

## TECHNICAL FACT SHEET

Indeck Niles, LLC: PTI Application No. APP-2022-0265

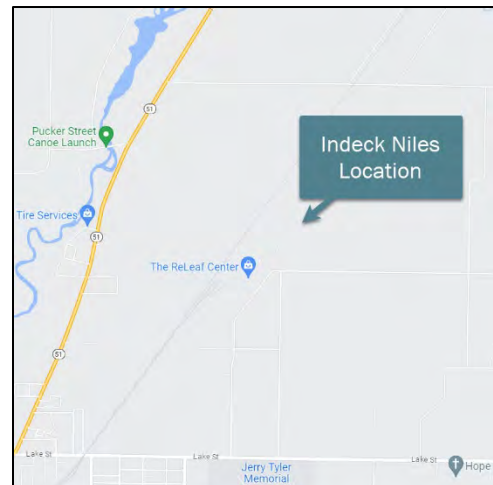
July 27, 2023

### Purpose and Summary

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), is proposing to act on Permit to Install (PTI) application No. APP-2022-0265 from Indeck Niles, LLC (Indeck). The permit application is for proposed modifications of current permit No. [75-16B](#) for an existing combined cycle turbine power plant. The proposed modifications are subject to permitting requirements of the Department's Rules for Air Pollution Control and state and federal Prevention of Significant Deterioration (PSD) regulations. Prior to acting on this application, the AQD is holding a public comment period and a virtual public hearing, if requested in writing, to allow all interested parties the opportunity to comment on the proposed PTI. All relevant information received during the comment period and hearing, if held, will be considered by the decision maker prior to taking final action on the application.

### Background Information

Indeck is located at 2200 Progressive Drive, Niles, Michigan. In 2016, Indeck submitted an application for the installation of a natural gas-fired combined-cycle power plan. The application was assigned PTI No. 75-16, and was subject to the PSD regulations for nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), particulate matter (PM), particulate matter equal to or less than 10 microns in diameter (PM<sub>10</sub>), particulate matter equal to or less than 2.5 microns in diameter (PM<sub>2.5</sub>), sulfur dioxide (SO<sub>2</sub>), volatile organic compounds (VOCs), sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>), and greenhouse gases (GHGs). PTI No. 75-16 was issued on January 4, 2017. The original application was a request to install:



- Two natural gas-fired combined-cycle turbine generators (CTGs) rated at 3,421 million British thermal units (MMBTU)/hr each.
- Two heat recovery steam generators (HRSGs), each equipped with a 740 MMBTU/hr duct burner.
- One natural gas-fired auxiliary boiler rated at 182 MMBTU/hr with a steam capacity of 150,000 lb/hr.
- Two natural gas-fired fuel dew point heaters rated at 27 MMBTU/hr each.
- One 2,922 horsepower (HP) diesel fired emergency reciprocating internal combustion engine with a heat input of approximately 23 MMBTU/hr.
- One 260 brake HP emergency diesel fire pump engine with a heat input capacity of 1.66 MMBTU/hr.
- Three water/condensate storage tanks with a closed roof design.
- Two diesel fuel tanks with a closed roof design.
- One aqueous ammonia storage tank with a closed roof design.
- Up to 44 space heaters rated at a combined 10 MMBTU/hr or less.
- One closed-cover parts washer (cold cleaner).

In the power generation process, inlet air enters the CTG where it will be compressed, mixed with natural gas, and ignited. This causes the air to expand, creating pressure that turn the turbine blades. The spinning blades are attached to a shaft, which turns a generator and creates electricity. The hot exhaust from each CTG (in excess of 800 degrees F) is discharged into a HRSG where the heat is used to generate steam. The steam is then used to drive a steam turbine for additional electric generation.

When an air permit is issued, a company must begin installation of the permitted equipment within eighteen months unless an extension is requested by the permittee and granted by the AQD. Eighteen months from January 4, 2017 was July 4, 2018. Indeck requested an extension; however, the AQD did not agree that an extension was appropriate. In response, Indeck submitted an application to request a similar project with a lower NO<sub>x</sub> PSD best available control technology (BACT) emission limit (in parts per million (ppm)) for the CTG/HRSG trains.

In application No. 75-16A, instead of the 3,421 MMBTU/hr CTGs originally evaluated, Indeck requested to install 3,651 MMBTU/hr CTGs. Instead of the 740 MMBTU/hr duct burners originally evaluated, Indeck requested to install 71 MMBTU/hr duct burners. That reduced the overall heat input for each CTG/HRSG train from 4,161 MMBTU/hr to 3,722 MMBTU/hr.

Indeck also proposed to change from two 27 MMBTU/hr dew point heaters, that were limited to a combined operation of 27 MMBTU/hr, to two 13.5 MMBTU/hr dew point heaters and to no longer have a combined operation limit. Since the total operational heat input was the same as was originally evaluated, the overall emission profile was the same from these pieces of equipment.

In addition, Indeck requested to change emission limits and compliance methods for the two engines. Previously, they had a standalone VOC emission limit and a combined VOC and NO<sub>x</sub> (as nonmethane hydrocarbon (NMHC) plus NO<sub>x</sub>) emission limit. The two limits were seen as redundant for emergency units.

The AQD issued PTI No. 75-16A on June 26, 2018, with the requested changes.

## Proposed Facility and Present Air Quality

Indeck is now proposing to modify their current permit conditions to revise the heat input capacities of the auxiliary boiler, fuel heaters, and emergency engines to match that of the actual equipment installed. The proposed revisions in heat input capacities are as follows:

- Decrease the capacity of the auxiliary boiler from 182 MMBTU/hr to 85 MMBTU/hr.
- Decrease the capacity of the fuel heaters from 13.5 MMBtu/hr to 8.5 MMBTU/hr (for each unit).
- Increase the capacity of the emergency engine from 2,922 HP to 2,923 HP.

Indeck is also proposing to remove EUPENGINE and EUPGUELTANK from the permit as they were never installed.

The facility is located on the border of Berrien and Cass Counties. However, the equipment is located in Cass County. Cass County is currently meeting all of the National Ambient Air Quality Standards (NAAQS) set by the United States Environmental Protection Agency (USEPA). Berrien County is currently designated as attainment for all NAAQS, except ozone. The air quality standards are for CO, nitrogen dioxide (NO<sub>2</sub>), ozone, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, and lead. NAAQS are developed from research studies and set at levels to protect public health. This includes health protection for sensitive groups like those with heart and lung problems.

### Pollutant Emissions

For a fossil fuel-fired steam electric plant of more than 250 MMBTU/hr heat input, the PSD regulations and PSD permitting requirements are triggered if the emission of one or more regulated new source review pollutant is greater than 100 tpy. For this application, as seen in Table 1 below, multiple pollutants exceed 100 tpy. Once PSD permitting requirements are triggered, any regulated new source review pollutant with emissions greater than its PSD significant emission rate, must also undergo PSD review. The PSD regulations are contained in Part 18 of the Michigan Air Pollution Control Rules and 40 CFR 52.21 of the federal rules.

The following table provides the estimated emissions for each criteria pollutant:

**Table 1: EMISSION SUMMARY**

Pollutant	Estimated Emissions From Application No. 75-16A (tpy)	Revised Estimated Emissions (tpy)	PSD Significant Emission Rate (tpy)	Subject to PSD?
NO <sub>x</sub>	418 <sup>A</sup>	370 <sup>A</sup>	40	Yes
CO	2,009 <sup>A</sup>	1,263 <sup>A</sup>	100	Yes
PM	91.2	89	25	Yes
PM10	181	177	15	Yes
PM2.5	181	177	10	Yes
SO <sub>2</sub>	103	103	40	Yes
Lead	7.25E-4	5.2E-4	0.6	Yes
VOC	955*	567*	40	Yes
H <sub>2</sub> SO <sub>4</sub>	40.2	40.2	7	Yes
GHGs as carbon dioxide equivalents (CO <sub>2e</sub> )	3,924,522	3,867,834	75,000	Yes
<sup>A</sup> These emissions include 500 hours of startup and shutdown operation for the CTG/HRSG trains.				

### Key Permit Review Issues

Staff evaluated the proposed project to identify all state rules and federal regulations which are, or may be, applicable. The tables in Appendix 1 summarize these rules and regulations. The focus of the rest of this Technical Fact Sheet will be on the changes to the project or any updated review that was performed.

- Prevention of Significant Deterioration (PSD) Regulations**

Based on the potential emissions, the modified power plant is subject to PSD review for NO<sub>x</sub>, CO, PM, PM10, PM2.5, SO<sub>2</sub>, VOCs, H<sub>2</sub>SO<sub>4</sub>, and GHGs. Review under the PSD regulations requires BACT, a source impact analysis, an air quality impact analysis, and an additional impact analysis for each regulated new source review pollutant for which the project is subject.

- **Nonattainment Regulations**

Cass County is in attainment for all pollutants and Berrien County is in attainment for all pollutants, except ozone. The property owned by Indeck is primarily in Cass County; however, a small portion crosses into Berrien County. All of the equipment proposed for the project will be located in Cass County. This was the originally proposed location, and none of the equipment is proposed to be moved under this application and has been installed in Cass County.

As long as none of the equipment is in Berrien County and the emissions do not significantly impact the nonattainment area, the project will not trigger nonattainment review. The proposed permit requires that all construction or installation of equipment be in Cass County.

- **Federal NSPS Regulations**

New Source Performance Standards (NSPS) were established under Title 40 of the Code of Federal Regulations (40 CFR) Part 60. The Auxiliary Boiler is subject to the NSPS for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR Part 60 Subpart Dc. It was previously thought to be subject to Subpart Db requirements, but due to the actual heat input being lower than 100 MMBTU/hr, the boiler is subject to Subpart Dc instead.

- **Rule 224 TBACT Analysis**

The only TACs that previously underwent a BACT for toxics or TBACT analysis were ammonia and H<sub>2</sub>SO<sub>4</sub>. There is no proposed increase in either TAC, therefore a revised TBACT analysis was not performed and the previous TBACT analysis is still valid. That review determined that add-on controls for neither pollutant were required.

- **Rule 225 Toxics Analysis**

The Michigan Air Pollution Control Rules require the ambient air concentration of toxic air containments (TACs) be compared against health-based screening levels. A new TAC analysis was performed to ensure that the emissions of all TACs from the entire project will meet their applicable allowed screening levels. The review found that all TACs show impacts (predicted ambient impact, or PAI) less than their established health-based screening levels and will comply with the requirements of Rule 225. The only two TACs whose impacts were greater than 10 percent of a screening level are listed below in Table 2.

**Table 2: TAC Impacts and Screening Levels**

TAC	Averaging Period (µg/m <sup>3</sup> )	Screening Level (µg/m <sup>3</sup> )	Screening Level Type	PAI (µg/m <sup>3</sup> )	Percent of Screening Level
Cadmium	Annual	0.0006	IRSL	6.5E-05	10.90%
Formaldehyde	Annual	0.08	IRSL	1.1E-02	14.06%

- **Rule 702 VOC Emissions**

For the original two permits, the BACT reviews determined both specific emission limits and add-on air pollution control equipment requirements. The proposed changes represent a modification to the earlier projects. Therefore, the modified plant, including the revised CTGs, the revised HRSGs with duct burners, the revised fuel dew point heaters, the revised auxiliary boiler, and the engine, must all meet BACT.

The USEPA maintains a nation-wide reasonable available control technology/best available control technology/lowest achievable emission rate (RACT/BACT/LAER) clearinghouse (RBLC) of issued emission limits and air pollution control equipment requirements from PSD and nonattainment permits. The RBLC was reviewed to check for new entries with more restrictive BACT requirements than those included in Indeck's earlier reviews. It was determined that there were no new entries of interest for the CTG/HRSG trains, the dew point heaters, and the engines. Also, there were no entries that indicated that the previous BACT reviews were no longer valid for any other pieces of equipment.

In PTI No. 75-16A, the NO<sub>x</sub> ppm limit was lowered from 3 ppm to 2 ppm. This BACT value is still consistent with other BACT values found in the RBLC and required no further review under this application.

For the CTG/HRSG trains, there were many entries that supported a lower CO value of 2 ppm. There were also many entries with a lower VOC value; however, the values were more varied than for CO. GE has already designed Indeck's CTGs at the previously guaranteed values of 4 ppm for both CO and VOCs. To redesign the turbines, GE would need to reenter the design phase, which would delay the project. Delaying the project would also increase cost for the construction contractor. Indeck included the cost of delay and redesign into an incremental economic analysis. The increase of required funding for GE and the contractor would result in a need to refinance the project to gain more equity; this would also factor into how long the delay would be. Indeck estimated that the delay would last about 2 months. Including the cost of roughly \$9.6 million for each month delayed and an additional \$250,000 dollars in banking and legal fees, the incremental cost to achieve lower emissions would be economically infeasible at \$25,443 per ton of controlled emissions from both CO and VOC out of both CTG/HRSGs. Indeck has stated that such additional costs are not economical is therefore requesting to maintain their previously permitted BACT values for CO and VOC. The AQD concurs with their determination.

For the dew point heaters, there were many RBLC entries that supported the use of air pollution control equipment, specifically low NO<sub>x</sub> burners. The cost analysis in the original application demonstrated that low NO<sub>x</sub> burners were not economically feasible. That analysis showed a cost per ton of less than \$10,000/ton for NO<sub>x</sub>. However, since only one dew point heater would typically operate at a time, it was stated that cost per ton of less than \$10,000/ton for NO<sub>x</sub> would need to be doubled. That raised the cost per ton above what is considered feasible. There continues to be RBLC entries that support the use of low NO<sub>x</sub> burners. The economic analysis was revisited to confirm that it was still not economically feasible. In the original application, generic numbers were used; however, in this application, more vendor specific values were used. In particular, the capital cost to purchase low NO<sub>x</sub> burners and the installation costs were based upon specific vendors data. With the more specific numbers, it was determined that low NO<sub>x</sub> burners were economically infeasible at \$18,960/ton for both dew point heaters. Combining the cost for both dew point heaters yields the lowest estimate because it does not double count the contractor or operator costs. Indeck is therefore proposing that the installation of the dew point heaters with no air pollution control remains BACT. The AQD concurs with their determination.

For the engines, many entries in the RBLC supported the requested elimination of the standalone VOC emission limits. Most emergency engines and fire pumps do not appear to have separate VOC limits because they are already covered in the NMHC+NO<sub>x</sub> restriction.

In summary, Indeck is proposing to keep the same CO and VOC PSD BACT limits as was previously permitted for the CTG/HRSG trains and to operate the dew point heaters, the auxiliary boiler and the engine with no air pollution control equipment. The AQD concurs that these items represent BACT. No other PSD BACT changes are being requested or were evaluated as part of this application.

- **Criteria Pollutants Modeling Analysis**

Computer dispersion modeling was performed to predict the impacts of air emissions from NO<sub>x</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub>. NO<sub>x</sub> refers specifically to nitrogen oxide and NO<sub>2</sub>, with the larger portion being NO<sub>2</sub>. NO<sub>2</sub> is a highly reactive gas and is the pollutant for which the USEPA established a NAAQS. Emissions from the proposed facility were evaluated against both the National Ambient Air Quality Standards (NAAQS) and the PSD increments. The NAAQS are intended to protect public health. The PSD increments are intended to allow industrial growth in an area, while ensuring that the area will continue to meet the NAAQS. Updated dispersion modeling was performed for this application.

The first step in this evaluation is to determine the predicted impacts from the proposed project. After impacts are determined, they are compared to the applicable PSD Significant Impact Levels (SILs). If the project impacts are less than the SIL, then no further review is required. The following table considers the potential emissions from the proposed project for NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> and compares them to their respective SILs.

**Table 3 - Preliminary Modeling Impacts**

Pollutant	Averaging Time	PSD Significant Level (µg/m <sup>3</sup> )	Predicted Impact (µg/m <sup>3</sup> )	Additional Modeling?
PM <sub>2.5</sub>	Annual	0.2	0.34	YES
PM <sub>2.5</sub>	24-hr	1.2	3.71	YES
PM <sub>10</sub>	Annual	1	0.36	NO
PM <sub>10</sub>	24-hr	5	5.13	YES
SO <sub>2</sub>	Annual	1	.08	NO
SO <sub>2</sub>	24-hr	5	2.73	NO
SO <sub>2</sub>	3-hr	25	4.67	NO
CO	8-hr	500	1,985.61	YES
CO	1-hr	2,000	2,722.14	YES
NO <sub>2</sub>	Annual	1	3.08	YES
NO <sub>2</sub>	1-hr	7.5	70.29	YES

As the Class II modeled impacts for NO<sub>2</sub>, CO, PM<sub>10</sub> (24-hr average), and PM<sub>2.5</sub> exceeded their respective SILs, facility-wide NAAQS and PSD Increment modeling analysis was required for those pollutants.

The PSD Increments are compared against the total facility impact plus other increment consuming facilities nearby. In the NAAQS analysis, total facility impact includes additional nearby facilities, or offsite sources. The total facility impact and the background concentrations, which is data from ambient air monitors, are summed and compared to the NAAQS.

As the following tables show, emissions of NO<sub>2</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> from the proposed project will meet their respective PSD Increments and NAAQS.

**Table 4 - PSD Increment**

Pollutant	Averaging Time	PSD Increment ( $\mu\text{g}/\text{m}^3$ )	Predicted Impact ( $\mu\text{g}/\text{m}^3$ )	Percent of Increment (%)
PM2.5	Annual	4	0.36	8.9%
PM2.5	24-hr	9	3.36	37.3%
PM10	24-hr	30	3.36	11.2%
NO <sub>2</sub>	Annual	25	3.08	12.3%

Please note, there is not a PSD Increment for CO for any averaging time or NO<sub>2</sub> for a 1-hour averaging time.

**Table 5 - National Ambient Air Quality Standards (NAAQS)**

Pollutant	Averaging Time	NAAQS ( $\mu\text{g}/\text{m}^3$ )	Predicted Impact ( $\mu\text{g}/\text{m}^3$ )*	Percent of NAAQS (%)
PM10	24-hr	150	42.06	28.0%
PM2.5	Annual	15	8.84	73.7%
PM2.5	24-hr	35	22.58	64.5%
CO	8-hr	10,000	3,493.61	34.9%
CO	1-hr	40,000	4,744.12	11.9%
NO <sub>2</sub>	Annual	100	16.08	16.1%
NO <sub>2</sub>	1-hr	188	130.79	69.6%

Please note, there is not a NAAQS for PM10 on an annual average.

\*Includes background data.

A secondary formation assessment of PM2.5 and ozone were performed as required by the USEPA for PSD applications. Secondary formation of PM2.5 and ozone can occur from emissions of SO<sub>2</sub>, NO<sub>x</sub>, and VOC as these criteria pollutants are considered precursors. The secondary analysis followed the methodology presented in the USEPA's [Guidance for Ozone and Fine Particulate Matter Permit Modeling \(7/29/22\)](#) (final guidance). The Tier 1 methodology used in this assessment added the calculated secondary PM2.5 impact caused by emissions of SO<sub>2</sub> and NO<sub>x</sub> to the primary PM2.5 PSD and NAAQS modeled impacts. This ensures the combination of primary and secondary impacts still meet the PSD and NAAQS impacts of PM2.5, shown in Tables 4 and 5 above.

There is an 8-hour NAAQS for ozone, but no PSD Increment. Ground-level ozone concentrations are the result of photochemical reactions among various chemical species. The chemical species that contribute to ozone formation, referred to as ozone precursors, include NO<sub>x</sub> and VOC emissions from both anthropogenic (e.g., mobile and stationary sources) and natural sources (e.g., vegetation). The facility will emit NO<sub>x</sub> at levels greater than 100 tpy, thus triggering the ozone ambient impact analysis requirements of Michigan Air Pollution Control Rule R 336.2809 and 40 CFR 51.166.

The secondary formation of ozone, or conversion of the precursors, is not instantaneous; it happens over time and is highly dependent upon weather conditions. Therefore, the conversion is often completed after the precursors have been dispersed away from the immediate area. Ozone formation is recognized as a long-range transport issue. As a result, there is no effective modeling method for ozone for single sources: the ozone modeling

programs address larger areas of land and air movements and therefore must include many sources.

To address if a project may cause or contribute to a violation of the ozone NAAQS, the ozone precursors, NO<sub>x</sub> and VOC are evaluated. Indeck followed guidance defined in the USEPA guidelines on Air Quality Models for addressing single source impacts of secondary pollutants. Specifically, Indeck used the methodology provided in the USEPA guidance memo, [Guidance for Ozone and Fine Particulate Matter Permit Modeling \(7/29/22\)](#), to determine the secondary pollutant impact resulting from their proposed project. The ozone impact, resulting from the proposed project, was less than the 0.070 parts per million SIL and is therefore not expected to cause or contribute to any violation of the ozone NAAQS standard.

Preconstruction monitoring is required for at least one year for each criteria pollutant proposed to be emitted that triggers PSD review. Through guidance, the USEPA allows the use of existing regional data, if representative, as an alternative to the preconstruction monitoring. Indeck requested to use existing data and to receive a waiver from preconstruction monitoring. The AQD determined that the data is representative and granted the waiver request.

- **Additional Impact Analysis**

An additional impact analysis is required for new major sources pursuant to 40 CFR 52.21(o) and Michigan Air Pollution Control Rule 336.2815. This analysis is necessary to evaluate the impacts from the proposed project for soils, vegetation, visibility and growth.

None of the changes proposed in this application affect the results of the earlier additional impact analysis. As determined in the earlier additional impact analysis:

**Soils, Vegetation, and Wildlife**

The secondary NAAQS have been determined by the USEPA to be protective of soils, vegetation, and wildfire. Indeck evaluated the secondary NAAQS using dispersion modeling. All PSD pollutants with secondary NAAQS were below their respective standards. VOCs and H<sub>2</sub>SO<sub>4</sub> were evaluated through the TAC analysis required in Michigan Air Pollution Control Rule 336.1225. This evaluation showed that the impacts from the project are below their respective health-based screening levels.

**Visibility**

Assessments for visibility impacts are required only for Class I areas. The nearest Class I area is in Seney, Michigan, which is located approximately 494 kilometers away from Indeck. The source is sufficiently far away that USEPA does not require further analysis as no impairment to visibility in the Class I area is expected to occur.

**Growth**

The growth analysis is a projection of the commercial, residential, industrial, and other growth that will occur in the area due to the construction and operation of the proposed source. Emissions from construction are expected to be minimal and have limited impact beyond the site boundaries. It is predicted to have a minimal effect on area population and commercial growth.

- **Other**

In the earlier applications, the project was determined to be an area source of hazardous air pollutants (HAPs). The calculations for this application indicate that the facility will remain an area source of HAPs. These calculations are dependent upon the emission factors used for



each HAP. In particular, formaldehyde can be of concern for natural gas-fired equipment. The AQD determined that periodic testing to verify the emission factor of formaldehyde from the CTG/HRSG trains is required in order to accurately calculate the formaldehyde emissions and allow the facility to continue to demonstrate that they are an area source of HAPs.

Also, please note that not all New Source Performance Standards (NSPS) test methods take formaldehyde into consideration. However, formaldehyde is a VOC and should be considered when demonstrating compliance with a PSD VOC limit. The AQD added language to the proposed permit to make it clear that formaldehyde needs to be addressed should stack testing be required.

## Key Aspects of Draft Permit Conditions

This section will focus on changes made from the previous permit, No. 75-16B, to the proposed permit, APP-2022-0265.

- **Emission Limits (By Pollutant)**

The draft permit includes emission limits for various pollutants in order to make the permit enforceable and to protect the air quality standards. The only proposed emission limit changes are for the auxiliary boiler and the fuel heaters.

The proposed permit includes a change in EUAUXBOILER's NO<sub>x</sub> emission limit's time period 30-day rolling from hourly after the reclassification from NSPS Subpart Db to Dc. The PM<sub>10</sub> and PM<sub>2.5</sub> limits were both lowered from 1.36 pph to 0.6 pph as a result of the lower capacity equipment. The GHG as CO<sub>2e</sub> emission limit was lowered from 93,346 tpy to 43,596 tpy.

FGFUELHTR includes the NO<sub>x</sub> limit being lowered from 1.32 pph to 0.8 pph for each unit, the CO limit being lowered from 1.11 pph to 0.7 pph for each unit, the PM limit being changed from 0.002 lb/MMBtu to 0.003 pph for each unit, the VOC limit being lowered from 0.7 pph to 0.5 pph for each unit, and the GHG as CO<sub>2e</sub> emission limit being lowered from 13,848 tpy to 8,720 tpy.

- **Usage Limits**

The draft permit includes limits on the use of fuel.

In the proposed draft, permit language was changed to exclude "pipeline quality" from the natural gas material requirement. The sulfur content specification was also removed for FGFUELHTR and FGCTGHRSG.

- **Process/Operational Restrictions**

The reference to "180 days after installation" was removed as the equipment is already installed and operating.

- **Federal Regulations**

The auxiliary boiler is no longer subject to the NSPS for Industrial-Commercial-Institutional Steam Generating Units, 40 CFR Part 60 Subpart Db, and is now subject to the NSPS for Small Industrial-Commercial-Institutional Steam Generating Units, 40 CFR Part 60 Subpart Dc. The permit specifies that compliance with the auxiliary boiler emission limits will constitute compliance with the NSPS.

- **Testing & Monitoring Requirements**

The draft permit includes testing requirements for the auxiliary boiler, emergency engine, fuel heaters, and combined-cycle generator units.

The auxiliary boiler was updated to remove VOCs from the original testing condition and added to a new testing condition that requires verification of VOC emissions upon request of the AQD District Supervisor. NO<sub>x</sub> is now required to be tested once every five years. PM, PM10, and PM2.5 emissions will now be verified upon testing when requested by the AQD District Supervisor.

## Conclusion

Based on the analyses conducted to date, the AQD staff concludes that the proposed project would comply with all applicable state and federal air quality requirements. The AQD staff also concludes that this project, as proposed, would not violate the federal NAAQS or the state and federal PSD Increments.

Based on these conclusions, the AQD staff has developed proposed permit terms and conditions which would ensure that the proposed facility design and operation are enforceable and that sufficient monitoring, recordkeeping, and reporting would be performed by the applicant to determine compliance with these terms and conditions. If the permit application is deemed approvable, the delegated decision maker may determine a need for additional or revised conditions to address issues raised during the public participation process. If you would like additional information about this proposal, please contact Nicholas Carlson, AQD, at CarlsonN1@Michigan.gov or 517-582-5160.

**Appendix 1  
STATE AIR REGULATIONS**

<b>State Rule</b>	<b>Description of State Air Regulations</b>
<b>R 336.1201</b>	Requires an Air Use Permit for new or modified equipment that emits, or could emit, an air pollutant or contaminant. However, there are other rules that allow smaller emission sources to be installed without a permit (see Rules 336.1279 through 336.1290 below). Rule 336.1201 also states that the Department can add conditions to a permit to assure the air laws are met.
<b>R 336.1205</b>	Outlines the permit conditions that are required by the federal Prevention of Significant Deterioration (PSD) Regulations and/or Section 112 of the Clean Air Act. Also, the same types of conditions are added to their permit when a plant is limiting their air emissions to legally avoid these federal requirements. (See the Federal Regulations table for more details on PSD.)
<b>R 336.1224</b>	New or modified equipment that emits toxic air contaminants must use the Best Available Control Technology for Toxics (T-BACT). The T-BACT review determines what control technology must be applied to the equipment. A T-BACT review considers energy needs, environmental and economic impacts, and other costs. T-BACT may include a change in the raw materials used, the design of the process, or add-on air pollution control equipment. This rule also includes a list of instances where other regulations apply and T-BACT is not required.
<b>R 336.1225 to R 336.1232</b>	The ambient air concentration of each toxic air contaminant emitted from the project must not exceed health-based screening levels. Initial Risk Screening Levels (IRSL) apply to cancer-causing effects of air contaminants and Initial Threshold Screening Levels (ITSL) apply to non-cancer effects of air contaminants. These screening levels, designed to protect public health and the environment, are developed by Air Quality Division toxicologists following methods in the rules and U.S. EPA risk assessment guidance.
<b>R 336.1279 to R 336.1291</b>	These rules list equipment to processes that have very low emissions and do not need to get an Air Use permit. However, these sources must meet all requirements identified in the specific rule and other rules that apply.
<b>R 336.1301</b>	Limits how air emissions are allowed to look at the end of a stack. The color and intensity of the color of the emissions is called opacity.
<b>R 336.1331</b>	The particulate emission limits for certain sources are listed. These limits apply to both new and existing equipment.
<b>R 336.1370</b>	Material collected by air pollution control equipment, such as dust, must be disposed of in a manner, which does not cause more air emissions.
<b>R 336.1401 and R 336.1402</b>	Limit the sulfur dioxide emissions from power plants and other fuel burning equipment.
<b>R 336.1601 to R 336.1651</b>	Volatile organic compounds (VOCs) are a group of chemicals found in such things as paint solvents, degreasing materials, and gasoline. VOCs contribute to the formation of smog. The rules set VOC limits or work practice standards for existing equipment. The limits are based upon Reasonably Available Control Technology (RACT). RACT is required for all equipment listed in Rules 336.1601 through 336.1651.
<b>R 336.1702</b>	New equipment that emits VOCs is required to install the Best Available Control Technology (BACT). The technology is reviewed on a case-by-case basis. The VOC limits and/or work practice standards set for a particular piece of new equipment cannot be less restrictive than the Reasonably Available Control Technology limits for existing equipment outlined in Rules 336.1601 through 336.1651.
<b>R 336.1801</b>	Nitrogen oxide emission limits for larger boilers and stationary internal combustion engines are listed.
<b>R 336.1901</b>	Prohibits the emission of an air contaminant in quantities that cause injurious effects to human health and welfare, or prevent the comfortable enjoyment of life and property. As an example, a violation may be cited if excessive amounts of odor emissions were found to be preventing residents from enjoying outdoor activities.
<b>R 336.1910</b>	Air pollution control equipment must be installed, maintained, and operated properly.

State Rule	Description of State Air Regulations
R 336.1911	When requested by the Department, a facility must develop and submit a malfunction abatement plan (MAP). This plan is to prevent, detect, and correct malfunctions and equipment failures.
R 336.1912	A facility is required to notify the Department if a condition arises which causes emissions that exceed the allowable emission rate in a rule and/or permit.
R 336.2001 to R 336.2060	Allow the Department to request that a facility test its emissions and to approve the protocol used for these tests.
<p>R 336.2801 to R 336.2804  <b>Prevention of Significant Deterioration (PSD) Regulations</b></p> <p><b>Best Available Control Technology (BACT)</b></p>	<p>The PSD rules allow the installation and operation of large, new sources and the modification of existing large sources in areas that are meeting the National Ambient Air Quality Standards (NAAQS). The regulations define what is considered a large or significant source, or modification.</p> <p>In order to assure that the area will continue to meet the NAAQS, the permit applicant must demonstrate that it is installing the BACT. By law, BACT must consider the economic, environmental, and energy impacts of each installation on a case-by-case basis. As a result, BACT can be different for similar facilities.</p> <p>In its permit application, the applicant identifies all air pollution control options available, the feasibility of these options, the effectiveness of each option, and why the option proposed represents BACT. As part of its evaluation, the Air Quality Division verifies the applicant's determination and reviews BACT determinations made for similar facilities in Michigan and throughout the nation.</p>
R 336.2901 to R 336.2903 and R 336.2908	<p>Applies to new "major stationary sources" and "major modifications" as defined in R 336.2901. These rules contain the permitting requirements for sources located in nonattainment areas that have the potential to emit large amounts of air pollutants. To help the area meet the NAAQS, the applicant must install equipment that achieves the Lowest Achievable Emission Rate (LAER). LAER is the lowest emission rate required by a federal rule, state rule, or by a previously issued construction permit. The applicant must also provide emission offsets, which means the applicant must remove more pollutants from the air than the proposed equipment will emit. This can be done by reducing emissions at other existing facilities.</p> <p>As part of its evaluation, the AQD verifies that no other similar equipment throughout the nation is required to meet a lower emission rate and verifies that proposed emission offsets are permanent and enforceable.</p>

**FEDERAL AIR REGULATIONS**

Citation	Description of Federal Air Regulations or Requirements
<p><b>Section 109 of the Clean Air Act – National Ambient Air Quality Standards (NAAQS)</b></p>	<p>The United States Environmental Protection Agency has set maximum permissible levels for seven pollutants. These NAAQS are designed to protect the public health of everyone, including the most susceptible individuals, children, the elderly, and those with chronic respiratory ailments. The seven pollutants, called the criteria pollutants, are carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter less than 10 microns (PM10), particulate matter less than 2.5 microns (PM2.5), and sulfur dioxide (SO<sub>2</sub>). Portions of Michigan are currently non-attainment for either ozone or SO<sub>2</sub>. Further, in Michigan, State Rules 336.1225 to 336.1232 are used to ensure the public health is protected from other compounds.</p>

Citation	Description of Federal Air Regulations or Requirements
<p><b>40 CFR 52.21 – Prevention of Significant Deterioration (PSD) Regulations</b></p> <p><b>Best Available Control Technology (BACT)</b></p>	<p>The PSD regulations allow the installation and operation of large, new sources and the modification of existing large sources in areas that are meeting the NAAQS. The regulations define what is considered a large or significant source, or modification.</p> <p>In order to assure that the area will continue to meet the NAAQS, the permit applicant must demonstrate that it is installing BACT. By law, BACT must consider the economic, environmental, and energy impacts of each installation on a case-by-case basis. As a result, BACT can be different for similar facilities.</p> <p>In its permit application, the applicant identifies all air pollution control options available, the feasibility of these options, the effectiveness of each option, and why the option proposed represents BACT. As part of its evaluation, the Air Quality Division verifies the applicant’s determination and reviews BACT determinations made for similar facilities in Michigan and throughout the nation.</p>
<p><b>40 CFR 60 – New Source Performance Standards (NSPS)</b></p>	<p>The United States Environmental Protection Agency has set national standards for specific sources of pollutants. These New Source Performance Standards (NSPS) apply to new or modified equipment in a particular industrial category. These NSPS set emission limits or work practice standards for over 60 categories of sources.</p>
<p><b>40 CFR 63— National Emissions Standards for Hazardous Air Pollutants (NESHAP)</b></p>	<p>The United States Environmental Protection Agency has set national standards for specific sources of pollutants. The National Emissions Standards for Hazardous Air Pollutants (NESHAP) (a.k.a. Maximum Achievable Control Technology (MACT) standards) apply to new or modified equipment in a particular industrial category. These NESHAPs set emission limits or work practice standards for over 100 categories of sources.</p>
<p><b>Section 112 of the Clean Air Act</b></p> <p><b>Maximum Achievable Control Technology (MACT)</b></p> <p><b>Section 112g</b></p>	<p>In the Clean Air Act, Congress listed 189 compounds as Hazardous Air Pollutants (HAPS). For facilities which emit, or could emit, HAPS above a certain level, one of the following two requirements must be met:</p> <ol style="list-style-type: none"> <li>1) The United States Environmental Protection Agency has established standards for specific types of sources. These Maximum Achievable Control Technology (MACT) standards are based upon the best-demonstrated control technology or practices found in similar sources.</li> <li>2) For sources where a MACT standard has not been established, the level of control technology required is determined on a case-by-case basis.</li> </ol>

**Notes:** An “Air Use Permit,” sometimes called a “Permit to Install,” provides permission to emit air contaminants up to certain specified levels. These levels are set by state and federal law, and are set to protect health and welfare. By staying within the levels set by the permit, a facility is operating lawfully, and public health and air quality are protected.

**The Air Quality Division does not have the authority to regulate noise, local zoning, property values, off-site truck traffic, or lighting.**

These tables list the most frequently applied state and federal regulations. Not all regulations listed may be applicable in each case. Please refer to the draft permit conditions provided to determine which regulations apply.