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Indiana Department of Environmental Management
Permit Administration and Support Section, Office of Air Quality
100 North Senate Avenue
MC 61-53 IGCN 1003
Indianapolis, IN 46204-2251

**RE: *Application for Title V Operating Permit
 DTE Energy Services – Lafayette, IN Cogen Facility***

To Whom It May Concern,

DTE Energy Services (DTE) is proposing to install a cogeneration system at the existing Tate & Lyle Solutions SSA, LLC facility located at 2245 North Sagamore Parkway in Lafayette, Indiana. DTE will fully own and operate the cogeneration system. DTE is requesting approval for the installation of emission units as described in the attached application.

The attached application includes a complete description of the plant, potential emissions calculations, regulatory applicability analyses, and application forms.

If there are any questions concerning this application, please do not hesitate to contact me at scott.klipa@dteenergy.com or Ms. Kayla Reiser of Trinity Consultants at (317) 451-8105.

Sincerely,

DTE ENERGY SERVICES

A handwritten signature in black ink, appearing to read "Scott Klipa".

Scott Klipa
Principal Environmental Engineer

APPLICATION FOR SIGNIFICANT SOURCE MODIFICATION AND SIGNIFICANT PERMIT MODIFICATION

DTE Energy Services / Lafayette, Indiana

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Project 241501.0043



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1. INTRODUCTION

The following constitutes an application for a significant source and significant permit modification for an existing major source with respect to the Title V and Prevention of Significant Deterioration (PSD) air permitting programs. DTE Energy Services (DTE) is a diversified energy generating company based in Detroit, Michigan. DTE is proposing to construct a new cogeneration system at the Tate & Lyle Solutions SSA, LLC (Tate & Lyle) facility in Lafayette, Indiana (Sagamore Facility). Tate & Lyle currently operates the Sagamore Facility under Title V Operating Permit T157-45747-00003, issued by the Indiana Department of Environmental Management (IDEM) on July 19th, 2023. The proposed cogeneration system will supply steam and power to the Sagamore Facility. Since the proposed cogeneration system and the Sagamore Facility will be located on contiguous properties and the cogeneration system will serve as a support facility to the Sagamore Facility, the two plants will be considered one major source per the definition of a major source in 326 IAC 2-7-1(22). However, the cogeneration system will be owned and operated by DTE. Therefore, in order to maintain separate reporting and compliance certification, DTE is requesting an administratively separate Title V air permit be issued to DTE for the cogeneration system that reflects the two sources are part of the same major source.

The Sagamore Facility is an existing major source with respect to the PSD permitting program and a major source of hazardous air pollutants (HAPs). The Sagamore Facility is located in Tippecanoe County, which has been designated as unclassifiable or attainment for all criteria air pollutants.

DTE is proposing to install two (2) combustion turbine generators and (2) heat recovery steam generating (HRSG) units. The proposed project will result in emissions of particulate matter (PM), particulate matter with an aerodynamic diameter of less than 10 microns (PM_{10}), particulate matter with an aerodynamic diameter of less than 2.5 microns ($PM_{2.5}$), sulfur dioxide (SO_2), nitrous oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and HAPs. The emissions increases for the project will be below the significant emission rates (SERs) for all pollutants taking into account increased emissions for new emission units to be installed and operated as part of this project and existing emission units to be shut down as part of a project emissions accounting analysis. Therefore, this proposed project is not subject to PSD review. This project was approved internally as a standalone project, and the financial justification for the capital approval is not dependent on any other past, present, or future capital projects at the Sagamore Facility.

Emission units associated with the proposed project will be subject to applicable requirements of New Source Performance Standards (NSPS), National Emissions Standards for Hazardous Air Pollutants (NESHAP), and Indiana Administrative Code (IAC) Title 326 regulations. This application contains an evaluation of federal and state regulatory applicability and air permitting requirements for the proposed project and includes potential to emit (PTE) calculations for all associated emission units. State forms are included in Appendix A and detailed emission calculations are included in Appendix B.

2. PROJECT OVERVIEW

2.1 Plant Location

The Sagamore Facility is located at 2245 North Sagamore Parkway in Lafayette, Indiana. The Sagamore Facility is located in Fairfield Township in Tippecanoe County, which has been designated as attainment or unclassifiable for all criteria pollutants.¹

2.2 Project Description

DTE is proposing to install a cogeneration system (Cogen Project), comprised of two natural gas-fired combustion turbines and two HRSG units at the Sagamore Facility. The project will consist of shutting down three (3) existing natural gas-fired boilers.

Each respective combustion turbine will have a nominal output of 15,540 kW and will each have its own exhaust stack equipped with an oxidation catalyst to control emissions of CO. The beginning of actual construction (i.e., groundwork and foundations) on the project is anticipated to begin in the fourth quarter of 2024.

2.2.1 Proposed Emission Units

DTE is proposing to install two new cogeneration units at the Sagamore Facility. Each unit will consist of a natural gas-fired combustion turbine and a natural gas-fired heat recovery (HRSG) unit. The maximum potential heat input and emissions data provided by the turbine and HRSG manufacturers were used to define the worst-case future potential emissions scenario for the Cogen Project.

DTE is projecting that the turbines will experience startup and shutdown events throughout the year. The number of events shown in the emission calculations in Appendix B represents the expected worst-case emissions from startup and shutdown scenarios that will be possible at the Sagamore Facility. DTE requests the following emission units be added to the Title V permit.

Two (2) combined heat and power (CHP) trains, approved in 2024 for construction, consisting of:

- (1) One (1) powerhouse, identified as PH #1, consisting of one (1) natural gas-fired turbine, identified as 1GT, with a maximum heat input capacity of 173.96 MMBtu/hr, equipped with low NOx burners and an oxidation catalyst for CO control, and one duct burner, identified as 1DB, with a maximum heat input capacity of 105 MMBtu/hr. The units associated with PH#1 exhaust to Stack #1.**
- (2) One (1) powerhouse, identified as PH #2, consisting of one (1) natural gas-fired turbine, identified as 2GT, with a maximum heat input capacity of 173.96 MMBtu/hr, equipped with low NOx burners and an oxidation catalyst for CO control, and one duct burner, identified as 2DB, with a maximum heat input capacity of 105 MMBtu/hr. The units associated with PH#2 exhaust to Stack #2.**

¹ 326 IAC 1-4-80

2.2.2 Shutdown of Existing Operations

Coinciding with the construction of the Cogen Project, Tate & Lyle will be shutting down three existing natural gas-fired boilers at the Sagamore Facility within 180 days after startup of both cogeneration units. As part of this project, the shutdown of the following equipment will result in creditable emissions decreases. Since the existing boilers will remain operational up to 180 days after the startup of the new cogeneration units, they will remain operational some time after the source and permit modifications are issued for this project. Therefore, these emission units should not be removed from the Sagamore Facility's Title V permit at this time. Tate & Lyle will continue to comply with the applicable requirements in the current Title V permit related to these emission units and will submit a separate request to remove these units at a later date once they are officially retired and permanently shut down. The units to be shut down as part of the Cogen Project consist of the following boilers in Section A.2(i) of the Sagamore Facility's permit:

- (1) Two (2) natural gas-fired boilers, identified as 11B2 and 11B3, constructed in 1966, each with a heat input capacity of 125 MMBtu/hr, with emissions uncontrolled, and exhausting to stack 197.
- (2) One (1) NG-fired boiler, identified as 31B1, constructed in 1984 and modified in 2004 and 2014, with a heat input capacity of 231 MMBtu/hr, equipped with four (4) low-NOx burners, using natural gas, and exhausting to stack 202.

The rest of the existing emission units at the Sagamore Facility will remain operational (with no physical changes or changes to their method of operation) after the construction of the Cogen Project. The construction of the new equipment will have no impact on the utilization, method of operation, or emissions from the remaining existing emission units.

3. REGULATORY APPLICABILITY

This section of the permit application summarizes the air permitting requirements and the key air quality regulations that apply to the emission units as part of the Cogen Project. Specifically, applicability of PSD, NSPS, NESHAP, and 326 IAC regulations are discussed.

3.1 Prevention of Significant Deterioration

Indiana has incorporated the requirements of the PSD permitting program into its State Implementation Plan (SIP) in 326 IAC 2-2. With respect to the PSD permitting program, Indiana SIP PSD requirements may apply to the proposed project for emissions of PM, PM₁₀, PM_{2.5}, SO₂, NO_x, CO, VOC, and H₂SO₄. The Sagamore Facility is located in Tippecanoe County, which has been designated by the United States Environmental Protection Agency (U.S. EPA) as attainment or unclassifiable for all criteria pollutants.² Therefore, the proposed project must be evaluated under PSD requirements as promulgated in Indiana's SIP approved PSD program under 326 IAC 2-2 for each regulated New Source Review (NSR) pollutant.

3.1.1 Major Stationary Source

A new stationary source or an existing stationary source is considered a major source with respect to PSD regulations if the potential to emit for any regulated NSR pollutant exceeds the applicability thresholds provided in the definition in 40 CFR §52.21(b)(1)(i) (as incorporated in 326 IAC 2-2-1(ff)(1)). A major stationary source, therefore, is one that: 1) Belongs to one of the industrial categories listed in 40 CFR §52.21(b)(1)(i) and has the potential to emit more than 100 tons per year of any regulated NSR pollutant as defined in §52.21(b)(50), or 2) does not belong to a listed category but has the potential to emit more than 250 tons per year of any regulated NSR pollutant.

The Sagamore Facility is not a category listed in 40 CFR 52.21(b)(1)(i), but the facility has the potential to emit greater than 250 tons per year of several pollutants (i.e., PM, PM₁₀, PM_{2.5}, NO_x, CO, SO₂, and VOC) that are subject to regulation under the Federal Clean Air Act (CAA). Additionally, the proposed Cogen Project will be considered a listed source per 40 CFR 52.21(b)(1)(i) and 326 IAC 2-2-1(ff)(1), nested within the Sagamore Facility, with potential emissions greater than 100 tons per year for at least one pollutant (CO and NO_x). The plant is, therefore, a PSD major source and must evaluate whether PSD permitting requirements are applicable to the proposed project

3.1.2 Major Modification

The proposed project is a physical and operational change and, therefore, a modification. The facility must determine whether the project will be considered a major modification as defined in 326 IAC 2-2-1(dd). A major modification is a physical or operational change that meets both of the following criteria:³

- ▶ Results in a **significant emissions increase** of a pollutant; and,
- ▶ Results in a **significant net emissions increase** of that pollutant.

² 40 CFR 81.315

³ On November 24, 2020, U.S. EPA finalized new guidance on how to determine PSD applicability in the rule "Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR): Project Emissions Accounting."

3.1.2.1 Significant Emissions Increase

To determine whether a significant emissions increase will occur due to the proposed project, the post-project emission rates must be calculated. Consistent with a project emissions accounting analysis, the post-project emissions are comprised of the projected actual emission rate increases for existing sources remaining after the project, the PTE increases from new sources added by the project, and the actual emissions decreases from existing sources shut down as part of the project. Note that DTE projects no actual emissions increase from existing emission units at the Sagamore Facility due to this Cogen Project; therefore, with respect to the project's potential significant emissions increase, attention is paid to the PTE increases from the proposed cogeneration system and actual emissions decreases from the natural gas-fired boilers to be removed as part of the project.

For existing sources with associated increases, the projected actual emissions are the maximum annual emission rates expected following project completion and startup of regular operations less than the current baseline emission levels. In the case of shut down units, the projected actual emissions are zero. The baseline actual emissions (2-year average) for existing sources are determined for comparison to the post-project emission rates. For new sources added by the project, the projected actual emissions equal the PTE, and the baseline actual emissions are equal to zero. A significant emissions increase occurs if the difference between the post-project emission rates and the baseline actual emission rates exceeds the pollutant-specific SERs in 326 IAC 2-2-1(ww)(1).

A summary of the post-project emission rates, comprised of emission increases from new sources and emission decreases from existing sources to be removed, compared to the SERs is shown in Table 3-1. Detailed emission calculations are provided in Appendix B.

Table 3-1. Comparison of Total Emissions Increase to PSD SERs

Pollutant	New Sources' PTE (tpy)	Shut Down Units (tpy)	Total Em. Increase (tpy)	PSD SER ¹ (tpy)	Exceed the SER? Yes/No
CO	82.62	-15.31	67.30	100	No
NO _x	130.09	-93.03	37.05	40	No
VOC	12.60	-4.34	8.26	40	No
PM	4.61	-1.50	3.11	25	No
PM ₁₀	14.66	-5.99	8.67	15	No
PM _{2.5}	14.66	-5.99	8.67	10	No
SO ₂	0.61	-0.47	0.13	40	No
H ₂ SO ₄	0.06	0.00	0.06	7	No

¹ PSD Significant Emission Rate (SER) as defined in 326 IAC 2-2-1(ww).

Of particular note is how the PTE per turbine and HRSG is calculated. Potential emissions for PSD-regulated pollutants are based on vendor-provided emission guarantees for normal operations and vendor estimates for the startup and shutdown scenarios. The highest emissions from either continuous operation or the sum of the PTE from continuous operation at normal conditions and from SUSD, based on total event emissions/duration of each event, are used as a worst-case representation of the PTE per turbine.

The HRSG units are capable of firing under normal operation (i.e., load firing) or under fresh air firing. Fresh air firing will occur when the combustion turbines are not operating but steam generation is still required. DTE anticipates that this operating scenario will be infrequent. The PTE per HRSG is based on a maximum fuel usage of 49,893 MMBtu/yr under fresh air firing with the remaining fuel usage during normal operation. DTE requests any limit on emissions from the cogeneration system be on a 12-consecutive month basis with an equation based on emission factor and fuel usage used to demonstrate compliance. In order to ensure PSD non-applicability, DTE requests the fuel usage limit under fresh air firing of 49,893 MMBtu on a 12-consecutive months basis per HRSG be incorporated into the Title V permit.

The proposed project is not considered a major modification because it will not result in a significant emissions increase above the SER for any PSD-regulated pollutant. DTE proposes to demonstrate compliance with this PSD non-applicability determination on a 12-month rolling basis, using a compliance formula methodology to be formulated with IDEM. The compliance demonstration requirements will begin once the cogeneration project commences commercial operation.

3.1.3 Project Recordkeeping

The project emission increase is greater than fifty (50) percent of the SER for CO, NO_x, PM₁₀, and PM_{2.5}; therefore, there is a reasonable possibility, as outlined in 326 IAC 2-2-8(b)(6)(A), that the project is part of a significant emissions increase (SEI). Therefore, the project recordkeeping requirements of 326 IAC 2-2-8(b) apply to the Sagamore Facility.

3.1.4 Transition Period

As previously stated, the existing natural gas-fired boilers at the Sagamore Facility will remain operational up to 180 days after the startup of the proposed cogeneration units. It is projected that the existing boilers, 11B2 and 11B3, will idle in standby during the interim period until the boilers are shutdown. During the interim period, it is not expected that both proposed cogeneration units will operate at 100% load. However, in order to evaluate PSD applicability during the interim period, DTE has considered the most conservative operating scenario of the existing boilers, 11B2 and 11B3, idling in standby and the proposed cogeneration units operating at maximum capacity. Emission calculations for this operating scenario are included in Appendix C.

In order to ensure PSD non-applicability during the interim period after the startup of the cogeneration units but before the shutdown of the existing boilers, DTE requests that IDEM incorporate a total fuel usage limit for both proposed HRSGs of 89,887 MMBtu/month under normal operation and 5,153 MMBtu/month under fresh air firing. DTE requests the fuel usage limit during the interim period be on a monthly basis. Compliance with this monthly fuel limit will ensure that emissions increases for all PSD-regulated pollutants remain below the SER during the transition period, even with projecting the most conservative operating scenario of the existing boilers idling in standby and the turbines operating at full capacity. DTE proposes to monitor monthly fuel usage from the existing boilers and proposed cogeneration units and to demonstrate compliance with this PSD non-applicability determination during the interim period on a monthly basis, using a compliance formula methodology to be formulated with IDEM. DTE proposes the monthly fuel usage limitation be lifted after shutdown of the existing units, after which DTE will become subject to the annual fuel usage limitation listed above.

3.2 Title V Permitting

40 CFR 70 establishes the federal Title V operating permit program, which Indiana has incorporated into its own regulations. The major source thresholds (MST) with respect to the Indiana Title V operating permit program for sources in attainment areas are 10 tpy of a single HAP, 25 tpy of any combination of HAP, and 100 tpy of a regulated pollutant where all emissions are on a PTE basis.

The Sagamore Facility is currently a Title V source for all air pollutants. Following construction of the Cogen Project and the shutdown of existing units, the source-wide emissions will remain above the major source thresholds for criteria pollutants and HAP emissions, as shown in Appendix B. Therefore, the Sagamore Facility will remain a Title V major source and a major source of HAP emissions.

3.3 New Source Performance Standards

New Source Performance Standard (NSPS) regulations (codified in 40 CFR Part 60) require new, modified, or reconstructed sources to control emissions to the level achievable by the best demonstrated technology as specified in the applicable provisions. NSPS applicability is reviewed for each unit that is newly constructed as part of the project. An analysis of applicability for these rules is provided in the following subsections.

3.3.1 Standards of Performance for Electric Utility Steam Generating Units (40 CFR 60, Subpart Da)

Pursuant to 40 CFR 60.40Da(a), NSPS Subpart Da applies to each electric utility steam-generating unit that is capable of combusting more than 250 MMBtu/hr (HHV) of fossil fuels and for which construction commenced after September 18, 1978. The proposed project's natural gas-fired HRSGs burn a maximum of 105.04 MMBtu/hr. In addition, the HRSGs do not meet the definition of electric utility steam-generating units; therefore, the HRSGs are not subject to Subpart Da.

3.3.2 Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (40 CFR, Subpart Db)

The requirements of NSPS Subpart Db apply to each steam generating unit with a heat input capacity greater than 100 MMBtu/hr unless the unit meets any of the exemptions identified in 40 CFR 60.40Db. Pursuant to 40 CFR 60.40Db(i), affected facilities that are associated with combined cycle gas turbines and that meet the applicability requirements of NSPS KKKK are not subject to NSPS Subpart Db. The proposed HRSGs have a heat input capacity greater than 100 MMBtu/hr but are associated with the combined cycle gas turbine and meet the applicability requirements of NSPS KKKK. Therefore, the proposed HRSGs are not subject to the requirements of the NSPS Db.

3.3.3 Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR, Subpart Dc)

Pursuant to 40 CFR 60.40c(a), NSPS Subpart Dc applies to each steam generating unit that has a maximum rated heat input no more than 100 MMBtu/hr (HHV) but greater than or equal to 10 MMBtu/hr (HHV) and for which construction commenced after June 9, 1989. Given that each HRSG unit has a heat input greater than the bounded range, the units are not subject to this rule. The proposed turbines do not generate steam and are therefore not subject to this subpart.

3.3.4 Standards of Performance for Stationary Gas Turbines (40 CFR 60, Subpart GG)

NSPS Subpart GG applies to combustion turbines constructed or modified after October 3, 1977, with heat input equal to or greater than 10 MMBtu/hr on a lower heating value (LHV) basis per 40 CFR 60.330. However, NSPS Subpart GG has been supplanted by a newer subpart (KKKK) that exempts subject units from NSPS Subpart GG [40 CFR 60.4305(b)]. The combustion turbines are subject to the requirements of NSPS KKKK and are therefore exempt from NSPS Subpart GG.

3.3.5 Standards of Performance for Stationary Combustion Turbine (40 CFR 60, Subpart KKKK)

NSPS Subpart KKKK applies to combustion turbines constructed or modified after February 18, 2005, with heat input equal to or greater than 10 MMBtu/hr based on the higher heating value of the fuel per 40 CFR 60.4300(a). The heat input from associated duct burners is not included in the applicability determination; however, the subpart applies to emissions from the combustion turbines and duct burners if the heat input of the turbines exceeds 10 MMBtu/hr (HHV).

The proposed combustion turbines at the Sagamore Facility have a peak heat input greater than 10 MMBtu/hr (HHV); therefore, the combustion turbines (including the HRSGs) are subject to NSPS Subpart KKKK. Moreover, per 40 CFR 60.4300(b), the combustion turbines and duct burners are exempt from NSPS Subparts GG and Da, respectively. An FED-01 form for the proposed combustion turbines is included in Appendix A.

3.4 National Emission Standards for Hazardous Air Pollutants

The National Emission Standards for Hazardous Air Pollutants (NESHAPs), listed in 40 CFR Part 63 and implemented in Indiana regulation 326 IAC 20, are source category specific regulations that limit emissions of HAP from major sources and area sources of HAP emissions. A HAP major source is defined as having potential emissions in excess of 25 tons per year for total HAP and/or potential emissions in excess of 10 tons per year for any individual HAP. An area source of HAP emissions is any source not considered a major source of HAP emissions. The Sagamore Facility is a major source of HAP. NESHAP applicability is reviewed for each unit that is newly constructed as part of the project. An analysis of applicability for these rules is provided in the following subsections.

3.4.1 NESHAP for Stationary Combustion Turbines (40 CFR 63, Subpart YYYY)

This regulation establishes emissions and operating limitations for formaldehyde from existing, reconstructed, or new stationary combustion turbines located at major stationary sources of HAP. As stated above, the combined major source (Sagamore Facility and cogeneration system) will remain classified as a major source of HAP after the construction of the Cogen Project. Therefore, the proposed combustion turbines will be subject to the provisions of Subpart YYYY. Note that duct burners (even if part of a combustion turbine) are explicitly identified as not subject to this rule because they are considered steam generating units and, potentially, subject to other Part 63 standards. Therefore, the proposed HRSGs are not subject to this rule. Each turbine will be equipped with an oxidation catalyst capable of controlling emissions of formaldehyde. DTE will ensure that the emissions of formaldehyde from the combustion turbines do not exceed the emission limit of 91 ppbv as outlined in 40 CFR 63.6100 and Table 1 to Subpart YYYY. An FED-01 form for the proposed combustion turbines is included in Appendix A.

3.4.2 NESHAP for Boiler and Process Heaters (40 CFR 63, Subpart DDDDD)

This regulation establishes emission limitations, operating limits, and work practice standards for new, reconstructed, and existing boilers and process heaters at major sources of HAP that are not otherwise already subject to another Part 63 NESHAP. Per 40 CFR 63.7575, a waste heat boiler is defined as a device that recovers normally unused energy (e.g. hot exhaust gases from power equipment such as a combustion turbine) and converts it to usable heat. The definition goes on to state waste heat boilers are also referred to as HRSGs. Given that waste heat boilers are excluded from the 40 CFR 63.7575 definition of a boiler and consistent with the U.S EPA's guidance on applicability⁴, the HRSG units are not subject to this regulation.

3.5 Compliance Assurance Monitoring (40 CFR 64)

Under 40 CFR 64, the Compliance Assurance Monitoring (CAM) regulations, sources are required to prepare and submit monitoring plans for certain emission units with a Title V application. The CAM plans are intended to document methods that will provide on-going and reasonable assurance of compliance with emission limits. Pursuant to 40 CFR 64.2(a), CAM regulations apply to a pollutant-specific emissions unit (PSEU), as defined in 40 CFR 64.1, at a Title V source if the following criteria are met:

1. The PSEU is subject to an emission limitation or standard for the regulated pollutant, other than an emission limitation or standard that is exempt under 40 CFR 64.2(b),
2. the PSEU uses a control device as defined in 40 CFR 64.1 to achieve compliance with the emission limitation or standard, and
3. the PSEU has potential pre-controlled emissions of the applicable regulated air pollutant that are equal to or greater than Title V major source thresholds.

While each PSEU, the two CHP trains, use a control device to preclude PSD applicability for CO, potential pre-controlled emissions of CO from each PSEU are less than Title V major source thresholds. Additionally, while potential pre-controlled emissions of NO_x are greater than Title V major source thresholds for each PSEU, the CHP trains do not utilize a control device to preclude PSD applicability for NO_x. Therefore, since the above criteria are not met, CAM regulations do not apply to the proposed project. The requirements of CAM do not apply to pollutants regulated by emission limitations or standards under section 112 of the Act proposed by the Administrator after November 15, 1990, pursuant to 40 CFR 64.2(b)(1)(i).

3.6 State Regulatory Applicability

3.6.1 Source Modification (326 IAC 2-7-10.5)

Pursuant to 326 IAC 2-7-10.5(g), a Title V source proposing to construct new emission units, modify existing emission units, or otherwise modify the source as described in 326 IAC 2-7-10.5 must submit an application for a source modification approval unless the proposed project is exempt under 326 IAC 2-1.1-3. As shown in Table 3-2, the uncontrolled and unlimited PTE of NO_x and CO falls above the threshold requiring a significant source modification as defined in 326 IAC 2-7-10.5(g)(4). Therefore, a significant source modification is being requested.

⁴ Boiler MACT, 40 CFR 63 Subpart 5D, Questions and Answers (Revised 1/14/16)
- <https://www.epa.gov/sites/production/files/2016-09/documents/boilermactqanda.pdf>

Table 3-2 Uncontrolled and Unlimited Potential to Emit

Pollutant	New Sources' PTE (tpy)	Minor Source Modification Thresholds	Significant Source Modification Thresholds
CO	125.58	25	100
NO _x	234.51	10	25
VOC	12.60	10	25
PM	4.61	5	25
PM ₁₀	14.66	5	25
PM _{2.5}	14.66	5	25
SO ₂	0.61	10	25
Single HAP	0.40	-	10
Total HAPs	0.89	-	25

3.6.2 Permit Modification (326 IAC 2-7-12)

A permit modification is required for any revision to a Title V permit that cannot be accomplished under the provisions for administrative permit amendments contained in 326 IAC 2-7-11. Pursuant to 326 IAC 2-7-12(b)(1), a minor permit modification may only be used if certain criteria are satisfied. Because the proposed project will involve significant changes to existing monitoring, reporting, and recordkeeping requirements in a Part 70 permit, this application must be processed as a significant modification. Therefore, DTE requests the proposed project be incorporated into the facility’s Title V permit through a significant permit modification in an administratively separate Title V permit.

3.6.3 Continuous Monitoring of Emissions (326 IAC 3-5)

Consistent with federal requirements under 40 CFR 60 Subpart KKKK, DTE is not required to install continuous emissions monitoring (CEMS) and/or continuous parameter monitoring system (CPMS) for the proposed Cogen Project to demonstrate compliance with the NSPS requirements. Therefore, since no CEMS or CPMS will be installed, the proposed Cogen Project is not subject to the requirements of 326 IAC 3-5.

3.6.4 Particulate Emission Limitations for sources Indirect Heating (326 IAC 6-2)

Specific particulate limitations are required for sources of indirect heating outlined in 326 IAC 6-2-1. The HRSG units are indirect heaters and are therefore subject to the requirements of 326 IAC 6-2.

3.6.5 Particulate Emissions Limitations for Manufacturing Processes (326 IAC 6-3)

This rule establishes PM emission limitations for manufacturing processes located anywhere in the state. A manufacturing process is defined as any single or series of actions, operations, or treatments in which a mechanical, physical, or chemical transformation of material occurs that emits, or has the potential to emit, PM in the production of a product. The PM emission limitations are based on the process weight rate for the manufacturing process. However, “process weight” does not include liquid and gaseous fuels or combustion air, as defined in 326 IAC 1-2-59. Therefore, this rule does not apply to combustion turbines or HRSG units.

3.6.6 Fugitive Particulate Matter Emission Limitations (326 IAC 6-5)

The provisions of 326 IAC 6-5 are applicable to any new source of fugitive particulate matter emissions, located anywhere in the state, requiring a permit as set forth in 326 IAC 2, which has not received all necessary preconstruction approvals before December 13, 1985. Sources subject to the requirements of 326 IAC 6-5 are required to submit a fugitive particulate matter emission control plan in accordance with 326 IAC 6-5-5 and 326 IAC 6-5-3. The Sagamore Facility has potential fugitive particulate matter emissions greater than 25 tpy; therefore, the requirements of 326 IAC 6-5 are applicable. However, the proposed cogeneration system does not have potential fugitive particulate matter emissions. Therefore, the fugitive dust from the Sagamore Facility will continue to be controlled according to the Sagamore Facility's fugitive dust control plan.

3.6.7 Sulfur Dioxide Emission Limitations (326 IAC 7-1.1)

The provisions of 326 IAC 7-1.1 apply to all emission units with a potential to emit 25 tpy or 10 pounds per hour of SO₂. All of the proposed new emission units individually have a potential to emit of less than 25 tpy. Therefore, the proposed emission units are not subject to the requirements of 326 IAC 7-1.

3.6.8 New Facilities, General Reduction Requirements (326 IAC 8-1-6)

The provisions of 326 IAC 8-1-6 are applicable to new facilities as of January 1, 1980, that have potential emissions of 25 tpy or more of VOC, are located anywhere in the state, and are not otherwise regulated by another Article 8 rule. Each individual combustion turbine and HRSG unit has potential emissions less than 25 tpy of VOC. Therefore, the requirements of 326 IAC 8-1-6 are not applicable to these units.

3.6.9 Carbon Monoxide Emission Limits (326 IAC 9-1)

The source is potentially subject to 326 IAC 9-1 because it is a stationary source of CO emissions commencing operation after March 21, 1972. However, there are no applicable CO emission limits under this state rule established for this type of operation; therefore, no requirements apply.

3.6.10 NOx Emission from Large Affected Units (326 IAC 10-2)

Under 326 IAC 10-2-1(b)(1)(C), a cogeneration unit that has a maximum design heat input capacity of greater than 250 MMBtu per hour commencing operation on or after January 1, 1999 and not subject to the Acid Rain Program is subject to the NOx monitoring, record keeping, and reporting requirements pursuant to 326 IAC 10-2-3(a). Each cogeneration unit, PH #1 and PH #2, has a heat input capacity of 279 MMBtu/hr and operation will begin after January 1, 1999. Therefore, the cogeneration units are subject to this rule.

Pursuant to 326 IAC 10-2-8.5 for alternative monitoring a reporting, owners and operators of a large affected unit subject to this rule may use an alternative monitoring method and comply with the reporting requirements established in an operating permit in lieu of the requirements in Sections 3 through 8 of 326 IAC 10-2. In lieu of installing a continuous emissions monitoring device, DTE requests that the alternative method in 326 IAC 10-2-8.5(c)(1)(D) be included in the operating permit.

Pursuant to 326 IAC 10-2-8.5(c)(2), DTE will install a meter upstream from each duct burner to monitor the fuel usage from the duct burners and the vendor will supply a fuel-monitoring meter for each turbine. All meters will be capable of continuously monitoring fuel usage and will be maintained according to the manufacturer's specifications. In the event that a meter is not working properly or undergoing maintenance, DTE will either assume the most recent fuel usage reading or the maximum fuel usage rate according to the maximum heat input capacity to estimate NOx emissions until the meter is up and running again.

Pursuant to 326 IAC 10-2-8.5(c)(3), monitored fuel usage data will be reported in accordance with Section (e) of this rule.

Per 10-2-8.5(c)(4), an emission factor analysis evaluating potential emission factors in pounds of NOx per unit of fuel and heat input is required if the alternative monitoring method in 326 IAC 10-2-8.5(c)(1)(D) is used. DTE requests the NOx emission factor be determined based on the vendor-provided NOx emission guarantees for the cogeneration units, pursuant to 10-2-8.5(c)(4)(D).

Monitoring and annual reporting of ozone control period NOx emissions in accordance with 40 CFR 60 is not being requested as a part of this application. Therefore, section 10-2-8.5(c)(5) of this rule is not applicable to this facility.

Pursuant to 326 IAC 10-2-8.5(c)(6), monitoring of NOx emissions will begin immediately upon startup of the cogeneration units to ensure that there are no gaps in data collection.

APPENDIX A. STATE FORMS



AIR PERMIT APPLICATION COVER SHEET
 State Form 50639 (R4 / 1-10)
 INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
 100 N. Senate Avenue, MC 61-53 Room 1003
 Indianapolis, IN 46204-2251
 Telephone: (317) 233-0178 or
 Toll Free: 1-800-451-6027 x30178 (within Indiana)
 Facsimile Number: (317) 232-6749
www.IN.gov/idem

- NOTES:**
- The purpose of this cover sheet is to obtain the core information needed to process the air permit application. This cover sheet is required for all air permit applications submitted to IDEM, OAQ. Place this cover sheet on top of all subsequent forms and attachments that encompass your air permit application packet.
 - Submit the completed air permit application packet, including all forms and attachments, to **IDEM Air Permits Administration** using the address in the upper right hand corner of this page.
 - IDEM will send a bill to collect the filing fee and any other applicable fees.
 - Detailed instructions for this form are available on the Air Permit Application Forms website.

FOR OFFICE USE ONLY

PERMIT NUMBER:

DATE APPLICATION WAS RECEIVED:

Received by State of Indiana IDEM-
 OAQ via email July 2, 2024 MJ-1

1. Tax ID Number: _____

PART A: Purpose of Application

Part A identifies the purpose of this air permit application. For the purposes of this form, the term "source" refers to the plant site as a whole and NOT to individual emissions units.

2. Source / Company Name: DTE Energy Services **3. Plant ID:** —

4. Billing Address: 400 Walker Cisler Building, One Energy Plaza

City: Detroit **State:** MI **ZIP Code:** 48226

5. Permit Level: Exemption Registration SSOA MSOP FESOP TVOP PBR

6. Application Summary: Check all that apply. Multiple permit numbers may be assigned as needed based on the choices selected below.

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> Initial Permit | <input type="checkbox"/> Renewal of Operating Permit | <input type="checkbox"/> Asphalt General Permit |
| <input type="checkbox"/> Review Request | <input type="checkbox"/> Revocation of Operating Permit | <input type="checkbox"/> Alternate Emission Factor Request |
| <input type="checkbox"/> Interim Approval | <input type="checkbox"/> Relocation of Portable Source | <input type="checkbox"/> Acid Deposition (Phase II) |
| <input type="checkbox"/> Site Closure | <input type="checkbox"/> Emission Reduction Credit Registry | |

Transition (between permit levels) *From:* _____ *To:* _____

- Administrative Amendment: Company Name Change Change of Responsible Official
- Correction to Non-Technical Information Notice Only Change
- Other (specify): _____

- Modification: New Emission Unit or Control Device Modified Emission Unit or Control Device
- New Applicable Permit Requirement Change to Applicability of a Permit Requirement
- Prevention of Significant Deterioration Emission Offset MACT Preconstruction Review
- Minor Source Modification Significant Source Modification
- Minor Permit Modification Significant Permit Modification
- Other (specify): _____

7. Is this an application for an initial construction and/or operating permit for a "Greenfield" Source? Yes No

8. Is this an application for construction of a new emissions unit at an Existing Source? Yes No

PART B: Pre-Application Meeting

Part B specifies whether a meeting was held or is being requested to discuss the permit application.

9. Was a meeting held between the company and IDEM prior to submitting this application to discuss the details of the project?

No Yes: Date: 2/26/2024

10. Would you like to schedule a meeting with IDEM management and your permit writer to discuss the details of this project?

No Yes: Proposed Date for Meeting:

PART C: Confidential Business Information

Part C identifies permit applications that require special care to ensure that confidential business information is kept separate from the public file.

Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in the Indiana Administrative Code (IAC). To ensure that your information remains confidential, refer to the IDEM, OAQ information regarding submittal of confidential business information. For more information on confidentiality for certain types of business information, please review IDEM's Nonrule Policy Document Air-031-NPD regarding Emission Data.

11. Is any of the information contained within this application being claimed as **Confidential Business Information**?

No Yes


PART D: Certification Of Truth, Accuracy, and Completeness

Part D is the official certification that the information contained within the air permit application packet is truthful, accurate, and complete. Any air permit application packet that we receive without a signed certification will be deemed incomplete and may result in denial of the permit.

For a Part 70 Operating Permit (TVOP) or a Source Specific Operating Agreement (SSOA), a "responsible official" as defined in 326 IAC 2-7-1(34) must certify the air permit application. For all other applicants, this person is an "authorized Individual" as defined in 326 IAC 2-1.1-1(1).

I certify under penalty of law that, based on information and belief formed after reasonable inquiry, the statements and information contained in this application are true, accurate, and complete.

Douglas R Cash
Name (typed)


Signature

Vice-President On-Site Energy
Title

7/1/2024
Date



OAQ GENERAL SOURCE DATA APPLICATION

GSD-01: Basic Source Level Information

State Form 50640 (R5 / 1-10)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53 Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.IN.gov/idem

Received by State of Indiana IDEM-OAQ
via email July 2, 2024 MJ-1

NOTES:

- The purpose of GSD-01 is to provide essential information about the entire source of air pollutant emissions. GSD-01 is a required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record, available for public inspection.

PART A: Source / Company Location Information

1. Source / Company Name: DTE Energy Services		2. Plant ID: –	
3. Location Address: 2245 North Sagamore Parkway			
City: Lafayette	State: IN	ZIP Code: 47904 –	
4. County Name: Tippecanoe		5. Township Name: Fairfield	
6. Geographic Coordinates:			
Latitude: 40.441422		Longitude: -86.858768	
7. Universal Transferal Mercadum Coordinates (if known):			
Zone:	Horizontal:	Vertical:	
8. Adjacent States: Is the source located within 50 miles of an adjacent state? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – <i>Indicate Adjacent State(s):</i> <input checked="" type="checkbox"/> Illinois (IL) <input type="checkbox"/> Michigan (MI) <input type="checkbox"/> Ohio (OH) <input type="checkbox"/> Kentucky (KY)			
9. Attainment Area Designation: Is the source located within a non-attainment area for any of the criteria air pollutants? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes – <i>Indicate Nonattainment Pollutant(s):</i> <input type="checkbox"/> CO <input type="checkbox"/> Pb <input type="checkbox"/> NO _x <input type="checkbox"/> O ₃ <input type="checkbox"/> PM <input type="checkbox"/> PM ₁₀ <input type="checkbox"/> PM _{2.5} <input type="checkbox"/> SO ₂			
10. Portable / Stationary: Is this a portable or stationary source? <input type="checkbox"/> Portable <input checked="" type="checkbox"/> Stationary			

PART B: Source Summary

11. Company Internet Address (optional):
12. Company Name History: Has this source operated under any other name(s)? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes – <i>Provide information regarding past company names in Part I, Company Name History.</i>
13. Portable Source Location History: Will the location of the portable source be changing in the near future? <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> No <input type="checkbox"/> Yes – <i>Complete Part J, Portable Source Location History, and Part K, Request to Change Location of Portable Source.</i>
14. Existing Approvals: Have any exemptions, registrations, or permits been issued to this source? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes – <i>List these permits and their corresponding emissions units in Part M, Existing Approvals.</i>
15. Unpermitted Emissions Units: Does this source have any unpermitted emissions units? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes – <i>List all unpermitted emissions units in Part N, Unpermitted Emissions Units.</i>
16. New Source Review: Is this source proposing to construct or modify any emissions units? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes – <i>List all proposed new construction in Part O, New or Modified Emissions Units.</i>
17. Risk Management Plan: Has this source submitted a Risk Management Plan? <input checked="" type="checkbox"/> Not Required <input type="checkbox"/> No <input type="checkbox"/> Yes → Date submitted: _____ EPA Facility Identifier: – –

PART C: Source Contact Information

IDEM will send the original, signed permit decision to the person identified in this section. This person MUST be an employee of the permitted source.

18. Name of Source Contact Person: Scott Klipa

19. Title (optional): Principal Environmental Engineer

20. Mailing Address: 400 Walker Cisler Building, One Energy Plaza

City: Detroit

State: MI

ZIP Code: 48226 –

21. Electronic Mail Address (optional): scott.klipa@dteenergy.com

22. Telephone Number: (313) 548 – 8190

23. Facsimile Number (optional): () –

PART D: Authorized Individual/Responsible Official Information

IDEM will send a copy of the permit decision to the person indicated in this section, if the Authorized Individual or Responsible Official is different from the Source Contact specified in Part C.

24. Name of Authorized Individual or Responsible Official: Douglas R Cash

25. Title: Vice-President On-Site Energy

26. Mailing Address: 400 Walker Cisler Building, One Energy Plaza

City: Detroit

State: MI

ZIP Code: 48226 –

27. Telephone Number: (734) 548 – 0976

28. Facsimile Number (optional): () –

29. Request to Change the Authorized Individual or Responsible Official: Is the source officially requesting to change the person designated as the Authorized Individual or Responsible Official in the official documents issued by IDEM, OAQ? *The permit may list the title of the Authorized Individual or Responsible Official in lieu of a specific name.*

No Yes – **Change Responsible Official to:**

PART E: Owner Information

30. Company Name of Owner: DTE Energy Services

31. Name of Owner Contact Person: DTE Energy Services

32. Mailing Address: 400 Walker Cisler Building, One Energy Plaza

City: Detroit

State: MI

ZIP Code: 48226 –

33. Telephone Number: (734) 302 – 4800

34. Facsimile Number (optional): () –

34. Operator: Does the "Owner" company also operate the source to which this application applies?

No – *Proceed to Part F below.* Yes – *Enter "SAME AS OWNER" on line 35 and proceed to Part G below.*

PART F: Operator Information

35. Company Name of Operator: SAME AS OWNER

36. Name of Operator Contact Person:

37. Mailing Address:

City:

State:

ZIP Code: –

38. Telephone Number: () –

39. Facsimile Number (optional): () –

PART G: Agent Information

40. Company Name of Agent: Trinity Consultants		
41. Type of Agent: <input checked="" type="checkbox"/> Environmental Consultant <input type="checkbox"/> Attorney <input type="checkbox"/> Other (specify):		
42. Name of Agent Contact Person: Kayla Reiser		
43. Mailing Address: 8900 Keystone Crossing, Suite 1070		
City: Indianapolis	State: IN	ZIP Code: 46240 –
44. Electronic Mail Address (optional): kreiser@trinityconsultants.com		
45. Telephone Number: (317) 451 – 8102	46. Facsimile Number (optional): () –	
47. Request for Follow-up: Does the “Agent” wish to receive a copy of the preliminary findings during the public notice period (if applicable) and a copy of the final determination? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		

PART H: Local Library Information

48. Date application packet was filed with the local library: Within 10 days of application submittal		
49. Name of Library: Tippecanoe County Public Library		
50. Name of Librarian (optional):		
51. Mailing Address: 627 South Street		
City: Lafayette	State: IN	ZIP Code: 47901 –
52. Internet Address (optional): http://tcpl.lib.in.us		
53. Electronic Mail Address (optional):		
54. Telephone Number: (765) 429 – 0100	55. Facsimile Number (optional): () –	

PART I: Company Name History (if applicable)

Complete this section only if the source has previously operated under a legal name that is different from the name listed above in Section A.

56. Legal Name of Company	57. Dates of Use
N/A	to
	to
	to
	to
	to
	to
	to
	to
	to
	to
	to
58. Company Name Change Request: Is the source officially requesting to change the legal name that will be printed on all official documents issued by IDEM, OAQ? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes – Change Company Name to:	

PART J: Portable Source Location History (if applicable)

Complete this section only if the source is portable and the location has changed since the previous permit was issued. The current location of the source should be listed in Section A.

59. Plant ID	60. Location of the Portable Source	61. Dates at this Location
-	N/A	to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to
-		to

PART K: Request to Change Location of Portable Source (if applicable)

Complete this section to request a change of location for a portable source.

62. Current Location:		
Address: N/A		
City:	State:	ZIP Code: -
County Name:		
63. New Location:		
Address: N/A		
City:	State:	ZIP Code: -
County Name:		

PART L: Source Process Description

Complete this section to summarize the main processes at the source.

64. Process Description	65. Products	66. SIC Code	67. NAICS Code
Electric Generation	Electricity	4911	221112

PART M: Existing Approvals (if applicable)

Complete this section to summarize the approvals issued to the source since issuance of the main operating permit.

68. Permit ID	69. Emissions Unit IDs	70. Expiration Date
	NA	

PART N: Unpermitted Emissions Units (if applicable)

Complete this section only if the source has emission units that are not listed in any permit issued by IDEM, OAQ.

71. Emissions Unit ID	72. Type of Emissions Unit	73. Actual Dates		
		Began Construction	Completed Construction	Began Operation
	N/A			

PART O: New or Modified Emissions Units (if applicable)

Complete this section only if the source is proposing to add new emission units or modify existing emission units.

74. Emissions Unit ID	75. NEW	76. MOD	77. Type of Emissions Unit	78. Estimated Dates		
				Begin Construction	Complete Construction	Begin Operation
			See application narrative			



**OAQ FEDERAL RULE INCORPORATION APPLICATION
FED-01: Summary of Federal Requirements – NSPS &
NESHAP**

State Form 53512 (R / 1-10)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
100 N. Senate Avenue, MC 61-53, Room 1003
Indianapolis, IN 46204-2251
Telephone: (317) 233-0178 or
Toll Free: 1-800-451-6027 x30178 (within Indiana)
Facsimile Number: (317) 232-6749
www.in.gov/idem

NOTES:

- The purpose of this form is to provide a standardized way for sources to identify the NSPS or NESHAP requirements that are applicable to the regulated source. Complete one (1) form for each federal rule that applies to the source. This is a required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record.

Part A: Identification of Applicable Standard

Part A identifies the applicable standard and affected source.

1. Type of Standard:	<input type="checkbox"/> Part 60 NSPS	<input type="checkbox"/> Part 61 NESHAP	<input checked="" type="checkbox"/> Part 63 NESHAP (MACT)
2. Subpart Letter:	YYYY		
3. Source Category Name:	Stationary Combustion Turbines		
4. Affected Source <i>(Include all applicable emission unit IDs):</i>	Two (2) Combustion Turbine Generators		

Part B: Applicable Requirements

Part B specifies the specific requirements of the federal rule that are applicable to the process or emission unit.

5. Applicable Requirements: *Identify the section of the federal standard that is applicable at the lowest subsection level. For example, if all of 40 CFR 63.342(c) is applicable, "40 CFR 63.342(c)" is the appropriate citation. If only paragraph 2 of 40 CFR 63.342(c) is applicable, then the appropriate citation is 40 CFR 63.342(c)(2).*

- | | | |
|------------------------|---|---------------------------|
| • 63.6080 | • 63.6135 | • Table 5 (item 1) |
| • 63.6085 | • 63.6140(a), (b) | • Table 6 (items 1 and 3) |
| • 63.6090(a)(2) | • 63.6145(a), (c), (e), (f) | • Table 7 |
| • 63.6092 | • 63.6150(a)(1)-(3), (a)(5), (b), (d)-(i) | • |
| • 63.6095(a)(4), (c) | • 63.6155(a)(1)-(2),(a)(5)-(7), (b)-(d) | • |
| • 63.6100 | • 63.6160 | • |
| • 63.6105(a), (c) | • 63.6165 | • |
| • 63.6110 | • 63.6170 | • |
| • 63.6115 | • 63.6175 | • |
| • 63.6120(a)-(d) | • Table 1 | • |
| • 63.6125(a), (d), (e) | • Table 2 (item 1) | • |
| • 63.6130 | • Tables 3, 4 | |

Part C: Performance Testing Requirements

Part C identifies the performance testing requirements that are applicable to the process or emission unit.

6. Performance Testing:	Per 40 CFR 63.6110 and 40 CFR 63.6115
7. Date of Initial Performance Test:	N/A
8. Test Methods:	Per 40 CFR 63.6120
9. Was the initial performance test approved by IDEM?	<input type="checkbox"/> Yes: <i>Date approved:</i> _____ <input type="checkbox"/> No
10. Did the initial performance test show compliance with the rule?	<input type="checkbox"/> Yes <input type="checkbox"/> No: <i>Date of next performance test:</i> _____

Part D: Important Dates

Part D identifies specific dates associated with the federal standard that are applicable to the process or emission unit.

11. Date Initial Notification was Submitted:	TBD
12. Initial Compliance Date:	<input checked="" type="checkbox"/> Startup: TBD <input type="checkbox"/> Other: _____
13. Other Dates	Description: _____ Date: _____
	Description: _____ Date: _____
	Description: _____ Date: _____

Part E: Other Information

Part E identifies any additional information pertaining to the applicable federal rule. Attach additional information using form GSD-09 as necessary.

N/A



OAQ FEDERAL RULE INCORPORATION APPLICATION
FED-01: Summary of Federal Requirements – NSPS & NESHAP

State Form 53512 (R / 1-10)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

IDEM – Office of Air Quality – Permits Branch
 100 N. Senate Avenue, MC 61-53, Room 1003
 Indianapolis, IN 46204-2251
 Telephone: (317) 233-0178 or
 Toll Free: 1-800-451-6027 x30178 (within Indiana)
 Facsimile Number: (317) 232-6749
 www.in.gov/idem

NOTES:

- The purpose of this form is to provide a standardized way for sources to identify the NSPS or NESHAP requirements that are applicable to the regulated source. Complete one (1) form for each federal rule that applies to the source. This is a required form.
- Detailed instructions for this form are available on the Air Permit Application Forms website.
- All information submitted to IDEM will be made available to the public unless it is submitted under a claim of confidentiality. Claims of confidentiality must be made at the time the information is submitted to IDEM, and must follow the requirements set out in 326 IAC 17.1-4-1. Failure to follow these requirements exactly will result in your information becoming a public record.

Part A: Identification of Applicable Standard

Part A identifies the applicable standard and affected source.

1. Type of Standard:	<input checked="" type="checkbox"/> Part 60 NSPS	<input type="checkbox"/> Part 61 NESHAP	<input type="checkbox"/> Part 63 NESHAP (MACT)
2. Subpart Letter:	KKKK		
3. Source Category Name:	Standards for Performance for Stationary Combustion Turbines		
4. Affected Source <i>(Include all applicable emission unit IDs):</i>	Two (2) Combustion Turbine Generators and two (2) associated HRSG units		

Part B: Applicable Requirements

Part B specifies the specific requirements of the federal rule that are applicable to the process or emission unit.

5. Applicable Requirements: *Identify the section of the federal standard that is applicable at the lowest subsection level. For example, if all of 40 CFR 63.342(c) is applicable, "40 CFR 63.342(c)" is the appropriate citation. If only paragraph 2 of 40 CFR 63.342(c) is applicable, then the appropriate citation is 40 CFR 63.342(c)(2).*

- | | | |
|---------------------|--------------------------------------|---|
| • 60.4300 | • 60.4395 | • |
| • 60.4305 | • 60.4400(a)(1)-(2), (a)(3)(i), | • |
| • 60.4315 | (a)(3)(ii)(A), (a)(3)(ii)(C),(b)(2), | • |
| • 60.4320(a) | (b)(4), (b)(6) | • |
| • 60.4330(a)(1)-(2) | • 60.4415(a) | • |
| • 60.4333 | • 60.4420 | • |
| • 60.4340(a) | • Table 1 | • |
| • 60.4360 | • | • |
| • 60.4365 | • | • |
| • 60.4370(b),(c) | • | • |
| • 60.4375(b) | • | • |
| • 60.4385(a),(c) | • | • |
| | • | |
| | • | |

Part C: Performance Testing Requirements

Part C identifies the performance testing requirements that are applicable to the process or emission unit.

6. Performance Testing:	See 60.4400 for NOx and 60.4415 for SO2
7. Date of Initial Performance Test:	
8. Test Methods:	See 60.4400 for NOx and 60.4415 for SO2
9. Was the initial performance test approved by IDEM?	<input type="checkbox"/> Yes: <i>Date approved:</i> _____ <input type="checkbox"/> No
10. Did the initial performance test show compliance with the rule?	<input type="checkbox"/> Yes <input type="checkbox"/> No: <i>Date of next performance test:</i> _____

Part D: Important Dates

Part D identifies specific dates associated with the federal standard that are applicable to the process or emission unit.

11. Date Initial Notification was Submitted:	
12. Initial Compliance Date:	<input checked="" type="checkbox"/> Startup: TBD <input type="checkbox"/> Other: _____
13. Other Dates	Description: _____ Date: _____
	Description: _____ Date: _____
	Description: _____ Date: _____

Part E: Other Information

Part E identifies any additional information pertaining to the applicable federal rule. Attach additional information using form GSD-09 as necessary.

N/A

APPENDIX B. EMISSION CALCULATIONS

**Appendix B: Emission Calculations
PSD Applicability**

**Company Name: DTE Energy Services
Address: 2245 North Sagamore Parkway, Lafayette, IN 47904**

Background:

These calculations are the basis for the PSD applicability determination.

Methodology:

A project at an existing major source will be subject to PSD review for each pollutant that results in a significant emissions increase and a significant net emissions increase. Project emissions accounting was used to determine whether or not this project results in a significant emissions increase. Since this project does not result in a significant emissions increase, PSD permitting is not applicable.

Source-Wide Project Decreases

Pollutant	Shut Down Units		
	BAE ¹ (tpy)	Projected Emissions (tpy)	Increase / Decrease (tpy)
CO	15.31	0.00	-15.31
NOX	93.03	0.00	-93.03
VOC	4.34	0.00	-4.34
PM	1.50	0.00	-1.50
PM ₁₀	5.99	0.00	-5.99
PM _{2.5}	5.99	0.00	-5.99
SO ₂	0.47	0.00	-0.47

PSD Applicability Determination - Project Emissions Accounting

Pollutant	New Sources' PTE (tpy)	Shut Down Units (tpy)	Total Em. Increase (tpy)	PSD SER ² (tpy)	Exceed the SER? Yes/No
CO	82.62	-15.31	67.30	100	No
NO _x	130.09	-93.03	37.05	40	No
VOC	12.60	-4.34	8.26	40	No
PM	4.61	-1.50	3.11	25	No
PM ₁₀	14.66	-5.99	8.67	15	No
PM _{2.5}	14.66	-5.99	8.67	10	No
SO ₂	0.61	-0.47	0.13	40	No
H ₂ SO ₄	0.06	0.00	0.06	7	No

Notes:

1. See baseline emission calculations for individual emission units in other tabs in this spreadsheet.
2. PSD Significant Emission Rate (SER) as defined in 326 IAC 2-2-1(ww).

**Appendix B: Emission Calculations
Source Modification Summary**

Company Name: DTE Energy Services
Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

Source Modification Applicability

Pollutant	New Sources ¹ PTE (tpy)	Minor Source Modification Thresholds ¹	Significant Source Modification Thresholds ²
CO	125.58	25	100
NO _x	234.51	10	25
VOC	12.60	10	25
PM	4.61	5	25
PM ₁₀	14.66	5	25
PM _{2.5}	14.66	5	25
SO ₂	0.61	10	25
Single HAP	0.40	-	10
Total HAPs	0.89	-	25

1. Per 326 IAC 2-7-10.5(e).
2. Per 326 IAC 2-7-10.5(g).

Major Source Applicability

Emission Unit	Uncontrolled/Limited Facility-Wide Emissions (tpy)								
	PM	PM ₁₀	PM _{2.5}	SO ₂	NO _x	VOC	CO	Single HAP	Total HAPs
Facility-Wide Emissions Prior to Cogen Project ¹	319.78	334.33	207.79	179.47	574.51	237.66	332.38	28.39	73.59
Emissions from Cogen Project	4.61	14.66	14.66	0.61	130.09	12.60	125.58	0.40	0.89
Total	324.39	348.99	222.45	180.08	704.60	250.26	457.96	28.79	74.48
Title V Major Source Thresholds	NA	100	100	100	100	100	100	10	25
PSD Major Source Thresholds	250	250	250	250	250	250	250	NA	NA

1. Facility wide emissions from page 7 of 17 of the TSD for SPM No. 157-47222-0002.

Appendix B: Emission Calculations
BAE - Source Wide

Company Name: DTE Energy Services
Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

Actual Emissions - Combined Units to be Shut Down

Methodology:

The Baseline Actual Emissions (BAE) is the average rate, in tons per year (tpy), at which the units actually emitted the regulated NSR pollutant during any consecutive 24-month period within the 5-year period immediately preceding the date that a complete permit application is received by the agency or an alternative representative time period.

The calculations below determine the monthly pollutant emissions from all existing sources affected by the project to be used in determining the BAE.

BAE Calculations:

The 24-month rolling averages are calculated using the following equation:

24-Month Rolling Average:

$$E_{24\text{-month}} = \frac{\sum_{i=1}^N E_{1,i}}{2}$$

where,

$E_{24\text{-month}}$ = 24-month rolling yearly average pollutant emissions, tons

$E_{1,i}$ = Sum of monthly pollutant emissions from Boilers 11B2, 11B3, and 31B1, tons

N = preceding 24 months

Combined Monthly Emissions Summary

Year	Month	Monthly Summaries							24-Month Rolling Average						
		PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO	PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO
		(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)
2019	December	0.06	0.25	0.25	2.00E-02	6.47	0.18	1.65	-	-	-	-	-	-	-
2020	January	0.07	0.29	0.29	2.32E-02	6.77	0.21	1.62	-	-	-	-	-	-	-
	February	0.12	0.48	0.48	3.75E-02	7.10	0.34	1.09	-	-	-	-	-	-	-
	March	0.14	0.57	0.57	4.47E-02	7.96	0.41	1.10	-	-	-	-	-	-	-
	April	0.08	0.30	0.30	2.41E-02	6.04	0.22	1.29	-	-	-	-	-	-	-
	May	0.12	0.50	0.50	3.91E-02	6.61	0.36	0.82	-	-	-	-	-	-	-
	June	0.10	0.41	0.41	3.27E-02	5.51	0.30	0.68	-	-	-	-	-	-	-
	July	0.11	0.43	0.43	3.37E-02	5.70	0.31	0.71	-	-	-	-	-	-	-
	August	0.09	0.37	0.37	2.91E-02	5.45	0.27	0.82	-	-	-	-	-	-	-
	September	0.08	0.32	0.32	2.51E-02	5.44	0.23	1.01	-	-	-	-	-	-	-
	October	0.09	0.35	0.35	2.74E-02	5.85	0.25	1.06	-	-	-	-	-	-	-
	November	0.12	0.50	0.50	3.94E-02	6.70	0.36	0.85	-	-	-	-	-	-	-
	December	0.12	0.48	0.48	3.82E-02	7.84	0.35	1.35	-	-	-	-	-	-	-
2021	January	0.13	0.52	0.52	4.10E-02	7.72	0.38	1.17	-	-	-	-	-	-	-
	February	0.12	0.49	0.49	3.84E-02	6.59	0.35	0.84	-	-	-	-	-	-	-
	March	0.11	0.42	0.42	3.33E-02	8.23	0.30	1.74	-	-	-	-	-	-	-
	April	0.11	0.42	0.42	3.33E-02	7.08	0.31	1.28	-	-	-	-	-	-	-
	May	0.11	0.46	0.46	3.62E-02	6.15	0.33	0.77	-	-	-	-	-	-	-
	June	0.10	0.39	0.39	3.07E-02	5.59	0.28	0.80	-	-	-	-	-	-	-
	July	0.10	0.41	0.41	3.26E-02	5.54	0.30	0.70	-	-	-	-	-	-	-
	August	0.10	0.39	0.39	3.08E-02	5.40	0.28	0.72	-	-	-	-	-	-	-
	September	0.10	0.41	0.41	3.26E-02	5.57	0.30	0.71	-	-	-	-	-	-	-
	October	0.09	0.38	0.38	2.98E-02	9.42	0.27	2.38	-	-	-	-	-	-	-
	November	0.14	0.56	0.56	4.38E-02	8.38	0.40	1.31	1.26	5.05	5.05	0.40	79.55	3.65	13.24
	December	0.15	0.61	0.61	4.78E-02	9.31	0.44	1.50	1.31	5.22	5.22	0.41	80.98	3.78	13.16
2022	January	0.16	0.62	0.62	4.92E-02	9.87	0.45	1.65	1.35	5.39	5.39	0.43	82.53	3.90	13.18
	February	0.13	0.53	0.53	4.20E-02	7.80	0.39	1.16	1.35	5.41	5.41	0.43	82.88	3.92	13.21
	March	0.14	0.56	0.56	4.45E-02	8.46	0.41	1.31	1.35	5.41	5.41	0.43	83.13	3.92	13.32
	April	0.13	0.51	0.51	4.01E-02	7.45	0.37	1.11	1.38	5.51	5.51	0.44	83.84	3.99	13.22
	May	0.13	0.53	0.53	4.21E-02	7.66	0.39	1.10	1.38	5.53	5.53	0.44	84.36	4.00	13.37
	June	0.12	0.49	0.49	3.88E-02	8.45	0.36	1.57	1.39	5.57	5.57	0.44	85.83	4.03	13.81
	July	0.13	0.53	0.53	4.22E-02	7.24	0.39	0.93	1.41	5.63	5.63	0.44	86.60	4.07	13.92
	August	0.13	0.52	0.52	4.09E-02	6.95	0.38	0.87	1.43	5.70	5.70	0.45	87.35	4.13	13.95
	September	0.13	0.51	0.51	4.00E-02	6.87	0.37	0.88	1.45	5.80	5.80	0.46	88.07	4.19	13.88
	October	0.10	0.42	0.42	3.30E-02	8.94	0.30	2.03	1.46	5.83	5.83	0.46	89.61	4.22	14.37
	November	0.14	0.54	0.54	4.26E-02	7.89	0.39	1.17	1.46	5.85	5.85	0.46	90.21	4.23	14.53
	December	0.14	0.57	0.57	4.48E-02	8.39	0.41	1.27	1.47	5.89	5.89	0.47	90.48	4.27	14.49
2023	January	0.13	0.51	0.51	4.06E-02	7.12	0.37	0.95	1.47	5.89	5.89	0.47	90.19	4.26	14.38
	February	0.11	0.45	0.45	3.59E-02	6.26	0.33	0.83	1.47	5.88	5.88	0.46	90.02	4.25	14.37
	March	0.12	0.49	0.49	3.86E-02	8.44	0.35	1.58	1.48	5.91	5.91	0.47	90.13	4.28	14.29
	April	0.10	0.41	0.41	3.21E-02	5.67	0.29	0.77	1.48	5.90	5.90	0.47	89.42	4.27	14.03
	May	0.11	0.42	0.42	3.33E-02	5.64	0.31	0.70	1.47	5.88	5.88	0.46	89.16	4.26	14.00
	June	0.11	0.45	0.45	3.52E-02	5.97	0.32	0.75	1.48	5.91	5.91	0.47	89.36	4.28	13.97
	July	0.11	0.45	0.45	3.54E-02	6.09	0.32	0.79	1.48	5.93	5.93	0.47	89.63	4.29	14.02
	August	0.11	0.44	0.44	3.50E-02	5.92	0.32	0.74	1.49	5.96	5.96	0.47	89.90	4.31	14.02
	September	0.10	0.39	0.39	3.12E-02	11.84	0.29	3.28	1.49	5.95	5.95	0.47	93.03	4.30	15.31
	October	0.12	0.47	0.47	3.67E-02	6.44	0.34	0.86	1.50	5.99	5.99	0.47	91.54	4.34	14.55
	November	0.12	0.50	0.50	3.92E-02	6.58	0.36	0.80	1.49	5.96	5.96	0.47	90.64	4.31	14.30
	December	0.13	0.51	0.51	3.99E-02	6.69	0.37	0.81	1.48	5.91	5.91	0.47	89.33	4.28	13.96
24-Month Rolling Average Maximum Value -->									1.50	5.99	5.99	0.47	93.03	4.34	15.31

Appendix B: Emission Calculations
BAE - Boiler 11B2

Company Name: DTE Energy Services
 Address: North 2245 Sagamore Parkway, Lafayette, IN 47904

Methodology:

The Baseline Actual Emissions (BAE) is the average rate, in tons per year (tpy), at which the unit actually emitted the regulated NSR pollutant during any consecutive 24-month period within the 5-year period preceding the date that a complete permit application is received by the agency or an alternative representative time period.

The calculations below determine the monthly pollutant emissions from Boiler 11B2 burning natural gas to be used in determining the BAE.

Basis:

The monthly pollutant emissions are based on the information from AP-42 Section 1.4:

Criteria Pollutants

$$E = EF \times NG \text{ Usage} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}}$$

where,

E = emissions, tons
 EF = emission factor, lb/MMscf
 NG Usage = NG burned, MMscf

Emission Factors

Pollutant	Emission Factor (lb/MMscf) ¹
PM	1.9
PM ₁₀	7.6
PM _{2.5}	7.6
SO ₂	0.6
NO _x	280
VOC	5.5
CO	84

BAE Calculations:

The 24-month rolling averages are calculated using the following equation:

$$E_{24\text{-month}} = \frac{\sum_{i=1}^N E_i}{2}$$

where,

E_{24-month} = 24-month rolling yearly average pollutant emissions, tons
 E_i = project monthly pollutant emissions, tons
 N = preceding 24 months

Appendix B: Emission Calculations
BAE - Boiler 11B2

Company Name: DTE Energy Services

Address: North 2245 Sagamore Parkway, Lafayette, IN 47904

Reporting Year	Month	NG Usage (MMscf)	Monthly Summaries							24-Month Rolling Average						
			PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO	PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO
			(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)
2019	December	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	January	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	February	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	March	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	April	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	May	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	June	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	July	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	August	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	September	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	October	0.03	3.28E-05	1.31E-04	1.31E-04	1.03E-05	4.83E-03	9.48E-05	1.45E-03	-	-	-	-	-	-	-
	November	0.57	5.45E-04	2.18E-03	2.18E-03	1.72E-04	8.03E-02	1.58E-03	2.41E-02	-	-	-	-	-	-	-
	December	8.57	8.14E-03	3.26E-02	3.26E-02	2.57E-03	1.20E+00	2.36E-02	3.60E-01	-	-	-	-	-	-	-
2021	January	4.84	4.60E-03	1.84E-02	1.84E-02	1.45E-03	6.78E-01	1.33E-02	2.03E-01	-	-	-	-	-	-	
	February	0.85	8.08E-04	3.23E-03	3.23E-03	2.55E-04	1.19E-01	2.34E-03	3.57E-02	-	-	-	-	-	-	
	March	15.80	1.50E-02	6.00E-02	6.00E-02	4.74E-03	2.21E+00	4.35E-02	6.64E-01	-	-	-	-	-	-	
	April	8.73	8.29E-03	3.32E-02	3.32E-02	2.62E-03	1.22E+00	2.40E-02	3.66E-01	-	-	-	-	-	-	
	May	0.47	4.46E-04	1.79E-03	1.79E-03	1.41E-04	6.58E-02	1.29E-03	1.97E-02	-	-	-	-	-	-	
	June	2.64	2.51E-03	1.00E-02	1.00E-02	7.93E-04	3.70E-01	7.27E-03	1.11E-01	-	-	-	-	-	-	
	July	0.49	4.68E-04	1.87E-03	1.87E-03	1.48E-04	6.90E-02	1.36E-03	2.07E-02	-	-	-	-	-	-	
	August	1.25	1.19E-03	4.74E-03	4.74E-03	3.74E-04	1.75E-01	3.43E-03	5.24E-02	-	-	-	-	-	-	
	September	0.58	5.55E-04	2.22E-03	2.22E-03	1.75E-04	8.17E-02	1.61E-03	2.45E-02	-	-	-	-	-	-	
	October	25.70	2.44E-02	9.77E-02	9.77E-02	7.71E-03	3.60E+00	7.07E-02	1.08E+00	-	-	-	-	-	-	
	November	2.28	2.16E-03	8.65E-03	8.65E-03	6.83E-04	3.19E-01	6.26E-03	9.56E-02	3.46E-02	0.14	0.14	1.09E-02	5.10	0.10	1.53
	December	7.65	7.27E-03	2.91E-02	2.91E-02	2.29E-03	1.07E+00	2.10E-02	3.21E-01	3.82E-02	0.15	0.15	1.21E-02	5.63	0.11	1.69
2022	January	1.85	1.76E-03	7.04E-03	7.04E-03	5.56E-04	2.59E-01	5.10E-03	7.78E-02	3.91E-02	0.16	0.16	1.23E-02	5.76	0.11	1.73
	February	0.46	4.33E-04	1.73E-03	1.73E-03	1.37E-04	6.38E-02	1.25E-03	1.92E-02	3.93E-02	0.16	0.16	1.24E-02	5.79	0.11	1.74
	March	0.60	5.69E-04	2.27E-03	2.27E-03	1.80E-04	8.38E-02	1.65E-03	2.51E-02	3.96E-02	0.16	0.16	1.25E-02	5.84	0.11	1.75
	April	1.21	1.15E-03	4.59E-03	4.59E-03	3.63E-04	1.69E-01	3.32E-03	5.08E-02	4.02E-02	0.16	0.16	1.27E-02	5.92	0.12	1.78
	May	1.43	1.35E-03	5.42E-03	5.42E-03	4.28E-04	2.00E-01	3.92E-03	5.99E-02	4.09E-02	0.16	0.16	1.29E-02	6.02	0.12	1.81
	June	12.66	1.20E-02	4.81E-02	4.81E-02	3.80E-03	1.77E+00	3.48E-02	5.32E-01	4.69E-02	0.19	0.19	1.48E-02	6.91	0.14	2.07
	July	1.37	1.30E-03	5.19E-03	5.19E-03	4.10E-04	1.91E-01	3.76E-03	5.74E-02	4.75E-02	0.19	0.19	1.50E-02	7.00	0.14	2.10
	August	0.50	4.71E-04	1.88E-03	1.88E-03	1.49E-04	6.94E-02	1.36E-03	2.08E-02	4.78E-02	0.19	0.19	1.51E-02	7.04	0.14	2.11
	September	0.97	9.19E-04	3.67E-03	3.67E-03	2.90E-04	1.35E-01	2.66E-03	4.06E-02	4.82E-02	0.19	0.19	1.52E-02	7.10	0.14	2.13
	October	19.98	1.90E-02	7.59E-02	7.59E-02	5.99E-03	2.80E+00	5.49E-02	8.39E-01	5.77E-02	0.23	0.23	1.82E-02	8.50	0.17	2.55
	November	3.67	3.48E-03	1.39E-02	1.39E-02	1.10E-03	5.14E-01	1.01E-02	1.54E-01	5.92E-02	0.24	0.24	1.87E-02	8.72	0.17	2.62
	December	9.30	8.83E-03	3.53E-02	3.53E-02	2.79E-03	1.30E+00	2.56E-02	3.91E-01	5.95E-02	0.24	0.24	1.88E-02	8.77	0.17	2.63
2023	January	2.49	2.36E-03	9.45E-03	9.45E-03	7.46E-04	3.48E-01	6.84E-03	1.04E-01	5.84E-02	0.23	0.23	1.84E-02	8.60	0.17	2.58
	February	1.85	1.76E-03	7.03E-03	7.03E-03	5.55E-04	2.59E-01	5.09E-03	7.78E-02	5.89E-02	0.24	0.24	1.86E-02	8.67	0.17	2.60
	March	19.66	1.87E-02	7.47E-02	7.47E-02	5.90E-03	2.75E+00	5.41E-02	8.26E-01	6.07E-02	0.24	0.24	1.92E-02	8.94	0.18	2.68
	April	2.29	2.17E-03	8.70E-03	8.70E-03	6.87E-04	3.20E-01	6.29E-03	9.61E-02	5.76E-02	0.23	0.23	1.82E-02	8.49	0.17	2.55
	May	0.33	3.17E-04	1.27E-03	1.27E-03	1.00E-04	4.67E-02	9.18E-04	1.40E-02	5.76E-02	0.23	0.23	1.82E-02	8.48	0.17	2.55
	June	0.32	3.06E-04	1.22E-03	1.22E-03	9.66E-05	4.51E-02	8.85E-04	1.35E-02	5.65E-02	0.23	0.23	1.78E-02	8.32	0.16	2.50
	July	0.92	8.76E-04	3.50E-03	3.50E-03	2.77E-04	1.29E-01	2.54E-03	3.87E-02	5.67E-02	0.23	0.23	1.79E-02	8.35	0.16	2.51
	August	0.31	2.91E-04	1.16E-03	1.16E-03	9.20E-05	4.29E-02	8.43E-04	1.29E-02	5.62E-02	0.22	0.22	1.78E-02	8.29	0.16	2.49
	September	38.13	3.62E-02	1.45E-01	1.45E-01	1.14E-02	5.34E+00	1.05E-01	1.60E+00	7.41E-02	0.30	0.30	2.34E-02	10.91	0.21	3.27
	October	1.58	1.50E-03	6.00E-03	6.00E-03	4.74E-04	2.21E-01	4.35E-03	6.64E-02	6.26E-02	0.25	0.25	1.98E-02	9.23	0.18	2.77
	November	-	-	-	-	-	-	-	-	6.15E-02	0.25	0.25	1.94E-02	9.07	0.18	2.72
	December	-	-	-	-	-	-	-	-	5.79E-02	0.23	0.23	1.83E-02	8.53	0.17	2.56
2024	January	-	-	-	-	-	-	-	-	5.70E-02	0.23	0.23	1.80E-02	8.40	0.17	2.52
	February	-	-	-	-	-	-	-	-	5.68E-02	0.23	0.23	1.79E-02	8.37	0.16	2.51
	March	-	-	-	-	-	-	-	-	5.65E-02	0.23	0.23	1.78E-02	8.33	0.16	2.50
24-Month Rolling Average Maximum Value -->										0.07	0.30	0.30	0.02	10.91	0.21	3.27

Notes:

1. Emission factors are from USEPA, AP-42, Fifth Edition, Vol. 1. Chapter 1 "External Combustion Sources", Section 1.4 "Natural Gas Combustion". July 1998. Table 1.4-1 "Emission Factors for NOx and CO from Natural Gas Combustion".

a. Table 1.4-1 "Emission Factors for NOx and CO from Natural Gas Combustion".

b. Table 1.4-2 "Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion"

Appendix B: Emission Calculations
BAE - Boiler 11B3

Company Name: DTE Energy Services
Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

Methodology:

The Baseline Actual Emissions (BAE) is the average rate, in tons per year (tpy), at which the unit actually emitted the regulated NSR pollutant during any consecutive 24-month period within the 5-year period preceding the date that a complete permit application is received by the agency or an alternative representative time period.

The calculations below determine the monthly pollutant emissions from Boiler 11B3 burning natural gas to be used in determining the BAE.

Basis:

The monthly pollutant emissions are based on the information from AP-42 Section 1.4:

Criteria Pollutants

$$E = EF \times NG \text{ Usage} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}}$$

where,

E = emissions, tons

EF = emission factor, lb/MMscf

NG Usage = NG burned, MMscf

Emission Factors

Pollutant	Emission Factor (lb/MMscf-yr) ¹
PM	1.9
PM ₁₀	7.6
PM _{2.5}	7.6
SO ₂	0.6
NO _x	280
VOC	5.5
CO	84

BAE Calculations:

The 24-month rolling averages are calculated using the following equation:

$$E_{24\text{-month}} = \frac{\sum_{i=1}^N E_i}{2}$$

where,

E_{24-month} = 24-month rolling yearly average pollutant emissions, tons

E_i = project monthly pollutant emissions, tons

N = preceding 24 months

Appendix B: Emission Calculations
BAE - Boiler 11B3

Company Name: DTE Energy Services
Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

Reporting Year	Month	NG Usage	Monthly Summaries							24-Month Rolling Average						
			PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO	PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO
			(MIMscf)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)
2019	December	34.68	3.29E-02	1.32E-01	1.32E-01	1.04E-02	4.86E+00	9.54E-02	1.46E+00	-	-	-	-	-	-	-
2020	January	32.06	3.05E-02	1.22E-01	1.22E-01	9.62E-03	4.49E+00	8.82E-02	1.35E+00	-	-	-	-	-	-	-
	February	9.06	8.61E-03	3.44E-02	3.44E-02	2.72E-03	1.27E+00	2.49E-02	3.80E-01	-	-	-	-	-	-	-
	March	5.11	4.85E-03	1.94E-02	1.94E-02	1.53E-03	7.15E-01	1.40E-02	2.15E-01	-	-	-	-	-	-	-
	April	22.36	2.12E-02	8.50E-02	8.50E-02	6.71E-03	3.13E+00	6.15E-02	9.39E-01	-	-	-	-	-	-	-
	May	0.61	5.78E-04	2.31E-03	2.31E-03	1.83E-04	8.52E-02	1.67E-03	2.56E-02	-	-	-	-	-	-	-
	June	0.36	3.39E-04	1.36E-03	1.36E-03	1.07E-04	5.00E-02	9.81E-04	1.50E-02	-	-	-	-	-	-	-
	July	0.54	5.17E-04	2.07E-03	2.07E-03	1.63E-04	7.62E-02	1.50E-03	2.28E-02	-	-	-	-	-	-	-
	August	6.38	6.06E-03	2.42E-02	2.42E-02	1.91E-03	8.93E-01	1.75E-02	2.68E-01	-	-	-	-	-	-	-
	September	13.77	1.31E-02	5.23E-02	5.23E-02	4.13E-03	1.93E+00	3.79E-02	5.78E-01	-	-	-	-	-	-	-
	October	13.97	1.33E-02	5.31E-02	5.31E-02	4.19E-03	1.96E+00	3.84E-02	5.87E-01	-	-	-	-	-	-	-
	November	0.61	5.81E-04	2.32E-03	2.32E-03	1.83E-04	8.56E-02	1.68E-03	2.57E-02	-	-	-	-	-	-	-
	December	7.36	6.99E-03	2.80E-02	2.80E-02	2.21E-03	1.03E+00	2.02E-02	3.09E-01	-	-	-	-	-	-	-
2021	January	4.56	4.33E-03	1.73E-02	1.73E-02	1.37E-03	6.39E-01	1.25E-02	1.92E-01	-	-	-	-	-	-	-
	February	0.85	8.06E-04	3.22E-03	3.22E-03	2.54E-04	1.19E-01	2.33E-03	3.56E-02	-	-	-	-	-	-	-
	March	13.84	1.31E-02	5.26E-02	5.26E-02	4.15E-03	1.94E+00	3.80E-02	5.81E-01	-	-	-	-	-	-	-
	April	7.86	7.47E-03	2.99E-02	2.99E-02	2.36E-03	1.10E+00	2.16E-02	3.30E-01	-	-	-	-	-	-	-
	May	0.52	4.89E-04	1.96E-03	1.96E-03	1.55E-04	7.21E-02	1.42E-03	2.16E-02	-	-	-	-	-	-	-
	June	2.28	2.16E-03	8.65E-03	8.65E-03	6.83E-04	3.19E-01	6.26E-03	9.56E-02	-	-	-	-	-	-	-
	July	0.50	4.70E-04	1.88E-03	1.88E-03	1.49E-04	6.93E-02	1.36E-03	2.08E-02	-	-	-	-	-	-	-
	August	1.29	1.22E-03	4.89E-03	4.89E-03	3.86E-04	1.80E-01	3.54E-03	5.41E-02	-	-	-	-	-	-	-
	September	0.64	6.05E-04	2.42E-03	2.42E-03	1.91E-04	8.91E-02	1.75E-03	2.67E-02	-	-	-	-	-	-	-
	October	23.70	2.25E-02	9.00E-02	9.00E-02	7.11E-03	3.32E+00	6.52E-02	9.95E-01	-	-	-	-	-	-	-
	November	9.23	8.77E-03	3.51E-02	3.51E-02	2.77E-03	1.29E+00	2.54E-02	3.88E-01	1.01E-01	0.40	0.40	3.18E-02	14.85	0.29	4.45
	December	6.88	6.53E-03	2.61E-02	2.61E-02	2.06E-03	9.63E-01	1.89E-02	2.89E-01	8.76E-02	0.35	0.35	2.76E-02	12.90	0.25	3.87
2022	January	16.27	1.55E-02	6.18E-02	6.18E-02	4.88E-03	2.28E+00	4.48E-02	6.84E-01	8.01E-02	0.32	0.32	2.53E-02	11.80	0.23	3.54
	February	7.94	7.54E-03	3.02E-02	3.02E-02	2.38E-03	1.11E+00	2.18E-02	3.33E-01	7.95E-02	0.32	0.32	2.51E-02	11.72	0.23	3.52
	March	10.62	1.01E-02	4.04E-02	4.04E-02	3.19E-03	1.49E+00	2.92E-02	4.46E-01	8.21E-02	0.33	0.33	2.59E-02	12.10	0.24	3.63
	April	6.89	6.54E-03	2.62E-02	2.62E-02	2.07E-03	9.64E-01	1.89E-02	2.89E-01	7.48E-02	0.30	0.30	2.36E-02	11.02	0.22	3.31
	May	5.39	5.12E-03	2.05E-02	2.05E-02	1.62E-03	7.54E-01	1.48E-02	2.26E-01	7.71E-02	0.31	0.31	2.43E-02	11.36	0.22	3.41
	June	9.11	8.65E-03	3.46E-02	3.46E-02	2.73E-03	1.27E+00	2.50E-02	3.82E-01	8.12E-02	0.32	0.32	2.56E-02	11.97	0.24	3.59
	July	0.46	4.34E-04	1.74E-03	1.74E-03	1.37E-04	6.39E-02	1.26E-03	1.92E-02	8.12E-02	0.32	0.32	2.56E-02	11.96	0.23	3.59
	August	0.50	4.78E-04	1.91E-03	1.91E-03	1.51E-04	7.05E-02	1.38E-03	2.11E-02	7.84E-02	0.31	0.31	2.48E-02	11.55	0.23	3.47
	September	0.90	8.52E-04	3.41E-03	3.41E-03	2.69E-04	1.26E-01	2.47E-03	3.77E-02	7.23E-02	0.29	0.29	2.28E-02	10.65	0.21	3.19
	October	17.92	1.70E-02	6.81E-02	6.81E-02	5.38E-03	2.51E+00	4.93E-02	7.53E-01	7.41E-02	0.30	0.30	2.34E-02	10.93	0.21	3.28
	November	4.67	4.43E-03	1.77E-02	1.77E-02	1.40E-03	6.53E-01	1.28E-02	1.96E-01	7.61E-02	0.30	0.30	2.40E-02	11.21	0.22	3.36
	December	0.47	4.46E-04	1.78E-03	1.78E-03	1.41E-04	6.57E-02	1.29E-03	1.97E-02	7.28E-02	0.29	0.29	2.30E-02	10.73	0.21	3.22
2023	January	0.96	9.15E-04	3.66E-03	3.66E-03	2.89E-04	1.35E-01	2.65E-03	4.04E-02	7.11E-02	0.28	0.28	2.24E-02	10.48	0.21	3.14
	February	0.93	8.85E-04	3.54E-03	3.54E-03	2.79E-04	1.30E-01	2.56E-03	3.91E-02	7.11E-02	0.28	0.28	2.25E-02	10.48	0.21	3.14
	March	2.30	2.19E-03	8.75E-03	8.75E-03	6.90E-04	3.22E-01	6.33E-03	9.67E-02	6.56E-02	0.26	0.26	2.07E-02	9.67	0.19	2.90
	April	0.87	8.25E-04	3.30E-03	3.30E-03	2.61E-04	1.22E-01	2.39E-03	3.65E-02	6.23E-02	0.25	0.25	1.97E-02	9.18	0.18	2.76
	May	0.30	2.82E-04	1.13E-03	1.13E-03	8.89E-05	4.15E-02	8.15E-04	1.25E-02	6.22E-02	0.25	0.25	1.96E-02	9.17	0.18	2.75
	June	0.48	4.54E-04	1.82E-03	1.82E-03	1.43E-04	6.69E-02	1.31E-03	2.01E-02	6.14E-02	0.25	0.25	1.94E-02	9.04	0.18	2.71
	July	0.92	8.78E-04	3.51E-03	3.51E-03	2.77E-04	1.29E-01	2.54E-03	3.88E-02	6.16E-02	0.25	0.25	1.94E-02	9.07	0.18	2.72
	August	0.34	3.26E-04	1.31E-03	1.31E-03	1.03E-04	4.81E-02	9.45E-04	1.44E-02	6.11E-02	0.24	0.24	1.93E-02	9.01	0.18	2.70
	September	35.69	3.39E-02	1.36E-01	1.36E-01	1.07E-02	5.00E+00	9.81E-02	1.50E+00	7.78E-02	0.31	0.31	2.46E-02	11.46	0.23	3.44
	October	1.59	1.51E-03	6.03E-03	6.03E-03	4.76E-04	2.22E-01	4.37E-03	6.67E-02	6.73E-02	0.27	0.27	2.12E-02	9.91	0.19	2.97
	November	-	-	-	-	-	-	-	-	6.29E-02	0.25	0.25	1.99E-02	9.27	0.18	2.78
	December	-	-	-	-	-	-	-	-	5.96E-02	0.24	0.24	1.88E-02	8.79	0.17	2.64
2024	January	-	-	-	-	-	-	-	-	5.19E-02	0.21	0.21	1.64E-02	7.65	0.15	2.29
	February	-	-	-	-	-	-	-	-	4.81E-02	0.19	0.19	1.52E-02	7.09	0.14	2.13
	March	-	-	-	-	-	-	-	-	4.31E-02	0.17	0.17	1.36E-02	6.35	0.12	1.90
24-Month Rolling Average Maximum Value -->										0.10	0.40	0.40	0.03	14.85	0.29	4.45

Notes:

1. Emission factors are from USEPA, AP-42, Fifth Edition, Vol. I. Chapter 1 "External Combustion Sources", Section 1.4 "Natural Gas Combustion". July 1998. Table 1.4-1 "Emission Factors for NOx and CO from Natural Gas Combustion".
 - a. Table 1.4-1 "Emission Factors for NOx and CO from Natural Gas Combustion".
 - b. Table 1.4-2 "Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion".

Appendix B: Emission Calculations
BAE - Boiler 31B1

Company Name: DTE Energy Services
Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

Methodology:

The Baseline Actual Emissions (BAE) is the average rate, in tons per year (tpy), at which the unit actually emitted the regulated NSR pollutant during any consecutive 24-month period within the 5-year period preceding the date that a complete permit application is received by the agency or an alternative representative time period.

The calculations below determine the monthly pollutant emissions from Boiler 31B1 burning natural gas to be used in determining the BAE.

Basis:

The monthly pollutant emissions are based on the information from AP-42 Section 1.4 and facility stack testing:

Criteria Pollutants

$$E = EF \times NG \text{ Usage} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}}$$

where,

E = emissions, tons

EF = emission factor, lb/MMscf

NG Usage = NG burned, MMscf

Emission Factors

Pollutant	Emission Factor (lb/MMcf)	Notes
PM	1.9	[1]
PM ₁₀	7.6	[1]
PM _{2.5}	7.6	[1]
SO ₂	0.6	[1]
NO _x	100.57	[2]
VOC	5.5	[1]
CO	12.24	[2]

BAE Calculations:

The 24-month rolling averages are calculated using the following equation:

$$E_{24\text{-month}} = \frac{\sum_{i=1}^N E_i}{2}$$

where,

E_{24-month} = 24-month rolling yearly average pollutant emissions, tons

E_i = project monthly pollutant emissions, tons

N = preceding 24 months

Appendix B: Emission Calculations
BAE - Boiler 31B1

Company Name: DTE Energy Services
Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

Reporting Year	Month	NG Usage	Monthly Summaries							24-Month Rolling Average						
			PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO	PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO
			(MMscf)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)
2019	December	32.05	3.04E-02	1.22E-01	1.22E-01	9.62E-03	1.61E+00	8.81E-02	1.96E-01	-	-	-	-	-	-	-
2020	January	45.33	4.31E-02	1.72E-01	1.72E-01	1.36E-02	2.28E+00	1.25E-01	2.77E-01	-	-	-	-	-	-	-
	February	116.04	1.10E-01	4.41E-01	4.41E-01	3.48E-02	5.83E+00	3.19E-01	7.10E-01	-	-	-	-	-	-	-
	March	144.04	1.37E-01	5.47E-01	5.47E-01	4.32E-02	7.24E+00	3.96E-01	8.82E-01	-	-	-	-	-	-	-
	April	57.87	5.50E-02	2.20E-01	2.20E-01	1.74E-02	2.91E+00	1.59E-01	3.54E-01	-	-	-	-	-	-	-
	May	129.79	1.23E-01	4.93E-01	4.93E-01	3.89E-02	6.53E+00	3.57E-01	7.94E-01	-	-	-	-	-	-	-
	June	108.64	1.03E-01	4.13E-01	4.13E-01	3.26E-02	5.46E+00	2.99E-01	6.65E-01	-	-	-	-	-	-	-
	July	111.84	1.06E-01	4.25E-01	4.25E-01	3.36E-02	5.62E+00	3.08E-01	6.84E-01	-	-	-	-	-	-	-
	August	90.64	8.61E-02	3.44E-01	3.44E-01	2.72E-02	4.56E+00	2.49E-01	5.55E-01	-	-	-	-	-	-	-
	September	69.79	6.63E-02	2.65E-01	2.65E-01	2.09E-02	3.51E+00	1.92E-01	4.27E-01	-	-	-	-	-	-	-
	October	77.34	7.35E-02	2.94E-01	2.94E-01	2.32E-02	3.89E+00	2.13E-01	4.73E-01	-	-	-	-	-	-	-
	November	130.02	1.24E-01	4.94E-01	4.94E-01	3.90E-02	6.54E+00	3.58E-01	7.96E-01	-	-	-	-	-	-	-
	December	111.46	1.06E-01	4.24E-01	4.24E-01	3.34E-02	5.60E+00	3.07E-01	6.82E-01	-	-	-	-	-	-	-
2021	January	127.25	1.21E-01	4.84E-01	4.84E-01	3.82E-02	6.40E+00	3.50E-01	7.79E-01	-	-	-	-	-	-	-
	February	126.33	1.20E-01	4.80E-01	4.80E-01	3.79E-02	6.35E+00	3.47E-01	7.73E-01	-	-	-	-	-	-	-
	March	81.21	7.72E-02	3.09E-01	3.09E-01	2.44E-02	4.08E+00	2.23E-01	4.97E-01	-	-	-	-	-	-	-
	April	94.51	8.98E-02	3.59E-01	3.59E-01	2.84E-02	4.75E+00	2.60E-01	5.78E-01	-	-	-	-	-	-	-
	May	119.64	1.14E-01	4.55E-01	4.55E-01	3.59E-02	6.02E+00	3.29E-01	7.32E-01	-	-	-	-	-	-	-
	June	97.47	9.26E-02	3.70E-01	3.70E-01	2.92E-02	4.90E+00	2.68E-01	5.97E-01	-	-	-	-	-	-	-
	July	107.52	1.02E-01	4.09E-01	4.09E-01	3.23E-02	5.41E+00	2.96E-01	6.58E-01	-	-	-	-	-	-	-
	August	100.23	9.52E-02	3.81E-01	3.81E-01	3.01E-02	5.04E+00	2.76E-01	6.13E-01	-	-	-	-	-	-	-
	September	107.31	1.02E-01	4.08E-01	4.08E-01	3.22E-02	5.40E+00	2.95E-01	6.57E-01	-	-	-	-	-	-	-
	October	49.81	4.73E-02	1.89E-01	1.89E-01	1.49E-02	2.50E+00	1.37E-01	3.05E-01	-	-	-	-	-	-	-
	November	134.63	1.28E-01	5.12E-01	5.12E-01	4.04E-02	6.77E+00	3.70E-01	8.24E-01	1.13	4.50	4.50	0.36	59.61	3.26	7.25
	December	144.75	1.38E-01	5.50E-01	5.50E-01	4.34E-02	7.28E+00	3.98E-01	8.86E-01	1.18	4.72	4.72	0.37	62.44	3.41	7.60
2022	January	145.89	1.39E-01	5.54E-01	5.54E-01	4.38E-02	7.34E+00	4.01E-01	8.93E-01	1.23	4.91	4.91	0.39	64.97	3.55	7.91
	February	131.76	1.25E-01	5.01E-01	5.01E-01	3.95E-02	6.63E+00	3.62E-01	8.06E-01	1.23	4.94	4.94	0.39	65.37	3.57	7.96
	March	137.02	1.30E-01	5.21E-01	5.21E-01	4.11E-02	6.89E+00	3.77E-01	8.39E-01	1.23	4.93	4.93	0.39	65.19	3.56	7.93
	April	125.65	1.19E-01	4.77E-01	4.77E-01	3.77E-02	6.32E+00	3.46E-01	7.69E-01	1.26	5.05	5.05	0.40	66.89	3.66	8.14
	May	133.41	1.27E-01	5.07E-01	5.07E-01	4.00E-02	6.71E+00	3.67E-01	8.16E-01	1.27	5.06	5.06	0.40	66.98	3.66	8.15
	June	107.50	1.02E-01	4.09E-01	4.09E-01	3.23E-02	5.41E+00	2.96E-01	6.58E-01	1.26	5.06	5.06	0.40	66.96	3.66	8.15
	July	138.91	1.32E-01	5.28E-01	5.28E-01	4.17E-02	6.98E+00	3.82E-01	8.50E-01	1.28	5.11	5.11	0.40	67.64	3.70	8.23
	August	135.42	1.29E-01	5.15E-01	5.15E-01	4.06E-02	6.81E+00	3.72E-01	8.29E-01	1.30	5.20	5.20	0.41	68.76	3.76	8.37
	September	131.46	1.25E-01	5.00E-01	5.00E-01	3.94E-02	6.61E+00	3.62E-01	8.05E-01	1.33	5.31	5.31	0.42	70.31	3.85	8.56
	October	72.23	6.86E-02	2.74E-01	2.74E-01	2.17E-02	3.63E+00	1.99E-01	4.42E-01	1.33	5.30	5.30	0.42	70.18	3.84	8.54
	November	133.78	1.27E-01	5.08E-01	5.08E-01	4.01E-02	6.73E+00	3.68E-01	8.19E-01	1.33	5.31	5.31	0.42	70.28	3.84	8.55
	December	139.68	1.33E-01	5.31E-01	5.31E-01	4.19E-02	7.02E+00	3.84E-01	8.55E-01	1.34	5.36	5.36	0.42	70.99	3.88	8.64
2023	January	132.02	1.25E-01	5.02E-01	5.02E-01	3.96E-02	6.64E+00	3.63E-01	8.08E-01	1.34	5.37	5.37	0.42	71.11	3.89	8.65
	February	116.75	1.11E-01	4.44E-01	4.44E-01	3.50E-02	5.87E+00	3.21E-01	7.15E-01	1.34	5.36	5.36	0.42	70.87	3.88	8.62
	March	106.69	1.01E-01	4.05E-01	4.05E-01	3.20E-02	5.37E+00	2.93E-01	6.53E-01	1.35	5.40	5.40	0.43	71.51	3.91	8.70
	April	103.89	9.87E-02	3.95E-01	3.95E-01	3.12E-02	5.22E+00	2.86E-01	6.36E-01	1.36	5.42	5.42	0.43	71.74	3.92	8.73
	May	110.43	1.05E-01	4.20E-01	4.20E-01	3.31E-02	5.55E+00	3.04E-01	6.76E-01	1.35	5.40	5.40	0.43	71.51	3.91	8.70
	June	116.58	1.11E-01	4.43E-01	4.43E-01	3.50E-02	5.86E+00	3.21E-01	7.13E-01	1.36	5.44	5.44	0.43	71.99	3.94	8.76
	July	116.04	1.10E-01	4.41E-01	4.41E-01	3.48E-02	5.84E+00	3.19E-01	7.10E-01	1.36	5.46	5.46	0.43	72.21	3.95	8.79
	August	115.98	1.10E-01	4.41E-01	4.41E-01	3.48E-02	5.83E+00	3.19E-01	7.10E-01	1.37	5.49	5.49	0.43	72.60	3.97	8.84
	September	30.02	2.85E-02	1.14E-01	1.14E-01	9.01E-03	1.51E+00	8.26E-02	1.84E-01	1.33	5.34	5.34	0.42	70.66	3.86	8.60
	October	119.21	1.13E-01	4.53E-01	4.53E-01	3.58E-02	5.99E+00	3.28E-01	7.30E-01	1.37	5.47	5.47	0.43	72.40	3.96	8.81
	November	130.83	1.24E-01	4.97E-01	4.97E-01	3.92E-02	6.58E+00	3.60E-01	8.01E-01	1.37	5.46	5.46	0.43	72.31	3.95	8.80
	December	133.10	1.26E-01	5.06E-01	5.06E-01	3.99E-02	6.69E+00	3.66E-01	8.15E-01	1.36	5.44	5.44	0.43	72.02	3.94	8.76
2024	January	107.23	1.02E-01	4.07E-01	4.07E-01	3.22E-02	5.39E+00	2.95E-01	6.56E-01	1.34	5.37	5.37	0.42	71.04	3.89	8.65
	February	107.37	1.02E-01	4.08E-01	4.08E-01	3.22E-02	5.40E+00	2.95E-01	6.57E-01	1.33	5.32	5.32	0.42	70.43	3.85	8.57
24-Month Rolling Average Maximum Value -->										1.37	5.49	5.49	0.43	72.60	3.97	8.84

Notes:

- Emission factors are from USEPA, AP-42, Fifth Edition, Vol. I. Chapter 1 "External Combustion Sources", Section 1.4 "Natural Gas Combustion". July 1998. Table 1.4-1 "Emission Factors for NOx and CO from Natural Gas Combustion".
 - Table 1.4-1 "Emission Factors for NOx and CO from Natural Gas Combustion".
 - Table 1.4-2 "Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion"
- NOx and CO emission factors from 2020 facility stack testing.

Appendix B: Emission Calculations
Potential to Emit - Cogeneration Unit

Company Name: DTE Energy Services
Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

Basis:			
Number of Combustion Turbines	2		
Fuel Burn Rate (per Combustion Turbine) ¹	174	MMBtu/hr (HHV)	
Hours of Operation (per Combustion Turbine)	8,760	hr/yr	
less startups and shutdowns	8,748	hr/yr	
Oxidation Catalyst Control Efficiency ¹⁰	84%		
Number of Duct Burners	2		
Fuel Burn Rate (per HRSG) ¹	105	MMBtu/hr (HHV)	
Hours of Operation (per HRSG)	8,760	hr/yr	
Fuel Limitations (per HRSG)			
Load Fired	870,243	MMBtu/yr	
Fresh Air fired	49,893	MMBtu/yr	
Fuel	Natural Gas		
Heating Value of Fuel	1,020	Btu/scf (HHV)	
Fuel Sulfur Content	20	gr/100 dscf ²	
Startup/Shutdown Operations ³			
Number of Startups Per Year	20	startups	
Duration of Startups	30	minutes	
Heat Input per Startup	87	MMBtu	
Number of Shutdowns Per year	20	shutdowns	
Duration of Shutdowns	5	minutes	
Heat Input per Shutdown	14	MMBtu	
Total Startup/Shutdown Hours per Year	12	hours	

Combustion Turbines Emissions Summary - Steady State Operation

Pollutant	Uncontrolled Emission Rate per Turbine			Controlled Emission Rate per Turbine			Total Uncontrolled PTE (8,760 hr/yr)	Total Uncontrolled PTE (less SUSDs)	Total Controlled PTE	Total Controlled PTE
	(lb/MMBtu) (HHV)	Notes	(lb/hr)	(lb/MMBtu) (HHV)	Notes	(lb/hr)	(tpy)	(tpy)	(tpy)	(tpy)
CO	3.36E-02	[4]	5.85	5.38E-03	[4,10]	0.94	51.22	51.15	8.20	8.18
NO _x	3.31E-02	[4]	5.76	3.31E-02	[4]	5.76	50.49	50.42	50.49	50.42
VOC (as CH ₄)	2.10E-03	[5]	0.37	2.10E-03	[5]	0.37	3.20	3.20	3.20	3.20
PM (filterable only)	1.90E-03	[5]	0.33	1.90E-03	[5]	0.33	2.90	2.89	2.90	2.89
PM ₁₀ (filterable + condensable)	6.00E-03	[4]	1.04	6.00E-03	[4]	1.04	9.14	9.13	9.14	9.13
PM _{2.5} (filterable + condensable)	6.00E-03	[4]	1.04	6.00E-03	[4]	1.04	9.14	9.13	9.14	9.13
SO ₂	4.31E-05	[5]	7.49E-03	4.31E-05	[5]	7.49E-03	0.07	0.07	0.07	0.07
H ₂ SO ₄	3.96E-05	[6]	6.88E-03	3.96E-05	[6]	6.88E-03	0.06	0.06	0.06	0.06

Combustion Turbines Emissions Summary - Startup/Shutdown Operation

Pollutant	Uncontrolled Emission Rate per Turbine						Total Annual Emissions Attributable to SU/SD (tpy)
	Cold Startup			Shutdown			
	(lb/event)	total tons	Notes	(lb/event)	total tons	Notes	
CO	20	2.00E-01	[8]	21	2.10E-01	[8]	8.20E-01
NO _x	1	1.00E-02	[8]	1	1.00E-02	[8]	4.00E-02
VOC (as CH ₄)	5	5.00E-02	[8]	5	5.00E-02	[8]	2.00E-01
PM (filterable only)	0.17	1.65E-03	[9]	0.03	2.75E-04	[9]	3.86E-03
PM ₁₀ (filterable + condensable)	0.52	5.22E-03	[9]	0.09	8.70E-04	[9]	1.22E-02
PM _{2.5} (filterable + condensable)	0.52	5.22E-03	[9]	0.09	8.70E-04	[9]	1.22E-02
SO ₂	3.75E-03	3.75E-05	[9]	6.24E-04	6.24E-06	[9]	8.74E-05
H ₂ SO ₄	3.44E-03	3.44E-05	[9]	5.73E-04	5.73E-06	[9]	8.03E-05

Appendix B: Emission Calculations
Potential to Emit - Cogeneration Unit

Company Name: DTE Energy Services
Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

HRSGs Emissions Summary

Pollutant	Uncontrolled Emission Rate per HRSG				Total Maximum Uncontrolled PTE (8,760 hr/yr) (tpy)	Total Maximum Limited PTE (8,760 hr/yr) (tpy)	
	Gas Firing	Fresh Air Firing					
	(lb/MMBtu) (HHV)	(lb/MMBtu) (HHV)	Notes	(lb/hr)	(lb/hr)		
CO	8.00E-02	8.00E-02	[4]	8.40	8.40	73.61	73.61
NO _x	8.00E-02	2.00E-01	[4]	8.40	21.01	184.03	79.60
VOC (as CH ₄)	1.00E-02	1.00E-02	[4]	1.05	1.05	9.20	9.20
PM (filterable only)	1.86E-03	1.86E-03	[7]	0.20	0.20	1.71	1.71
PM ₁₀ (filterable + condensable)	6.00E-03	6.00E-03	[4]	0.63	0.63	5.52	5.52
PM _{2.5} (filterable + condensable)	6.00E-03	6.00E-03	[4]	0.63	0.63	5.52	5.52
SO ₂	5.88E-04	5.88E-04	[7]	0.06	0.06	0.54	0.54

Co-gen Emissions Summary - Maximum PTE

Pollutant	Turbines						HRSGs		Total				
	Uncontrolled Emissions from Steady State (8,760 hr/yr) (tpy)	Uncontrolled Emissions from Steady State (less SU/SDs) (tpy)	Annual Emissions Attributable to SU/SD (tpy)	Total Uncontrolled Steady State and SU/SD (tpy)	Controlled Emissions from Steady State (8,760 hr/yr) (tpy)	Controlled Emissions from Steady State (less SU/SDs) (tpy)	Total Controlled Steady State and SU/SD (tpy)	Maximum Uncontrolled PTE (tpy)	Maximum Controlled PTE (tpy)	Uncontrolled PTE (8,760 hr/yr) (tpy)	Limited PTE (8760 hr/yr) (tpy)	Turbine and HRSG Maximum Uncontrolled PTE (tpy)	Turbine and HRSG Maximum Controlled/Limited PTE (tpy)
	CO	51.22	51.15	0.82	51.97	8.20	8.18	9.00	51.97	9.00	73.61	73.61	125.58
NO _x	50.49	50.42	0.04	50.46	50.49	50.42	50.46	50.49	50.49	184.03	79.60	234.51	130.09
VOC (as CH ₄)	3.20	3.20	0.20	3.40	3.20	3.20	3.40	3.40	3.40	9.20	9.20	12.60	12.60
PM (filterable only)	2.90	2.89	0.00	2.90	2.90	2.89	2.90	2.90	2.90	1.71	1.71	4.61	4.61
PM ₁₀ (filterable + condensable)	9.14	9.13	0.01	9.14	9.14	9.13	9.14	9.14	9.14	5.52	5.52	14.66	14.66
PM _{2.5} (filterable + condensable)	9.14	9.13	0.01	9.14	9.14	9.13	9.14	9.14	9.14	5.52	5.52	14.66	14.66
SO ₂	0.07	0.07	8.74E-05	0.07	0.07	0.07	0.07	0.07	0.07	0.54	0.54	0.61	0.61
H ₂ SO ₄	0.06	0.06	8.03E-05	0.06	0.06	0.06	0.06	0.06	0.06	0.00	0.00	0.06	0.06

Notes:

- Heat input values per vendor-provided data.
- Fuel sulfur content from site specific natural-gas specifications.
- Based on vendor-provided site-specific startup/shutdown emissions calculations.
- Emission Factors from vendor-provided emission guarantees.
- Emission factors from AP-42 Chapter 3.1, Table 3.1-2a.
- Emission factor calculated using "1023790_Estimating Total Sulfuric Acid Emission from Stationary Power Plants (1).pdf"
- Emission factors provided in lb/10⁶ scf in AP-42 Chapter 1.4, Table 1.4-2 and converted to lb/MMBtu.
- Tons per year (tpy) per respective startup-shutdown operation are calculated as the product of lb/event and the annual number of such events, divided by 2,000 lb/ton.
- No preliminary vendor-provided site-specific startup/shutdown emission calculations have been provided to date for this pollutant.
Because emissions are dependent on fuel makeup, startup/shutdown emission concentrations are assumed to be equal to the lb/MMBtu (HHV) values from uncontrolled combustion turbine steady state operations.
Therefore, lb/event factors are calculated as the product of the pollutant-specific lb/MMBtu (HHV) value and the heat input (MMBtu [HHV]) per startup/shutdown event.
- Oxidation catalyst control efficiency is based on vendor-provided data.

**Appendix B: Emission Calculations
Potential to Emit (HAPs) - Cogeneration Unit**

Company Name: DTE Energy Services
Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

Basis:				
Number of Combustion Turbines	2			
Fuel Burn Rate (per Combustion Turbine) ¹	174	MMBtu/hr (HHV)		
Hours of Operation (per Combustion Turbine) less startups and shutdowns	8,760	hr/yr		
	8,748	hr/yr		
Number of Duct Burners	2			
Fuel Burn Rate (per Duct Burner) ¹	105	MMBtu/hr (HHV)		
Hours of Operation (per Duct Burner)	8,760	hr/yr		
	Fuel	Natural Gas		
Heating Value of Fuel		1,020	Btu/scf	(HHV)

Maximum Potential HAP Emissions Summary - Combustion Turbines

Pollutant	Organic HAP	Uncontrolled	Uncontrolled PTE	
	(Yes/No)	Emission Factor ² (lb/MMBtu) (HHV)	(lb/hr)	(tpy)
1,3-Butadiene	Yes	4.30E-07	1.496E-04	6.553E-04
Acetaldehyde	Yes	4.00E-05	1.392E-02	6.095E-02
Acrolein	Yes	6.40E-06	2.227E-03	9.753E-03
Benzene	Yes	1.20E-05	4.175E-03	1.829E-02
Ethylbenzene	Yes	3.20E-05	1.113E-02	4.876E-02
Formaldehyde (HCHO) ³	Yes	2.18E-04	7.601E-02	3.329E-01
Naphthalene	Yes	1.30E-06	4.523E-04	1.981E-03
PAH	Yes	2.20E-06	7.654E-04	3.352E-03
Propylene Oxide	Yes	2.90E-05	1.009E-02	4.419E-02
Toluene	Yes	1.30E-04	4.523E-02	1.981E-01
Xylenes	Yes	6.40E-05	2.227E-02	9.753E-02
Maximum Single HAP (Formaldehyde)		--	0.0760	0.3329
Total HAPs ⁴		5.36E-04	0.1864	0.8165

Maximum Potential HAP Emissions Summary - HRSGs

Pollutant	Organic HAP	Uncontrolled	Uncontrolled PTE	
	(Yes/No)	Emission Factor ² (lb/MMscf)	(lb/hr)	(tpy)
3-Methylchloranthrene	Yes	1.80E-06	3.71E-07	1.62E-06
2-Methylnaphthalene	Yes	2.40E-05	4.94E-06	2.17E-05
7,12-Dimethylbenz(a)anthracene	Yes	1.60E-05	3.30E-06	1.44E-05
Acenaphthene	Yes	1.80E-06	3.71E-07	1.62E-06
Acenaphthylene	Yes	1.80E-06	3.71E-07	1.62E-06
Anthracene	Yes	2.40E-06	4.94E-07	2.17E-06
Benzo(a)anthracene	Yes	1.80E-06	3.71E-07	1.62E-06
Benzo(a)pyrene	Yes	1.20E-06	2.47E-07	1.08E-06
Benzo(b)fluoranthene	Yes	1.80E-06	3.71E-07	1.62E-06
Benzo(g,h,i)perylene	Yes	1.20E-06	2.47E-07	1.08E-06
Benzo(k)fluoranthene	Yes	1.80E-06	3.71E-07	1.62E-06
Chrysene	Yes	1.80E-06	3.71E-07	1.62E-06
Dibenzo(a,h)anthracene	Yes	1.20E-06	2.47E-07	1.08E-06
Dichlorobenzene	Yes	1.20E-03	2.47E-04	1.08E-03
Fluoranthene	Yes	3.00E-06	6.18E-07	2.71E-06
Fluorene	Yes	2.80E-06	5.77E-07	2.53E-06
Formaldehyde	Yes	7.50E-02	1.54E-02	6.77E-02
Hexane	Yes	1.30E-03	2.68E-04	1.17E-03
Indo(1,2,3-cd)pyrene	Yes	1.80E-06	3.71E-07	1.62E-06
Phenanthrene	Yes	1.70E-05	3.50E-06	1.53E-05
Pyrene	Yes	5.00E-06	1.03E-06	4.51E-06
Arsenic	No	2.00E-04	4.12E-05	1.80E-04
Beryllium	No	1.20E-05	2.47E-06	1.08E-05
Cadmium	No	1.10E-03	2.27E-04	9.92E-04
Chromium	No	1.40E-03	2.88E-04	1.26E-03
Cobalt	No	8.40E-05	1.73E-05	7.58E-05
Lead	No	5.00E-04	1.03E-04	4.51E-04
Manganese	No	3.80E-04	7.83E-05	3.43E-04
Mercury	No	2.60E-04	5.35E-05	2.35E-04
Nickel	No	2.10E-03	4.33E-04	1.89E-03
Selenium	No	2.40E-05	4.94E-06	2.17E-05
Maximum Single HAP (Formaldehyde)		--	1.54E-02	6.77E-02
Total HAPs		--	1.72E-02	7.55E-02

	Maximum PTE tpy
Single HAP (Formaldehyde)	0.40
Total HAP	0.89

Notes:

- Heat input values per vendor-provided data.
- Unless otherwise noted, emission factors are based on USEPA, AP-42, Fifth Edition, Vol. I, Chapter 3 "Stationary Internal Combustion Sources", Section 3.1 "Stationary Gas Turbines." April 2000. Table 3.1-3 "Emission Factors for Hazardous Air Pollutants from Natural Gas-fired Stationary Gas Turbines." The AP-42 values in this table are for older turbines with no oxidation catalysts and likely substantially overestimate for the turbine here.
- Formaldehyde emission factor comes from Table 1 of 40 CFR 63 Subpart YYYYY.
- In the proposed rule NESHP for Combustion Turbines (i.e. 40 CFR 63 Subpart YYYYY) under 68 FR 1892 (EPA-HQ-OAR-2002-0060-0338), the U.S. EPA recommended natural gas-fired lean premix combustion turbines (which Ingredion's proposed turbines are) should use an uncontrolled emission factor of 2.12E-04 lb/MMBtu (HHV) for total HAPs; however, the uncontrolled emission factor for total HAPs shown represents the sum of all the above-listed individual HAP constituents. The total HAP emissions are represented this way to conservatively over-estimate potential emissions.
- USEPA, AP-42, Fifth Edition, Vol. I, Chapter 1 "External Combustion Sources", Section 1.4 "Natural Gas Combustion". July 1998. Table 1.4-3 "Emission Factors for Speciated Organic Compounds from Natural Gas Combustion" and Table 1.4-4 "Emission Factors for Metals from Natural Gas Combustion". Hexane emission factor is based on Ventura County Air Pollution Control District "AB 2588 COMBUSTION EMISSION FACTORS" (May 17, 2001).

APPENDIX C. INTERIM PERIOD EMISSION CALCULATIONS

**Appendix B: Emission Calculations
PSD Applicability - Interim Period**

**Company Name: DTE Vantage
Address: 2245 North Sagamore Parkway, Lafayette, IN 47904**

Background:

These calculations are the basis for the PSD applicability determination during the interim period.

Methodology:

A project at an existing major source will be subject to PSD review for each pollutant that results in a significant emissions increase and a significant net emissions increase. Project emissions accounting was used to determine whether or not this project results in a significant emissions increase. Since this project does not result in a significant emissions increase, PSD permitting is not applicable.

Source-Wide Project Decreases

Pollutant	Shut Down Units		
	BAE ¹ (tpy)	Projected Emissions (tpy)	Increase / Decrease (tpy)
CO	15.31	10.16	-5.15
NOX	93.03	33.87	-59.17
VOC	4.34	0.67	-3.67
PM	1.50	0.23	-1.27
PM ₁₀	5.99	0.92	-5.07
PM _{2.5}	5.99	0.92	-5.07
SO ₂	0.47	0.07	-0.40

PSD Applicability Determination - Project Emissions Accounting

Pollutant	New Sources' PTE (tpy)	Shut Down Units (tpy)	Total Em. Increase (tpy)	PSD SER ² (tpy)	Exceed the SER? Yes/No
CO	78.85	-5.15	73.70	100	No
NO _x	99.13	-59.17	39.96	40	No
VOC	12.00	-3.67	8.33	40	No
PM	4.50	-1.27	3.24	25	No
PM ₁₀	14.33	-5.07	9.25	15	No
PM _{2.5}	14.33	-5.07	9.25	10	No
SO ₂	0.59	-0.40	0.18	40	No
H ₂ SO ₄	0.06	0.00	0.06	7	No

Notes:

1. See baseline emission calculations for individual emission units in other tabs in this spreadsheet.
2. PSD Significant Emission Rate (SER) as defined in 326 IAC 2-2-1(ww).

Appendix B: Emission Calculations
BAE - Source Wide

Company Name: DTE Vantage
Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

Actual Emissions - Combined Units to be Shut Down

Methodology:

The Baseline Actual Emissions (BAE) is the average rate, in tons per year (tpy), at which the units actually emitted the regulated NSR pollutant during any consecutive 24-month period within the 5-year period immediately preceding the date that a complete permit application is received by the agency or an alternative representative time period.

The calculations below determine the monthly pollutant emissions from all existing sources affected by the project to be used in determining the BAE.

BAE Calculations:

The 24-month rolling averages are calculated using the following equation:

24-Month Rolling Average:

$$E_{24\text{-month}} = \frac{\sum_{i=1}^N E_{1,i}}{2}$$

where,

$E_{24\text{-month}}$ = 24-month rolling yearly average pollutant emissions, tons

$E_{1,i}$ = Sum of monthly pollutant emissions from Boilers 11B2, 11B3, and 31B1, tons

N = preceding 24 months

Combined Monthly Emissions Summary

Year	Month	Monthly Summaries							24-Month Rolling Average						
		PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO	PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO
		(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)
2019	December	0.06	0.25	0.25	2.00E-02	6.47	0.18	1.65	-	-	-	-	-	-	-
2020	January	0.07	0.29	0.29	2.32E-02	6.77	0.21	1.62	-	-	-	-	-	-	-
	February	0.12	0.48	0.48	3.75E-02	7.10	0.34	1.09	-	-	-	-	-	-	-
	March	0.14	0.57	0.57	4.47E-02	7.96	0.41	1.10	-	-	-	-	-	-	-
	April	0.08	0.30	0.30	2.41E-02	6.04	0.22	1.29	-	-	-	-	-	-	-
	May	0.12	0.50	0.50	3.91E-02	6.61	0.36	0.82	-	-	-	-	-	-	-
	June	0.10	0.41	0.41	3.27E-02	5.51	0.30	0.68	-	-	-	-	-	-	-
	July	0.11	0.43	0.43	3.37E-02	5.70	0.31	0.71	-	-	-	-	-	-	-
	August	0.09	0.37	0.37	2.91E-02	5.45	0.27	0.82	-	-	-	-	-	-	-
	September	0.08	0.32	0.32	2.51E-02	5.44	0.23	1.01	-	-	-	-	-	-	-
	October	0.09	0.35	0.35	2.74E-02	5.85	0.25	1.06	-	-	-	-	-	-	-
	November	0.12	0.50	0.50	3.94E-02	6.70	0.36	0.85	-	-	-	-	-	-	-
	December	0.12	0.48	0.48	3.82E-02	7.84	0.35	1.35	-	-	-	-	-	-	-
2021	January	0.13	0.52	0.52	4.10E-02	7.72	0.38	1.17	-	-	-	-	-	-	-
	February	0.12	0.49	0.49	3.84E-02	6.59	0.35	0.84	-	-	-	-	-	-	-
	March	0.11	0.42	0.42	3.33E-02	8.23	0.30	1.74	-	-	-	-	-	-	-
	April	0.11	0.42	0.42	3.33E-02	7.08	0.31	1.28	-	-	-	-	-	-	-
	May	0.11	0.46	0.46	3.62E-02	6.15	0.33	0.77	-	-	-	-	-	-	-
	June	0.10	0.39	0.39	3.07E-02	5.59	0.28	0.80	-	-	-	-	-	-	-
	July	0.10	0.41	0.41	3.26E-02	5.54	0.30	0.70	-	-	-	-	-	-	-
	August	0.10	0.39	0.39	3.08E-02	5.40	0.28	0.72	-	-	-	-	-	-	-
	September	0.10	0.41	0.41	3.26E-02	5.57	0.30	0.71	-	-	-	-	-	-	-
	October	0.09	0.38	0.38	2.98E-02	9.42	0.27	2.38	-	-	-	-	-	-	-
	November	0.14	0.56	0.56	4.38E-02	8.38	0.40	1.31	1.26	5.05	5.05	0.40	79.55	3.65	13.24
	December	0.15	0.61	0.61	4.78E-02	9.31	0.44	1.50	1.31	5.22	5.22	0.41	80.98	3.78	13.16
2022	January	0.16	0.62	0.62	4.92E-02	9.87	0.45	1.65	1.35	5.39	5.39	0.43	82.53	3.90	13.18
	February	0.13	0.53	0.53	4.20E-02	7.80	0.39	1.16	1.35	5.41	5.41	0.43	82.88	3.92	13.21
	March	0.14	0.56	0.56	4.45E-02	8.46	0.41	1.31	1.35	5.41	5.41	0.43	83.13	3.92	13.32
	April	0.13	0.51	0.51	4.01E-02	7.45	0.37	1.11	1.38	5.51	5.51	0.44	83.84	3.99	13.22
	May	0.13	0.53	0.53	4.21E-02	7.66	0.39	1.10	1.38	5.53	5.53	0.44	84.36	4.00	13.37
	June	0.12	0.49	0.49	3.88E-02	8.45	0.36	1.57	1.39	5.57	5.57	0.44	85.83	4.03	13.81
	July	0.13	0.53	0.53	4.22E-02	7.24	0.39	0.93	1.41	5.63	5.63	0.44	86.60	4.07	13.92
	August	0.13	0.52	0.52	4.09E-02	6.95	0.38	0.87	1.43	5.70	5.70	0.45	87.35	4.13	13.95
	September	0.13	0.51	0.51	4.00E-02	6.87	0.37	0.88	1.45	5.80	5.80	0.46	88.07	4.19	13.88
	October	0.10	0.42	0.42	3.30E-02	8.94	0.30	2.03	1.46	5.83	5.83	0.46	89.61	4.22	14.37
	November	0.14	0.54	0.54	4.26E-02	7.89	0.39	1.17	1.46	5.85	5.85	0.46	90.21	4.23	14.53
	December	0.14	0.57	0.57	4.48E-02	8.39	0.41	1.27	1.47	5.89	5.89	0.47	90.48	4.27	14.49
2023	January	0.13	0.51	0.51	4.06E-02	7.12	0.37	0.95	1.47	5.89	5.89	0.47	90.19	4.26	14.38
	February	0.11	0.45	0.45	3.59E-02	6.26	0.33	0.83	1.47	5.88	5.88	0.46	90.02	4.25	14.37
	March	0.12	0.49	0.49	3.86E-02	8.44	0.35	1.58	1.48	5.91	5.91	0.47	90.13	4.28	14.29
	April	0.10	0.41	0.41	3.21E-02	5.67	0.29	0.77	1.48	5.90	5.90	0.47	89.42	4.27	14.03
	May	0.11	0.42	0.42	3.33E-02	5.64	0.31	0.70	1.47	5.88	5.88	0.46	89.16	4.26	14.00
	June	0.11	0.45	0.45	3.52E-02	5.97	0.32	0.75	1.48	5.91	5.91	0.47	89.36	4.28	13.97
	July	0.11	0.45	0.45	3.54E-02	6.09	0.32	0.79	1.48	5.93	5.93	0.47	89.63	4.29	14.02
	August	0.11	0.44	0.44	3.50E-02	5.92	0.32	0.74	1.49	5.96	5.96	0.47	89.90	4.31	14.02
	September	0.10	0.39	0.39	3.12E-02	11.84	0.29	3.28	1.49	5.95	5.95	0.47	93.03	4.30	15.31
	October	0.12	0.47	0.47	3.67E-02	6.44	0.34	0.86	1.50	5.99	5.99	0.47	91.54	4.34	14.55
	November	0.12	0.50	0.50	3.92E-02	6.58	0.36	0.80	1.49	5.96	5.96	0.47	90.64	4.31	14.30
	December	0.13	0.51	0.51	3.99E-02	6.69	0.37	0.81	1.48	5.91	5.91	0.47	89.33	4.28	13.96
24-Month Rolling Average Maximum Value -->									1.50	5.99	5.99	0.47	93.03	4.34	15.31

Appendix B: Emission Calculations
BAE - Boiler 11B2

Company Name: DTE Vantage
Address: North 2245 Sagamore Parkway, Lafayette, IN 47904

Methodology:

The Baseline Actual Emissions (BAE) is the average rate, in tons per year (tpy), at which the unit actually emitted the regulated NSR pollutant during any consecutive 24-month period within the 5-year period preceding the date that a complete permit application is received by the agency or an alternative representative time period.

The calculations below determine the monthly pollutant emissions from Boiler 11B2 burning natural gas to be used in determining the BAE.

Basis:

The monthly pollutant emissions are based on the information from AP-42 Section 1.4:

Criteria Pollutants

$$E = EF \times NG \text{ Usage} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}}$$

where,

E = emissions, tons
 EF = emission factor, lb/MMscf
 NG Usage = NG burned, MMscf

Emission Factors

Pollutant	Emission Factor (lb/MMscf) ¹
PM	1.9
PM ₁₀	7.6
PM _{2.5}	7.6
SO ₂	0.6
NO _x	280
VOC	5.5
CO	84

BAE Calculations:

The 24-month rolling averages are calculated using the following equation:

$$E_{24\text{-month}} = \frac{\sum_{i=1}^N E_i}{2}$$

where,

E_{24-month} = 24-month rolling yearly average pollutant emissions, tons
 E_i = project monthly pollutant emissions, tons
 N = preceding 24 months

Appendix B: Emission Calculations
BAE - Boiler 11B2

Company Name: DTE Vantage
Address: North 2245 Sagamore Parkway, Lafayette, IN 47904

Reporting Year	Month	NG Usage (MMscf)	Monthly Summaries							24-Month Rolling Average						
			PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO	PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO
			(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)
2019	December	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020	January	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	February	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	March	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	April	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	May	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	June	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	July	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	August	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	September	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	October	0.03	3.28E-05	1.31E-04	1.31E-04	1.03E-05	4.83E-03	9.48E-05	1.45E-03	-	-	-	-	-	-	-
	November	0.57	5.45E-04	2.18E-03	2.18E-03	1.72E-04	8.03E-02	1.58E-03	2.41E-02	-	-	-	-	-	-	-
	December	8.57	8.14E-03	3.26E-02	3.26E-02	2.57E-03	1.20E+00	2.36E-02	3.60E-01	-	-	-	-	-	-	-
2021	January	4.84	4.60E-03	1.84E-02	1.84E-02	1.45E-03	6.78E-01	1.33E-02	2.03E-01	-	-	-	-	-	-	
	February	0.85	8.08E-04	3.23E-03	3.23E-03	2.55E-04	1.19E-01	2.34E-03	3.57E-02	-	-	-	-	-	-	
	March	15.80	1.50E-02	6.00E-02	6.00E-02	4.74E-03	2.21E+00	4.35E-02	6.64E-01	-	-	-	-	-	-	
	April	8.73	8.29E-03	3.32E-02	3.32E-02	2.62E-03	1.22E+00	2.40E-02	3.66E-01	-	-	-	-	-	-	
	May	0.47	4.46E-04	1.79E-03	1.79E-03	1.41E-04	6.58E-02	1.29E-03	1.97E-02	-	-	-	-	-	-	
	June	2.64	2.51E-03	1.00E-02	1.00E-02	7.93E-04	3.70E-01	7.27E-03	1.11E-01	-	-	-	-	-	-	
	July	0.49	4.68E-04	1.87E-03	1.87E-03	1.48E-04	6.90E-02	1.36E-03	2.07E-02	-	-	-	-	-	-	
	August	1.25	1.19E-03	4.74E-03	4.74E-03	3.74E-04	1.75E-01	3.43E-03	5.24E-02	-	-	-	-	-	-	
	September	0.58	5.55E-04	2.22E-03	2.22E-03	1.75E-04	8.17E-02	1.61E-03	2.45E-02	-	-	-	-	-	-	
	October	25.70	2.44E-02	9.77E-02	9.77E-02	7.71E-03	3.60E+00	7.07E-02	1.08E+00	-	-	-	-	-	-	
	November	2.28	2.16E-03	8.65E-03	8.65E-03	6.83E-04	3.19E-01	6.26E-03	9.56E-02	3.46E-02	0.14	0.14	1.09E-02	5.10	0.10	1.53
	December	7.65	7.27E-03	2.91E-02	2.91E-02	2.29E-03	1.07E+00	2.10E-02	3.21E-01	3.82E-02	0.15	0.15	1.21E-02	5.63	0.11	1.69
2022	January	1.85	1.76E-03	7.04E-03	7.04E-03	5.56E-04	2.59E-01	5.10E-03	7.78E-02	3.91E-02	0.16	0.16	1.23E-02	5.76	0.11	1.73
	February	0.46	4.33E-04	1.73E-03	1.73E-03	1.37E-04	6.38E-02	1.25E-03	1.92E-02	3.93E-02	0.16	0.16	1.24E-02	5.79	0.11	1.74
	March	0.60	5.69E-04	2.27E-03	2.27E-03	1.80E-04	8.38E-02	1.65E-03	2.51E-02	3.96E-02	0.16	0.16	1.25E-02	5.84	0.11	1.75
	April	1.21	1.15E-03	4.59E-03	4.59E-03	3.63E-04	1.69E-01	3.32E-03	5.08E-02	4.02E-02	0.16	0.16	1.27E-02	5.92	0.12	1.78
	May	1.43	1.35E-03	5.42E-03	5.42E-03	4.28E-04	2.00E-01	3.92E-03	5.99E-02	4.09E-02	0.16	0.16	1.29E-02	6.02	0.12	1.81
	June	12.66	1.20E-02	4.81E-02	4.81E-02	3.80E-03	1.77E+00	3.48E-02	5.32E-01	4.69E-02	0.19	0.19	1.48E-02	6.91	0.14	2.07
	July	1.37	1.30E-03	5.19E-03	5.19E-03	4.10E-04	1.91E-01	3.76E-03	5.74E-02	4.75E-02	0.19	0.19	1.50E-02	7.00	0.14	2.10
	August	0.50	4.71E-04	1.88E-03	1.88E-03	1.49E-04	6.94E-02	1.36E-03	2.08E-02	4.78E-02	0.19	0.19	1.51E-02	7.04	0.14	2.11
	September	0.97	9.19E-04	3.67E-03	3.67E-03	2.90E-04	1.35E-01	2.66E-03	4.06E-02	4.82E-02	0.19	0.19	1.52E-02	7.10	0.14	2.13
	October	19.98	1.90E-02	7.59E-02	7.59E-02	5.99E-03	2.80E+00	5.49E-02	8.39E-01	5.77E-02	0.23	0.23	1.82E-02	8.50	0.17	2.55
	November	3.67	3.48E-03	1.39E-02	1.39E-02	1.10E-03	5.14E-01	1.01E-02	1.54E-01	5.92E-02	0.24	0.24	1.87E-02	8.72	0.17	2.62
	December	9.30	8.83E-03	3.53E-02	3.53E-02	2.79E-03	1.30E+00	2.56E-02	3.91E-01	5.95E-02	0.24	0.24	1.88E-02	8.77	0.17	2.63
2023	January	2.49	2.36E-03	9.45E-03	9.45E-03	7.46E-04	3.48E-01	6.84E-03	1.04E-01	5.84E-02	0.23	0.23	1.84E-02	8.60	0.17	2.58
	February	1.85	1.76E-03	7.03E-03	7.03E-03	5.55E-04	2.59E-01	5.09E-03	7.78E-02	5.89E-02	0.24	0.24	1.86E-02	8.67	0.17	2.60
	March	19.66	1.87E-02	7.47E-02	7.47E-02	5.90E-03	2.75E+00	5.41E-02	8.26E-01	6.07E-02	0.24	0.24	1.92E-02	8.94	0.18	2.68
	April	2.29	2.17E-03	8.70E-03	8.70E-03	6.87E-04	3.20E-01	6.29E-03	9.61E-02	5.76E-02	0.23	0.23	1.82E-02	8.49	0.17	2.55
	May	0.33	3.17E-04	1.27E-03	1.27E-03	1.00E-04	4.67E-02	9.18E-04	1.40E-02	5.76E-02	0.23	0.23	1.82E-02	8.48	0.17	2.55
	June	0.32	3.06E-04	1.22E-03	1.22E-03	9.66E-05	4.51E-02	8.85E-04	1.35E-02	5.65E-02	0.23	0.23	1.78E-02	8.32	0.16	2.50
	July	0.92	8.76E-04	3.50E-03	3.50E-03	2.77E-04	1.29E-01	2.54E-03	3.87E-02	5.67E-02	0.23	0.23	1.79E-02	8.35	0.16	2.51
	August	0.31	2.91E-04	1.16E-03	1.16E-03	9.20E-05	4.29E-02	8.43E-04	1.29E-02	5.62E-02	0.22	0.22	1.78E-02	8.29	0.16	2.49
	September	38.13	3.62E-02	1.45E-01	1.45E-01	1.14E-02	5.34E+00	1.05E-01	1.60E+00	7.41E-02	0.30	0.30	2.34E-02	10.91	0.21	3.27
	October	1.58	1.50E-03	6.00E-03	6.00E-03	4.74E-04	2.21E-01	4.35E-03	6.64E-02	6.26E-02	0.25	0.25	1.98E-02	9.23	0.18	2.77
	November	-	-	-	-	-	-	-	-	6.15E-02	0.25	0.25	1.94E-02	9.07	0.18	2.72
	December	-	-	-	-	-	-	-	-	5.79E-02	0.23	0.23	1.83E-02	8.53	0.17	2.56
2024	January	-	-	-	-	-	-	-	-	5.70E-02	0.23	0.23	1.80E-02	8.40	0.17	2.52
	February	-	-	-	-	-	-	-	-	5.68E-02	0.23	0.23	1.79E-02	8.37	0.16	2.51
	March	-	-	-	-	-	-	-	-	5.65E-02	0.23	0.23	1.78E-02	8.33	0.16	2.50
24-Month Rolling Average Maximum Value -->										0.07	0.30	0.30	0.02	10.91	0.21	3.27

Notes:

1. Emission factors are from USEPA, AP-42, Fifth Edition, Vol. 1. Chapter 1 "External Combustion Sources", Section 1.4 "Natural Gas Combustion". July 1998. Table 1.4-1 "Emission Factors for NOx and CO from Natural Gas Combustion".

- a. Table 1.4-1 "Emission Factors for NOx and CO from Natural Gas Combustion".
- b. Table 1.4-2 "Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion"

Appendix B: Emission Calculations
BAE - Boiler 11B3

Company Name: DTE Vantage
 Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

Methodology:

The Baseline Actual Emissions (BAE) is the average rate, in tons per year (tpy), at which the unit actually emitted the regulated NSR pollutant during any consecutive 24-month period within the 5-year period preceding the date that a complete permit application is received by the agency or an alternative representative time period.

The calculations below determine the monthly pollutant emissions from Boiler 11B3 burning natural gas to be used in determining the BAE.

Basis:

The monthly pollutant emissions are based on the information from AP-42 Section 1.4:

Criteria Pollutants

$$E = EF \times NG \text{ Usage} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}}$$

where,

E = emissions, tons

EF = emission factor, lb/MMscf

NG Usage = NG burned, MMscf

Emission Factors

Pollutant	Emission Factor lb/MMscf-yr
PM	1.9
PM ₁₀	7.6
PM _{2.5}	7.6
SO ₂	0.6
NO _x	280
VOC	5.5
CO	84

BAE Calculations:

The 24-month rolling averages are calculated using the following equation:

$$E_{24\text{-month}} = \frac{\sum_{i=1}^N E_i}{2}$$

where,

E_{24-month} = 24-month rolling yearly average pollutant emissions, tons

E_i = project monthly pollutant emissions, tons

N = preceding 24 months

Appendix B: Emission Calculations
BAE - Boiler 11B3

Company Name: DTE Vantage

Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

Reporting Year	Month	NG Usage (MMscf)	Monthly Summaries							24-Month Rolling Average						
			PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO	PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO
			(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)
2019	December	34.68	3.29E-02	1.32E-01	1.32E-01	1.04E-02	4.86E+00	9.54E-02	1.46E+00	-	-	-	-	-	-	-
2020	January	32.06	3.05E-02	1.22E-01	1.22E-01	9.62E-03	4.49E+00	8.82E-02	1.35E+00	-	-	-	-	-	-	-
	February	9.06	8.61E-03	3.44E-02	3.44E-02	2.72E-03	1.27E+00	2.49E-02	3.80E-01	-	-	-	-	-	-	-
	March	5.11	4.85E-03	1.94E-02	1.94E-02	1.53E-03	7.15E-01	1.40E-02	2.15E-01	-	-	-	-	-	-	-
	April	22.36	2.12E-02	8.50E-02	8.50E-02	6.71E-03	3.13E+00	6.15E-02	9.39E-01	-	-	-	-	-	-	-
	May	0.61	5.78E-04	2.31E-03	2.31E-03	1.83E-04	8.52E-02	1.67E-03	2.56E-02	-	-	-	-	-	-	-
	June	0.36	3.39E-04	1.36E-03	1.36E-03	1.07E-04	5.00E-02	9.81E-04	1.50E-02	-	-	-	-	-	-	-
	July	0.54	5.17E-04	2.07E-03	2.07E-03	1.63E-04	7.62E-02	1.50E-03	2.28E-02	-	-	-	-	-	-	-
	August	6.38	6.06E-03	2.42E-02	2.42E-02	1.91E-03	8.93E-01	1.75E-02	2.68E-01	-	-	-	-	-	-	-
	September	13.77	1.31E-02	5.23E-02	5.23E-02	4.13E-03	1.93E+00	3.79E-02	5.78E-01	-	-	-	-	-	-	-
	October	13.97	1.33E-02	5.31E-02	5.31E-02	4.19E-03	1.96E+00	3.84E-02	5.87E-01	-	-	-	-	-	-	-
	November	0.61	5.81E-04	2.32E-03	2.32E-03	1.83E-04	8.56E-02	1.68E-03	2.57E-02	-	-	-	-	-	-	-
	December	7.36	6.99E-03	2.80E-02	2.80E-02	2.21E-03	1.03E+00	2.02E-02	3.09E-01	-	-	-	-	-	-	-
2021	January	4.56	4.33E-03	1.73E-02	1.73E-02	1.37E-03	6.39E-01	1.25E-02	1.92E-01	-	-	-	-	-	-	-
	February	0.85	8.06E-04	3.22E-03	3.22E-03	2.54E-04	1.19E-01	2.33E-03	3.56E-02	-	-	-	-	-	-	-
	March	13.84	1.31E-02	5.26E-02	5.26E-02	4.15E-03	1.94E+00	3.80E-02	5.81E-01	-	-	-	-	-	-	-
	April	7.86	7.47E-03	2.99E-02	2.99E-02	2.36E-03	1.10E+00	2.16E-02	3.30E-01	-	-	-	-	-	-	-
	May	0.52	4.89E-04	1.96E-03	1.96E-03	1.55E-04	7.21E-02	1.42E-03	2.16E-02	-	-	-	-	-	-	-
	June	2.28	2.16E-03	8.65E-03	8.65E-03	6.83E-04	3.19E-01	6.26E-03	9.56E-02	-	-	-	-	-	-	-
	July	0.50	4.70E-04	1.88E-03	1.88E-03	1.49E-04	6.93E-02	1.36E-03	2.08E-02	-	-	-	-	-	-	-
	August	1.29	1.22E-03	4.89E-03	4.89E-03	3.86E-04	1.80E-01	3.54E-03	5.41E-02	-	-	-	-	-	-	-
	September	0.64	6.05E-04	2.42E-03	2.42E-03	1.91E-04	8.91E-02	1.75E-03	2.67E-02	-	-	-	-	-	-	-
	October	23.70	2.25E-02	9.00E-02	9.00E-02	7.11E-03	3.32E+00	6.52E-02	9.95E-01	-	-	-	-	-	-	-
	November	9.23	8.77E-03	3.51E-02	3.51E-02	2.77E-03	1.29E+00	2.54E-02	3.88E-01	1.01E-01	0.40	0.40	3.18E-02	14.85	0.29	4.45
	December	6.88	6.53E-03	2.61E-02	2.61E-02	2.06E-03	9.63E-01	1.89E-02	2.89E-01	8.76E-02	0.35	0.35	2.76E-02	12.90	0.25	3.87
2022	January	16.27	1.55E-02	6.18E-02	6.18E-02	4.88E-03	2.28E+00	4.48E-02	6.84E-01	8.01E-02	0.32	0.32	2.53E-02	11.80	0.23	3.54
	February	7.94	7.54E-03	3.02E-02	3.02E-02	2.38E-03	1.11E+00	2.18E-02	3.33E-01	7.95E-02	0.32	0.32	2.51E-02	11.72	0.23	3.52
	March	10.62	1.01E-02	4.04E-02	4.04E-02	3.19E-03	1.49E+00	2.92E-02	4.46E-01	8.21E-02	0.33	0.33	2.59E-02	12.10	0.24	3.63
	April	6.89	6.54E-03	2.62E-02	2.62E-02	2.07E-03	9.64E-01	1.89E-02	2.89E-01	7.48E-02	0.30	0.30	2.36E-02	11.02	0.22	3.31
	May	5.39	5.12E-03	2.05E-02	2.05E-02	1.62E-03	7.54E-01	1.48E-02	2.26E-01	7.71E-02	0.31	0.31	2.43E-02	11.36	0.22	3.41
	June	9.11	8.65E-03	3.46E-02	3.46E-02	2.73E-03	1.27E+00	2.50E-02	3.82E-01	8.12E-02	0.32	0.32	2.56E-02	11.97	0.24	3.59
	July	0.46	4.34E-04	1.74E-03	1.74E-03	1.37E-04	6.39E-02	1.26E-03	1.92E-02	8.12E-02	0.32	0.32	2.56E-02	11.96	0.23	3.59
	August	0.50	4.78E-04	1.91E-03	1.91E-03	1.51E-04	7.05E-02	1.38E-03	2.11E-02	7.84E-02	0.31	0.31	2.48E-02	11.55	0.23	3.47
	September	0.90	8.52E-04	3.41E-03	3.41E-03	2.69E-04	1.26E-01	2.47E-03	3.77E-02	7.23E-02	0.29	0.29	2.28E-02	10.65	0.21	3.19
	October	17.92	1.70E-02	6.81E-02	6.81E-02	5.38E-03	2.51E+00	4.93E-02	7.53E-01	7.41E-02	0.30	0.30	2.34E-02	10.93	0.21	3.28
	November	4.67	4.43E-03	1.77E-02	1.77E-02	1.40E-03	6.53E-01	1.28E-02	1.96E-01	7.61E-02	0.30	0.30	2.40E-02	11.21	0.22	3.36
	December	0.47	4.46E-04	1.78E-03	1.78E-03	1.41E-04	6.57E-02	1.29E-03	1.97E-02	7.28E-02	0.29	0.29	2.30E-02	10.73	0.21	3.22
2023	January	0.96	9.15E-04	3.66E-03	3.66E-03	2.89E-04	1.35E-01	2.65E-03	4.04E-02	7.11E-02	0.28	0.28	2.24E-02	10.48	0.21	3.14
	February	0.93	8.85E-04	3.54E-03	3.54E-03	2.79E-04	1.30E-01	2.56E-03	3.91E-02	7.11E-02	0.28	0.28	2.25E-02	10.48	0.21	3.14
	March	2.30	2.19E-03	8.75E-03	8.75E-03	6.90E-04	3.22E-01	6.33E-03	9.67E-02	6.56E-02	0.26	0.26	2.07E-02	9.67	0.19	2.90
	April	0.87	8.25E-04	3.30E-03	3.30E-03	2.61E-04	1.22E-01	2.39E-03	3.65E-02	6.23E-02	0.25	0.25	1.97E-02	9.18	0.18	2.76
	May	0.30	2.82E-04	1.13E-03	1.13E-03	8.89E-05	4.15E-02	8.15E-04	1.25E-02	6.22E-02	0.25	0.25	1.96E-02	9.17	0.18	2.75
	June	0.48	4.54E-04	1.82E-03	1.82E-03	1.43E-04	6.69E-02	1.31E-03	2.01E-02	6.14E-02	0.25	0.25	1.94E-02	9.04	0.18	2.71
	July	0.92	8.78E-04	3.51E-03	3.51E-03	2.77E-04	1.29E-01	2.54E-03	3.88E-02	6.16E-02	0.25	0.25	1.94E-02	9.07	0.18	2.72
	August	0.34	3.26E-04	1.31E-03	1.31E-03	1.03E-04	4.81E-02	9.45E-04	1.44E-02	6.11E-02	0.24	0.24	1.93E-02	9.01	0.18	2.70
	September	35.69	3.39E-02	1.36E-01	1.36E-01	1.07E-02	5.00E+00	9.81E-02	1.50E+00	7.78E-02	0.31	0.31	2.46E-02	11.46	0.23	3.44
	October	1.59	1.51E-03	6.03E-03	6.03E-03	4.76E-04	2.22E-01	4.37E-03	6.67E-02	6.73E-02	0.27	0.27	2.12E-02	9.91	0.19	2.97
	November	-	-	-	-	-	-	-	-	6.29E-02	0.25	0.25	1.99E-02	9.27	0.18	2.78
	December	-	-	-	-	-	-	-	-	5.96E-02	0.24	0.24	1.88E-02	8.79	0.17	2.64
2024	January	-	-	-	-	-	-	-	-	5.19E-02	0.21	0.21	1.64E-02	7.65	0.15	2.29
	February	-	-	-	-	-	-	-	-	4.81E-02	0.19	0.19	1.52E-02	7.09	0.14	2.13
	March	-	-	-	-	-	-	-	-	4.31E-02	0.17	0.17	1.36E-02	6.35	0.12	1.90
24-Month Rolling Average Maximum Value -->										0.10	0.40	0.40	0.03	14.85	0.29	4.45

Notes:

1. Emission factors are from USEPA, AP-42, Fifth Edition, Vol. I. Chapter 1 "External Combustion Sources", Section 1.4 "Natural Gas Combustion". July 1998. Table 1.4-1 "Emission Factors for NOx and CO from Natural Gas Combustion".
 - a. Table 1.4-1 "Emission Factors for NOx and CO from Natural Gas Combustion".
 - b. Table 1.4-2 "Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion".

Appendix B: Emission Calculations
BAE - Boiler 31B1

Company Name: DTE Vantage
Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

Methodology:

The Baseline Actual Emissions (BAE) is the average rate, in tons per year (tpy), at which the unit actually emitted the regulated NSR pollutant during any consecutive 24-month period within the 5-year period preceding the date that a complete permit application is received by the agency or an alternative representative time period.

The calculations below determine the monthly pollutant emissions from Boiler 31B1 burning natural gas to be used in determining the BAE.

Basis:

The monthly pollutant emissions are based on the information from AP-42 Section 1.4 and facility stack testing:

Criteria Pollutants

$$E = EF \times NG \text{ Usage} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}}$$

where,

E = emissions, tons

EF = emission factor, lb/MMscf

NG Usage = NG burned, MMscf

Emission Factors

Pollutant	Emission Factor (lb/MMcf)	Notes
PM	1.9	[1]
PM ₁₀	7.6	[1]
PM _{2.5}	7.6	[1]
SO ₂	0.6	[1]
NO _x	100.57	[2]
VOC	5.5	[1]
CO	12.24	[2]

BAE Calculations:

The 24-month rolling averages are calculated using the following equation:

$$E_{24\text{-month}} = \frac{\sum_{i=1}^N E_i}{2}$$

where,

E_{24-month} = 24-month rolling yearly average pollutant emissions, tons

E_i = project monthly pollutant emissions, tons

N = preceding 24 months

Appendix B: Emission Calculations
BAE - Boiler 31B1

Company Name: DTE Vantage
Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

Reporting Year	Month	NG Usage	Monthly Summaries							24-Month Rolling Average						
			PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO	PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	VOC	CO
			(MMscf)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)	(tons)
2019	December	32.05	3.04E-02	1.22E-01	1.22E-01	9.62E-03	1.61E+00	8.81E-02	1.96E-01	-	-	-	-	-	-	-
2020	January	45.33	4.31E-02	1.72E-01	1.72E-01	1.36E-02	2.28E+00	1.25E-01	2.77E-01	-	-	-	-	-	-	-
	February	116.04	1.10E-01	4.41E-01	4.41E-01	3.48E-02	5.83E+00	3.19E-01	7.10E-01	-	-	-	-	-	-	-
	March	144.04	1.37E-01	5.47E-01	5.47E-01	4.32E-02	7.24E+00	3.96E-01	8.82E-01	-	-	-	-	-	-	-
	April	57.87	5.50E-02	2.20E-01	2.20E-01	1.74E-02	2.91E+00	1.59E-01	3.54E-01	-	-	-	-	-	-	-
	May	129.79	1.23E-01	4.93E-01	4.93E-01	3.89E-02	6.53E+00	3.57E-01	7.94E-01	-	-	-	-	-	-	-
	June	108.64	1.03E-01	4.13E-01	4.13E-01	3.26E-02	5.46E+00	2.99E-01	6.65E-01	-	-	-	-	-	-	-
	July	111.84	1.06E-01	4.25E-01	4.25E-01	3.36E-02	5.62E+00	3.08E-01	6.84E-01	-	-	-	-	-	-	-
	August	90.64	8.61E-02	3.44E-01	3.44E-01	2.72E-02	4.56E+00	2.49E-01	5.55E-01	-	-	-	-	-	-	-
	September	69.79	6.63E-02	2.65E-01	2.65E-01	2.09E-02	3.51E+00	1.92E-01	4.27E-01	-	-	-	-	-	-	-
	October	77.34	7.35E-02	2.94E-01	2.94E-01	2.32E-02	3.89E+00	2.13E-01	4.73E-01	-	-	-	-	-	-	-
	November	130.02	1.24E-01	4.94E-01	4.94E-01	3.90E-02	6.54E+00	3.58E-01	7.96E-01	-	-	-	-	-	-	-
	December	111.46	1.06E-01	4.24E-01	4.24E-01	3.34E-02	5.60E+00	3.07E-01	6.82E-01	-	-	-	-	-	-	-
2021	January	127.25	1.21E-01	4.84E-01	4.84E-01	3.82E-02	6.40E+00	3.50E-01	7.79E-01	-	-	-	-	-	-	-
	February	126.33	1.20E-01	4.80E-01	4.80E-01	3.79E-02	6.35E+00	3.47E-01	7.73E-01	-	-	-	-	-	-	-
	March	81.21	7.72E-02	3.09E-01	3.09E-01	2.44E-02	4.08E+00	2.23E-01	4.97E-01	-	-	-	-	-	-	-
	April	94.51	8.98E-02	3.59E-01	3.59E-01	2.84E-02	4.75E+00	2.60E-01	5.78E-01	-	-	-	-	-	-	-
	May	119.64	1.14E-01	4.55E-01	4.55E-01	3.59E-02	6.02E+00	3.29E-01	7.32E-01	-	-	-	-	-	-	-
	June	97.47	9.26E-02	3.70E-01	3.70E-01	2.92E-02	4.90E+00	2.68E-01	5.97E-01	-	-	-	-	-	-	-
	July	107.52	1.02E-01	4.09E-01	4.09E-01	3.23E-02	5.41E+00	2.96E-01	6.58E-01	-	-	-	-	-	-	-
	August	100.23	9.52E-02	3.81E-01	3.81E-01	3.01E-02	5.04E+00	2.76E-01	6.13E-01	-	-	-	-	-	-	-
	September	107.31	1.02E-01	4.08E-01	4.08E-01	3.22E-02	5.40E+00	2.95E-01	6.57E-01	-	-	-	-	-	-	-
	October	49.81	4.73E-02	1.89E-01	1.89E-01	1.49E-02	2.50E+00	1.37E-01	3.05E-01	-	-	-	-	-	-	-
	November	134.63	1.28E-01	5.12E-01	5.12E-01	4.04E-02	6.77E+00	3.70E-01	8.24E-01	1.13	4.50	4.50	0.36	59.61	3.26	7.25
	December	144.75	1.38E-01	5.50E-01	5.50E-01	4.34E-02	7.28E+00	3.98E-01	8.86E-01	1.18	4.72	4.72	0.37	62.44	3.41	7.60
2022	January	145.89	1.39E-01	5.54E-01	5.54E-01	4.38E-02	7.34E+00	4.01E-01	8.93E-01	1.23	4.91	4.91	0.39	64.97	3.55	7.91
	February	131.76	1.25E-01	5.01E-01	5.01E-01	3.95E-02	6.63E+00	3.62E-01	8.06E-01	1.23	4.94	4.94	0.39	65.37	3.57	7.96
	March	137.02	1.30E-01	5.21E-01	5.21E-01	4.11E-02	6.89E+00	3.77E-01	8.39E-01	1.23	4.93	4.93	0.39	65.19	3.56	7.93
	April	125.65	1.19E-01	4.77E-01	4.77E-01	3.77E-02	6.32E+00	3.46E-01	7.69E-01	1.26	5.05	5.05	0.40	66.89	3.66	8.14
	May	133.41	1.27E-01	5.07E-01	5.07E-01	4.00E-02	6.71E+00	3.67E-01	8.16E-01	1.27	5.06	5.06	0.40	66.98	3.66	8.15
	June	107.50	1.02E-01	4.09E-01	4.09E-01	3.23E-02	5.41E+00	2.96E-01	6.58E-01	1.26	5.06	5.06	0.40	66.96	3.66	8.15
	July	138.91	1.32E-01	5.28E-01	5.28E-01	4.17E-02	6.98E+00	3.82E-01	8.50E-01	1.28	5.11	5.11	0.40	67.64	3.70	8.23
	August	135.42	1.29E-01	5.15E-01	5.15E-01	4.06E-02	6.81E+00	3.72E-01	8.29E-01	1.30	5.20	5.20	0.41	68.76	3.76	8.37
	September	131.46	1.25E-01	5.00E-01	5.00E-01	3.94E-02	6.61E+00	3.62E-01	8.05E-01	1.33	5.31	5.31	0.42	70.31	3.85	8.56
	October	72.23	6.86E-02	2.74E-01	2.74E-01	2.17E-02	3.63E+00	1.99E-01	4.42E-01	1.33	5.30	5.30	0.42	70.18	3.84	8.54
	November	133.78	1.27E-01	5.08E-01	5.08E-01	4.01E-02	6.73E+00	3.68E-01	8.19E-01	1.33	5.31	5.31	0.42	70.28	3.84	8.55
	December	139.68	1.33E-01	5.31E-01	5.31E-01	4.19E-02	7.02E+00	3.84E-01	8.55E-01	1.34	5.36	5.36	0.42	70.99	3.88	8.64
2023	January	132.02	1.25E-01	5.02E-01	5.02E-01	3.96E-02	6.64E+00	3.63E-01	8.08E-01	1.34	5.37	5.37	0.42	71.11	3.89	8.65
	February	116.75	1.11E-01	4.44E-01	4.44E-01	3.50E-02	5.87E+00	3.21E-01	7.15E-01	1.34	5.36	5.36	0.42	70.87	3.88	8.62
	March	106.69	1.01E-01	4.05E-01	4.05E-01	3.20E-02	5.37E+00	2.93E-01	6.53E-01	1.35	5.40	5.40	0.43	71.51	3.91	8.70
	April	103.89	9.87E-02	3.95E-01	3.95E-01	3.12E-02	5.22E+00	2.86E-01	6.36E-01	1.36	5.42	5.42	0.43	71.74	3.92	8.73
	May	110.43	1.05E-01	4.20E-01	4.20E-01	3.31E-02	5.55E+00	3.04E-01	6.76E-01	1.35	5.40	5.40	0.43	71.51	3.91	8.70
	June	116.58	1.11E-01	4.43E-01	4.43E-01	3.50E-02	5.86E+00	3.21E-01	7.13E-01	1.36	5.44	5.44	0.43	71.99	3.94	8.76
	July	116.04	1.10E-01	4.41E-01	4.41E-01	3.48E-02	5.84E+00	3.19E-01	7.10E-01	1.36	5.46	5.46	0.43	72.21	3.95	8.79
	August	115.98	1.10E-01	4.41E-01	4.41E-01	3.48E-02	5.83E+00	3.19E-01	7.10E-01	1.37	5.49	5.49	0.43	72.60	3.97	8.84
	September	30.02	2.85E-02	1.14E-01	1.14E-01	9.01E-03	1.51E+00	8.26E-02	1.84E-01	1.33	5.34	5.34	0.42	70.66	3.86	8.60
	October	119.21	1.13E-01	4.53E-01	4.53E-01	3.58E-02	5.99E+00	3.28E-01	7.30E-01	1.37	5.47	5.47	0.43	72.40	3.96	8.81
	November	130.83	1.24E-01	4.97E-01	4.97E-01	3.92E-02	6.58E+00	3.60E-01	8.01E-01	1.37	5.46	5.46	0.43	72.31	3.95	8.80
	December	133.10	1.26E-01	5.06E-01	5.06E-01	3.99E-02	6.69E+00	3.66E-01	8.15E-01	1.36	5.44	5.44	0.43	72.02	3.94	8.76
2024	January	107.23	1.02E-01	4.07E-01	4.07E-01	3.22E-02	5.39E+00	2.95E-01	6.56E-01	1.34	5.37	5.37	0.42	71.04	3.89	8.65
	February	107.37	1.02E-01	4.08E-01	4.08E-01	3.22E-02	5.40E+00	2.95E-01	6.57E-01	1.33	5.32	5.32	0.42	70.43	3.85	8.57
24-Month Rolling Average Maximum Value -->										1.37	5.49	5.49	0.43	72.60	3.97	8.84

Notes:
 1. Emission factors are from USEPA, AP-42, Fifth Edition, Vol. I. Chapter 1 "External Combustion Sources", Section 1.4 "Natural Gas Combustion". July 1998. Table 1.4-1 "Emission Factors for NOx and CO from Natural Gas Combustion".
 a. Table 1.4-1 "Emission Factors for NOx and CO from Natural Gas Combustion".
 b. Table 1.4-2 "Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion"
 2. NOx and CO emission Factors from 2020 facility stack testing.

**Appendix B: Emission Calculations
Projected Emissions During the Interim Period**

Company Name: DTE Vantage
Address: North 2245 Sagamore Parkway, Lafayette, IN 47904

Methodology:

The Projected Actual Emissions is the maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a regulated NSR pollutant in any consecutive twelve (12) month period of the five (5) years following the date the unit resumes regular operation after the project.

The calculations below determine the projected monthly pollutant emissions from Boilers 11B2 and 11B3 during the project transition period.

Basis:

The monthly pollutant emissions are based on the information from AP-42 Section 1.4:

Criteria Pollutants

$$E = EF \times NG \text{ Usage} \times \frac{1 \text{ ton}}{2,000 \text{ lbs}}$$

where,

- E = emissions, tons
- EF = emission factor, lb/MMscf
- NG Usage = NG burned, MMscf

Emission Factors

Pollutant	Emission Factor (lb/MMscf) ¹
PM	1.9
PM ₁₀	7.6
PM _{2.5}	7.6
SO ₂	0.6
NO _x	280
VOC	5.5
CO	84

Emission Unit	Projected Heat Input (MMscf/mo)	Projected Heat Input (MMBtu/mo)	Emissions (tpy)						
			PM	PM10	PM2.5	SO2	NOx	VOC	CO
11B2	8.64	8812.80	0.10	0.39	0.39	0.03	14.52	0.29	4.35
11B3	11.52	11750.40	0.13	0.53	0.53	0.04	19.35	0.38	5.81

Notes:

1. Emission factors are from USEPA, AP-42, Fifth Edition, Vol. I. Chapter 1 "External Combustion Sources", Section 1.4 "Natural Gas Combustion". July 1998. Table 1.4-1 "Emission Factors for NOx and CO from Natural Gas Combustion".

- a. Table 1.4-1 "Emission Factors for NOx and CO from Natural Gas Combustion".
- b. Table 1.4-2 "Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion"

Appendix B: Emission Calculations
Potential to Emit During the Interim Period - Cogeneration Unit

Company Name: DTE Vantage
 Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

Basis:		
Number of Combustion Turbines	2	
Fuel Burn Rate (per Combustion Turbine) ¹	125249	MMBtu/mo (HHV)
Hours of Operation (per Combustion Turbine)	8,760	hr/yr
less startups and shutdowns	8,748	hr/yr
Oxidation Catalyst Control Efficiency ¹⁰	84%	
Number of Duct Burners	2	
Fuel Burn Rate (per HRSG) ¹	73716	MMBtu/mo (HHV)
Fuel Limitations (total HRSG)		
Load Fired	95,040	MMBtu/mo
Fresh Air fired	89,887	MMBtu/mo
	5,153	MMBtu/mo
Fuel	Natural Gas	
Heating Value of Fuel	1,020	Btu/scf (HHV)
Fuel Sulfur Content	20	gr/100 dscf ²
Startup/Shutdown Operations³		
Number of Startups Per Year	20	startups
Duration of Startups	30	minutes
Heat Input per Startup	87	MMBtu
Number of Shutdowns Per year	20	shutdowns
Duration of Shutdowns	5	minutes
Heat Input per Shutdown	14	MMBtu
Total Startup/Shutdown Hours per Year	12	hours

Combustion Turbines Emissions Summary - Steady State Operation

Pollutant	Uncontrolled Emission Rate per Turbine			Controlled Emission Rate per Turbine			Total Uncontrolled PTE (tpy)	Total Controlled PTE (tpy)	Total Controlled PTE (tpy)
	(lb/MMBtu) (HHV)	Notes	(lb/mo)	(lb/MMBtu) (HHV)	Notes	(lb/mo)			
CO	3.36E-02	[4]	4209.78	5.38E-03	[4,10]	673.57	50.52	8.08	8.18
NO _x	3.31E-02	[4]	4149.64	3.31E-02	[4]	4149.64	49.80	49.80	50.42
VOC (as CH ₄)	2.10E-03	[5]	263.02	2.10E-03	[5]	263.02	3.16	3.16	3.20
PM (filterable only)	1.90E-03	[5]	237.97	1.90E-03	[5]	237.97	2.86	2.86	2.89
PM ₁₀ (filterable + condensable)	6.00E-03	[4]	751.49	6.00E-03	[4]	751.49	9.02	9.02	9.13
PM _{2.5} (filterable + condensable)	6.00E-03	[4]	751.49	6.00E-03	[4]	751.49	9.02	9.02	9.13
SO ₂	4.31E-05	[5]	5.39E+00	4.31E-05	[5]	5.39E+00	0.06	0.06	0.07
H ₂ SO ₄	3.96E-05	[6]	4.95E+00	3.96E-05	[6]	4.95E+00	0.06	0.06	0.06

Combustion Turbines Emissions Summary - Startup/Shutdown Operation

Pollutant	Uncontrolled Emission Rate per Turbine						Total Annual Emissions Attributable to SU/SD (tpy)
	Cold Startup			Shutdown			
	(lb/event)	total tons	Notes	(lb/event)	total tons	Notes	
CO	20	2.00E-01	[8]	21	2.10E-01	[8]	8.20E-01
NO _x	1	1.00E-02	[8]	1	1.00E-02	[8]	4.00E-02
VOC (as CH ₄)	5	5.00E-02	[8]	5	5.00E-02	[8]	2.00E-01
PM (filterable only)	0.17	1.65E-03	[9]	0.03	2.75E-04	[9]	3.86E-03
PM ₁₀ (filterable + condensable)	0.52	5.22E-03	[9]	0.09	8.70E-04	[9]	1.22E-02
PM _{2.5} (filterable + condensable)	0.52	5.22E-03	[9]	0.09	8.70E-04	[9]	1.22E-02
SO ₂	3.75E-03	3.75E-05	[9]	6.24E-04	6.24E-06	[9]	8.74E-05
H ₂ SO ₄	3.44E-03	3.44E-05	[9]	5.73E-04	5.73E-06	[9]	8.03E-05

Appendix B: Emission Calculations
Potential to Emit During the Interim Period - Cogeneration Unit

Company Name: DTE Vantage
 Address: 2245 North Sagamore Parkway, Lafayette, IN 47904

HRSGs Emissions Summary

Pollutant	Uncontrolled Emission Rate per HRSg					Total Maximum Uncontrolled PTE (tpy)	Total Maximum Limited PTE (tpy)
	Gas Firing	Fresh Air Firing	Notes	Gas Firing	Fresh Air Firing		
	(lb/MMBtu) (HHV)	(lb/MMBtu) (HHV)		(lb/mo)	(lb/mo)		
CO	8.00E-02	8.00E-02	[4]	5897.32	5897.32	70.77	70.77
NO _x	8.00E-02	2.00E-01	[4]	5897.32	14743.30	176.92	49.33
VOC (as CH ₄)	1.00E-02	1.00E-02	[4]	737.16	737.16	8.85	8.85
PM (filterable only)	1.86E-03	1.86E-03	[7]	137.32	137.32	1.65	1.65
PM ₁₀ (filterable + condensable)	6.00E-03	6.00E-03	[4]	442.30	442.30	5.31	5.31
PM _{2.5} (filterable + condensable)	6.00E-03	6.00E-03	[4]	442.30	442.30	5.31	5.31
SO ₂	5.88E-04	5.88E-04	[7]	43.36	43.36	0.52	0.52

Co-gen Emissions Summary - Maximum PTE

Pollutant	Turbines					HRSGs	Total
	Controlled Emissions from Steady State (tpy)	Controlled Emissions from Steady State (less SUSDs) (tpy)	Annual Emissions Attributable to SU/SD (tpy)	Total Controlled Steady State and SU/SD (tpy)	Maximum Controlled PTE (tpy)	Limited PTE (tpy)	Turbine and HRSG Maximum Controlled/Limited PTE (tpy)
	CO	8.08	8.18	8.20E-01	9.00	9.00	70.77
NO _x	49.80	50.42	4.00E-02	50.46	50.46	49.33	99.13
VOC (as CH ₄)	3.16	3.20	2.00E-01	3.40	3.40	8.85	12.00
PM (filterable only)	2.86	2.89	3.86E-03	2.90	2.90	1.65	4.50
PM ₁₀ (filterable + condensable)	9.02	9.13	1.22E-02	9.14	9.14	5.31	14.33
PM _{2.5} (filterable + condensable)	9.02	9.13	1.22E-02	9.14	9.14	5.31	14.33
SO ₂	0.06	0.07	8.74E-05	0.07	0.07	0.52	0.59
H ₂ SO ₄	0.06	0.06	8.03E-05	0.06	0.06	0.00	0.06

Notes:

- Heat input values per vendor-provided data.
- Fuel sulfur content from site specific natural-gas specifications.
- Based on vendor-provided site-specific startup/shutdown emissions calculations.
- Emission Factors from vendor-provided emission guarantees.
- Emission factors from AP-42 Chapter 3.1, Table 3.1-2a.
- Emission factor calculated using "1023790_Estimating Total Sulfuric Acid Emission from Stationary Power Plants (1).pdf"
- Emission factors provided in lb/10⁶ scf in AP-42 Chapter 1.4, Table 1.4-2 and converted to lb/MMBtu.
- Tons per year (tpy) per respective startup-shutdown operation are calculated as the product of lb/event and the annual number of such events, divided by 2,000 lb/ton.
- No preliminary vendor-provided site-specific startup/shutdown emission calculations have been provided to date for this pollutant.
 Because emissions are dependent on fuel makeup, startup/shutdown emission concentrations are assumed to be equal to the lb/MMBtu (HHV) values from uncontrolled combustion turbine steady state operations. Therefore, lb/event factors are calculated as the product of the pollutant-specific lb/MMBtu (HHV) value and the heat input (MMBtu [HHV]) per startup/shutdown event.
- Oxidation catalyst control efficiency is based on vendor-provided data.