M4174
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DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

M417445328

FACILITY: DETROIT METROPOLITAN WAYNE COUNTY AIRPORT		**SRN / ID:** M4174
LOCATION: 1 L.C. SMITH BUILDING, ROMULUS		**DISTRICT:** Detroit
CITY: ROMULUS		**COUNTY:** WAYNE
CONTACT: Bryan Wagoner , Director - Department of Environment & Sustainabil		**ACTIVITY DATE:** 07/25/2018
STAFF: Stephen Weis	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Compliance inspection of the Detroit Metropolitan Wayne County Airport facility in Romulus. The Airport facility is scheduled for inspection in FY 2018.		
RESOLVED COMPLAINTS:		

Location:
Detroit Metropolitan Wayne County Airport
(SRN M4174)
L.C. Smith Terminal
Romulus 48174

Date of Activity:
Wednesday, July 25, 2018

Personnel Present:

Steve Weis, DEQ-AQD Detroit Office
Bryan Wagoner, Environmental Administrator, Wayne County Airport Authority
Randy Tysar, Senior Environmental Engineer, BT Environmental Consulting
Sara Kaplan, Wayne County Airport Authority

Purpose of Activity

A self-initiated inspection of the Detroit Metropolitan Wayne County Airport facility (hereinafter "Airport" or "Metro Airport") was conducted on Wednesday, July 25, 2018. The Airport facility was on my list of sources targeted for an inspection during FY 2018. The purpose of this inspection was to determine compliance of operations at the Airport facility with applicable rules, regulations and standards as promulgated by Public Act 451 of 1994 (NREPA, Part 55 Air Pollution Control), and with applicable Federal standards. The facility is also subject to the terms and conditions of Renewable Operating Permit (ROP) No. MI-ROP-M4174-2010, as well as two Permits to Install (PTI) that were issued in the time since the ROP became effective, PTI Nos. 175-10A and 109-11.

Facility Site Description

The Airport stationary source is bounded by Interstate 94 to the north, Middlebelt Road to the east, Eureka Road to the south, and Vining Road to the west. The land that comprises the Airport facility covers several square miles.

Metro Airport is a full-service commercial and private airport that began operations in 1930. Operations at the Airport complex are overseen by the Wayne County Airport Authority. The Airport property contains many buildings and operations serving a wide array of functions. These include buildings/operations owned and operated by the Airport Authority and/or Wayne County; buildings/operations owned and operated by the various airlines doing business at the Airport; buildings/operations that provide support services to the Airport, the various airlines, or both. Many of these buildings/operations have been in existence for many years, and they were built at various stages in the Airport's existence.

DEQ-AQD considers the buildings and operations owned and operated by the various airlines, commercial and institutional entities, and support services (an example being the airline fuel distribution facilities) located at the Airport as separate stationary sources from the buildings and operations operated and controlled by the Wayne County Airport Authority.

The determination of "Stationary Source" for the Airport facility

The discussion that follows has been included in past reports (inspection reports, ROP Staff Reports) for the facility. It is being included in this report as it addresses the stationary source determination that was made regarding the Airport facility.

From the perspective of the applicability of air regulations, the Airport has been considered as a grouping of separate stationary sources, which include those that are directly owned, operated and controlled by the Wayne County Airport Authority, and those that are owned, operated and controlled by other entities at the Airport, independent of the Airport Authority, such as Delta Airlines. All of the operations at the Airport are contiguous to one another, and most, if not all are located where they are because of the Airport and the role that these operations play in terms of supporting the Airport operations, or receiving support themselves. This would seem to classify all of the operations on the Airport property as a single stationary source.

This issue was examined in an EPA memorandum several years back. This memorandum was drafted in response to a written request dated June 15, 1989 relating to the PSD applicability and permitting requirements associated with the new airport in Denver, CO, which was in the planning stages at that time. The memorandum states in part that:

> "…if the SIC Manual grouping was the only criterion to consider, then the airport and all pollutant-emitting activities therein would be considered a single source. However, the definition requires that, for applicability purposes, emissions be aggregated not just on the basis of the SIC code but also based on a determination of "control" of the pollutant-emitting activities at a stationary source."

Based upon this logic, in the case of the Detroit Metropolitan Wayne County Airport, the issue of "control" lies with the owner/operator of each individual business/operation doing business at the Airport complex; the decision to locate there, as well as what type of business to operate, equipment to install, compliance with federal, state and local regulatory requirements, etc., lies entirely with the individual entities, themselves.

The EPA memorandum goes on to state that:

> "…In cases where an airport authority (or an equivalent managing entity) acquires property, develops plans, and establishes a contract for the construction of a new airport, the airport authority (or equivalent) would be considered to be in "control" of the airport buildings or facilities for which it establishes a construction contract."

In the case of Metro Airport, the Wayne County Airport Authority (WCAA) was established within the last 15 or so years, well after the property was acquired and plans were made to construct the Airport, and well after most of the other entities doing business at the Airport have been in operation. I have been told during past visits to the Airport that while environmental staff from the WCAA do have some level of involvement with the other entities (an example being performing inspections to check on stormwater management practices at the locations of the other entities), these other entities otherwise operate independently of the WCAA; the other entities control their day to day operations and business decisions, and they are responsible for demonstrating compliance with applicable environmental regulations and requirements at their facilities.

Facility Operations

The operations at the Airport facility that are operated and controlled by the WCAA constitute the Airport stationary source, which has been assigned the SRN M4174. Many of these operations and their associated equipment are subject to air regulations; most of these are included in the facility's ROP, or regulated by one of the facility's current active Permits to Install.

All of these operations and equipment play a part in the WCAA's role of supporting Airport operations. Most of the equipment covered by permits is combustion equipment that provides heat and steam, or electrical power. There are also some underground fuel storage tanks included in the ROP that store and distribute fuel used in Airport vehicles.

The compliance status of the permitted equipment will be discussed in greater detail in the "Permits/Regulations/Orders/Other" section of this report. The largest sources of equipment at the Airport facility are:

- The DTE Energy Wayne County Midfield Terminal, which used to be known as the Midfield Energy

Center. The equipment in this building is part of the Airport complex, but it is operated by DTE Energy. The building contains three boilers that are capable of firing natural gas and Jet-A fuel, and three natural gas-fired reciprocating internal combustion engines (RICE). The boilers (which have a maximum heat input capacity of 47 MMBTU/hour when firing natural gas, 45 MMBTU/hour when firing Jet-A) are equipped with low-NOx burners, while the engines, which have a maximum heat input capacity of 48.3 MMBTU/hour, are equipped with catalytic oxidizers.

- Building 611, which houses four boilers that are capable of firing either natural gas or fuel oil. The maximum rated heat input capacity of the boilers is 20.8 MMBTU/hour when firing natural gas, and 20.4 MMBTU/hour when firing fuel oil.

- A natural gas-fired combustion turbine and an associated diesel-fired engine generator that is used as a starter engine for the turbine. This combustion equipment is located outside, just south of Building 611. The turbine is rated at 145 MMBTU/hour, and is equipped with SoLoNOx dry low emissions combustion system to reduce NOx emissions. The turbine is rated at 1,482 brake horsepower, and is equipped with a turbocharger to minimize emissions of NOx and maximize power output.

The Airport operates 24 hours per day, 365 days per year. The most recent MAERS report shows 700 persons employed at the facility.

Inspection Narrative

I arrived at the Big Blue Deck parking garage at 9:45am. I walked to the WCAA offices in the McNamara Terminal. After signing in, I was escorted to Bryan Wagoner's office. Bryan and I were joined by Randy and Sara.

I briefly explained the purpose of my visit, which was to discuss the permits that are currently in place to regulate air emissions at the Airport; I wanted to review all of the applicable permit conditions, check how the facility staff demonstrates compliance with the permit conditions, and determine whether the Airport facility is complying with applicable permit requirements and regulations. Bryan had asked me prior to the visit if I wanted to visit any locations at the Airport facility. I replied that since nothing has changed at the facility, that we would focus this site visit on the compliance review.

I started by asking about the HAP emissions at the facility, specifically whether the Airport has considered taking and applying for HAP opt-out limits. Randy replied that the Airport has continued to be considered a major source of HAPs for reasons of flexibility. He stated that the potential formaldehyde emissions from the natural gas-fired engines at the Midfield Energy Center would most likely require the engines to have very specific operating restrictions in order to limit HAP emissions so as to fit in an opt-out permit. Thus, the facility continues to operate as a major source of HAPs.

I brought the most recent draft of the ROP renewal with me, and as I went through the current ROP, I pointed out the changes presented in the draft. This led to a side-discussion regarding 40 CFR Part 63, Subpart DDDDD. I pointed out that there are additional pieces of fuel burning equipment that have been determined to be subject to this regulation, and that updated regulatory requirements have been added In the draft ROP. Randy said that there are seven combustion units that are larger in terms of heat input ratings, and they would be subject to more requirements of the Subpart. The rest of the subject combustion units have maximum rated heat inputs capacities of less than 5 MMBTU/hour, so Randy feels that they would have little to no requirements in Subpart DDDDD. Randy stated that the energy assessments required by Subpart DDDDD have been completed.

We went through the ROP, starting with the Source-Wide Conditions. The records for the source wide emission limitations are divided between stationary, mobile and portable emission units. Given the size and nature of the Airport facility, there are many portable engine emission units that are essentially engines on wheels that are moved from place to place at the Airport stationary source based on need and use. An example of a portable engines is the engines that power the lighted runway "X"'s, which are used to designate that a runway is closed. Facility staff tracks the fuel usage of the various combustion equipment, which is provided to Randy. He records the fuel usage and running totals of emissions calculations on a spreadsheet that summarizes the information on a monthly and 12 month rolling time period basis. I was told that the natural gas usage is tracked via gas meters located throughout the facility, while liquid fuel combusted in the various engines is typically tracked by measuring fuel additions to fuel supply tanks. I was told that fuel usage is down facility-wide due to the use of newer, more efficient equipment and less buildings to provide heat and steam to. Bryan told me that the old terminal is scheduled to be demolished in the summer of 2019.

For EU009, DTE provides Randy with a log of the hours that the engine was used and the amount of fuel that was combusted in the unit. We engaged in a side conversation regarding how the fuel is delivered to the combustion equipment. Bryan told us that Jet-A fuel is delivered to the Airport facility via three 8 inch lines from Wick Road that lead to the Swissport Fuel Services facility (SNR N6544), which serves as the fuel farm that supplies the Airport's Jet-A needs. From Swissport, the fuel is pumped to a hydrant system that pumps the Jet-A at 350 lbs. of pressure to the terminals to fuel airplanes. At this time, the hydrant system is not configured to provide fuel to the engines at the facility that fire this type of fuel. Jet-A and diesel fuel are delivered to fuel tanks adjacent to engines, or, in the case of the smaller engines, fuel is delivered directly to the engine.

For FG001, I was told that the units only operate for readiness checks. Randy described an issue with Engine 1 involving two occasions when the engine ran, and there was a recorded temperature drop across the catalyst. As Randy explained, when an engine fires and gets up to operating temperature, the catalyst should light up. It was determined that the facility staff that were recording the temperature did not wait for the engine to warm up properly before taking the reading. DTE trained their staff regarding taking the temperature measurement.

For FG001, FG002, FG005, FG006, FG007 and FG008, Randy provided the information that he compiles regarding the use of these emission units.

We then discussed the two PTIs. PTI No. 109-11 addresses the installation and operation of 4 boilers, identified as EU-NEWBOILER1 through EU-NEWBOILER4, that are located in Building 611. These boilers replaced four larger boilers that were removed from service and dismantled. Randy showed me how he tracks the fuel usage of these boilers on a spreadsheet based on information that is provided to him by facility staff who read the fuel meters.

PTO No. 175-10A addresses the installation and operation of a natural gas-fired turbine and a diesel-fired generator that is used solely to assist in starting the turbine. I was shown records of equipment operation. Randy showed me the emission calculations that he performs for the turbine, as well as the operating log. The emissions data is based on the most recent compliance test, which was performed on October 1, 2015. Similar to the turbine, Randy showed be records that track the hours that the generator has operated.

After some closing discussion and a review of action items, I left the facility at 12:15pm.

Permits/Regulations/Orders/Other

Permits
The Airport facility currently has a ROP and two active DEQ-AQD Permits to Install (PTI). The following is a summary of the facility's compliance with each of these permits.

- **ROP No. MI-ROP-M4174-2010**

This ROP was issued to the Airport facility with an effective date of March 9, 2010. The Airport submitted a ROP renewal application, which was received by DEQ-AQD on September 9, 2014. The renewal application is currently being reviewed, and the renewal ROP is being drafted by DEQ-AQD staff.

The following paragraphs provide a description of the Airport facility's compliance with the terms and conditions puts forth by the ROP, with the headings representing the sections of the ROP.

Source-Wide Conditions

The Source-Wide Conditions table in the Airport's ROP puts forth facility-wide CO and NOx emission limits that include "All process equipment at the facility, including equipment covered by other permits, grand-fathered equipment and exempt equipment". Special Conditions (SCs) I.1 and I.2 put forth limits of 224.9 tons per year (tpy) of NOx and CO, respectively. Section VI (Monitoring/Recordkeeping) also requires that records be kept of the fuel usage associated with the process equipment that is included in the facility-wide emission limits. I was shown the records that are kept by the facility and their consultant, through which the monthly fuel usage and facility-wide NOx and CO emissions are tracked. Randy provided me with a copy of the spreadsheet, which is attached to this report for reference.

Bryan reiterated that facility-wide combustion-related emissions and fuel usage are trending downwards. This is due to the installation and use of newer, more fuel-efficient equipment, and less buildings at the facility. The old terminal is scheduled to be demolished during the summer of 2019; this is a large building that will no longer

need heat and steam. A copy of the Source Totals emissions report from this year's MAERS report (which summarizes emissions activity for the 2017 calendar year) is attached to this report for reference.

EU009

This Emission Unit addresses a spark ignition reciprocating internal combustion engine firing Jet-A kerosene only (maximum heat input capacity is approximately 4.0 MMBTU/hr) driving an emergency electrical generator.

The only permit limits for this engine are the requirement to only fire Jet-A in the engine (SC III.1), a limit of 500 hours of operation on a 12-month rolling time period basis (SC III.2), and the requirement to keep records of the monthly hours of operation of the engine (SC VI.1). The usage of this engine is tracked by DTE, and they send usage/hours logs and fuel usage records to Randy, who in turn compiles the information in a spreadsheet. Randy showed me the spreadsheet via his laptop, which showed that so far in 2018, this engine operated for one hour in February, and one hour in April. **Compliance**.

FG001

This Flexible Group includes the Emission Units designated as EU001, EU002 and EU003, which are three natural gas-fired spark ignition reciprocating internal combustion engines rated at 48.3 MMBTU/hour. These emission units are located in the Midfield Terminal Energy Facility portion of the Airport, and each is equipped with catalytic oxidizers to control emissions of carbon monoxide.

I. Emission Limits

The permit includes emission limits for NOx, CO and VOC, and the facility is required to test for these pollutants once during the term of the ROP. The last compliance test was performed on these engines on September 12, 2014, and the test demonstrated **compliance** with the emission limits.

II. Material Limits

There are no material limits in the ROP for this Flexible Group.

III. Process/Operational Restrictions

The facility is **in compliance** with SCs III.1 and 2; only natural gas is fired in the engines, and I was told that the catalytic oxidizers are operated and properly maintained.

IV. Design/Equipment Parameters

There are no design/equipment parameters specified for this Flexible Group.

V. Testing/Sampling

The Airport facility performed a compliance test on the engines on September 12, 2014, in compliance with condition V.1.

VI. Monitoring/Recordkeeping

The Airport facility is in compliance with the special conditions in this section.

For SC VI.1, monthly records of natural gas usage are kept by Metro Energy, and they are provided to Randy to compile in his monthly spreadsheet.

The facility maintains devices to measure the catalyst inlet and outlet temperatures (SC VI.2 and 4) and the pressure drop across the catalyst bed (SC VI.3), and these monitors are maintained and operated when the engines are running (SC VI.5). Bryan and Randy told me that there has not been an exceedance of these parameters, but if there is, then staff at Metro Energy are prepared to address the issue and restore proper operation of the catalysts (SC VI.6). Copies of the monthly fuel usage records and the catalyst temperature and pressure drop records are attached to this report.

VII. Reporting

The facility submitted all required certification and deviation reports.

VIII. Stack/Vent Restrictions

The stack parameters were not discussed during this site visit. There is no indication that these parameters have changed since the emission units were permitted.

IX. Other Requirements

For SC IX.1, the facility has not needed to modify their CAM monitoring plan. The facility is in compliancewith their current CAM plan (IX.2).

FG002

This Flexible Group includes the Emission Units designated as EU006, EU007 and EU008, which are three high temperature water generators, each rated at 47 MMBTU/hour when firing natural gas and 45 MMBTU/hour when firing Jet-A kerosene. These emission units are located in the Midfield Terminal Energy Facility portion of the Airport, and each is equipped with low NOx burners.

I. Emission Limits

The permit includes emission limits for NOx, CO and VOC, and the facility is required to test for these pollutants once during the term of the ROP. These emission units have not fired Jet-A fuel since 2008, so any emission limits that apply during periods when the boilers are firing Jet-A are not evaluated at this time. The last compliance test was performed in April 2017. The results of this test demonstrated **compliance** with the emission limits. Measured NOx emissions were below the permitted limit of 0.15 lb/MMBTU (the 3 run average was 0.1095, with no runs equaling or exceeding 0.15). Measured CO and VOC emissions had 3 run averages of less than 0.01 lb/MMBTU for all three boilers, which is well below the permitted limit of 0.20 lb/MMBTU.

II. Material Limits

There are no material limits in the ROP for this Flexible Group.

III. Process/Operational Restrictions

The facility is **in compliance** with SCs III.1 through 3. The facility is permitted to fire natural gas and Jet-A fuel oil in the water generators but as mentioned previously, only natural gas has been used to fuel this equipment for the last 10 years. The sulfur content limitation on the Jet-A (SC III.2) is not applicable at this time.

IV. Design/Equipment Parameters

There are no design/equipment parameters specified for this Flexible Group.

V. Testing/Sampling

For SC V.1, the required compliance emissions test was performed in April 2017. The visible emissions testing specified in SC V.2 is not necessary at this time as Jet-A fuel is not being used to fuel equipment.

VI. Monitoring/Recordkeeping

The Airport facility is in compliance with the special conditions in this section.

For SC VI.1, monthly records of natural gas usage are kept by Metro Energy, and they are provided to Randy to compile in his monthly spreadsheet.

For SC VI.2, an initial notification, as required by 40 CFR Part 60 Subpart Dc, was submitted for the boilers in 2003.

SCs VI.3 and 4 are not applicable at this time, as the emission units are not currently firing Jet-A fuel, and they have not done so since 2008.

VII. Reporting

The facility submitted all required certification and deviation reports.

VIII. Stack/Vent Restrictions

The stack parameters were not discussed during this site visit. There is no indication that these parameters have changed since the emission units were permitted.

IX. Other Requirements

SC IX.1 is not applicable at this time, as the emission units are not currently firing Jet-A fuel.

FG003

This Flexible Group includes the Emission Units designated as EUBOILER#1 and EUBOILER#4, which were two natural gas fired boilers rated at 54.3 MMBTU/hour located in Building 611. These emission units have been permanently removed from operation and dismantled. FG003 has been marked for removal from the ROP in the renewal application.

FG004

This Flexible Group includes the Emission Units designated as EUBOILER#2 and EUBOILER#3, which were two natural gas fired boilers rated at 54.3 MMBTU/hour; EUBOILER#2 was also capable of firing No.2 fuel oil. The boilers were also located in Building 611. These emission units have been permanently removed from operation and dismantled. FG004 has been marked for removal from the ROP in the renewal application.

FG005

This Flexible Group includes the emission units designated as EUENGINE4, 8-11, 15, 17, 21, 22, 27 through 29, and 41 through 47. These units are a variety of diesel-fired engines (and one natural gas-fired engine) that are located all over the Airport facility. Most of these engines serve as emergency engines. The permitting requirements in this Flexible Group consists of monitoring and recording the fuel usage in the engines, and monitoring the sulfur content of the fuel oil used in the engines. Randy told me that the fuel additions to each individual engine's fuel tank are tracked. In 2017, 1,299 gallons of fuel was recorded as being added and used by all of the engines in the Flexible Group. I was told that all of the fuel-fired engines use ultra-low sulfur diesel fuel (<15ppm), and records are kept for each delivery. This is **compliant** with conditions SCs III.1 and VI.3. Bryan provided me with a copy of an invoice for the recent delivery of diesel fuel to the facility on July 6, 2018 which shows that the facility receives ultra-low sulfur diesel. A copy of the invoice is attached to this report for reference.

As mentioned in the last site visit report for the facility in 2016, in the ROP renewal application for the Airport, the facility has requested that several engines that are currently listed as being part of this Flexible Group be removed – EUENGINE3, 5, 6, 7, 18, 19, 20, 23, 24, 25, 26, and 30 through 40. The Airport is requesting that these engines be removed from the Flexible Group due to these engines being portable (most are mounted on wheels to be moved around the Airport as needed), relatively small (some power air compressors in work areas, some are rated at 13hp), and the Airport's determination that these engines are not subject to any Federal regulations. The usage of these emission units is still tracked, and the resultant emissions are still calculated and included as part of the requirements of the Source-Wide Conditions.

FG006

This Flexible Group includes the emission units designated as EUENGINE1 and EUENGINE2, which are portable emergency diesel-fired generator engines. EUENGINE1 was permanently shut down in late 2014.

I. Emission Limits

The permit includes an emission limit for NOx. The facility is required to perform a compliance emissions test for NOx once during the term of the ROP. The last compliance test was performed on Engine 2 on January 8, 2015 and the test demonstrated **compliance** with the emission limits. The engine is mounted on a semi-truck trailer, and it has a duel exhaust. Measured NOx emissions had a three run average of 380 lbs. of NOx/1,000 gallons of fuel usage on the driver's side of the trailer, and 390 lbs./1,000 gallon on the passenger's side, which is below the permitted limit of 550 lbs. of NOx/1,000 gallons.

II. Material Limits

The facility reports no usage of this engine in 2017, and it has not been used in 2018. It was explained to me that it is logistically difficult to use this engine, as the semi-trailer that it is mounted to has to be moved to a location in order to use it. The facility prefers to not use this engine.

III. Process/Operational Restrictions

The facility is **in compliance** with SCs III.1 and 2; only diesel fuel is fired in this engine, and ultra-low sulfur diesel fuel is used by the Airport facility.

IV. Design/Equipment Parameters

There are no design/equipment parameters specified for this Flexible Group.

V. Testing/Sampling

The facility performed a compliance test on January 8, 2015, in **compliance** with the requirements of SC V.1.

VI. Monitoring/Recordkeeping

As mentioned previously, the engine in the Flexible Group was not used in 2017, and it has not been used in 2018. The records in this section consist of zeroes.

VII. Reporting

The facility submitted all required certification and deviation reports. **Compliance**.

VIII. Stack/Vent Restrictions

There are no stack/vent restrictions specified for the equipment addressed in this Flexible Group.

FG007

This Flexible Group includes the emission units designated as EUENGINE13 and EUENGINE14, which are 1,500 kW diesel-fired emergency generator sets, each rated at 2,153 hp. These two generators are located at the McNamara Terminal's parking deck.

I. Emission Limits

The permit includes an emission limit for NOx. The facility is required to perform a compliance emissions test for NOx once during the term of the ROP. The last compliance test was performed on Engine 2 on January 8, 2015 and the test demonstrated **compliance** with the emission limits. Measured NOx emissions had a three run average of 397 lbs. of NOx/1,000 gallons of fuel usage for Engine 13, and 395 lbs. of NOx/1,000 gallons of fuel usage for Engine 14, which is below the permitted limit of 515 lbs. of NOx/1,000 gallons.

II. Material Limits

During the site visit, Randy showed me the records that he keeps for this equipment It was shown to me that the facility uses well under the 136,000 gallons of fuel that these engines are limited to by SC II.1. The MAERS report for the facility reports that 1,501 gallons of diesel fuel were used by these engines in 2017.

III. Process/Operational Restrictions

The facility is **in compliance** with SCs III.1 through 5; only diesel fuel is fired in this engine, I was told that the engine is operated in accordance with manufacturer's recommendations during startup, shutdown and malfunction, and ultra-low sulfur diesel fuel is used by the Airport facility.

IV. Design/Equipment Parameters

There are no design/equipment parameters specified for this Flexible Group.

V. Testing/Sampling

The facility performed a compliance test on January 8, 2015, in **compliance** with the requirements of SC V.1.

VI. Monitoring/Recordkeeping

The Airport facility is in compliance with the special conditions in this section.

For SCs VI.1 and 2, the facility does not maintain a specific device to monitor fuel use, but rather monitors the amount of fuel that is added to the fuel tank that supplies these engines. The fuel additions are tracked in the month that they occur. These two engines are relatively small engines that are located in a parking garage.

There have not been any malfunctions recorded to date, but the facility has notification and documentation procedures in place to address the situation (SC VI.3).

There have not been any times that electricity from these engines has been sold to the utility grid (VI.4).

The sulfur content of each load of incoming fuel is kept (VI.5).

VII. Reporting

The facility submitted all required certification and deviation reports. **Compliance**.

VIII. Stack/Vent Restrictions

The stack parameters were not verified during this site visit. There has been no indication that these parameters have changed since the emission units were permitted.

IX. Other Requirements

The two engines in FG007 have not been modified, so the requirements of this section have not applied.

FG008

This Flexible Group includes the emission units designated as EUENGINE27 and EUENGINE28, which are 1,000 kW stationary diesel-fired emergency generators that are located at the Airport's North Terminal. These two generators are both subject to Federal NSPS and MACT requirements.

I. Emission Limits

There are no emission limits in the permit for this Flexible Group.

II. Material Limits

There are no material limit restrictions in the permit for this Flexible Group.

III. Process/Operational Restrictions

The facility is **in compliance** with conditions III.1 through 5. The engines are certified to meet the applicable certification emission standards (III.1); they use diesel fuel that meets the 40 CFR Part 80 requirements (III.2); facility staff told me that the engines are operated and maintained to meet the emission standards in 40 CFR Part 60, Subpart IIII (III.3); the usage of the engines meets the usage limitations as described in 40 CFR 60.4211 (III.4); the sulfur content of the fuel used in the engines is compliant (III.5). A copy of the engine certification is attached for reference. Regarding SC III.4, I was told during the site visit that staff from the Maintenance Department (Dave Garrett) keep records of the maintenance that is performed on these engines. At the time of my site visit, the engines had been operated for maintenance purposes for 6 hours this year.

IV. Design/Equipment Parameters

There are no design/equipment parameters specified for this Flexible Group.

V. Testing/Sampling

There are no testing/sampling requirements for these engines.

VI. Monitoring/Recordkeeping

The facility is **in compliance** with conditions VI.1 and 2. The engines are equipped with non-resettable hour meters (VI.1), and each load of fuel that is delivered to the facility is analyzed for sulfur content, with records are kept. (VI.2).

VII. Reporting

The facility submitted all required certification and deviation reports. **Compliance**.

VIII. Stack/Vent Restrictions

There are no stack/vent restrictions for these engines.

IX. Other Requirements

The equipment is **complying** with the applicable requirements of 40 CFR Part 60 Subpart IIII and 40 CFR Part 63 Subpart ZZZZ. Randy maintains an inventory of the engines/generators at the Airport facility, what regulations are applicable to them, and the requirements of any applicable regulations.

FGFUELDISPENSING

This Flexible Group includes equipment associated with the storage and dispensing of fuel used to refuel Airport vehicles. The Flexible Group description in the ROP lists six underground storage tanks and corresponding fuel dispensing equipment. The Airport has removed a couple of storage tanks, and has put in two new tanks in the maintenance area. The facility is working on compiling an inventory of fuel storage tanks at the entire facility and evaluating the applicability of regulations to the tanks. They plan to discuss this information when they are reviewing the draft ROP renewal for the facility.

This Flexible Group does not include any emission or material usage limits. It consists of conditions that address how gasoline is handled via the equipment included in FGFUELDISPENSING to ensure that the gasoline handling operations are compliant with DEQ-AQD's applicable Part 6 and Part 7 administrative rules. According to the discussion during the site visit, the equipment in this Flexible Group appears to be in compliance with applicable permit conditions.

The facility is currently classified as a major source of HAP emissions. As such, 40 CFR Part 63, Subpart CCCCCC (National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities), which applies to area sources of HAP emissions, is not applicable to the storage tanks in FGFUELDISPENSING.

FGCOLDCLEANERS

Cold cleaners were not evaluated during this site visit. This visit did not involve a physical observation of all of the different WCAA operations at the Airport facility, so no cold cleaners were observed.

- **Permit to Install No. 175-10A**

This PTI was issued on October 24, 2017, and it addresses the operation of two emission units that are located outside of and just to the south of Building 611:

- A natural gas-fired turbine identified as EU-Turbine. This turbine is a Titan 130-20501S Axial model. It is nominally rated at 145 MMBTU/hour, and it is equipped with a SoLoNOx dry low emission combustion system to control NOx emissions.
- A diesel-fired engine generator that has a nameplate capacity of 1,482 brake horsepower. The engine serves as a starter engine for the EU-Turbine; it only runs to spin the turbine until the turbine can take over on its own power. The engine is equipped with a turbocharger to minimize emissions of NOx and maximize power output.

The following provides a description of the Airport's compliance with the Special Conditions put forth by Permit to Install No. 175-10A; the permit conditions are grouped under the Emission Units EU-Turbine and EU-Gen.

EU-Turbine

I. Emission Limits

The permit includes emission limits for NOx and CO, as well as an opacity limit. The facility is required to perform compliance emissions tests for NOx and CO. The permit states that the NOx and CO emission test must be performed once within 5 years of the previous test. The PTI has not yet been incorporated into the ROP.

The last compliance test was performed on the turbine on October 1, 2015. This test demonstrated compliance with the emission limits. Measured NOx emissions were 9.3 ppm dry at 15% oxygen (vs. the permitted limit of 25 ppm), 0.03 lb/MMBTU (vs. the permitted limit of 0.06 lb/MMBTU) and 5.4 lbs. per hour (vs. the permitted limit of 8.7 lbs./hour). Measured CO emissions were 0.007 lb/MMBTU (vs. the permitted limit of 0.061 lb/MMBTU) and 1.1 lbs. per hour (vs. the permitted limit of 8.8 lbs/ per hour).

In addition, I was told that when the turbine operates, visible emission readings are performed.

II. Material Limits

The facility is incompliance with SC II.2, as only natural gas is combusted in the turbine.

III. Process/Operational Restrictions

The facility is in compliance with conditions III.1 through 4. III.1 limits the hours of operation of the turbine to 1,250 hours per 12 month rolling time period. Randy tracks the usage of the turbine. A copy of the spreadsheet that Randy keeps is attached to this report for reference. This spreadsheet tracks the usage of various combustion equipment in and around Building 611 at the Airport facility, and it includes records of the hour meter readings and the operating hours for the turbine. The facility has submitted a malfunction abatement plan (MAP) for the turbine, dated May 2, 2012, in compliance with III.2. A startup, shutdown and malfunction plan was submitted to DEQ-AQD in correspondence dated March 16, 2011 (III.3).

IV. Design/Equipment Parameters

According to Airport staff, the maximum design heat input capacity is not in excess of 145 MMBTU/hour (in compliance with IV.1), and the low NOx burner is installed, maintained and operated in a satisfactory manner (in compliance with IV.2).

V. Testing/Sampling

The facility performed a compliance test on October 1, 2015, in **compliance** with conditions V.1 and V.2.

VI. Monitoring/Recordkeeping

The Airport facility is in compliance with the special conditions in this section.

In accordance with SC VI.1, the facility completes the required calculations in accordance with the requirements of this condition. The emissions are calculated using the emissions data from the October 1, 2015 compliance emissions test.

For SC VI.2, I was told that visible emissions readings are taken and logged when the turbine operates. I was told that the person that sends the fuel usage and hours of operation logs (Curt) to the Power Systems Supervisor (Jim Isom) includes the visible emission reading logs. A copy of the visible emissions log for the turbine is attached to this report.

The monthly hours of operation of the turbine are logged per the requirements of SC VI.3.

I was told that the facility is tracking the information listed in condition VI.4. For the natural gas total sulfur content monitoring in VI.4.c, DTE tracks this information via a fuel certification. For the records of the duration of start-up or shutdown conditions, I was told that these events are of a short duration, and that the start-up period is considered the time that it takes for the turbine load to stabilize after it is started up.

VII. Reporting

I was told that the turbine was not operated for purposes other than allowed in the definition of "emergency

combustion turbine" as put forth in 40 CFR Part 60 Subpart KKKK.

VIII. Stack/Vent Restrictions

The stack parameters were not verified during this site visit. There has been no indication that these parameters have changed since the emission unit was permitted.

IX. Other Requirements

The facility indicates that they are complying with the applicable provisions of Subpart KKKK.

EU-Gen

I. Emission Limits

The permit includes emission limits for PM, NMHC + NOx and CO. These limits are found in 40 CFR Part 60, Subpart IIII. There is no specific compliance testing requirement for the engine. The engine is an EPA certified engine, which serves to demonstrate compliance with the emission requirements of Subpart IIII. A copy of the certification sheet for this engine is attached to this report for reference.

II. Material Limits

The facility is incompliance, as the diesel fuel used in the engine meets the requirements in conditions II.1 and 2. The facility uses ultra-low sulfur diesel fuel, which has a sulfur content lower than 15 ppm.

III. Process/Operational Restrictions

The facility is **in compliance** with conditions III.1 through 4.

The facility said that the engine is operated and maintained in accordance with manufacturer's instructions (III.1). I was told that staff in Dave Garrett's group at the Airport facility are responsible for tracking the operation and maintenance of the engine. A copy of the most recent maintenance record for EU-Gen is attached for reference.

For SCs III.2 and 3, the engine does not operate for more than 500 hours per 12 month rolling time period, and the hours of operation of the engine are tracked and logged. The spreadsheet that is attached to this report that addresses the usage of fuel burning equipment at and around Building 611 includes the hours of usage of EU-Gen.

For SCs III.4 and 5, the engine is a certified engine. Facility staff state that the engine is operated according to manufacturer's emission-related instructions.

IV. Design/Equipment Parameters

The engine is equipped with a non-resettable hour meter (in compliance with IV.1), and according to the facility, it is not exceeding the listed nameplate capacity (IV.2).

V. Testing/Sampling

The testing requirement in SC V.1 applies if the engine is not installed, configured, operated and maintained according to the manufacturer's emission-related instructions. Facility staff state that the engine has been operated in maintained in accordance with the manufacturer's recommendations.

VI. Monitoring/Recordkeeping

The facility is **in compliance** with the special conditions in this section. Per SC VI.1, the required calculations are being kept in a timely manner.

For SCs VI.2 and 3, the engine is a certified engine, and I was told that the manufacturer's recommended maintenance is performed as part of the facility's maintenance plan for the engine. I was also told that records of the maintenance are kept. A copy of the most recent maintenance record for EU-Gen is attached for reference.

For SC VI.4, the facility monitors and records the hours of operation of the engine, and a breakdown of the use

of the engines. I was told that Jim Isom tracks these hours. For SC VI.5, the Airport keeps fuel sample information for each delivery of diesel fuel to the facility.

VII. Reporting

The facility submitted all required certification and deviation reports. The initial notification required by condition VII.2 was submitted on September 23, 2011.

VIII. Stack/Vent Restrictions

The stack parameters were not verified during this site visit. There has been no indication that these parameters have changed since the emission unit was permitted.

IX. Other Requirements

The facility states that they are in compliance with applicable provisions of 40 CFR Part 60 Subpart IIII (SC. IX.1) and 40 CFR Part 63 Subpart ZZZZ (IX.2).

- **Permit to Install No. 109-11**

This permit addresses the installation and operation of four natural gas-fired fire tube boilers. These boilers are rated at 20.8 MMBTU/hour when burning natural gas, and 20.4 MMBTU/hour when burning fuel oil. These boilers were installed in Building 611, and they take the place of the four boilers that were removed from this building, EUBOILER#1 and #4 (which made up FG003), and EUBOILER#2 and #3 (which made up FG004).

The following provides a description of the Airport's compliance with the Special Conditions put forth by Permit to Install No. 109-11; the permit conditions are grouped under the Flexible Group FG-NEWBOILERS.

I. Emission Limits

The permit includes emission limits for NOx - one that applies when the boilers are firing natural gas, and one when they are firing fuel oil. There were no specific compliance testing requirements put in the permit, and to this point, there have been no tests performed to check compliance with the NOx limits. The boilers are not subject to the visible emissions limit in 40 CFR Part 60, Subpart Dc as they are rated at less than 30 MMBTU/hour.

Compliance with conditions I.1 and I.2 is undetermined, as PTI No. 109-11 does not put forth a practical way to verify compliance with the emission limits. I was told during the site visit that the NOx emissions are estimated at 6.5 tpy for all four boilers combined, assuming that they are operating at their maximum load. This issue will be further discussed with the facility during the conclusion of the ROP renewal process.

II. Material Limits

The conditions in this section address the use of fuel oil in the boilers. I was told that the building that houses the boilers is equipped with fuel meters that measure the amount of fuel used by the boilers. Randy said that in January 2018, 630 gallons of diesel fuel were used in the boilers, and none since.

III. Process/Operational Restrictions

The facility is **in compliance** with conditions III.1 and III.2. Only natural gas and/or fuel oil are used in the boilers, and facility staff states that the boilers are operated and maintained in accordance with manufacturer's recommendations.

IV. Design/Equipment Parameters

According to the facility, the maximum design heat input capacity of each boiler is not in excess of 20.8 MMBTU/hour (in compliance with SC IV.1)

V. Testing/Sampling

There are no testing/sampling requirements put forth in this PTI.

VI. Monitoring/Recordkeeping

The facility is **in compliance** with condition VI.1, as records of the fuel oil certification are kept for fuels used at the facility. The facility also tracks the amount of fuel used in the boilers, **in compliance** with condition VI.2. The spreadsheet that is attached to this report that summarizes the usage of fuel burning equipment at and around Building 611 includes records of the monthly natural gas and fuel oil usage for these four boilers.

VII. Reporting

The facility submitted notification of the date of construction of each of the boilers, as well as the startup dates. Notification of startup for Boiler 1 was dated January 8, 2013, for Boiler 2 - January 30, 2013, and for Boilers 3 and 4 – September 16, 2013.

VIII. Stack/Vent Restrictions

The stack parameters were not verified during this site visit. There has been no indication that these parameters have changed since the emission unit was permitted.

IX. Other Requirements

Condition IX.1 requires that the permittee comply with all applicable requirements of their ROP. I am unsure as to how the requirements of this condition relate to the boilers or PTI No. 109-11. However, the Airport facility looks to be in substantial compliance with their ROP, and thus with this permit condition.

Regulations

The Airport facility is a synthetic minor facility in regard to the Prevention of Significant Deterioration (PSD) regulations of Title 40 of the Code of Federal Regulations, Part 52.21. This is accomplished through the NOx and CO emission limits put forth in the Source-Wide Conditions section of the facility's ROP.

Of the many engines and generators operating at the facility, some are subject to the requirements of 40 CFR Part 63 Subpart ZZZZ, 40 CFR Part 60 Subpart IIII and 40 CFR Part 60 Subpart JJJJ. A document was included with the ROP renewal application that lists the engines at the facility, and discusses the regulatory requirements for each engine. A copy of the discussion from the ROP renewal application relating to the engines/generators is attached to this report. It includes forms that were created by the Airport facility's consultant to be used to track compliance of the engines that are subject to the Federal regulations.

The natural gas-fired turbine is subject to 40 CFR Part 60 Subpart KKKK.

The boilers operating at the facility are subject to 40 CFR Part 60 Subpart Dc, and they are likely subject to 40 CFR Part 63 Subpar t DDDDD. A discussion was included with the ROP renewal application that lists the boilers at the Airport facility, and summarizes the requirements that Subpart DDDDD will impart on these boilers. A copy of the discussion is attached to this report for reference.

The fuel dispensing equipment is currently subject to the requirements of Parts 6 and 7 of the Michigan Administrative Rules. Since the Airport facility is considered a major source of HAPs, not an area source, the fuel dispensing equipment will not be subject to 40 CFR Part 63, Subpart CCCCCC.

Compliance Determination

Based upon the results of the July 25, 2018 site visit and review of the facility's compliance records, the Detroit Metropolitan Wayne County Airport facility in Romulus appears to be **in compliance** with applicable rules and regulations, including with the terms and conditions of ROP No. MI-ROP-M4174-2010, and Permit to Install Nos. 175-10A and 109-11.

Attachments to this report: a facility map from the application for PTI No. 109-11; a copy of the fuel usage and emissions spreadsheets that are kept for Source-Wide Conditions; Source Total emissions report for the RY2017 MAERS submittal for the facility; records of fuel usage and of catalyst inlet temperature and pressure drop for FG001; a copy of an invoice from a diesel fuel delivery to the Airport; engine specifications for the two generators that make up FG008; monthly fuel burning equipment usage records for fuel combustion equipment at and around Building 611 at the Airport that includes the hours of usage of the turbine (EU-Turbine) and EU-Gen, and the fuel usage for FG-NEWBOILERS; a copy of the visible emissions log for the turbine; a copy of the engine certification information for the engine designated as EU-Gen; a copy of the most recent maintenance

record for EU-Gen; a print out of the listing of the reciprocating internal combustion engines (RICE) and boilers at the facility, and the regulatory discussion that accompanied them, as found in the ROP renewal application and authored by Randy Tysar of BT Environmental Consulting.

NAME Steve Wen DATE 10/29/18 SUPERVISOR JK