGEN37
P038	Fab 37.1/37.2, EGEN38
P039	Fab 37.1/37.2, EGEN39
P040	Fab 37.1/37.2, EGEN40
P041	Fab 37.1/37.2, EGEN41
P042	Fab 37.1/37.2, EGEN42
P043	ASU, EGEN43
P044	ASU, EGEN44
P045	WaTR, EGEN45
P046	WaTR, EGEN46

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:

a. 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.	OAC rules 3745-31-10 through 3745-31-20 and 3745-31-34 [Prevention of Significant Deterioration of Air Quality]	The emissions unit shall be certified to meet the following emissions standards: 0.20 grams PM/kW-hr; 6.4 grams NO_X + NMHC/kW-hr; and 3.5 grams CO/kW-hr.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		NO_X emissions shall not exceed 65.7 pounds per hour and 15.8 tons per rolling, 12-month period. CO emissions shall not exceed 0.8 pounds per hour and 0.2 tons per rolling, 12-month period. VOC emissions shall not exceed 0.40 grams VOC/kW-hr, 0.3 pounds per hour, and 0.06 tons per rolling, 12-month period. $PM/PM_{10}/PM_{2.5}$ emissions shall not exceed 0.07 pounds per hour and 0.02 tons per rolling, 12-month period. CO_2 emissions shall not exceed 162.7 lb/MMBtu of actual heat input. See b)(2)a., b)(2)b., b)(2)e., and b)(2)f. below.
b.	OAC rule 3745-31-05(A)(3) [BAT for NO_X]	The BAT requirements established pursuant to this rule are equivalent to the requirements established for NO_X under OAC rules 3745-31-10 through 20.
c.	OAC rule 3745-31-05(A)(3)(a)(ii)	The BAT requirements under OAC rule 3745-31-05(A)(3) do not apply to the CO, VOC, PM_{10}, $PM_{2.5}$ and SO_2 emissions from this air contaminant source since the potentials to emit are less than 10 tons per year.
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 rule.
e.	OAC rule 3745-17-11(B)(5)(b)	Particulate emissions from the engine's exhaust shall not exceed 0.062 lb/MMBtu actual heat input.
f.	OAC rule 3745-18-06(G)	SO_2 emissions shall not exceed 0.5 lb/MMBtu actual heat input.
g.	OAC rule 3745-110-03	Exempt pursuant to OAC rule 3745-110-03(K)(18) because this emissions unit is subject to BACT requirements for NO_x emissions.
h.	40 CFR Part 60, Subpart IIII 40 CFR 60.4202(b)(2) 40 CFR 60.4205(b)	The emissions unit shall be certified to meet the following emissions standards: 0.20 grams PM/kW-hr; 6.4 grams NO_X + NMHC/kW-hr; and

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	40 CFR 60.4207(b) 40 CFR Part 1039, Appendix I, Tier 2 40 CFR 1039.105	3.5 grams CO/kW-hr. Exhaust opacity from the emissions unit shall not exceed: 20 percent opacity during the acceleration mode; 15 percent opacity during the lugging mode; and 50 percent opacity during the peaks in either the acceleration or lugging modes. See b)(2)a. through b)(2)d. below.
i.	40 CFR Part 60, Subpart A	Table 8 to 40 CFR Part 60, Subpart IIII- "Applicability of General Provisions to Subpart IIII" identifies which parts of the General Provisions in 40 CFR Part 60.1-19 apply.

(2) Additional Terms and Conditions

a. The emergency stationary compression ignition (CI) internal combustion engine (ICE) shall be installed, operated, and maintained according to the manufacturer's emission-related written instructions and the permittee shall only change those emission–related settings that are allowed by the manufacturer. The CI ICE must also be installed and operated to meet the applicable requirements from 40 CFR Part 60, Subpart IIII; 40 CFR Part 1039, Control of Emissions from New and In-use Nonroad CI Engines; and 40 CFR Part 1068, the General Compliance Provisions for Engine Programs. The permittee shall operate and maintain the stationary CI ICE to achieve the emissions standards established in 40 CFR 60.4205 over the entire life of the engine(s).

b. The emergency stationary CI ICE has been or shall be purchased certified by the manufacturer to emission standards as stringent as those identified in 40 CFR 60.4202(b)(2) and found in Tier 2 of 40 CFR 1039, Appendix I, for engines greater than or equal to 750 horsepower (560 kilowatt) and certified to the opacity standards found in 40 CFR 1039.105.

c. The emergency stationary ICE must comply with the applicable requirements specified in 40 CFR 60.4211(f) in order to be considered an emergency stationary ICE under Part 60, Subpart IIII.

d. The emergency stationary CI ICE shall burn only ultra-low sulfur diesel (ULSD) that meets the following per-gallon standards:

i. A maximum sulfur content of 15 ppm (0.0015% sulfur by weight); and

ii. A cetane index or aromatic contents, as follows:

(a) A minimum cetane index of 40; or

(b) A maximum aromatic content of 35 volume percent.

e. The emergency stationary CI ICE shall be equipped with a diesel particulate filter. The diesel particulate filter shall reduce PM emissions by 85%, VOC emissions by 70%, and CO emissions by 80%. The permittee shall install, operate, and maintain the diesel particulate filter in accordance with the manufacturer's written instructions and recommendations.

f. The emergency stationary CI ICE shall not be operated in any consecutive 12-month period to exceed 480 hours of operation.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall maintain the manufacturer's certification, to the applicable Tier 2 emission standards in 40 CFR 1039, Appendix I, on site or at a central location for all facility ICE and it shall be made available for review upon request. If the manufacturer's certification is not kept on site, the permittee shall maintain a log for the location of each ICE and it shall identify the agency-assigned emissions unit number, the manufacturer's identification number, and the identification number of the certificate. The manufacturer's operations manual and any written instructions or procedures developed by the permittee and approved by the manufacturer shall be maintained at the same location as the ICE.

(2) The emergency stationary CI ICE shall be installed with a non-resettable hour meter prior to startup of the engine.

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

a. the total number of hours the engine was in operation;

b. the number of hours spent in emergency operation;

c. what classified the operation as an emergency;

d. the number of hours spent in non-emergency operation;

e. the number of hours in maintenance checks and readiness testing; and

f. the rolling, 12-month summation of the number of hours the engine was in operation.

(4) The permittee shall maintain documents provided by the oil supplier for each shipment of fuel oil to demonstrate compliance with the ULSD requirement. These documents must include the receipt or bill of lading that includes confirmation that the fuel meets the ULSD standard.

(5) For each day during which the permittee burns a fuel other than ULSD, the permittee shall maintain a record of the type, percent sulfur content, and quantity of fuel burned in this emissions unit.

(6) The permittee shall install and operate a backpressure monitor that notifies the permittee when the high backpressure limit of the engine is approached.

(7) The permittee shall maintain records of any corrective action taken after the backpressure monitor has notified the permittee that the high backpressure limit of the engine is approached.

e) Reporting Requirements

(1) 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.

(2) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than low-sulfur diesel fuel with a sulfur content of less than 15 ppm (0.0015 percent by weight) was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.

(3) The permittee shall email Ohio EPA, Central District Office a revised EAC form that identifies the serial number for the emergency stationary CI ICE within 30 days after placement on its concrete pad.

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

The emissions unit shall be certified to meet the following emissions standards:
0.20 grams PM/kW-hr;
6.4 grams NO_X + NMHC/kW-hr; and
3.5 grams CO/kW-hr.

Applicable Compliance Method

Compliance with the emissions limitations shall be based on the manufacturer's certification and by maintaining the engine according to the manufacturer's instructions.

b. Emissions Limitation

VOC emissions shall not exceed 0.40 grams VOC/kW-hr.

Applicable Compliance Method

Compliance shall be determined based on the manufacturer's specification sheet.

If required, the permittee shall demonstrate compliance with this emissions limitation through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and 25 or 25A, as applicable. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

c. Emissions Limitations

NO_X emissions shall not exceed 65.7 pounds per hour and 15.8 tons per rolling, 12-month period.

CO emissions shall not exceed 0.8 pounds per hour and 0.2 tons per rolling, 12-month period.

VOC emissions shall not exceed 0.3 pounds per hour, and 0.06 tons per rolling, 12-month period.

$PM/PM_{10}/PM_{2.5}$ emissions shall not exceed 0.07 pounds per hour and 0.02 tons per rolling, 12-month period.

Applicable Compliance Method

The hourly emissions limitations were established to reflect the potential-to-emit for this emissions unit taking into consideration the control efficiency requirements for the diesel particulate filter. Compliance with the emissions limitations shall be based on maintaining the engine and diesel particulate filter according to the manufacturers' instructions.

The rolling, 12-month emissions limitations were established by multiplying the hourly emissions limit by 480 hours per year and dividing by 2,000 pounds per ton. Compliance with the rolling, 12-month emissions limitations may be assumed provided the permittee complies with the hourly emissions limitations and the engine operates no more than 480 hours per rolling, 12-month period.

If required, the permittee shall demonstrate compliance with these emissions limitations through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 7E for NOx; Method 10 for CO; Method 25 or 25A, as applicable, for VOC; Method 5 for PM; 40 CFR Part 51, Appendix M, Methods 201/201A and 202 for PM_{10}; and 40 CFR Part 51, Appendix M, Methods 201A and 202 for $PM_{2.5}$. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

d. Emissions Limitation

CO_2 emissions shall not exceed 162.7 lb/MMBtu of actual heat input.

Applicable Compliance Method

The emissions limitation was established to reflect the CO_2 emissions factor for distillate fuel oil No. 2 listed in 40 CFR Part 98, Subpart C, Table C-1. Compliance is inherent based on burning only No. 2 fuel oil in the emergency stationary CI ICE.

If required, the permittee shall demonstrate compliance with this emissions limitation through emissions testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 and 3A and the F-Factor methodology and equations in sections 12.2 and 12.3 of Method 19 in 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

e. Emissions Limitations

Exhaust opacity from the emissions unit shall not exceed:
20 percent opacity during the acceleration mode;
15 percent opacity during the lugging mode; and
50 percent opacity during the peaks in either the acceleration or lugging modes.

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

Applicable Compliance Method

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

f. Emissions Limitation

Particulate emissions from the engine's exhaust shall not exceed 0.062 lb/MMBtu actual heat input.

Applicable Compliance Method

Compliance shall be determined based on the manufacturer’s specification sheet specifying a PM emissions rates of 0.02 g/bhp-hr at 100% and 0.04 g/bhp-hr at 75% load.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in OAC rule 3745-17-03(B)(10).

g. Emissions Limitation

SO_2 emissions shall not exceed 0.5 lb/MMBtu actual heat input.

Applicable Compliance Method

Compliance shall be determined using documents required in d)(4) above. Emissions of SO_2 shall be calculated in accordance with OAC rule 3745-18-04(F)(2) using the maximum fuel sulfur content of 15 ppm.

h. Emissions Limitations

The diesel particulate filter shall reduce PM emissions by 85%, VOC emissions by 70%, and CO emissions by 80%.

Applicable Compliance Method

Compliance with the emissions limitations shall be based on the manufacturer's guaranteed minimum control efficiency for each pollutant and by maintaining the diesel particulate filter according to the manufacturer's instructions.

g) Miscellaneous Requirements

(1) None.

4. P047, Entire Site, FP1

Operations, Property and/or Equipment Description:

275 hp (205 kW) Diesel-Fired Emergency Fire Pump Engine

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:

a. 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.	OAC rules 3745-31-10 through 3745-31-20 and 3745-31-34 [Prevention of Significant Deterioration of Air Quality]	The emissions unit shall be certified to meet the following emissions standards: 0.20 grams PM/kW-hr; 4.0 grams NO_X + NMHC/kW-hr; and 3.5 grams CO/kW-hr. NO_X emissions shall not exceed 8.5 pounds per hour and 2.1 tons per rolling, 12-month period. CO emissions shall not exceed 1.8 pounds per hour and 0.5 tons per rolling, 12-month period. VOC emissions shall not exceed 0.7 pounds per hour and 0.2 tons per rolling, 12-month period. $PM/PM_{10}/PM_{2.5}$ emissions shall not exceed 0.6 pounds per hour and 0.2 tons per rolling, 12-month period. CO_2 emissions shall not exceed 162.7 lb/MMBtu of actual heat input. See b)(2)a., b)(2)b., and b)(2)e. below.
b.	OAC rule 3745-31-05(A)(3)(a)(ii)	The BAT requirements under OAC rule 3745-31-05(A)(3) do not apply to the NO_X, CO, VOC, PM_{10}, $PM_{2.5}$ and SO_2 emissions from this air contaminant source since the

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		potentials to emit are less than 10 tons per year.
c.	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 rule.
d.	OAC rule 3745-17-11(B)(5)(a)	Particulate emissions from the engine's exhaust shall not exceed 0.310 lb/MMBtu actual heat input.
e.	OAC rule 3745-110-03	Exempt pursuant to OAC rule 3745-110-03(K)(18) because this emissions unit is subject to BACT requirements for NO_x emissions.
f.	40 CFR Part 60, Subpart IIII 40 CFR 60.4202(d) 40 CFR 60.4205(c) 40 CFR 60.4207(b) Table 4	The emissions unit shall be certified to meet the following emissions standards: 0.20 grams PM/kW-hr; 4.0 grams NO_X + NMHC/kW-hr; and 3.5 grams CO/kW-hr. See b)(2)a. through b)(2)d. below.
g.	40 CFR Part 60, Subpart A	Table 8 to 40 CFR Part 60, Subpart IIII-"Applicability of General Provisions to Subpart IIII" identifies which parts of the General Provisions in 40 CFR Part 60.1-19 apply.

(2) Additional Terms and Conditions

a. The emergency stationary compression ignition (CI) internal combustion engine (ICE) shall be installed, operated, and maintained according to the manufacturer's emission-related written instructions and the permittee shall only change those emission–related settings that are allowed by the manufacturer. The CI ICE must also be installed and operated to meet the applicable requirements from 40 CFR Part 60, Subpart IIII. The permittee shall operate and maintain the stationary CI ICE to achieve the emissions standards established in 40 CFR 60.4205 over the entire life of the engine(s).

b. The emergency stationary CI ICE has been or shall be purchased certified by the manufacturer to emission standards as stringent as those identified in 40 CFR 60.4202(d) and found in Table 4 of 40 CFR Part 60, Subpart IIII for stationary fire pump engines greater than or equal to 175 horsepower (130 kilowatt) and less than 300 horsepower (225 kilowatt).

c. The emergency stationary ICE must comply with the applicable requirements specified in 40 CFR 60.4211(f) in order to be considered an emergency stationary ICE under Part 60, Subpart IIII.

d. The emergency stationary CI ICE shall burn only ultra-low sulfur diesel (ULSD) that meets the following per-gallon standards:

i. A maximum sulfur content of 15 ppm (0.0015% sulfur by weight); and

ii. A cetane index or aromatic contents, as follows:

(a) A minimum cetane index of 40; or

(b) A maximum aromatic content of 35 volume percent.

e. The emergency stationary CI ICE shall not be operated in any consecutive 12-month period to equal or exceed 500 hours of operation.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall maintain the manufacturer's certification, to the applicable emission standards in Table 4 of 40 CFR Part 60, Subpart IIII, on site or at a central location for all facility ICE and it shall be made available for review upon request. If the manufacturer's certification is not kept on site, the permittee shall maintain a log for the location of each ICE and it shall identify the agency-assigned emissions unit number, the manufacturer's identification number, and the identification number of the certificate. The manufacturer's operations manual and any written instructions or procedures developed by the permittee and approved by the manufacturer shall be maintained at the same location as the ICE.

(2) The emergency stationary CI ICE shall be installed with a non-resettable hour meter prior to startup of the engine.

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

a. the total number of hours the engine was in operation;

b. the number of hours spent in emergency operation;

c. what classified the operation as an emergency;

d. the number of hours spent in non-emergency operation;

e. the number of hours in maintenance checks and readiness testing; and

f. the rolling, 12-month summation of the number of hours the engine was in operation.

(4) The permittee shall maintain documents provided by the oil supplier for each shipment of fuel oil to demonstrate compliance with the ULSD requirement. These documents must include the receipt or bill of lading that includes confirmation that the fuel meets the ULSD standard.

(5) For each day during which the permittee burns a fuel other than ULSD, the permittee shall maintain a record of the type, percent sulfur content, and quantity of fuel burned in this emissions unit.

e) Reporting Requirements

(1) 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.

(2) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than low-sulfur diesel fuel with a sulfur content of less than 15 ppm (0.0015 percent by weight) was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.

(3) The permittee shall email Ohio EPA, Central District Office a revised EAC form that identifies the serial number for the emergency stationary CI ICE within 30 days after placement on its concrete pad.

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

The emissions unit shall be certified to meet the following emissions standards:
0.20 grams PM/kW-hr;
4.0 grams NO_X + NMHC/kW-hr; and
3.5 grams CO/kW-hr.

Applicable Compliance Method

Compliance with the emissions limitations shall be based on the manufacturer's certification and by maintaining the engine according to the manufacturer's instructions.

b. Emissions Limitations

NO_X emissions shall not exceed 8.5 pounds per hour and 2.1 tons per rolling, 12-month period.

CO emissions shall not exceed 1.8 pounds per hour and 0.5 tons per rolling, 12-month period.

VOC emissions shall not exceed 0.7 pounds per hour and 0.2 tons per rolling, 12-month period.

$PM/PM_{10}/PM_{2.5}$ emissions shall not exceed 0.6 pounds per hour and 0.2 tons per rolling, 12-month period.

Applicable Compliance Method

The hourly emissions limitations were established to reflect the potential-to-emit for this emissions unit. Compliance with the emissions limitations shall be based on maintaining the engine according to the manufacturers' instructions.

The rolling, 12-month emissions limitations were established by multiplying the hourly emissions limit by 500 hours per year and dividing by 2,000 pounds per ton. Compliance with the rolling, 12-month emissions limitations may be assumed provided the permittee complies with the hourly emissions limitations and the engine operates no more than 500 hours per rolling, 12-month period.

If required, the permittee shall demonstrate compliance with these emissions limitations through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 7E for NOx; Method 10 for CO; Method 25 or 25A, as applicable, for VOC; Method 5 for PM; 40 CFR Part 51, Appendix M, Methods 201/201A and 202 for PM_{10}; and 40 CFR Part 51, Appendix M, Methods 201A and 202 for $PM_{2.5}$. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

c. Emissions Limitation

CO_2 emissions shall not exceed 162.7 lb/MMBtu of actual heat input.

Applicable Compliance Method

The emissions limitation was established to reflect the CO_2 emissions factor for distillate fuel oil No. 2 listed in 40 CFR Part 98, Subpart C, Table C-1. Compliance is inherent based on burning only No. 2 fuel oil in the emergency stationary CI ICE.

If required, the permittee shall demonstrate compliance with this emissions limitation through emissions testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 and 3A and the F-Factor methodology and equations in sections 12.2 and 12.3 of Method 19 in 40 CFR Part 60, Appendix A. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

d. Emissions 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 rule.

Applicable Compliance Method

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

e. Emissions Limitation

Particulate emissions from the engine's exhaust shall not exceed 0.310 lb/MMBtu actual heat input.

Applicable Compliance Method

Compliance shall be determined based on the manufacturer's specification sheet.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in OAC rule 3745-17-03(B)(10).

g) Miscellaneous Requirements

(1) None.

5. F001, Paved Roadways and Parking Areas

Operations, Property and/or Equipment Description:

Facility 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) 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.	OAC rules 3745-31-10 through 3745-31-20 and 3745-31-34 [Prevention of Significant Deterioration of Air Quality]	PM emissions shall not exceed 0.80 tons per rolling, 12-month period. PM_{10} emissions shall not exceed 0.16 tons per rolling, 12-month period. $PM_{2.5}$ emissions shall not exceed 0.04 tons per rolling, 12-month period. No visible PE from any paved roadway or parking area except for a period of time not to exceed one minute during any 60-minute observation period. See b)(2)a. below.
b.	OAC rule 3745-31-05(A)(3)(a)(ii)	The BAT requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM_{10} and $PM_{2.5}$ emissions from this air contaminant source since the potentials to emit are less than 10 tons per year.

(2) Additional Terms and Conditions

a. As part of the BACT determination, the permittee shall:

i. Pave all in-plant roadways and parking areas serving operational fabs;

ii. Implement best management practices including limiting vehicle speeds and water spraying or sweeping as needed based on the daily inspections conducted in accordance with d)(1); and

iii. Comply with the visible PE limitation in b)(1)a. above.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) Except as otherwise provided in this section, the permittee shall perform daily inspections of each of the in-plant roadways and parking areas. The purpose of the inspections is to determine the need for implementing the control measures specified in b)(2)a. above. The inspections shall be performed during representative, normal traffic conditions. No inspection shall be necessary for an in-plant 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.

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

a. the date and reason any required inspection was not performed, including those inspections that were not performed due to snow and/or ice cover or precipitation;

b. the date of each inspection where it was determined by the permittee that it was necessary to implement the control measures; and

c. the dates the control measures were implemented.

(3) The permittee may, upon receipt of written approval from the Ohio EPA, Central District Office, modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.

e) Reporting Requirements

(1) 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.

(2) The permittee shall submit 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.

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

PM emissions shall not exceed 0.80 tons per rolling, 12-month period.

PM_{10} emissions shall not exceed 0.16 tons per rolling, 12-month period.

$PM_{2.5}$ emissions shall not exceed 0.04 tons per rolling, 12-month period.

Applicable Compliance Method

The emissions limitations were based on maximum vehicle miles traveled, a calculated emission factor from AP-42 Section 13.2.1, and the application of dust control measures. Therefore, provided compliance is shown with the requirement to apply BACT dust control measures, compliance with the rolling, 12-month limitations shall also be demonstrated. See the table below for road segments, maximum vehicle miles traveled, and calculated emission factors.

Road Segment	Emission Factor (lb/VMT)	Maximum Vehicle Miles Traveled per Year[1]
F27.1/27.2	PM - 0.016 PM_{10} - 0.0031 $PM_{2.5}$ - 0.00077	33,643
F37.1/37.2	PM – 0.016 PM_{10} - 0.0031 $PM_{2.5}$ - 0.00077	51,010
WATR	PM - 0.014 PM_{10} - 0.0027 $PM_{2.5}$ - 0.00067	20,178

1. Vehicle miles traveled include bulk chemical truck deliveries and waste trucks. Employee passenger vehicles, small passenger pick-up trucks and other plant vehicles (i.e., maintenance golf carts) are not included.

b. Emissions Limitation

No visible PE from any paved roadway or parking area except for a period of time not to exceed one minute during any 60-minute observation period.

Applicable Compliance Method

If required, compliance shall be determined in accordance with Method 22 of 40 CFR, Part 60, Appendix A.

g) Miscellaneous Requirements

(1) None.

6. Lime Silos: P048 through P053

EU ID	Company Equipment ID
P048	Fab 27.1/27.2, LSILO_01
P049	Fab 27.1/27.2, LSILO_02
P050	Fab 27.1/27.2, LSILO_03

EU ID	Company Equipment ID
P051	Fab 37.1/37.2, LSILO_04
P052	Fab 37.1/37.2, LSILO_05
P053	Fab 37.1/37.2, LSILO_06

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.	OAC rules 3745-31-10 through 3745-31-20 and 3745-31-34 [Prevention of Significant Deterioration of Air Quality]	$PM/PM_{10}/PM_{2.5}$ emissions shall not exceed 0.09 tons per rolling, 12-month period. Visible particulate emissions from the stack serving this emissions unit shall not exceed 5% opacity as a 6-minute average. See b)(2)a. below.
b.	OAC rule 3745-31-05(A)(3)(a)(ii)	The BAT requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM_{10} and $PM_{2.5}$ emissions from this air contaminant source since the potentials to emit are less than 10 tons per year taking into account the emissions limitations established under OAC rule 3745-31-10 through 20.
c.	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 rule.
d.	OAC rule 3745-17-11(B)	Based upon Table I in the appendix to OAC rule 3745-17-11, PE shall not exceed 26.3 pounds per hour.

(2) Additional Terms and Conditions

a. As part of the BACT determination, the $PM/PM_{10}/PM_{2.5}$ emissions from this emissions unit shall be vented to a bin vent filter with a maximum outlet concentration of 0.0050 gr/dscf at all times during operation.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall maintain written documentation provided by the vendor/manufacturer of the bin vent filter that guarantees a maximum outlet concentration that is equal to or less than 0.0050 gr/dscf.

(2) The permittee shall perform a check for any visible particulate emissions from the stack serving the emissions unit during each lime delivery, 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 visible emissions 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) 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.

(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 Ohio EPA Central District Office) by January 31 and July 31 of each year and shall cover the previous 6-month period.

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 Limitation

$PM/PM_{10}/PM_{2.5}$ emissions shall not exceed 0.09 tons per rolling, 12-month period.

Applicable Compliance Method

The rolling, 12-month emissions limitation was established by the following calculation:

(grain loading) (air flow rate) (525,600 min/yr) / (14,000,000 gr/ton), where:

grain loading = maximum grain loading of 0.0050 gr/dscf

air flow = the blower's maximum volumetric flow rate of 473 cfm

Compliance with the emissions limitation may be assumed provided the permittee complies with the bin vent filter's maximum outlet concentration and the maximum capacity of the blower does not exceed 473 cfm.

b. Emissions Limitations

Visible particulate emissions from the stack serving this emissions unit shall not exceed 5% opacity as a 6-minute average.

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

Applicable Compliance Method

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

c. Emissions Limitation

The $PM/PM_{10}/PM_{2.5}$ emissions from this emissions unit shall be vented to a bin vent filter with a maximum outlet concentration of 0.0050 gr/dscf at all times during operation.

Applicable Compliance Method

Compliance shall be demonstrated based on written documentation provided by the vendor/manufacturer as specified in d)(1) above.

If required, the permittee shall demonstrate compliance through emissions testing conducted in accordance with Methods 1 through 5 of 40 CFR Part 60, Appendix A for PE and Methods 201/201A and 202 of 40 CFR Part 51, Appendix M for PM_{10} and $PM_{2.5}$.

d. Emissions Limitation

Based upon Table I in the appendix to OAC rule 3745-17-11, PE shall not exceed 26.3 pounds per hour.

Applicable Compliance Method

Compliance with the hourly emissions limitation is demonstrated by the following calculation:

(grain loading) (air flow rate) (60 min/hr) / (7,000 gr/lb) = 0.02 lb PE/hr, where:

grain loading = maximum grain loading of 0.0050 gr/dscf

air flow = the blower's maximum volumetric flow rate of 473 cfm

If required, the permittee shall demonstrate compliance through emissions testing conducted in accordance with Methods 1 through 5 of 40 CFR Part 60, Appendix A.

g) Miscellaneous Requirements

(1) None.

7. Cooling Towers: P054 through P178

EU ID	Company Equipment ID
P054	Fab 27.1/27.2, CT_01
P055	Fab 27.1/27.2, CT_02
P056	Fab 27.1/27.2, CT_03
P057	Fab 27.1/27.2, CT_04
P058	Fab 27.1/27.2, CT_05
P059	Fab 27.1/27.2, CT_06
P060	Fab 27.1/27.2, CT_07
P061	Fab 27.1/27.2, CT_08
P062	Fab 27.1/27.2, CT_09
P063	Fab 27.1/27.2, CT_10
P064	Fab 27.1/27.2, CT_11
P065	Fab 27.1/27.2, CT_12
P066	Fab 27.1/27.2, CT_13
P067	Fab 27.1/27.2, CT_14
P068	Fab 27.1/27.2, CT_15
P069	Fab 27.1/27.2, CT_16
P070	Fab 27.1/27.2, CT_17
P071	Fab 27.1/27.2, CT_18
P072	Fab 27.1/27.2, CT_19
P073	Fab 27.1/27.2, CT_20
P074	Fab 27.1/27.2, CT_21
P075	Fab 27.1/27.2, CT_22
P076	Fab 27.1/27.2, CT_23
P077	Fab 27.1/27.2, CT_24
P078	Fab 27.1/27.2, CT_25
P079	Fab 27.1/27.2, CT_26
P080	Fab 27.1/27.2, CT_27
P081	Fab 27.1/27.2, CT_28
P082	Fab 27.1/27.2, CT_29
P083	Fab 27.1/27.2, CT_30
P084	Fab 27.1/27.2, CT_31
P085	Fab 27.1/27.2, CT_32
P086	Fab 27.1/27.2, CT_33
P087	Fab 27.1/27.2, CT_34
P088	Fab 27.1/27.2, CT_35
P089	Fab 27.1/27.2, CT_36
P090	Fab 27.1/27.2, CT_37
P091	Fab 27.1/27.2, CT_38
P092	Fab 27.1/27.2, CT_39
P093	Fab 27.1/27.2, CT_40
P094	Fab 27.1/27.2, CT_41
P095	Fab 27.1/27.2, CT_42
P096	Fab 27.1/27.2, CT_43
P097	Fab 27.1/27.2, CT_44
P098	Fab 27.1/27.2, CT_45

EU ID	Company Equipment ID
P117	Fab 37.1/37.2, CT_64
P118	Fab 37.1/37.2, CT_65
P119	Fab 37.1/37.2, CT_66
P120	Fab 37.1/37.2, CT_67
P121	Fab 37.1/37.2, CT_68
P122	Fab 37.1/37.2, CT_69
P123	Fab 37.1/37.2, CT_70
P124	Fab 37.1/37.2, CT_71
P125	Fab 37.1/37.2, CT_72
P126	Fab 37.1/37.2, CT_73
P127	Fab 37.1/37.2, CT_74
P128	Fab 37.1/37.2, CT_75
P129	Fab 37.1/37.2, CT_76
P130	Fab 37.1/37.2, CT_77
P131	Fab 37.1/37.2, CT_78
P132	Fab 37.1/37.2, CT_79
P133	Fab 37.1/37.2, CT_80
P134	Fab 37.1/37.2, CT_81
P135	Fab 37.1/37.2, CT_82
P136	Fab 37.1/37.2, CT_83
P137	Fab 37.1/37.2, CT_84
P138	Fab 37.1/37.2, CT_85
P139	Fab 37.1/37.2, CT_86
P140	Fab 37.1/37.2, CT_87
P141	Fab 37.1/37.2, CT_88
P142	Fab 37.1/37.2, CT_89
P143	Fab 37.1/37.2, CT_90
P144	Fab 37.1/37.2, CT_91
P145	Fab 37.1/37.2, CT_92
P146	Fab 37.1/37.2, CT_93
P147	Fab 37.1/37.2, CT_94
P148	Fab 37.1/37.2, CT_95
P149	Fab 37.1/37.2, CT_96
P150	Fab 37.1/37.2, CT_97
P151	Fab 37.1/37.2, CT_98
P152	Fab 37.1/37.2, CT_99
P153	Fab 37.1/37.2, CT_100
P154	Fab 37.1/37.2, CT_101
P155	Fab 37.1/37.2, CT_102
P156	Fab 37.1/37.2, CT_103
P157	Fab 37.1/37.2, CT_104
P158	WaTR, CTWTR_01
P159	WaTR, CTWTR_02
P160	WaTR, CTWTR_03
P161	WaTR, CTWTR_04

EU ID	Company Equipment ID
P099	Fab 27.1/27.2, CT_46
P100	Fab 27.1/27.2, CT_47
P101	Fab 27.1/27.2, CT_48
P102	Fab 27.1/27.2, CT_49
P103	Fab 27.1/27.2, CT_50
P104	Fab 27.1/27.2, CT_51
P105	Fab 27.1/27.2, CT_52
P106	Fab 37.1/37.2, CT_53
P107	Fab 37.1/37.2, CT_54
P108	Fab 37.1/37.2, CT_55
P109	Fab 37.1/37.2, CT_56
P110	Fab 37.1/37.2, CT_57
P111	Fab 37.1/37.2, CT_58
P112	Fab 37.1/37.2, CT_59
P113	Fab 37.1/37.2, CT_60
P114	Fab 37.1/37.2, CT_61
P115	Fab 37.1/37.2, CT_62
P116	Fab 37.1/37.2, CT_63

EU ID	Company Equipment ID
P162	WaTR, CTWTR_05
P163	WaTR, CTWTR_06
P164	WaTR, CTWTR_07
P165	WaTR, CTWTR_08
P166	ASU, CTASU_01
P167	ASU, CTASU_02
P168	ASU, CTASU_03
P169	ASU, CTASU_04
P170	ASU, CTASU_05
P171	ASU, CTASU_06
P172	ASU, CTASU_07
P173	ASU, CTASU_08
P174	ASU, CTASU_09
P175	ASU, CTASU_10
P176	ASU, CTASU_11
P177	ASU, CTASU_12
P178	ASU, CTASU_13

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.	OAC rules 3745-31-10 through 3745-31-20 and 3745-31-34 [Prevention of Significant Deterioration of Air Quality]	PM emissions shall not exceed 0.28 tons per rolling, 12-month period. PM_{10} emissions shall not exceed 0.059 tons per rolling, 12-month period. $PM_{2.5}$ emissions shall not exceed 4.1E-04 tons per rolling, 12-month period. Visible particulate emissions shall not exceed 10% 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 emissions limitation.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		See b)(2)a. and c)(1) below.
b.	OAC rule 3745-31-05(A)(3)(a)(ii)	The BAT requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM_{10} and $PM_{2.5}$ emissions from this air contaminant source since the potentials to emit are less than 10 tons per year taking into account the emissions limitations established under OAC rule 3745-31-10 through 20.
c.	OAC rule 3745-17-07(A)	See b)(2)c. below.
d.	OAC rule 3745-17-11(B)	See b)(2)b. below.

(2) Additional Terms and Conditions

a. As part of the BACT determination, the $PM/PM_{10}/PM_{2.5}$ emissions from this emissions unit shall be vented to a drift eliminator with a maximum drift rate of 0.0005% at all times during operation.

b. This emissions unit is not subject to the "restrictions on particulate emissions from industrial processes" contained in OAC rule 3745-17-11. Particulate matter emitted from the cooling tower is not measurable by applicable test methods in 40 CFR Part 60, Appendix A; therefore, the emissions of particulate matter do not meet the definition of "particulate emissions" in OAC rule 3745-17-01.

c. This emissions unit is exempt from the visible emissions limitation specified in OAC rule 3745-17-07(A), pursuant to OAC rule 3745-17-07(A)(3)(h), because the emissions unit is not subject to the requirements of OAC rule 3745-17-11.

c) Operational Restrictions

(1) The permittee shall maintain the total dissolved solids (TDS) content of the cooling water less than or equal to 6,500 ppm based on a rolling, 12-month average.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall maintain 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.

(2) The permittee shall maintain monthly records of the following information for the circulating cooling water in each individual cooling tower or group of cooling towers where a group of towers are controlled with common make-up and blow-down water loops:

a. the monthly TDS content, in ppm; and

b. the rolling, 12-month average TDS content, in ppm.

The TDS content shall be determined based on the conductivity in the circulating water and testing performed in accordance with f)(2) below.

e) Reporting Requirements

(1) 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.

(2) The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the rolling, 12-month average TDS content limitation. The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit

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

PM emissions shall not exceed 0.28 tons per rolling, 12-month period.

PM_{10} emissions shall not exceed 0.059 tons per rolling, 12-month period.

$PM_{2.5}$ emissions shall not exceed 4.1E-04 tons per rolling, 12-month period.

Applicable Compliance Method

The rolling, 12-month emissions limitations were established by the following calculation:

$(0.000005)\left(\frac{\%DMi}{100}\right)\left(\frac{TDS}{1{,}000{,}000}\right)\left(\frac{8.34\ lb}{gal}\right)\left(\frac{3{,}958\ gal}{min}\right)\left(\frac{60\ min}{hr}\right)\left(\frac{8{,}760\ hr}{yr}\right)\left(\frac{ton}{2{,}000\ lb}\right)$, where:

0.000005 = maximum drift loss of 0.0005%

$\%DM_i$ = percent of total drift mass* for particulate size i

$\%DM_i$ = 100% for PM

$\%DM_i$ = 20.86% for PM_{10}

$\%DM_i$ = 0.145% for $PM_{2.5}$

TDS = maximum TDS content in circulating cooling water of 6,500 ppm

8.34 lb/gal = density of water

3,958 gal/min = maximum cooling water recirculation rate

*The percent mass of the total drift for PM_{10} and $PM_{2.5}$ was determined using the methodology provided in "Calculating Realistic PM10 Emissions from Cooling Towers", Joel Reisman and Gordon Frisbie, Greystone Environmental Consultants, Sacramento, CA (July 2002).

Compliance with the emissions limitations may be assumed provided the permittee complies with the maximum drift rate and maximum TDS content requirements.

b. Emissions Limitation

The $PM/PM_{10}/PM_{2.5}$ emissions from this emissions unit shall be vented to a drift eliminator with a maximum drift rate of 0.0005% at all times during operation.

Applicable Compliance Method

Compliance shall be demonstrated based on written documentation provided by the vendor/manufacturer as specified in d)(1) above.

c. Emissions Limitation

The permittee shall maintain the TDS content of the cooling water less than or equal to 6,500 ppm based on a rolling, 12-month average.

Applicable Compliance Method

Compliance shall be determined in accordance with the recordkeeping specified in d)(2) above.

If required, compliance shall be demonstrated using test procedures that conform to regulation 40 CFR Part 136, Guidelines Establishing 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.

d. Emissions Limitation

Visible particulate emissions shall not exceed 10% 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 emissions limitation.

Applicable Compliance Method

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

(2) Within 180 days after commencing operation, the permittee shall conduct testing to develop a correlation between conductivity and TDS. This correlation shall establish an acceptable parameter range for conductivity to meet the TDS requirement. Results of the test to establish an acceptable parameter range shall be submitted to the Ohio EPA Central District Office no later than 30 days after completion of the test.

g) Miscellaneous Requirements

(1) None.

8. Semiconductor Fabrication: P179 through P182

EU ID	Company Equipment ID
P179	FAB-27.1
P180	FAB-27.2

EU ID	Company Equipment ID
P181	FAB-37.1
P182	FAB-37.2

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:

a. See b)(1)e., b)(1)i., c)(3), d)(26), d)(28), d)(31) through d)(34), and e)(3) below.

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 rules 3745-31-10 through 3745-31-20 and 3745-31-34 [Prevention of Significant Deterioration of Air Quality]	Emissions from emissions units P179 and P180, combined, shall not exceed: 212.7 tons of NO_x per rolling, 12-month period; 200.3 tons of CO per rolling, 12-month period; 206.2 tons of VOC per rolling, 12-month period; 42.6 tons of $PM/PM_{10}/PM_{2.5}$ per rolling, 12-month period; 0.8 pounds of fluorides (excluding hydrogen fluoride) per hour; 3.4 tons of fluorides (excluding hydrogen fluoride) per rolling, 12-month period; and 774,419 tons of CO_{2e} per rolling, 12-month period. Emissions from emissions units P181 and P182, combined, shall not exceed: 212.7 tons of NO_x per rolling, 12-month period;

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		200.3 tons of CO per rolling, 12-month period; 206.2 tons of VOC per rolling, 12-month period; 20.3 tons of PM/PM_{10}/$PM_{2.5}$ per rolling, 12-month period; 0.8 pounds of fluorides (excluding hydrogen fluoride) per hour; 3.4 tons of fluorides (excluding hydrogen fluoride) per rolling, 12-month period; and 774,419 tons of CO_{2e} per rolling, 12-month period. Visible particulate emissions from each stack serving this emissions unit shall not exceed 10% opacity as a 6-minute average. See b)(2)c. through b)(2)m., c)(1), c)(2), c)(4), c)(6), c)(7), and c)(8) below.
b.	OAC rule 3745-31-05(A)(3) [BAT for NO_X, CO, VOC, PM_{10}, and $PM_{2.5}$]	The BAT requirements established pursuant to this rule are equivalent to the requirements established for NO_X, CO, VOC, PM_{10}, and $PM_{2.5}$ under OAC rules 3745-31-10 through 20.
c.	OAC rule 3745-31-05(A)(3)(a)(ii)	The 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.
d.	OAC rule 3745-31-05(D) [Federally enforceable limitations on the potential-to-emit to avoid major source MACT requirements]	Individual HAP emissions from emissions units P179 through P182 combined shall not exceed 9.0 tons per rolling, 12-month period. Combined HAP emissions from emissions units P179 through P182 combined shall not exceed 24.0 tons per rolling, 12-month period. See c)(4), c)(5), and c)(8) below.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
e.	OAC rule 3745-31-05(E) [State-only enforceable limitations on the potential-to-emit toxic air contaminants]	Emissions from emissions units P179 and P180, combined, shall not exceed: 51.8 pounds of ammonia per day; 5.3 pounds of fluorine per day; 24.1 pounds of hydrogen chloride per day; 22.2 pounds of hydrogen fluoride per day; 2.2 pounds of sulfuric acid per day; 0.39 tons of carbonyl fluoride per rolling, 12-month period; 0.16 tons of chlorine per rolling, 12-month period; and 0.02 tons of ethylene glycol butyl ether per rolling, 12-month period. Emissions from emissions units P181 and P182, combined, shall not exceed: 51.8 pounds of ammonia per day; 5.3 pounds of fluorine per day; 24.1 pounds of hydrogen chloride per day; 22.2 pounds of hydrogen fluoride per day; 2.2 pounds of sulfuric acid per day; 0.39 tons of carbonyl fluoride per rolling, 12-month period; 0.16 tons of chlorine per rolling, 12-month period; and 0.02 tons of ethylene glycol butyl ether per rolling, 12-month period. See c)(3), c)(4), c)(5), and c)(8) below.
f.	OAC rule 3745-17-07(A)	Visible particulate emissions from each indirect-fired burner stack serving this emissions unit shall not exceed 20%

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		opacity as a 6-minute average, except as provided by rule.
g.	OAC rule 3745-17-10(B)(1)	PE from each indirect-fired burner associated with this emissions unit shall not exceed 0.020 lb/MMBtu of actual heat input.
h.	OAC rule 3745-17-11(B)	See b)(2)n. below.
i.	ORC 3704.03(F)(3)(c) and (F)(4) [Toxic Air Contaminant Statute]	See b)(1)e. above and d)(31) through d)(34) below.

(2) Additional Terms and Conditions

a. The emissions unit consists of all air contaminant sources contained within the fab, including all the tools and systems that support the activities in the clean room. All of the air contaminant sources permitted under this emissions unit are physically connected, integrated, and operated as a continuous clean room space. As used in these terms and conditions, emissions units P179 and P180 are considered one twin-fab, and emissions units P181 and P182 are considered one twin-fab. The emissions unit does not include air contaminant sources that qualify for the "de minimis" exemption in OAC rule 3745-15-05 or the permanent exemptions in OAC rule 3745-31-03(B)(1).

b. The permittee may make physical changes to, replace, and/or install air contaminant sources included in this emissions unit without obtaining a new permit, provided the following criteria are met:

i. the changes do not meet the definition of "modification" under OAC rule 3745-31-01(SSS) or "major modification" under OAC rule 3745-31-01(LLL);

ii. the changes do not result in the installation of a "replacement unit" as defined in OAC rule 3745-31-01(OOOOO);

iii. the changes do not violate or contradict any requirements established in this permit;

iv. the changes to RCTOs, scrubbers, and/or trimix systems are considered normal maintenance and would not cause a degradation in the performance or result in the replacement or installation of a new air pollution control device;

v. the changes do not result in conditions that exceed the design capacity of the air pollution control devices;

vi. the changes do not reduce the capture efficiency of any enclosure; and

vii. the changes shall be compatible with, subject to, and comply with the operational restrictions and monitoring and recordkeeping requirements established in this permit.

A demonstration that the changes to the emissions unit meet these criteria shall be kept on site and made available to the Ohio EPA upon request.

c. The permittee shall operate and maintain each rotor-concentrator thermal oxidizer (RCTO) in accordance with good combustion practices. Each RCTO shall be equipped with low NO_X burners. As part of the BACT determination for NO_X, the emissions from each RCTO shall not exceed 0.96 pounds of NO_X per hour, based on an average of all RCTOs controlling the twin-fab. As part of the BACT determination for CO, the emissions from each RCTO shall not exceed 0.66 pounds of CO per hour, based on an average of all RCTOs controlling the twin-fab.

d. As part of the BACT determination for VOC, the RCTOs shall achieve an overall VOC control efficiency or outlet concentration, based on an average of all the RCTOs controlling the twin-fab, as follows:

i. achieve at least 98.5% overall VOC control efficiency when the RCTO inlet VOC concentration is greater than 2,000 ppmv, measured as methane; or

ii. achieve at least 97% overall VOC control efficiency when the RCTO inlet VOC concentration is greater than 200 ppmv and equal to or less than 2,000 ppmv, measured as methane; or

iii. achieve at least 90% overall VOC control efficiency when the RCTO inlet VOC concentration is less than or equal to 200 ppmv, measured as methane; or

iv. achieve an outlet VOC concentration of less than or equal to 10 ppmv, measured as methane.

e. As part of the BACT determination for $PM/PM_{10}/PM_{2.5}$, emissions from all of the RCTOs controlling emissions units P179 and P180, combined, shall not exceed 1.7 pounds of $PM/PM_{10}/PM_{2.5}$ per hour.

f. As part of the BACT determination for $PM/PM_{10}/PM_{2.5}$, emissions from all of the RCTOs controlling emissions units P181 and P182, combined, shall not exceed 1.7 pounds of $PM/PM_{10}/PM_{2.5}$ per hour.

g. As part of the BACT determination for NO_X, CO and $PM/PM_{10}/PM_{2.5}$, emissions from all of the wet scrubbers (i.e., ammonia scrubber and acid gas scrubbers) controlling emissions units P179 and P180, combined, shall not exceed 39.9 pounds of NO_X per hour, 39.9 pounds of CO per hour, and 7.9 pounds of $PM/PM_{10}/PM_{2.5}$ per hour.

h. As part of the BACT determination for NO_X, CO and $PM/PM_{10}/PM_{2.5}$, emissions from all of the wet scrubbers (i.e., ammonia scrubber and acid gas scrubbers) controlling emissions units P181 and P182, combined, shall not exceed 39.9

pounds of NO_X per hour, 39.9 pounds of CO per hour, and 2.9 pounds of $PM/PM_{10}/PM_{2.5}$ per hour.

i. As part of the BACT determination for VOC, the emissions from each wet scrubber (i.e., ammonia scrubbers and acid gas scrubbers) shall not exceed 10 ppmv VOC, based on an average of all wet scrubbers controlling the twin-fab.

j. As needed to comply with the emissions limits in this permit, the permittee shall install, operate, and maintain Point-of-Use (POU) abatement devices that are specifically designed for fluorinated greenhouse gas and/or nitrous oxide (N_2O) abatement.

k. The permittee shall operate and maintain each trimix system in accordance with good combustion practices. The permittee shall perform a tune-up on each trimix system burner annually. As part of the BACT determination, the emissions from each trimix system shall not exceed 0.34 pounds of NO_X per hour, 0.16 pounds of CO per hour, 0.03 pounds of VOC per hour, and 0.04 pounds of $PM/PM_{10}/PM_{2.5}$ per hour.

l. As part of the BACT determination for VOC, the VOC content of each cleaning material shall not exceed 6.6 pounds of VOC per gallon, as applied.

m. The permittee shall control VOC emissions from cleaning material (e.g., isopropyl alcohol) usage by implementing the following work practice standards:

i. All VOC-containing cleaning materials shall be stored in non-absorbent and non-leaking containers.

ii. The containers shall be kept closed at all times except when removing or depositing cleaning materials.

iii. Minimize spills of VOC-containing cleaning materials.

iv. Any spills that occur shall be cleaned up immediately.

n. The uncontrolled mass rate of particulate emissions from the emissions unit is less than 10 pounds per hour. Therefore, pursuant to OAC rule 3745-17-11(A)(2)(a)(ii), Figure II in the appendix to OAC rule 3745-17-11 does not apply. Pursuant to OAC rule 3745-17-11(A)(2)(b)(i), Table I in the appendix to OAC rule 3745-17-11 does not apply because the process weight rate cannot be ascertained.

c) Operational Restrictions

(1) The permittee shall use only natural gas as a fuel in this emissions unit.

(2) VOC emissions from each twin-fab shall be vented to RCTOs as needed to meet the following restriction on a rolling, 12-month basis:

206.2 tons VOC per twin-fab $\geq VOC_{RCTO} + VOC_{EXSC} + VOC_{EXAM} + VOC_{TMXW} + VOC_{IPA}$, where:

VOC_{RCTO} = the rolling, 12-month VOC emissions from the RCTOs controlling the twin-fab

VOC_{EXSC} = the rolling, 12-month VOC emissions from the acid gas scrubbers controlling the twin-fab

VOC_{EXAM} = the rolling, 12-month VOC emissions from the ammonia scrubbers controlling the twin-fab

VOC_{TMXW} = the rolling, 12-month VOC emissions from the trimix systems controlling the twin-fab

VOC_{IPA} = the rolling, 12-month VOC emissions from the isopropyl alcohol used for cleaning activities within the twin-fab

The RCTOs shall meet the requirements of this permit.

(3) Ammonia (NH_3) emissions from this emissions unit shall be vented to ammonia scrubbers as needed to meet the following restriction on a daily basis:

51.8 pounds NH_3 per twin-fab $\geq NH_{3EXSC} + NH_{3EXAM} + NH_{3TMXW}$, where:

NH_{3EXSC} = the daily NH_3 emissions from the acid gas scrubbers controlling the twin-fab

NH_{3EXAM} = the daily NH_3 emissions from the ammonia scrubbers controlling the twin-fab

NH_{3TMXW} = the daily emissions from the trimix systems controlling the twin-fab

The ammonia scrubbers shall meet the requirements of this permit.

(4) Hydrogen fluoride, fluorides other than hydrogen fluoride, fluorine, hydrogen chloride, chlorine, carbonyl fluoride, and sulfuric acid emissions from this emissions unit shall be vented to acid gas scrubbers, to the extent practicable, at all times when the emissions unit is in operation. The acid gas scrubbers shall meet the requirements of this permit.

(5) Ethylene glycol butyl ether emissions from this emissions unit shall be vented to the RCTOs, to the extent practicable, at all times when the emissions unit is in operation. The RCTOs shall meet the requirements of this permit.

(6) Fluorinated greenhouse gas emissions and N_2O emissions from each twin-fab shall be vented to POU abatement devices as needed to meet the following restriction on a rolling, 12-month basis:

774,419 tons CO_2e per twin-fab $\geq CO_2e_{SM} + CO_2e_{RCTO} + CO_2e_{TMXW} + CO_2e_{NH3}$, where:

CO_2e_{SM} = the rolling, 12-month carbon dioxide equivalents of the fluorinated greenhouse gas and N_2O emissions from the semiconductor manufacturing processes performed in the twin-fab, calculated in accordance with 40 CFR Part 98, Subpart I

CO_2e_{RCTO} = the rolling, 12-month carbon dioxide equivalents of the CO_2, N_2O, and methane emissions from the RCTOs controlling the twin-fab

CO_2e_{TMXW} = the rolling, 12-month carbon dioxide equivalents of the CO_2, N_2O, and methane emissions from natural gas combustion in the trimix systems controlling the twin-fab

CO_2e_{NH3} = the rolling,12-month carbon dioxide equivalents of the N_2O emissions from NH_4F waste processed in the trimix systems associated with the twin-fab

The POU abatement devices shall meet the requirements of this permit.

(7) The permittee shall limit the emissions from all of the wet scrubbers controlling emissions units P181 and P182, combined, to 2.9 pounds of $PM/PM_{10}/PM_{2.5}$ per hour through the use of POU abatement devices designed to control $PM/PM_{10}/PM_{2.5}$ and/or wet electrostatic precipitators (WESPs). If the permittee chooses to demonstrate compliance through the use of POU abatement devices, the POU abatement devices shall meet the requirements of this permit. If the permittee chooses to demonstrate compliance through the use of WESPs, the permittee shall apply for and obtain a modified permit prior to their use.

(8) The permittee shall install, operate, and maintain a closed-vent system under negative pressure on each piece of equipment for which emissions are vented to an air pollution control device. The closed-vent system shall be operated and maintained such that emissions are captured, contained, and directed to the control device(s).

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall maintain an up-to-date inventory of all tools and air pollution control devices that are permitted as part of the emissions unit. The inventory shall identify which type of control device(s) each tool vents to. The inventory shall include the manufacturer, model number, and date of installation for each piece of equipment.

(2) For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

(3) The permittee shall install, operate, and maintain monitoring devices that continuously monitor the pressure within each closed-vent system to verify that the closed-vent system is at a negative pressure relative to the adjacent, uncaptured air. The monitoring devices shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals, with any modifications deemed necessary by the permittee. The acceptable minimum pressure shall be established based upon the manufacturer’s recommendations, instructions and operating manual(s), with any modifications deemed necessary by the permittee. The pressure monitors shall be interlocked with the associated process equipment such that when an excursion is identified, the process equipment is shutdown. The interlocks shall be inspected at least once every year to ensure that they are functioning properly. The permittee shall collect and record the following information each day when the emissions unit is required to vent to an air pollution control device:

a. all periods of time, when the process equipment was in operation, during which the interlock was triggered by a pressure excursion; and

b. a log or record of downtime for the capture (collection) system when the emissions unit was required to vent to an air pollution control device.

(4) The permittee shall install, operate, and maintain the RCTOs, scrubbers, POU abatement devices, and trimix systems in accordance with the manufacturers’ recommendations,

instructions, and operating manuals. The permittee shall maintain documentation of the manufacturers' recommendations, instructions, and operating manuals for each piece of equipment.

(5) The permittee shall maintain the following records for inspections, calibrations, maintenance, and repairs performed on each RCTO, scrubber, POU abatement device, and trimix system:

a. the date of the inspection, calibration, maintenance, and/or repair;

b. a description of the inspection, calibration, maintenance, and/or repairs performed; and

c. the name of person(s) who performed the inspection, calibration, maintenance, and/or repair.

(6) The permittee shall properly install, operate, and maintain a continuous temperature monitor and recorder that measures and records the desorption temperature within the rotor-concentrator when the RCTO is required to demonstrate compliance, including periods of startup and shutdown. Units shall be in degrees Fahrenheit. The accuracy for each thermocouple, monitor, and recorder shall be guaranteed by the manufacturer to be within $\pm$ 1 percent of the temperature being measured or $\pm$ 5 degrees Fahrenheit, whichever is greater. The temperature monitor and recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and the operating manuals, with any modifications deemed necessary by the permittee. The acceptable temperature setting shall be based upon the manufacturer's specifications. The permittee shall collect and record the following information each day the RCTO is required to demonstrate compliance:

a. all periods of time, when the emissions unit(s) was required to be controlled by the RCTO, during which the desorption temperature within the rotor-concentrator was less than the minimum temperature specified by the manufacturer; and

b. a log (date and total time) of the downtime or bypass of the capture (collection) system and rotor-concentrator, and/or downtime of the monitoring equipment, when the associated emissions unit(s) was/were required to be controlled by the RCTO.

(7) The permittee shall properly install, operate, and maintain a continuous temperature monitor and recorder that measures and records the combustion temperature within the thermal oxidizer when the RCTO is required to demonstrate compliance, including periods of startup and shutdown. Units shall be in degrees Fahrenheit. The accuracy for each thermocouple, monitor, and recorder shall be guaranteed by the manufacturer to be within $\pm$ 1 percent of the temperature being measured or $\pm$ 5 degrees Fahrenheit, whichever is greater. The temperature monitor and recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and the operating manuals, with any modifications deemed necessary by the permittee. The acceptable temperature setting shall be based upon the manufacturer's specifications until such time as any required performance testing is conducted and the appropriate temperature range is established to demonstrate compliance. Following compliance

testing, the permittee shall collect and record the following information each day the RCTO is required to demonstrate compliance:

a. all 3-hour blocks of time, when the emissions unit(s) was required to be controlled by the RCTO, during which the average combustion temperature within the thermal oxidizer was more than 50 degrees Fahrenheit below the average temperature measured during the most recent performance test that demonstrated the emissions unit(s) was/were in compliance; and

b. a log (date and total time) of the downtime or bypass of the capture (collection) system and thermal oxidizer, and/or downtime of the monitoring equipment, when the associated emissions unit(s) was/were required to be controlled by the RCTO.

(8) Whenever the monitored desorption temperature within the rotor-concentrator and/or the average combustion temperature within the thermal oxidizer deviates from the range(s) or 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 operation of the control equipment within the acceptable range/limit 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 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 temperature 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.

The temperature range(s)/limit(s) is/are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA, Central District Office. The permittee may request revisions to the permitted temperature range/limit based upon information obtained during future performance tests that demonstrate compliance with the allowable emission rate(s) for the controlled pollutant(s). In addition, approved revisions to the temperature range(s)/limit(s) 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.

(9) In order to maintain compliance with the applicable emission limitation(s) contained in this permit, the acceptable range or limit for the scrubber liquid flow rate and the scrubber liquid pH 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.

(10) The permittee shall properly install, operate, and maintain equipment to continuously monitor the scrubber liquid flow rates (in gallons per minute) and the scrubber liquid pH during operation of this emissions unit, including periods of startup and shutdown. The permittee shall record the scrubber liquid's pH and flow rates on a continuous 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 liquid flow rates and the liquid pH shall be based upon the manufacturer's specifications until such time as any required performance testing is conducted and the appropriate range(s) 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 flow rate and pH 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 liquid flow rate and pH are effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the Ohio EPA, Central District Office. The permittee may request revisions to the permitted range or limit for the liquid flow rate or pH based upon information obtained during future performance tests that demonstrate compliance with the allowable emission rates 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.

(11) The permittee shall develop, maintain, and implement a site maintenance plan for the POU abatement devices that meets the following requirements:

a. The site maintenance plan shall be based on the manufacturer's recommendations and specifications for installation, operation, and maintenance. If the site maintenance plan deviates from the manufacturer's recommendations and specifications, the site maintenance plan shall include documentation that demonstrates how the deviations do not negatively affect the performance or destruction or removal efficiency of the POU abatement devices.

b. The site maintenance plan shall include a defined preventative maintenance process and checklist.

c. The site maintenance plan shall include a corrective action process that the permittee shall follow whenever a POU abatement device is found to be not operating properly.

(12) The permittee shall maintain the following records for each POU abatement device:

a. documentation from the POU abatement device supplier describing the device's designed purpose and emission control capabilities for fluorinated greenhouse gases, N_2O, and/or $PM/PM_{10}/PM_{2.5}$, as applicable;

b. certification that the POU abatement device was specifically designed for fluorinated greenhouse gases, N_2O, and/or $PM/PM_{10}/PM_{2.5}$ abatement, as applicable;

c. certification that the site maintenance plan includes manufacturer's recommendations and specifications for installation, operation, and maintenance for all POU abatement devices; and

d. documentation to certify that each POU abatement device or group of devices is installed, maintained, and operated in accordance with the site maintenance plan.

(13) The permittee shall properly install, operate, and maintain a continuous temperature monitors and recorders that measure and record the temperature of each catalyst zone within each trimix system. Units shall be in degrees Fahrenheit. The accuracy for each thermocouple, monitor, and recorder shall be guaranteed by the manufacturer to be within ± 1 percent of the temperature being measured or ± 5 degrees Fahrenheit, whichever is greater. The temperature monitor and recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and the operating manuals, with any modifications deemed necessary by the permittee. The temperature of each catalyst zone shall be maintained between 500 and 600 degrees Fahrenheit, based on a 3-hour average. The permittee shall collect and record the following information each day the trimix system is in operation:

a. all 3-hour blocks of time, when the trimix system was in operation, during which the average temperature within a catalyst zone was below 500 degrees Fahrenheit or above 600 degrees Fahrenheit.

(14) Whenever the monitored temperature of a catalyst zone deviates from the range 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 operation of the control equipment within the acceptable range 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 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 temperature 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.

The temperature range is effective for the duration of this permit, unless revisions are requested by the permittee and approved in writing by the appropriate Ohio EPA, Central District Office. The permittee may request revisions to the permitted temperature range based upon information obtained during future performance tests that demonstrate compliance with the allowable emission rate(s) for the controlled pollutant(s). In addition, approved revisions to the temperature range 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.

(15) The permittee shall maintain records of the following information for each tune-up performed on a trimix system burner:

a. the date of the tune-up; and

b. the name, title, and affiliation of the person who performed the tune-up and made any adjustments.

(16) The permittee shall maintain records of the VOC content of each cleaning material used, in pounds of VOC per gallon, as applied.

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

a. on each day when a twin-fab operated for less than 24 hours, the total number of hours the twin-fab and its associated control equipment operated;

b. the number of wafer starts per twin-fab for each technology manufactured; and

c. the amount of ammonium fluoride (NH_4F) waste processed in each trimix system, in gallons.

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

a. the amount of natural gas burned in each twin-fab's group of RCTOs, in MMcf;

b. the amount of natural gas burned in each twin-fab's group of trimix systems, in MMcf;

c. the amount of NH_4F waste processed in each trimix system, in gallons;

d. the number of wafer starts per twin-fab;

e. the number of days each twin-fab operated;

f. the average number of wafer starts per day for each twin-fab, calculated by dividing the total wafer starts per month by the number of days the twin-fab operated;

g. the amount of each chemical purchased for use in each twin-fab, in pounds per chemical, that contributes to emissions of fluorine, carbonyl fluoride, ethylene glycol butyl ether, sulfuric acid, and/or any hazardous air pollutant excluding hydrogen chloride and hydrogen fluoride;

h. the amount of each chemical used in each twin-fab, averaged over a 12-month rolling period, calculated by summing the amount of chemicals purchased for use in the twin-fab during the current month and the amount of chemicals purchased for use in the twin-fab during the previous 11 months and dividing by 12, in pounds per chemical; and

i. the average amount of each chemical used per day in each twin-fab, calculated by dividing the monthly average chemical usage recorded in h. by the number of days the twin-fab operated.

(19) The permittee shall develop emissions factors to calculate emissions of fluorine, carbonyl fluoride, ethylene glycol butyl ether, sulfuric acid, and hazardous air pollutants excluding hydrogen chloride and hydrogen fluoride based on the amount of chemicals used to manufacture each technology. The emissions factors shall be approved by Ohio EPA, Central District Office prior to their use. The permittee shall maintain records of all information that was used to develop the emissions factors.

(20) The permittee shall maintain monthly records of the following information for each twin-fab for the purpose of demonstrating compliance with the rolling, 12-month NO_X and CO emissions limitations:

a. the NO_X and CO emissions from the RCTOs, calculated based on the stack test results for the group of RCTOs associated with the twin-fab on a natural gas basis and the amount of natural gas burned in the group of RCTOs, in pounds or tons;

b. the monthly production scalar for each stack test performed on the acid gas and ammonia scrubbers (and POU abatement devices), calculated as a ratio of the average number of wafer starts per day for the month divided by the average number of wafer starts per day for the test period;

c. the NO_X and CO emissions from the acid gas and ammonia scrubbers (and POU abatement devices), calculated based on the stack test results for the group of acid gas and ammonia scrubbers associated with the twin-fab, the monthly production scalars for each stack test, and the hours of operation, in pounds or tons;

d. the NO_X and CO emissions from the trimix systems, calculated based on the stack test results for each trimix system on a gallons of NH_4F processed basis and the gallons of NH_4F processed, in pounds or tons; and

e. the rolling, 12-month NO_X and CO emissions from the twin-fab, in tons.

Prior to stack testing, emissions shall be calculated based on the control device manufacturer's design specifications, monthly natural gas usage, monthly chemical usage, monthly wafer starts, and/or emissions factors based on wafer starts or chemical usage. The emissions factors shall be approved by Ohio EPA, Central District Office prior to their use. The permittee shall maintain records of all information that was used to develop the emissions factors.

(21) The permittee shall maintain monthly records of the following information for each twin-fab for the purpose of demonstrating compliance with the rolling, 12-month VOC emissions limitations:

a. the monthly production scalar for each stack test performed on the RCTOs, acid gas scrubbers, and ammonia scrubbers, calculated as a ratio of the average number of wafer starts per day for the month divided by the average number of wafer starts per day for the test period;

b. the VOC emissions from the RCTOs, acid gas scrubbers, and ammonia scrubbers, calculated based on the stack test results for the control devices, the monthly production scalars for each stack test, and the hours of operation, in pounds or tons;

c. the VOC emissions from natural gas combustion in the trimix systems, calculated based on the amount of natural gas burned and the emissions factor from AP-42, Table 1.4-2, in pounds or tons;

d. the mass, in pounds, and isopropyl alcohol (IPA) content, in percent by weight, of the IPA wipes used for cleaning activities within the twin-fab clean rooms;

e. the uncontrolled VOC emissions from the IPA wipes, calculated based on the mass of the wipes used and the IPA content of the wipes minus any quantifiable mass of IPA shipped off-site as waste, in pounds or tons; and

f. the rolling, 12-month VOC emissions from the twin-fab, in tons.

Prior to stack testing, emissions shall be calculated based on the control device manufacturer's design specifications, monthly chemical usage, monthly wafer starts, and/or emissions factors based on wafer starts or chemical usage. The emissions factors shall be approved by Ohio EPA, Central District Office prior to their use. The permittee shall maintain records of all information that was used to develop the emissions factors.

(22) If a credit for the mass of IPA shipped off-site as waste is used to demonstrate compliance and/or used in calculations for emission reports, the permittee shall maintain the following records for off-site shipments from each twin-fab:

a. the date the IPA wipes were shipped off-site as waste;

b. the mass, in pounds, of the IPA wipes that were shipped off-site;

c. the IPA content, in percent by weight, of the wipes that were shipped off-site; and

d. the mass of VOC, in pounds or tons, retained in the IPA wipes that were shipped off-site, to be credited against the total uncontrolled VOC emissions from IPA wipes.

(23) The permittee shall maintain monthly records of the following information for each twin-fab for the purpose of demonstrating compliance with the rolling, 12-month $PM/PM_{10}/PM_{2.5}$ emissions limitations:

a. monthly production scalar for each stack test performed on the RCTOs and acid gas and ammonia scrubbers, calculated as a ratio of the average number of wafer starts per day for the month divided by the average number of wafer starts per day for the test period;

b. the $PM/PM_{10}/PM_{2.5}$ emissions from the RCTOs and acid gas and ammonia scrubbers, calculated based on the stack test results for the control devices, the monthly production scalars for each stack test, and the hours of operation, in pounds or tons;

c. the $PM/PM_{10}/PM_{2.5}$ emissions from natural gas combustion in the trimix systems, calculated based on the amount of natural gas burned and the emissions factor from AP-42, Table 1.4-2, in pounds or tons; and

d. the rolling, 12-month $PM/PM_{10}/PM_{2.5}$ emissions from the twin-fab, in tons.

Prior to stack testing, emissions shall be calculated based on the control device manufacturer's design specifications, monthly chemical usage, monthly wafer starts, and/or emissions factors based on wafer starts or chemical usage. The emissions factors shall be approved by Ohio EPA, Central District Office prior to their use. The permittee shall maintain records of all information that was used to develop the emissions factors.

(24) The permittee shall maintain monthly records of the following information for each twin-fab for the purpose of demonstrating compliance with the rolling, 12-month fluorides (excluding hydrogen fluoride) emissions limitation:

a. the monthly production scalar for each stack test performed on the acid gas and ammonia scrubbers, calculated as a ratio of the average number of wafer starts per day for the month divided by the average number of wafer starts per day for the test period;

b. the fluorides (excluding hydrogen fluoride) emissions from the acid gas and ammonia scrubbers, calculated based on the stack test results for the control devices, the monthly production scalars for each stack test, and the hours of operation, in pounds or tons; and

c. the rolling, 12-month fluorides (excluding hydrogen fluoride) emissions from the twin-fab, in tons.

Prior to stack testing, emissions shall be calculated based on the control device manufacturer's design specifications, monthly chemical usage, monthly wafer starts, and/or emissions factors based on wafer starts or chemical usage. The emissions factors

shall be approved by Ohio EPA, Central District Office prior to their use. The permittee shall maintain records of all information that was used to develop the emissions factors.

(25) The permittee shall maintain monthly records of the following information for each twin-fab for the purpose of demonstrating compliance with the rolling, 12-month CO_2e emissions limitations:

a. the fluorinated greenhouse gas emissions and N_2O emissions from the semiconductor manufacturing processes, calculated in accordance with 40 CFR 98.93, in pounds or tons;

b. the records required to be maintained in accordance with 40 CFR 98.97;

c. the CO_2, N_2O, and methane emissions from combustion in the RCTOs and trimix systems, calculated based on the amount of natural gas burned and the emissions factor from AP-42, Table 1.4-2, in pounds or tons;

d. the N_2O emissions from NH_4F waste processed in the trimix systems, calculated based on an emissions factor of 51.0 lb N_2O/hr that was developed from testing performed on similar systems at other facilities, or a site-specific N_2O emissions factor developed on a gallons of NH_4F processed basis during stack testing, in pounds or tons;

e. the CO_2 emissions from converting CO to CO_2 in the trimix systems, calculated based on a 90% conversion of the CO from natural gas combustion to CO_2, in pounds or tons; and

f. the rolling, 12-month CO_{2e} emissions, calculated using the global warming potentials identified in Table A-1 of 40 CFR Part 98, Subpart A, in tons.

(26) The permittee shall maintain daily records of the following information for each twin-fab for the purpose of demonstrating compliance with the daily ammonia emissions limitations:

a. the daily production scalar for each stack test performed on the acid gas scrubbers and ammonia scrubbers, calculated as a ratio of the wafer starts per day divided by the average number of wafer starts per day for the test period;

b. the ammonia emissions from the acid gas scrubbers and ammonia scrubbers, calculated based on the stack test results for the control devices, the daily production scalars for each stack test, and the hours of operation, in pounds;

c. the ammonia emissions from NH_4F waste processed in the trimix systems, calculated based on the stack test results for each trimix system on a gallons of NH_4F processed basis and the gallons of NH_4F processed, in pounds; and

d. the daily ammonia emissions from the twin-fab, in pounds.

Prior to stack testing, emissions shall be calculated based on the control device manufacturer's design specifications, monthly chemical usage, monthly wafer starts, and/or emissions factors based on wafer starts or chemical usage. The emissions factors shall be approved by Ohio EPA, Central District Office prior to their use. The permittee shall maintain records of all information that was used to develop the emissions factors.

(27) The permittee shall maintain daily records of the following information for each twin-fab for the purpose of demonstrating compliance with the daily hydrogen chloride (HCl) and hydrogen fluoride (HF) emissions limitations:

a. the daily production scalar for each stack test performed on the acid gas scrubbers and ammonia scrubbers, calculated as a ratio of the wafer starts per day divided by the average number of wafer starts per day for the test period; and

b. the daily HCl and HF emissions from the acid gas scrubbers and ammonia scrubbers, calculated based on the stack test results for the control devices, the daily production scalars for each stack test, and the hours of operation, in pounds.

Prior to stack testing, emissions shall be calculated based on the control device manufacturer's design specifications, monthly chemical usage, monthly wafer starts, and/or emissions factors based on wafer starts or chemical usage. The emissions factors shall be approved by Ohio EPA, Central District Office prior to their use. The permittee shall maintain records of all information that was used to develop the emissions factors.

(28) The permittee shall maintain daily records of fluorine and sulfuric acid emissions from each twin-fab, in pounds, calculated based on the average amount of each chemical used per day, the emissions factor that has been developed on a pound of emissions per pound of chemical basis and approved by Ohio EPA, and the pollutant-specific removal efficiency for the scrubbers.

(29) The permittee shall maintain monthly records of the rolling, 12-month carbonyl fluoride, chlorine, and ethylene butyl ether emissions from each twin-fab, in tons, calculated based on the amount of each chemical used during the rolling, 12-month period, the emissions factor for each pollutant that has been developed on a pound of emissions per pound of chemical basis and approved by Ohio EPA, and the pollutant-specific control/removal efficiency for the associated control device(s).

(30) The permittee shall maintain monthly records of the rolling, 12-month individual HAP emissions and combined HAPs emissions from emissions units P179 through P182 combined, in tons, calculated based on the amount of each chemical used during the rolling, 12-month period, the emissions factor for each pollutant that has been developed on a pound of emissions per pound of chemical basis and approved by Ohio EPA, and any pollutant-specific control/removal efficiency for the associated control device(s). HCl and HF emissions shall be determined in accordance with d)(27) above.

(31) The PTI application for emissions units P179 through P182 was evaluated based on the actual materials and the design parameters of the emissions units' exhaust systems, as specified by the permittee. The *Toxic Air Contaminant Statute*, ORC 3704.03(F), was applied to these emissions units 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 emitted at over one ton per year (tpy) using an air dispersion model such as AERSCREEN, AERMOD, ISCST3 or other Ohio EPA-approved model. The predicted one-hour maximum ground-level concentration results from the approved air dispersion model, were compared to the maximum acceptable ground-level concentration (MAGLC), calculated as described in 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 eight-hour workday and a 40-hour workweek, for each toxic compound emitted from the emissions units (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 shall be used, if the chemical is listed; or

   ii. Short-term exposure limit (STEL) 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 eight-hour TLV.

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

c. This standard is adjusted to account for the duration of the exposure or the operating hours of the emissions units, that is, 24 hours per day and 7 days per week, from that of eight hours per day and five days per week.

d. The resulting calculation shall be used to determine the MAGLC:

$$\frac{TLV}{10} \times \frac{8}{24} \times \frac{5}{7} = 4\frac{TLV}{168} = MAGLC$$

e. The following summarizes the results of dispersion modeling for the significant toxic contaminants or *worst-case* scenario:

   i. Toxic Contaminant: hydrogen fluoride

   TLV (mg/m^3): 0.409

   Maximum Hourly Emission Rate (lb/hr): 1.85

   Predicted One-Hour Maximum Ground-Level Concentration ($\mu g/m^3$): 9.44

   MAGLC ($\mu g/m^3$): 9.74

   ii. Toxic Contaminant: ammonia

   TLV (mg/m^3): 17.4

   Maximum Hourly Emission Rate (lb/hr): 4.31

   Predicted One-Hour Maximum Ground-Level Concentration ($\mu g/m^3$): 25.8

   MAGLC ($\mu g/m^3$): 415

iii. Toxic Contaminant: fluorine

TLV (mg/m^3): 0.155

Maximum Hourly Emission Rate (lb/hr): 0.440

Predicted One-Hour Maximum Ground-Level Concentration ($\mu g/m^3$): 2.24

MAGLC ($\mu g/m^3$): 3.7

iv. Toxic Contaminant: hydrogen chloride

TLV (mg/m^3): 2.2

Maximum Hourly Emission Rate (lb/hr): 2.00

Predicted One-Hour Maximum Ground-Level Concentration ($\mu g/m^3$): 10.2

MAGLC ($\mu g/m^3$): 52

v. Toxic Contaminant: sulfuric acid

TLV (mg/m^3): 0.2

Maximum Hourly Emission Rate (lb/hr): 0.182

Predicted One-Hour Maximum Ground-Level Concentration ($\mu g/m^3$): 0.93

MAGLC ($\mu g/m^3$): 4.8

The permittee, having demonstrated that hydrogen fluoride emissions from emissions units P179 through P182 is estimated to be equal or greater than 80 percent but less than 100 percent of the MAGLC, shall not operate the emissions units at a rate that would exceed the daily emissions rate, process weight rate, and/or restricted hours of operations, as allowed in this permit.

The permittee has demonstrated that emissions of ammonia, fluorine, hydrogen chloride, and sulfuric acid from emissions units P179 through P182 are calculated to be less than 80 percent of the 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).

(32) Prior to making any physical changes to or changes in the method of operation of the emissions units that could impact the parameters or values that were used in the predicted one-hour maximum ground-level concentration, the permittee shall re-model any change to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the one-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 emissions of a new toxic air contaminant with a lower 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.

c. Physical changes to the emissions units or exhaust parameters (for example, increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines the *Toxic Air Contaminant Statute, ORC 3704.03(F),* will be satisfied for the above changes, Ohio EPA will not consider a change 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 each change meets 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.

(33) 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 (for example, the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.).

b. The MAGLC for each significant toxic contaminant or worst-case contaminant, calculated per the *Toxic Air Contaminant Statute*, ORC 3704.03(F).

c. A copy of the computer model run(s), that established the predicted one-hour maximum ground-level concentration that demonstrated the emissions units 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.

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 units or the materials applied.

(34) The permittee shall maintain a record of any change made to a parameter or value entered in the dispersion model used to demonstrate compliance with the *Toxic Air Contaminant Statute*, ORC 3704.03(F), through the predicted one-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) 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.

(2) The permittee shall submit a copy of the records required in d)(1) above on an annual basis. The permittee shall also provide a summary of the physical changes, additions, and/or process modifications that were performed during the calendar year as well as a list of all air contaminant sources and/or air pollution devices that were permanently dismantled and removed during the calendar year. If no changes were made to the emissions unit during the calendar year, then the report shall include a statement to that effect. This report shall be submitted to Ohio EPA, Central District Office by January 31 of each year.

(3) The permittee shall submit annual reports that include any changes to any parameter or value entered in the dispersion model used to demonstrate compliance with the *Toxic Air Contaminant Statute*, ORC 3704.03(F), through the predicted one-hour maximum ground-level concentration. The report shall 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.

If no changes to the emissions, emissions units, or the exhaust stacks have been made during the reporting period, then the report shall include a statement to that effect. This report shall be submitted to Ohio EPA Central District Office by January 31 of each year.

(4) The permittee shall submit quarterly summaries of the following records:

a. all exceedances of the rolling, 12-month NO_X, CO, VOC, $PM/PM_{10}/PM_{2.5}$, fluoride (excluding hydrogen fluoride), CO_{2e}, individual HAP, combined HAPs, carbonyl fluoride, chlorine, and/or ethylene glycol butyl ether emissions limitations;

b. all exceedances of the daily ammonia, fluorine, hydrogen chloride, hydrogen fluoride, and/or sulfuric acid emissions limitations;

c. all periods of time when a negative pressure was not maintained within an exhaust system venting to an air pollution control device;

d. each period of time (start time and date, and end time and date) when the desorption temperature within the rotor-concentrator was outside of the range specified by the manufacturer;

e. each period of time (start time and date, and end time and date) when the average combustion temperature within the thermal oxidizer was outside of the range specified by the manufacturer and/or outside of the acceptable range following any required compliance demonstration;

f. 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 RCTO when they were required to be vented to the RCTO;

g. each period of time (start time and date, and end time and date) when the scrubber liquid flow rate or the scrubber liquid pH was outside of the appropriate range or limit specified by the manufacturer and outside of the acceptable range for each parameter following any required compliance demonstration;

h. 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 a scrubber when they were required to be vented to a scrubber;

i. each period of time (start time and date, and end time and date) when the average temperature of a catalyst zone within a trimix system was outside of the range specified by this permit;

j. each incident of deviation described in “d”, “e”, “g”, or “i” (above) where a prompt investigation was not conducted;

k. each incident of deviation described in “d”, “e”, “g”, or “i” where prompt corrective action, that would bring the emissions unit(s) into compliance and/or the temperature within the thermal oxidizer into compliance with the acceptable range, was determined to be necessary and was not taken; and

l. each incident of deviation described in in “d”, “e”, “g”, or “i” where proper records were not maintained for the investigation and/or the corrective action(s).

These quarterly reports shall be submitted by April 30, July 31, October 31, and January 31, and shall cover the records for the previous calendar quarters. The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.

(5) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.

(6) The permittee shall submit emissions factors developed in accordance with d)(19), d)(20), d)(21), d)(23), d)(24), d)(26), and d)(27) for review and approval prior to manufacturing a new technology. The new emissions factors shall be submitted at least 30 days prior to their planned use.

f) Testing Requirements

(1) 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 365 days after initial startup of the emissions unit. Additional testing shall be conducted at least once every 2.5 years.

b. The emission testing shall be conducted to demonstrate compliance with the hourly NO_X, CO, and $PM/PM_{10}/PM_{2.5}$ emissions limitations for the RCTOs; the VOC

control efficiency or outlet concentration for the RCTOs; the hourly NO_X, CO, and $PM/PM_{10}/PM_{2.5}$ emissions limitations for the wet scrubbers; the VOC concentration limitation for the wet scrubbers; the hourly NO_X and CO emissions limitations for each trimix system; and the hourly fluorides (excluding HF) emissions limitation. The emissions testing shall also be conducted to establish hourly emissions rates to calculate the rolling, 12-month emissions of NO_X, CO, VOC, and $PM/PM_{10}/PM_{2.5}$ from the RCTOs; NO_X, CO, VOC, $PM/PM_{10}/PM_{2.5}$, HF, fluorides (excluding HF), HCl, and NH_3 from the wet scrubbers; and NO_X, CO, and NH_3 from the trimix systems.

c. The following test method(s) shall be employed:

for NO_X, Methods 1 through 4 and 7E of 40 CFR Part 60, Appendix A;

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

for VOC, 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;

for $PM/PM_{10}/PM_{2.5}$, Methods 1 through 5 of 40 CFR Part 60, Appendix A and, if applicable, Method 202 of 40 CFR Part 51, Appendix M;

for HF, HCl, and NH_3, Methods 1 through 4 of 40 CFR Part 60, Appendix A, and Method 320 of 40 CFR Part 60, Appendix A or ASTM D6348-12; and

for fluorides (excluding HF), Methods 1 through 4 and 13B of 40 CFR Part 60, Appendix A.

To determine the NO_X, CO, VOC, and $PM/PM_{10}/PM_{2.5}$ emissions from the RCTOs, testing shall be performed at the outlet stacks of both the concentrator and thermal oxidizer. During the NO_X and CO tests, the permittee shall record the amount of natural gas burned in the RCTOs for the purpose of developing emissions factors that are based on natural gas usage. To determine the overall VOC control efficiency of the RCTOs, testing shall be performed at the inlet to the RCTO and at the outlet stacks of both the concentrator and thermal oxidizer.

While performing tests on the trimix systems, the permittee shall record the amount of NH_4F waste processed for the purpose of developing emissions factors that are based on NH_4F waste throughput.

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

d. The test(s) shall be conducted under those representative conditions that challenge to the fullest extent possible a facility's ability to meet the applicable emissions limits and/or control requirements, unless otherwise specified or approved by the Ohio EPA, Central District Office. Although this generally consists of operating the emissions unit at its maximum material input/production rates and results in the highest emission rate of the tested pollutant, there may be circumstances where a lower emissions loading is deemed the most challenging

control scenario. Failure to test under these conditions is justification for not accepting the test results as a demonstration of compliance.

e. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Central District Office. 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, Central District Office's refusal to accept the results of the emission test(s).

f. Personnel from the Ohio EPA, Central District Office 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. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA, Central District Office 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 Ohio EPA, Central District Office.

(2) 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

Emissions from emissions units P179 and P180, combined, shall not exceed 0.8 pounds of fluorides (excluding HF) per hour.

Emissions from emissions units P181 and P182, combined, shall not exceed 0.8 pounds of fluorides (excluding HF) per hour.

The emissions from each RCTO shall not exceed 0.96 pounds of NO_X per hour, based on an average of all RCTOs controlling the twin-fab.

The emissions from each RCTO shall not exceed 0.66 pounds of CO per hour, based on an average of all RCTOs controlling the twin-fab.

The RCTOs shall achieve an overall VOC control efficiency or outlet concentration, based on an average of all the RCTOs controlling the twin-fab, as follows:

i. achieve at least 98.5% overall VOC control efficiency when the RCTO inlet VOC concentration is greater than 2,000 ppmv, measured as methane; or

ii. achieve at least 97% overall VOC control efficiency when the RCTO inlet VOC concentration is greater than 200 ppmv and equal to or less than 2,000 ppmv, measured as methane; or

iii. achieve at least 90% overall VOC control efficiency when the RCTO inlet VOC concentration is less than or equal to 200 ppmv, measured as methane; or

iv. achieve an outlet VOC concentration of less than or equal to 10 ppmv, measured as methane.

Emissions from all of the RCTOs controlling emissions units P179 and P180, combined, shall not exceed 1.7 pounds of $PM/PM_{10}/PM_{2.5}$ per hour.

Emissions from all of the RCTOs controlling emissions units P181 and P182, combined, shall not exceed 1.7 pounds of $PM/PM_{10}/PM_{2.5}$ per hour.

Emissions from all of the wet scrubbers (i.e., ammonia scrubber and acid gas scrubbers) controlling emissions units P179 and P180, combined, shall not exceed 39.9 pounds of NO_X per hour, 39.9 pounds of CO per hour, and 7.9 pounds of $PM/PM_{10}/PM_{2.5}$ per hour.

Emissions from all of the wet scrubbers (i.e., ammonia scrubber and acid gas scrubbers) controlling emissions units P181 and P182, combined, shall not exceed 39.9 pounds of NO_X per hour, 39.9 pounds of CO per hour, and 2.9 pounds of $PM/PM_{10}/PM_{2.5}$ per hour.

The emissions from each wet scrubber (i.e., ammonia scrubbers and acid gas scrubbers) shall not exceed 10 ppmv VOC, based on an average of all wet scrubbers controlling the twin-fab.

The emissions from each trimix system shall not exceed 0.34 pounds of NO_X per hour and 0.16 pounds of CO per hour.

Applicable Compliance Method

Compliance shall be demonstrated through the emissions testing conducted in accordance with f)(1) above.

b. Emissions Limitations

The emissions from each trimix system shall not exceed 0.03 pounds of VOC per hour and 0.04 pounds of $PM/PM_{10}/PM_{2.5}$ per hour.

Applicable Compliance Method

The emissions limitations were established to reflect the potential-to-emit based on the maximum capacity of the natural gas-fired burner (5.5 MMBtu/hr), the emissions factor for each pollutant found in AP-42 Table 1.4-2, and the natural gas heating value of 1,020 Btu/scf, as follows.

VOC: (5.5 MMBtu/hr) (5.5 lb VOC/MMscf) / (1,020 Btu/scf) = 0.03 lb/hr

$PM/PM_{10}/PM_{2.5}$: (5.5 MMBtu/hr) (7.6 lb PM/MMscf) / (1,020 Btu/scf) = 0.04 lb/hr

If required, the permittee shall demonstrate compliance with this emissions limitation through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 4 and Method 25 or 25A, as applicable, for VOC; Method 5 for PE; 40 CFR Part 51, Appendix M, Methods 201/201A and 202 for PM_{10}; and 40 CFR Part 51, Appendix M, Methods 201A and 202 for $PM_{2.5}$. Alternative U.S. EPA-approved test methods may be used with prior approval from the Ohio EPA.

c. Emissions Limitation

PE from each indirect-fired burner associated with this emissions unit shall not exceed 0.020 lb/MMBtu of actual heat input.

Applicable Compliance Method

When burning natural gas, compliance is inherent based on the AP-42, Section 1.4, Table 1.4-2 emissions factor of 0.002 lb PE/MMBtu (1.9 lb PE/MMscf divided by 1,020 MMBtu/MMscf).

If required, compliance shall be demonstrated through emissions testing conducted in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5 and the procedures specified in OAC rule 3745-17-03(B)(9).

d. Emissions Limitations

Visible particulate emissions from each stack serving this emissions unit shall not exceed 10% opacity as a 6-minute average.

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

Applicable Compliance Method

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

e. Emissions Limitations

Individual HAP emissions from emissions units P179 through P182 combined shall not exceed 9.0 tons per rolling, 12-month period.

Combined HAP emissions from emissions units P179 through P182 combined shall not exceed 24.0 tons per rolling, 12-month period.

Emissions from emissions units P179 and P180, combined, shall not exceed:

212.7 tons of NO_x per rolling, 12-month period;

200.3 tons of CO per rolling, 12-month period;

206.2 tons of VOC per rolling, 12-month period;

42.6 tons of $PM/PM_{10}/PM_{2.5}$ per rolling, 12-month period;

3.4 tons of fluorides (excluding hydrogen fluoride) per rolling, 12-month period;

774,419 tons of CO_{2e} per rolling, 12-month period;

51.8 pounds of ammonia per day;

5.3 pounds of fluorine per day;

24.1 pounds of hydrogen chloride per day;

22.2 pounds of hydrogen fluoride per day;

2.2 pounds of sulfuric acid per day;

0.39 tons of carbonyl fluoride per rolling, 12-month period;

0.16 tons of chlorine per rolling, 12-month period; and

0.02 tons of ethylene glycol butyl ether per rolling, 12-month period.

Emissions from emissions units P181 and P182, combined, shall not exceed:

212.7 tons of NO_x per rolling, 12-month period;

200.3 tons of CO per rolling, 12-month period;

206.2 tons of VOC per rolling, 12-month period;

20.3 tons of $PM/PM_{10}/PM_{2.5}$ per rolling, 12-month period;

3.4 tons of fluorides (excluding hydrogen fluoride) per rolling, 12-month period;

774,419 tons of CO_{2e} per rolling, 12-month period;

51.8 pounds of ammonia per day;

5.3 pounds of fluorine per day;

24.1 pounds of hydrogen chloride per day;

22.2 pounds of hydrogen fluoride per day;

2.2 pounds of sulfuric acid per day;

0.39 tons of carbonyl fluoride per rolling, 12-month period;

0.16 tons of chlorine per rolling, 12-month period; and

0.02 tons of ethylene glycol butyl ether per rolling, 12-month period.

Applicable Compliance Method

Compliance shall be determined in accordance with the recordkeeping specified in d) above.

f. Emissions Limitation

The VOC content of each cleaning material shall not exceed 6.6 pounds of VOC per gallon, as applied.

Applicable Compliance Method

Compliance shall be determined in accordance with the recordkeeping specified in d)(16) above.

g) Miscellaneous Requirements

(1) None.