

State Registration
Number
M0675

**RENEWABLE OPERATING PERMIT
STAFF REPORT**

ROP Number
MI-ROP-M0675-2021b

THE REGENTS OF THE UNIVERSITY OF MICHIGAN

State Registration Number (SRN): M0675

Located at

1239 Kipke Drive, Ann Arbor, Washtenaw County, Michigan County, Michigan 48109

Permit Number: MI-ROP-M0675-2021b

Staff Report Date: May 10, 2021

Amended Dates: June 17, 2022
September 2, 2022

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

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RENEWABLE OPERATING PERMIT

MAY 10, 2021 - STAFF REPORT

ROP Number

MI-ROP-M0675-
2021

Purpose

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

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

General Information

Stationary Source Mailing Address:	The Regents of the University of Michigan 1239 Kipke Drive Environment, Health & Safety Campus Safety Services Building Ann Arbor, Michigan 48109-1010
Source Registration Number (SRN):	M0675
North American Industry Classification System (NAICS) Code:	611310
Number of Stationary Source Sections:	1
Is Application for a Renewal or Initial Issuance?	Renewal
Application Number:	201800135
Responsible Official:	Ms. Danielle Sheen, Executive Director – Environment, Health and Safety 734-647-1143
AQD Contact:	Diane Kavanaugh Vetort, Senior Environmental Quality Analyst 517-416-3537
Date Application Received:	October 30, 2018
Date Application Was Administratively Complete:	October 30, 2018
Is Application Shield in Effect?	Yes
Date Public Comment Begins:	May 10, 2021
Deadline for Public Comment:	June 9, 2021

Source Description

The University of Michigan (UM), founded in 1817, is a large public university consisting of over 600 buildings located in Washtenaw County, Ann Arbor, Michigan. Heating, cooling, and electricity is supplied by the Central Power Plant, Hoover Heating Plant, North Campus Research Complex Power Plant, or a number of stand-alone boilers, and emergency generators. There are 5 campuses (North Campus, Central Campus, Medical Campus, Athletic/South Campus, and East Campus) encompassing over 1100 acres. Air emissions from the facility are primarily the products of natural gas and low sulfur fuel oil combustion.

The Central Power Plant (CPP) supplies the heating, cooling, and electrical demands of a significant portion of the buildings on the Central Campus and the Medical Campus through the operation of 4 large natural gas/oil-fired boilers, 2 electrical generating steam turbines, and 3 cogeneration/combined cycle systems (one is new and not yet installed) consisting of 2 electrical generating gas-fired turbines and 2 connected heat recovery boilers. Nitrogen oxides (NOx) emission control on both existing turbines consists of water injection combustion control. EUB0260-01 was permanently removed from the CPP. This boiler was listed in MI-ROP-M0675-2014a in Tables FGB0260-01-02 (now revised to EUB0260-02) and FGBLRMACT-LG. In 2018 UM applied for and obtained a new PTI to build a natural gas-fired combined cycle combustion turbine heat and power (CHP) unit at their existing CPP. The EU-CPP-CHPHRSG unit includes a combustion turbine generator with heat recovery steam generator. The primary fuel is natural gas with ultra-low sulfur diesel as a backup fuel. The CHP is equipped with a natural gas-fired duct burner to provide heat for additional steam production. The CHP includes air pollution controls to reduce oxides of nitrogen (NOx) emissions. The CPP has a total powerhouse maximum heat input capacity of approximately 1305 million BTU per hour (MMBTU/hr.) and a faceplate maximum electrical production capability of 44.5 Megawatts (MW). Another 302 MMBTU/hr heat input will be added due to the new CHP.

A secondary power plant, the Hoover Heating Plant (HHP), is located on the Athletic/South Campus and supplies steam to several building complexes including transportation fleet services, engineering services, campus police, environmental services, and the athletic complex. In 2015 the existing EUB0805-04 was removed and replaced with a smaller exempt boiler (19.9 MMBTU/hr). This powerhouse consists of 3 small to medium-sized boilers firing natural gas or No. 2 fuel oil with a total heat input capacity of about 82 MMBTU/hr.

In 2009 UM purchased the buildings housing the former Pfizer Global Research and Development (PGRD), now known as the North Campus Research Center (NCRC). The complex is located at 2800 Plymouth Road and 1600 Huron Parkway, locations that are separated by Huron Parkway, a public road. The complex consists of 28 buildings, comprising 2.1 million square feet of office and laboratory research space. The complex also includes support buildings (e.g., shipping/receiving) and free-standing power plant/chiller buildings. The NCRC is located directly adjacent to UM's existing North Campus.

The significant sources of criteria air pollutants at the NCRC power plant are four (4) medium- large size steam boilers (EUBOILER2,3,5,6), two (2) steam generators (EUBOILER1A & 1B), and a gas-fired turbine/heat recovery boiler cogeneration system (EUTURBINE & EUDUCTBURNER), all fired by natural gas or No. 2 fuel oil. The NCRC power plant has a total heat input capacity of about 382 MMBTU/hr., and a maximum steam capacity of 295,000 lbs/hr.

Six (6) diesel emergency generators and one (1) diesel fire pumps located at the NCRC powerhouse or in adjacent buildings were covered by permits to install originally and then brought into the previous ROP. Two (2) additional permit exempt diesel generators are included in the flexible group, FGZZZZ-C1<500.

UM also operates two (2) medium-sized boilers fired by natural gas or No. 2 fuel oil, two (2) small boilers fired by natural gas, and three (3) diesel emergency generators located at the Brehm Tower Building covered under PTI No. 13-08 and are now included as FGB5102-01-02, FGB5102-03-04, and FG3GENS-5102.

Sixteen (16) diesel emergency generators, subject to 40 CFR Part 60, Subpart IIII, and covered under PTI No. 38-09, PTI No. 33-10, and PTI No. 188-16 are now included as FG4GENS-5173, FG10GENS-2MW, and FGPATHEGENS respectively.

Numerous existing permit exempt emergency generators powered by diesel and/or natural gas are included in FGEMERG-III and FGEMERG-JJJJ.

The remaining buildings not serviced by the Central Power Plant, the Hoover Heating Plant, and the North Campus Research Complex Power Plant, such as those of North Campus, and East Campus are serviced by stand-alone boilers which are all permit to install exempt. The only underlying requirement for these exempt boilers is the new National Emission Standards for Hazardous Air Pollutants for Major (HAP) Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR Part 63, Subpart DDDDD, which is covered in the flexible groups FGBLRMACT-LG and FGBLRMACT-SM. The emissions from these boilers are reported in the aggregate in the annual air emissions reporting.

Other emission units of note include the pathological crematory incinerator EUI0213-02 located in the Anatomy Department in the Medical Sciences Building II, covered by Permit to Install No. 176-15, and FG6ETO that include six (6) ethylene oxide (EtO) sterilizers and controls covered under PTI No. 30-13.

Since issuance of the previous ROP, UM obtained four new PTIs No.188-16, No. 31-18, No. 1-18, and No. 34-20 that have conditions that must be introduced to the ROP and are referenced in the renewal application.

PTI 188-16: EUPATH-DGEN1 and EUPATH-DGEN2 two 1500-kilowatt (kW) diesel-fueled emergency engines with a model year of 2017 and a displacement of 4.3 liters/cylinder. Installed in 2017.

PTI 31-18: A modification to the nitrogen oxide emission control via water to fuel monitoring devices associated with EUT0260-09 and EUT0260-10 two natural gas turbines at the CPP. Both can be fueled by natural gas or No. 2 fuel oil and are rated at 3.8 MW. Installed 9-22-2005.

PTI 1-18: In 2018 UM applied for and obtained a new PTI to build a natural gas-fired combined cycle combustion turbine heat and power (CHP) unit at their existing CPP. The EU-CPP-CHPHRSG unit includes a combustion turbine generator with heat recovery steam generator. The primary fuel is natural gas with ultra-low sulfur diesel as a backup fuel. The CHP is equipped with a natural gas-fired duct burner to provide heat for additional steam production. The CHP includes air pollution controls to reduce oxides of nitrogen (NOx) emissions. The UM has commenced construction of the project, however the CHP has yet to be installed and is referenced in the ROP with future applicable requirements.

PTI 34-20: In 2020 UM applied for and obtained a new PTI to install three emergency generators in the Michigan Medicine Clinical Inpatient Tower (CIT). The FGCITENGINES contains three 2,682 horsepower diesel-fueled emergency engines EUCIT01, EUCIT02, EUCIT03. The UM has not commenced construction of the project.

The following table lists stationary source emission information as reported to the Michigan Air Emissions Reporting System (MAERS) for the year 2019.

TOTAL STATIONARY SOURCE EMISSIONS

Pollutant	Tons per Year
Carbon Monoxide (CO)	143
Lead (Pb)	NA
Nitrogen Oxides (NO _x)	312
Particulate Matter (PM)	16
Sulfur Dioxide (SO ₂)	2

Pollutant	Tons per Year
Volatile Organic Compounds (VOCs)	12.5
Ammonia	9

The following table lists Hazardous Air Pollutant emissions as calculated for the year 2019 by the UM:

Individual Hazardous Air Pollutants (HAPs) **	Pounds per Year
Ethylene Oxide	0.5
Total Hazardous Air Pollutants (HAPs)	0.5

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

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

Regulatory Analysis

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

Washtenaw County is currently designated by the United States Environmental Protection Agency (USEPA) as a non-attainment area with respect to the 8-hour ozone standard.

The stationary source is subject to Title 40 of the Code of Federal Regulations (CFR) Part 70, because the potential to emit of carbon monoxide, nitrogen oxides, volatile organic compounds, sulfur dioxide, and particulate (PM-10) exceeds 100 tons per year, and the potential to emit of any single HAP regulated by Section 112 of the federal Clean Air Act, is equal to or more than 10 tons per year and/or the potential to emit of all HAPs combined is equal to or more than 25 tons per year.

EUB0260-06, EUI0213-02, EUT0260-09, EUT0260-10, EUB0805-02, EUB0805-03, EUB0805-04, EUB550-GEN, EUTURBINE, EUDUCTBURNER, EUB800-GEN1, and all of the emission units associated with FG6ETO, FGB5102-01-02, FGB5102-03-04, FG3GENS-5102, FG4GENS-5173, FG10DGENS-2MW, FGBOILERS-1A&1B, FGBOILERS2&3, FGBOILERS5&6, FG85-EMERGENS, FG85-FIREPUMPS, and EU-CPP-CHPHRSG at the stationary source were subject to review under the Prevention of Significant Deterioration regulations of 40 CFR 52.21, because at the time of New Source Review permitting the potential to emit of CO, NOx, VOC, SO2, PM-10 was greater than 250 tons per year.

The source has applicable requirements for GHG as a result of review under the Prevention of Significant Deterioration regulations. These Best Available Control Technology (BACT) requirements for GHG are included in the ROP. The mandatory Greenhouse Gas Reporting Rule under 40 CFR Part 98 is not an ROP applicable requirement and is not referenced in the ROP.

EUBOILER2 and EUBOILER3 were installed prior to August 15, 1967. As a result, this equipment is considered "grandfathered" and is not subject to New Source Review (NSR) permitting requirements. However, future modifications of this equipment may be subject to NSR.

FG6ETO (six ethylene oxide (EtO) sterilizers): The requirement to conduct performance testing to verify the control efficiency of each unit's catalytic oxidizer during the five year period of this renewal was added to the ROP. UM notified EGLE AQD of the intent to replace the current EtO sterilizers this upcoming fiscal year which starts July 1, 2021. UM would work with EGLE to ensure all regulatory requirements are met with the new EtO units if they are permitted or they will conduct the testing of the existing units as indicated.

UM is currently subject to the following New Source Performance Standards (NSPS) 40 CFR Part 60: Subpart Db, Subpart Dc, 60.51c, 60.2887, 60.2977, Subpart GG, Subpart IIII, Subpart JJJJ, and Subpart KKKK. Specifically:

EUB0260-06 at the stationary source is subject to the NSPS for Industrial-Commercial-Institutional Steam Generating Units promulgated in 40 CFR Part 60, Subparts A and Db.

EUB0805-02, EUB0805-03, and all of the emission units associated with FGB5102-01-02, FGB5102-03-04, FGBLRS-1A&1B, and FGBOILERS5&6 at the stationary source are subject to the NSPS for Small Industrial-Commercial-Institutional Steam Generating Units promulgated in 40 CFR Part 60, Subparts A and Dc.

EUT0260-09, EUT0260-10, and EUTURBINE at the stationary source are subject to the NSPS for Stationary Gas Turbines promulgated in 40 CFR Part 60, Subparts A and GG.

EUCPP-CHPHRSG at the stationary source is subject to the NSPS for Stationary Combustion Turbines promulgated in 40 CFR Part 60, Subparts A and KKKK.

All of the emission units associated with FG3GENS-5102, FG4GENS-5173, FG10GENS-2MW, and FGEMERG-III (EUGEN-5102-01, EUGEN-5102-02, EUGEN-5102-03, EUGEN-5173-01, EUGEN-5173-02, EUGEN-5173-03, EUGEN-5173-04, EUMITC-GEN1, EUMITC-GEN2, EUMITC-GEN3, EUCVC-GEN1, EUCVC-GEN2, EUMCIT-GEN1, EUMCIT-GEN2, EUB800-GEN1, EUBOTGARDEN, EUPATH-DGEN1, EUPATH-DGEN2, EUCIT01, EUCIT02, EUCIT03) at the stationary source are subject to the NSPS for Stationary Compression Ignition Internal Combustion Engines promulgated in 40 CFR Part 60, Subpart A and IIII.

All of the emission units associated with FGEMERG-JJJJ (EUGERST, EUCSSB, EUCOUZENS, EUCCLITTLE, EUHILLSTPARK, EURUTHVEN, EUSOUTHALL, EUTHOMPSONPK, EUVARSITYDR, EUGLENPARKING, EUWALLPARKING, EUMUSIC, EUROSS500KW, EUROSS350KW, EUVARSITY550KW, EUGGBROWN150KW, EUNCACNATGAS, EULORCH, EUGEN-ISR, EUGENSOUTHQUAD, EUBSB-01, EUBSB-02, EUMUNGER-02, EUNCRCB073, EUWESTQUAD, EUROBOTICS, EUMEDCTRPARKING, EUKRAUS, EUSOUTHPERFORMANCE) at the stationary source are subject to NSPS for Stationary Spark Ignition Internal Combustion Engines promulgated in 40 CFR Part 60, Subpart A and JJJJ.

UM is currently subject to the following National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Major Sources 40 CFR Part 63: Subpart ZZZZ, Subpart DDDDD, and Subpart YYYY.

All of the emission units associated with FGZZZZ-CI<500, FGZZZZ-CI>500, FGZZZZ-SI<500 and FGZZZZ-SI>500, FGZZZZ-CI>500 NEW, and FGZZZZ-SI>500 NEW at the stationary source are subject to the NESHAP: Stationary Reciprocating Internal Combustion Engines (RICE) promulgated in 40 CFR Part 63, Subpart A and ZZZZ:

EUB550-GEN, EUB080-GEN, EUB85-EMERGEN1, EUB85-EMERGEN2, EUB85-FIREPUMP2, EUKELLOGG-UP, EUNCADMIN, EUALICELLOYD, EUCPP, EUAUXSERV, EUBIOMEDENG, EUCOOLEY, EUCSE, EUDUDER, EUFACSERVA, EUFORDLIB, EUFXB, EUNCMICRO, EUPRINTGEN, EUPERRY, EUROSSACAD, EUSINDUST, EUWOLVERINE, EUWOMENGYM, EUANNPARK, EUHEALTH, EUMEDSCI2, EUSIMPSONPKG, EUUMHOLDEN, EUUMHMEDINN, EUCHURCHST, EUCOOKLEGAL, EUEASTQUAD, EUSPH1, EUHAVEN, EUKRESGELIB, EUOBSERLODGE, EURACKHAM, EUSOCIALWK, EUWESTHALL, EUWYLYHALL, EUARBORLKS1, EUARBORLKS2-45, EUNURSING, EUNCRC-B075, EUTRAVERWOOD, EUADMINSERV, EUMSRB-III, EUMLB, EUPALMERCMM, EUPALMER PARK, EUTHAYER, EUUNDERSCI, EUUMH-GEN4, EUUMHGEN1, EUUMHGEN2, EUUMHGEN3, EUUMHMCHC, EUUMHEMBMOTT, EUARBORLKS3, EUB016-GEN, EUBSRB-GEN1, EUBSRB-GEN2, EUARBORLKS2, EUEECS-880KW, EUEECS-800KW, EUFBALL-

WEST, EUFBALL-EAST, EUHATCHER, EULSA, EULSI1, EULSI2, EUNORTHQUAD, EUROSSBUS1, EUROSSBUS2, EUPHOENIX, EUWALGREEN, EUARF, EUDENNISON, EUFLETCHER, EUFORDSCHOOL, EUSPH2, EUMOJOFOOD, EUSTOCKWELL, EUSHEPARDGYM.

All of the emission units associated with FGBLRMACT-LG and FGBLRMACT-SM at the stationary source are subject to the NESHAP: Industrial, Commercial, and Institutional Boilers and Process Heaters promulgated in 40 CFR Part 63, Subpart A and DDDDD.

FGBLRMACT-LG:

EU-B0260-02, EU-B0260-03, EU-B0260-04, EU-B0260-06, EU-B0805-02, EU-B0805-03, EU-B0805-04, EU-B5102-01, EU-B5102-02, EU-B5102-03, EU-B5102-04, EU-BOILER2, EU-BOILER3, EU-BOILER1A, EU-BOILER1B, EU-BOILER5, EU-BOILER6, EU-B0400-01, EU-B0400-02, EU-B0407-LP-01, EU-B0407-LP-02, EU-B0407-LP-03, -EU-B0423-01, EU-B0423-02, EU-B0425-03, EU-B0555-01, EU-B0555-02.

FGBLRMACT-SM (Equal to or less than 5 MMBTU/hr):

EUB0350-01, EUB0396-03, EUB0399-01, EUB0399-02, EUB0399-03, EUB0406-01, EUB0406-02, EUB0406-NEW-1, EUB0406-NEW-02, EUB0409-01, EUB0437-01, EUB0437-02, EUB0437-03, EUB0437-SB-01, EUB0439-01, EUB0439-02, EUB0440-02, EUB0515-01, EUB0515-02, EUB0515-03, EUB0515-04, EUB0709-02, EUB0710-01, EUB0711-DHWH-1, EUB0711-DHWH-2, EUB0742-01, EUB0742-02, EUB0799-01, EUB0812-01, EUB0816-01, EUB0857-01, EUB0857-02, EUB0890-01, EUB0890-02, EUB0890-03, EUB0982-01, EUB0982-02, EUB0982-03, EUB2501-01, EUB5038-01, EUB5038-02, EUB5038-DHWH-1, EUB5038-DHWH-2, EUB5092-01, EUB5092-02, EUB5092-03, EUB5059-01, EUB5059-02, EUB5059-03, EUB5059-04, EUB5059-DHWH-05, EUB5117-01, EUB5117-02, EUB5283-01, EUB8081-2-01, EUB5418-01, EUB5418-02, EUCOLISEUM, EUB0427-01, EUB0427-02, EUB0444-01, EUB0444-02, EUB044-03, EUB0457-01, EUB0457-02, EUB0460-01, EUB0460-02, EUB0498-01, EUB0498-02, EUB0498-03, EUB0812-02, EUB0812-03, EUB8090-01, EUB8090-02, EUB8090-03, EUB8090-04, EUB5399-01, EUB5399-02, EUB5399-03, EUB5347-01, EUB5347-02, EUB5347-03, EUB5369-01, EUB5369-02, EUB5369-03

FGBLRMACT-SM (Greater than 5 MMBTU/hr and less than 10 MMBTU/hr):

EUB0324-01, EUB0324-02, EUB0396-01, EUB0396-02, EUB0403-01, EUB0403-02, EUB0403-03, EUB0437-SB-02, EUB0437-SB-03, EUB0440-01, EUB0440-03, EUB0441-01, EUB0441-02, EUB0512-01, EUB0512-02, EUB0442-02, EUB0442-03, EUB0448-01, EUB0448-02, EUB0448-03, EUB0448-04, EUB0555-03, EUB0555-04, EUB0555-05, EUB0799-02, EUB0831-01, EUB0831-02, EUB0432-01, EUB0432-02

EUT0260-09, EUT0260-10, and EUTURBINE are subject to the National Emission Standards for Hazardous Air Pollutants for Major (NESHAP) Sources: Stationary Combustion Turbines promulgated in 40 CFR Part 63, Subpart A and YYYY. EUT0260-10, and EUTURBINE are “existing” diffusion flame stationary combustion turbines (commenced construction before January 14, 2003), and as such, under 63.6090(b)(3) do not have to meet the requirements of Subpart YYYY or A of Part 63. EUT0260-09 is a “new” diffusion flame stationary combustion turbine located at a major source where all new, reconstructed, and existing stationary combustion turbines fire oil no more than an aggregate total of 1000 hours during the calendar year. According to 63.6095(d), EUT0260-09 must comply with the initial Notification requirements set forth in 63.6145 but need not comply with any other requirement of this subpart until EPA takes final action to require compliance and publishes a document in the Federal Register.

EUB0260-03, EUB0260-04 and EUB0260-06 at the stationary source are subject to the following condition in the ROP pursuant to 40 CFR Part 96, NOx Budget Trading Program and CAIR NOx and SO2 Trading Programs for State Implementation Plans, Subpart H - Monitoring and Reporting: *The permittee shall meet the monitoring, recordkeeping, and reporting requirements of the NOx SIP Call during the ozone season (May 1 through September 30). (40 CFR Part 96, Subpart H)*

The AQD's Rule 287 was revised on December 20, 2016. FGRULE287(2)(c) is a flexible group table in UM's ROP created for emission units subject to these rules. Emission units installed before December 20, 2016, can comply with the requirements of Rule 287 in effect at the time of installation or modification as identified in the tables: however; emission units installed or modified on or after December 20, 2016, must comply with the requirements of the current rules as outlined in the table.

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

EUT0260-09; EUT0260-10; and FGBT0260-CO have emission limitations or standards that are subject to the federal Compliance Assurance Monitoring (CAM) rule pursuant to 40 CFR Part 64, because the units have potential pre-control emissions over the major source thresholds. EUT0260-09, and EUT0260-10 each have an identical control device, and each has potential pre-control emissions of NOx greater than the major source threshold level. The continuous monitoring device for the control is to equip and maintain with instrumentation to continuously monitor and record the fuel consumption and the ratio of water-to-fuel being fired in EUT0260-09, and EUT0260-10. The fuel consumption rate shall be monitored using a meter and the water injection rate shall be monitored using a meter. The minimum water-to-fuel values shall be 0.5 when firing natural gas and 0.3 when firing fuel oil. The system shall be accurate to within plus or minus 5 percent. The rationale for approving this monitoring system to assure compliance is that the monitoring system was required in the Permit to Install No. 275-89B to comply with the requirements of 40 CFR Part 60, Subpart GG, and with the manufacturer's operation and maintenance specifications.

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

Emission Unit/Flexible group ID	Pollutant/ Emission Limit	UAR(s)	Control Equipme nt	Monitoring (Include Monitoring Range)	Emission Unit/Flexi ble Group for CAM	PAM? *
FGBT0260-CO (EUT0260-09, EUT0260-10)	NOx emissions from the gas turbines, when firing natural gas at full load conditions, shall not exceed 53.3 parts per million by volume, (ppmv), corrected to 15% oxygen on a dry basis	40 CFR 52.21 (j)	Water injection system regulating water to fuel ratio	Natural gas: a water-to-fuel ratio of at least 0.5 (by weight), or alternate water to fuel ratio as determined by testing	NA	No
	NOx emissions from the gas turbines, when	40 CFR 52.21(j)	Water injection system	No. 2 Fuel Oil: a water-to-fuel ratio of at least 0.3 (by	NA	No

Emission Unit/Flexible group ID	Pollutant/Emission Limit	UAR(s)	Control Equipment	Monitoring (Include Monitoring Range)	Emission Unit/Flexible Group for CAM	PAM? *
	firing No. 2 fuel oil at full load conditions, shall not exceed 114.8 ppmv, corrected to 15% oxygen on a dry basis.		regulating water to fuel ratio	weight), or alternate water to fuel ratio as determined by testing		

*Presumptively Acceptable Monitoring (PAM)

Two stationary 3.8 MW natural gas or No. 2 fuel oil-fired turbines with duct burners or boilers that fire natural gas exclusively. NOx control, via the water-fuel injection system, is only associated with the Turbines. The boilers have low NOx burners which are not considered a control device in respect to CAM. A Continuous Monitoring System shall be used to determine the fuel consumption and water-to-fuel ration necessary to comply with the NOx emission limits at 3 points in the normal operating range of the turbines including the minimum point of the range and the 90-100% peak load.

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

Source-Wide Permit to Install (PTI)

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

The following table lists all individual PTIs that were incorporated into previous ROPs. PTIs issued after the effective date of ROP No. MI-ROP-M0675-2014a are identified in Appendix 6 of the ROP.

PTI Number			
35-71	87-01	156-99	624-84
625-84	625-84	626-84	42-98
17-84	103-84	752-89	275-89B
359-01	48-03A	71-04A	89-06
196-06	308-04A	21-06	29-06
13-08	38-09	33-10	155-11
52-12	30-13	52-12A	

Streamlined/Subsumed Requirements

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

Non-applicable Requirements

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

Processes in Application Not Identified in Draft ROP

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

PTI Exempt Emission Unit ID	Description of PTI Exempt Emission Unit	Rule 212(4) Citation	PTI Exemption Rule Citation
EU0219	Miscellaneous heating equipment	R 336.1212(4)(c)	R 336.1282(2)(b)(i)
NA	Art School Kilns	R 336.1212(4)(c)	R 336.1282(2)(a)(iii)
NA	Woodworking equipment	R 336.1212(4)(e)	R 336.1285(2)(l)(vi) (C)
NA	Acetone recycling system	R 336.1212(4)(e)	R 336.1285(2)(u)
EU0219	Ovens	R 336.1212(4)(c)	R 336.1282(2)(a)(v)
NA	20 Engine test cells 1955 UM Walter E. Lay Automotive Engineering Laboratory. Many grandfathered. None exceed 10MMBTU/hr heat input. Engine Test Cell NESHAP exempts facilities conducting research and teaching activities provided the facility is not engaged in the development of engines or engine test services for commercial services (63.9290(d)(3))	R 336.1212(4)(e)	R 336.1285(2)(g)
Baxter Storage Tank	10,000 gallons gasoline North campus, 1992, has Part 7, Rule 703 submerged fill and vapor balance. Exempt 40 CFR 60, Subpart Kb located at service station. Exempt 40 CFR 63, Subpart 6(C) because UM is a major source of HAPs.	R 336.1212(4)(d)	R 336.1284(2)(g)(ii)
Kipke Storage Tank	15,000 gallons gasoline Transportation Services Dept. 1993, has Part 7, Rule 703 submerged fill and vapor balance. Exempt 40 CFR 63, Subpart 6(C) because UM is a major source of HAPs	R 336.1212(4)(d)	R 336.1284(2)(g)(ii)
Service Area Tank	2500 gallons gasoline Radrick Farms Golf Course, 1995, has Part 7, Rule 703 submerged fill and vapor balance. Exempt 60 CFR 63, Subpart Kb located at service station. Exempt 40 CFR 63, Subpart 6(C) because UM is a major source of HAPs	R 336.1212(4)(d)	R 336.1284(2)(g)(ii)

Draft ROP Terms/Conditions Not Agreed to by Applicant

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

Compliance Status

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

Action taken by EGLE, AQD

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

State Registration Number
M0675

RENEWABLE OPERATING PERMIT
JUNE 21, 2021 - STAFF REPORT ADDENDUM

ROP Number
MI-ROP-M0675-2021

Purpose

A Staff Report dated May 10, 2021, was developed to set forth the applicable requirements and factual basis for the draft Renewable Operating Permit (ROP) terms and conditions as required by Rule 214(1) of the administrative rules promulgated under Act 451. The purpose of this Staff Report Addendum is to summarize any significant comments received on the draft ROP during the 30-day public comment period as described in Rule 214(3). In addition, this addendum describes any changes to the draft ROP resulting from these pertinent comments.

General Information

Responsible Official:	Ms. Danielle Sheen, Executive Director - Environment, Health and Safety 734-647-1143
AQD Contact:	Diane Kavanaugh Vetort, Senior Environmental Quality Analyst 517-416-3537

Summary of Pertinent Comments

AQD received a comment from The Regents of the University of Michigan (UM). UM commented the new EUCPP-CHPHRSG is affected by 40 CFR Part 63, Subpart YYYY and this underlying applicable requirement should be added to the ROP EUCPP-CHPHRSG table. UM proposed the following language to be added under EUCPP-CHPHRSG Section III. Process/ Operational Restrictions, similar to EUTURBINE and FGHT0260-CO:

"The permittee shall not operate EUTURBINE, EUCPP-CHPHRSG and FGHT0260-CO for more than 1,000 hours in aggregate between the gas turbines per 12-month rolling time period when firing No. 2 fuel oil. (40 CFR 52.21(b)(3), 40 CFR 63.6175 (definition of "Diffusion Flame gas-fired stationary combustion turbine")."

AQD agrees the National Emission Standard for Hazardous Air Pollutants for Stationary Combustion Turbines, applies to EUCPP-CHPHRSG, as specified in 40 CFR Part 63, Subparts A and YYYY and will amend the Process/Operational Restrictions to include this added condition.

Changes to the May 10, 2021 Draft ROP

AQD has made the following change to the Draft ROP EUCPP-CHPHRSG: Section III. Process/Operational Restrictions, the following condition was added, Condition No. 8., "The permittee shall not operate EUTURBINE, EUCPP-CHPHRSG and FGHT0260-CO for more than 1,000 hours in aggregate between the gas turbines per 12-month rolling time period when firing No. 2 fuel oil." (R 336.1213, 40 CFR 52.21(b)(3), 40 CFR 63.6175 (definition of "Diffusion Flame gas-fired stationary combustion turbine" 40 CFR 63 Subpart YYYY).

State Registration Number
M0675

RENEWABLE OPERATING PERMIT
JUNE 17, 2022 - STAFF REPORT FOR RULE 216(2)
MINOR MODIFICATION

ROP Number
MI-ROP-M0675-2021a

Purpose

On August 6, 2021, the Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), approved and issued Renewable Operating Permit (ROP) No. MI-ROP-M0675-2021 to The Regents of the University of Michigan pursuant to Rule 214 of the administrative rules promulgated under Act 451. Once issued, a company is required to submit an application for changes to the ROP as described in Rule 216. The purpose of this Staff Report is to describe the changes that were made to the ROP pursuant to Rule 216(2).

General Information

Responsible Official:	Danielle Sheen, Executive Director - Environment, Health and Safety 734-647-1143
AQD Contact:	Caryn Owens, Senior Environmental Engineer 231-878-6688
Application Number:	202200123
Date Application for Minor Modification was Submitted:	June 6, 2022

Regulatory Analysis

The AQD has determined that the change requested by the stationary source meets the qualifications for a Minor Modification pursuant to Rule 216(2).

Description of Changes to the ROP

Minor Modification No. 202200123 was to update an error in the ROP for SC VII.4 of both FGZZZZ-SI<500 and FGZZZZ-CI<500 templates that indicated the facility was required to submit semi-annual compliance reports in accordance with 40 CFR 63.6595. These Conditions (SCVII.4 of both FGZZZZ-SI<500 and FGZZZZ-CI<500) are considered obsolete since the reporting requirement only applies to area sources of HAPs and this source is a major source of HAPs, so these Conditions were removed.

Compliance Status

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements associated with the emission unit(s) involved with the change as of the date of approval of the Minor Modification to the ROP.

Action Taken by EGLE

The AQD proposes to approve a Minor Modification to ROP No. MI-ROP-M0675-2021, as requested by the stationary source. A final decision on the Minor Modification to the ROP will not be made until any affected states and the United States Environmental Protection Agency (USEPA) has been allowed 45 days to review the proposed changes to the ROP. The delegated decision maker for the AQD is the District Supervisor. The final determination for approval of the Minor Modification will be based on the contents of the permit application, a judgment that the stationary source will be able to comply with applicable emission limits and other requirements, and resolution of any objections by any affected states or the USEPA.

State Registration Number

M0675

RENEWABLE OPERATING PERMIT

ROP Number

MI-ROP-M0675-2021b

SEPTEMBER 2, 2022 - STAFF REPORT FOR RULE 216(2) MINOR MODIFICATION

Purpose

On August 3, 2022, the Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), approved and issued Renewable Operating Permit (ROP) No. MI-ROP-M0675-2021a to The Regents of the University of Michigan pursuant to Rule 214 of the administrative rules promulgated under Act 451. Once issued, a company is required to submit an application for changes to the ROP as described in Rule 216. The purpose of this Staff Report is to describe the changes that were made to the ROP pursuant to Rule 216(2).

General Information

Responsible Official:	Danielle Sheen, Executive Director - Environment, Health and Safety 734-647-1143
AQD Contact:	Caryn Owens, Senior Environmental Engineer 231-878-6688
Application Number:	202200146
Date Application for Minor Modification was Submitted:	July 20, 2022

Regulatory Analysis

The AQD has determined that the change requested by the stationary source meets the qualifications for a Minor Modification pursuant to Rule 216(2).

Description of Changes to the ROP

Minor Modification No. 202200146 was to remove references from the ROP of the six ethylene oxide sterilizer units (EUETO-1E through EUETO-6E and FG6ETO) since they were permanently shut down and rendered out of service since June 17, 2022. The units are planned to be permanently removed from the facility.

Compliance Status

The AQD finds that the stationary source is expected to be in compliance with all applicable requirements associated with the emission unit(s) involved with the change as of the date of approval of the Minor Modification to the ROP.

Action Taken by EGLE

The AQD proposes to approve a Minor Modification to ROP No. MI-ROP-M0675-2021a, as requested by the stationary source. A final decision on the Minor Modification to the ROP will not be made until any affected states and the United States Environmental Protection Agency (USEPA) has been allowed 45 days to review the proposed changes to the ROP. The delegated decision maker for the AQD is the District Supervisor. The final determination for approval of the Minor Modification will be based on the contents of the permit application, a judgment that the stationary source will be able to comply with applicable emission limits and other requirements, and resolution of any objections by any affected states or the USEPA.