

**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection**

N572458099

FACILITY: CITY OF ST. LOUIS	SRN / ID: N5724
LOCATION: 412 N. MILL ST., SAINT LOUIS	DISTRICT: Lansing
CITY: SAINT LOUIS	COUNTY: GRATIOT
CONTACT: Kurt R. Giles , City Manager	ACTIVITY DATE: 05/17/2021
STAFF: Michelle Luplow	COMPLIANCE STATUS: Compliance
SUBJECT: Onsite inspection to determine compliance with opt-out permit #546-95B.	
RESOLVED COMPLAINTS:	

Inspected by: Michelle Luplow

Personnel Present: Keith Risdon (krisdon@stlouismi.com), Director of Public Services

Kurt Giles (kgiles@stlouismi.com), City Manager

Mike Parsons, Engine Maintenance

Purpose

Conduct an announced, scheduled onsite compliance inspection by determining compliance with the City of St. Louis' (St. Louis) Permit to Install (PTI) No. 546-95B.

This inspection was a partial compliance evaluation (PCE) conducted as part of a full compliance evaluation (FCE).

Facility Background/Regulatory Overview

The City of St. Louis (St. Louis) was a 208a registered source prior to Rule 208a being rescinded. It was determined during the January 2015 inspection an opt-out permit would be the best option to replace their 208a status, as their potential to emit (PTE) was greater than major source thresholds for NOx: the two PTI's (546-95 and 546-95A) combined allowed NOx emissions greater than 100 tons per year. These engines are also not considered emergency engines by the RICE MACT NESHAP Subpart ZZZZ; therefore, they are not limited to 500 hours per year and this limit therefore cannot be used in determining the facility's PTE. St. Louis' opt-out permit, 546-95B, was issued July 20, 2015.

The facility was last inspected in July 2017.

During the 2017 inspection, St. Louis had plans to decommission EUENGINE2 and EUENGINE3. During this inspection, Mike Parsons, Engine Maintenance, said that EUENGINE2 and EUENGINE3 were removed in 2021, and showed me the two bays where the engines once stood. Based on this information, there are currently 4 electric generators onsite (EUENGINE1, EUENGINE7, EUENGINE8 and EUENGINE9) primarily used as backup power generation in instances when the local power plant is not able to generate enough electricity to meet demand (peak shaving), but are also operated for maintenance and readiness testing. The engines will not be operated to provide power for the thermal in-situ remediation of the Velsicol Superfund site in St. Louis, according to Kurt Giles.

The engines are currently subject to the area source RICE MACT NESHAP Subpart ZZZZ; however, Michigan does not have delegated authority from the EPA to enforce this regulation at this time. In 2014, EUENGINE1, EUENGINE7, EUENGINE8, and EUENGINE9 were upgraded with DOCs/Silencers (catalytic oxidation controls) for the RICE MACT NESHAP Subpart ZZZZ. During the RICE MACT NESHAP ZZZZ upgrades, they found that EUENGINE1 had lubrication oil leaking to the DOC oxidation catalyst, rendering the catalyst ineffective. Because of this finding K. Giles said that EUENGINE7, EUENGINE8 and EUENGINE9 were also inspected to make sure that this problem would not occur on these engines as well. They determined that all 4 engines would have to be overhauled, as oil was leaking from all 4. Mike Parsons said that the overhauls involved re-boring the cylinder heads and installing sleeves on all cylinders to create a tight seal that the oil would minimally leak through, thus preventing the catalyst from being poisoned. The engines were overhauled in the following order: 7, 1, 8, 9. K. Risdon said the overhauls took place between April 2016 and July 2016. After the overhauls were completed, the engines underwent a “break in” period where they were run to ensure there were no more oil leaks, or any other operational issues with the engines before St. Louis installed the DOC oxidation catalyst and installed stacks at the appropriate 39’ permitted height, and eventually testing the engines for RICE MACT Subpart ZZZZ area source compliance

Per my request, the City of St. Louis conducted a reconstruction analysis to demonstrate that the fixed capital cost of the new components did not exceed 50% of the fixed capital cost (capital needed to provide all the depreciable components of an existing source) that would be required to construct a comparable new source for all overhauled engines. Triggering reconstruction may have cause the engines to fall under NSPS regulations.

Table 1. Equipment located onsite.

EUENGINE#	Description	Serial #	HP	Fuel	Federal Regulation
1	Fairbanks Morse 38DD8 1/8	969010	1920	Natural gas & diesel	Area source RICE MACT NESHAP ZZZZ
7	Fairbanks Morse 38DD8 1/8	912899	1600	Natural gas & diesel	Area source RICE MACT NESHAP ZZZZ
8	Fairbanks Morse 38DD8 1/8	969098	1920	Diesel only	Area source RICE MACT NESHAP ZZZZ
9	Fairbanks Morse 38DD8 1/8	971051	2095	Diesel only	Area source RICE MACT NESHAP ZZZZ

Inspection

This was an announced onsite compliance inspection. At approximately 9:00 a.m. on May 16, 2021 I met with Kurt Giles and Keith Risdon at St. Louis' City Hall to walk over to the engine plant to meet with Mike Parsons.

The engines were not running during the inspection.

FGENGINES1237: EUENGINE1 and EUENGINE7

EUENGINE1 and EUENGINE7 are the only 2 emission units contained within this flexible group that are still present onsite; EUENGINE2 and EUENGINE3 have been removed. The remaining engines are capable of operating on diesel and natural gas. M. Parsons clarified that the engines use diesel to start up (until the exhaust reaches 500°F) and then switch to natural gas combustion for sustained operations.

M. Parsons explained that they have only been running the engines for maintenance and readiness testing (load testing run generally once a year to verify loading capacity for MPPA emergency usage when called upon); they have not needed them for peak shaving. Load testing is conducted over the course of an hour at 100% load; however, additional time is necessary to reach that loading.

Emission Limits & Monitoring/Recordkeeping

There is a combined (from all engines) 12-month rolling emission limit for NOx and CO at 39.0 tpy and 4.3 tpy, respectively. NOx and CO emissions are required to be calculated by recording diesel fuel usage and natural gas fuel usage on a monthly and 12-month rolling basis, in addition to using emission factors that originate from vendor data or stack testing, according to Appendix A of the PTI. If neither vendor nor stack testing data is available, St. Louis must get approval from the AQD prior to using the emission factor. Per Appendix A, St. Louis is also required to document the source of each emission factor used. St. Louis is using MAERS emission factors for SCC code 20300101 (diesel reciprocating internal combustion engines) and SCC code 20300201 (natural gas reciprocating internal combustion engines).

I requested St. Louis provide me with monthly and 12-month rolling diesel usage, natural gas usage, and NOx and CO calculations for the period of January 2019 – April 2021. EUENGINE1 and EUENGINE7 were both load tested in July 2019 and August 2020. EUENGINE7 was also load tested in March 2019.

Table 2 contains 12-month rolling CO and NOx emissions from each engine January 2019 – December 2019, and September 2019 – August 2020 to encapsulate the 12-month rolling periods with the highest emissions.

Table 2. 12-month rolling CO and NOx emissions totals across Engines 1, 2, 3, 7

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	January 2019 – December 2019		September 2019 – August 2020	
	NOx lbs (tons)	CO lbs (tons)	NOx lbs (tons)	CO lbs (tons)
Engines				
Engine 1	32.01 (0.016)	6.53 (0.003)	27.94 (0.014)	5.69 (0.003)
Engine 2	0.0	0.0	0	0
Engine 3	0.0	0.0	0	0
Engine 7	91.8 (0.049)	19.45 (0.010)	54.36 (0.03)	11.7 (0.006)
Totals (tons)	0.06	0.01	0.04	0.01
Limit (tons)	39.0	4.3	39.0	4.3

Material Limits & Monitoring/Recordkeeping

Engines 1 & 7 have a combined natural gas usage limit of 13,267,000 scf/year on a 12-month rolling basis. Natural gas usage records are required to be kept on a monthly and 12-month rolling basis. K. Risdon provided me with an Excel spreadsheet that contains this information on a monthly basis (attached) through April 2021. I reviewed data for the 12-month periods of January – December 2019 and September 2019 – August 2020 for EUENGINE1 and EUENGINE7. The period with the highest 12-month rolling natural gas usage was January – December 2019 at 3,200 scf. St. Louis is in compliance with their natural gas usage limit at this time.

The sulfur content in the diesel fuel is limited to 0.50 wt%, and shall be determined based on diesel fuel shipment specifications containing the maximum total sulfur content. K. Risdon provided me with a safety data sheet (SDS) from Marathon for the ultra low sulfur diesel that is combusted in the engines. The SDS indicates the fuel has a maximum of 15 ppm sulfur (0.0015 wt%).

Process/Operational Restrictions

St. Louis is required to submit a PM/MAP to the district within 30 days of the engines coming online. The PM/MAP was submitted and reviewed in 2017 and considered sufficient at this time.

Design/Equipment Parameters

A device to monitor the fuel usage for each engine is required to be installed, calibrated and operating on a continuous basis when the engine is in operation. St. Louis has one natural gas meter that continuously monitors natural gas usage to EUENGINE1 and EUENGINE 7. K. Risdon clarified that EUENGINE1 and EUENGINE7 are typically run at separate times in order to track the quantity of

natural gas combusted in EUENGINE1 versus the quantity combusted in EUENGINE7; the meter is read before and after each run. There are also 2 diesel tanks onsite, one for each engine, each with their own meter. The meter is read before and after each run to determine the quantity of diesel used.

In order to determine when calibrations are necessary on the diesel meters, M. Parsons explained that they compare the kW output vs diesel intake to determine if the meter is correct, and also compare the site gauge on the tank with what the meter is reading, and knowing how much diesel was purchased.

K. Risdon said that Consumer's Energy installed a new natural gas meter 1.5 years ago. I recommended St. Louis check with Consumer's Energy to ensure their meter is properly calibrated at the correct frequency.

Testing/Sampling

At this time it is my professional judgment that a stack test to verify compliance with the NOx and CO emission limits from FGENGINES1237 is unwarranted; however, if St. Louis were to get within 10% of its emission limits for either compound, a stack test request may be justified to ensure that emission limits are not being exceeded.

Reporting

St. Louis was required to notify the AQD District Supervisor within 7 days following the completion of testing for the overhauls. The purpose of this condition was to ensure that the AQD was aware that all operations associated with overhauls were complete, and engine operation after this complete date would not be allowed until the stack heights on EUENGINE1 and EUENGINE7 were corrected to their permitted height. Testing of the overhauls included a period of "break-in" time where the engines were run multiple times to ensure that all components of the engine were functioning properly, and also allowed the new sheaths on the cylinders to properly seal. M. Parson said these tests were completed in October and November 2016.

St. Louis was also required to notify the AQD District Supervisor within 7 days of completion of adjusting the stack heights on engines 1 and 7. According to K. Risdon in his most recent communications with me, the stack heights were corrected November 15, 2016.

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Stack/Vent Restrictions

The 39' stack height requirement EUENGINE1 and EUENGINE7 was not required until after testing had been completed for the EUENGINE1 and EUENGINE7 overhauls and normal operation (readiness testing and engines run to supply power to the grid) resumed. November 15, 2016 was the date the stack heights were corrected to 39'.

During the inspection, I utilized the AQD Lansing District Office's Nikon Forestry II Rangefinder 2-point mode to verify the stack height of EUENGINE1. The rangefinder gave a reading of 39.2 feet. EUENGINE7 stack height could not be accurately verified due to obstructions surrounding the stack's footing. Visual observation of the stack heights confirmed that both stacks appear to be the same height.

FGENGINES89: EUENGINE8 and EUENGINE9

Engines 8 and 9 are diesel-only fired engines subject to the RICE MACT ZZZZ area source NESHAP. Similar to FGENGINES1237, FGENGINES89 are operated primarily for load testing, and although available for peak shaving, have not been used as such.

There are no Reporting or Stack/Vent Restriction requirements at this time.

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Emission Limits & Monitoring/Recordkeeping

EUENGINE8 and EUENGINE9 have a combined 12-month rolling emission limit for NOx at 39.0 tpy. The emission factors to be used to calculate these emissions should be obtained from vendor data or stack testing, according to Appendix A of the PTI. If neither vendor nor stack testing data is available, St. Louis must get approval from the AQD prior to using the emission factor. Per Appendix A, St. Louis is also required to document the source of each emission factor used. The source of the emission factors St. Louis is using to calculate their emissions is MAERS emission factors for SCC code 20300101 (diesel reciprocating internal combustion engines) I verified during the previous inspection that the MAERS emission factors were used in St. Louis' emission calculation spreadsheets. St. Louis is also required to record diesel fuel usage on a monthly and 12-month rolling basis, and use this data in conjunction with the emission factor to calculate and record NOx emissions on a monthly and 12-month rolling basis.

I requested and reviewed January 2019 – April 2021 records. EUENGINE8 and EUENGINE9 were both load tested in July 2019 and August 2020.

Table 2 contains 12-month rolling NOx emissions from each engine January 2019 – December 2019, and September 2019 – August 2020 to encapsulate the 12-month rolling periods where the engines were load-tested/diesel fuel was combusted.

Table 3. NOx emissions totals across Engines 8 and 9

Engines	Jan – Dec 2019 NOx lbs (tons)	Sep 2019 – Aug 2020 NOx lbs (tons)
Engine 8	155.23 (0.08)	162.96 (0.08)
Engine 9	129.26 (0.06)	126.05 (0.06)
Total Tons	0.14	0.14

Limit (tons)	39.0	39.0
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Material Limits & Monitoring/Recordkeeping

St. Louis is required to maintain a record of the diesel fuel maximum total sulfur content in wt% for each shipment of fuel to demonstrate compliance with the 0.2 wt% sulfur content in diesel. K. Risdon provided me with a chemical property sheet of the diesel that they use which indicates that the diesel contains a maximum of 15 ppm (0.0015%) sulfur.

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Process/Operational Restrictions

As with FGGENINES1237, FGGENINES89 is also required to have a PM/MAP to be submitted within 30 days after the engines come online. The PM/MAP was submitted and reviewed in 2017 and considered sufficient at this time.

Design/Equipment Parameters

A device to monitor the fuel usage for each engine is required to be installed and operating on a continuous basis when the engine is in operation. EUENGINE8 and EUENGINE9 have their own diesel fuel supply tanks. Each tank has a monitor that is read before and after load testing to determine the quantity of diesel that's been used.

Testing/Sampling

At this time it is my professional judgment that a stack test to verify compliance with the NO_x emission limits from FGGENINES89 is unwarranted; however, if St. Louis were to get within 10% of its emission limits for either compound, a stack test request may be justified to ensure that emission limits are not being exceeded.

FGFACILITY

The City of St. Louis is an opt-out facility for NO_x and has 12-month rolling NO_x emission limit of 80 tpy, and a 12-month rolling material limit of 209,150 gallons (which includes gasoline gallon equivalents of natural gas).

I confirmed with site personnel during the inspection that there are no other sources of combustion on the property, including any other emergency generators and boilers. Therefore, FGFACILITY emissions only includes the NO_x emissions from FGGENINES1237 and FGGENINES89.

There are currently no Process/Operational Restrictions, Design/Equipment Parameters, Testing/Sampling or Reporting requirements.

Emission Limits & Monitoring/Recordkeeping

NOx emission calculations from all fuel-burning equipment throughout the facility must be calculated on a monthly and 12-month rolling basis, and stack testing emission factors or vendor data shall be used to calculate these emissions. If neither vendor nor stack testing data is available, St. Louis may use EPA Webfire or AP-42 emission rates to calculate NOx emissions. St. Louis is also required to document the source of each emission factor used. K. Risdon uses MAERS Emission factors which, in this case, are taken from AP-42/ EPA Webfire emission factors, and are an approvable emission factor to use considering St. Louis does not have manufacturer's data nor stack test results to base their emissions on.

The 12-month rolling NOx limit is 80 tpy. The total NOx emissions from all engines was highest during the 12-month rolling period from January 2019 through December 2019 at 0.2 tons (408.3 lbs).

Material Limits & Monitoring/Recordkeeping

St. Louis is required to monitor and record the total fuel usage rate for all fuel-burning equipment in FG FACILITY on a monthly and 12-month rolling basis, and should include the gallons of diesel fuel and Gasoline Gallon Equivalents (GGE) of natural gas burned (where 1 GGE is equivalent to 126.6 scf natural gas per the permit).

St. Louis did not have these records readily available. K. Risdon provided me with a breakdown of the GGE for each calendar year. I advised him that it would be in St. Louis' best interest to begin keeping records of total fuel burned, as required by the permit, included GGE calculations, on a monthly and 12-month rolling basis. Failure to do so may result in a violation during future compliance investigations. Compliance was determined based on the GGE's K. Risdon provided in addition to the recorded diesel throughput for 2019, 2020, and 2021.

Table 4 provides the 2 12-month rolling periods with the highest fuel throughputs. Both 12-month rolling periods are in compliance with the Material Limits at this time.

Table 4. Total Fuel Burned (diesel + gasoline gallon equivalents)

Engines	Jan – Dec 2019 gallons	Sep 2019 – Aug 2020 gallons
Natural Gas (GGE)	25.26	12.18
Diesel	661	607.5
Total Tons	686	620
Limit (tons)	209,150	209,150

Compliance Statement: The City of St. Louis appears to be in compliance with PTI 546-95B at this time.



Image 1(Engines Removed) : Areas where EUENGINE2 and EUENGINE3 have been removed from facility



Image 2(Diesel #1) : Diesel Monitor on EUENGINE1



Image 3(Diesel Monitor 7) : Diesel meter on EUENGINE7



Image 4(Diesel 8&9) : Diesel Tanks for EUENGINE8 & EUENGINE9



Image 5(Meter 8) : Diesel meter on EUENGINE8



Image 6(Meter 9) : Diesel Meter on EUENGINE9



Image 7(Natural Gas): Natural Gas Meter for EUENGINE1 & EUENGINE7



Image 8(EUENGINE7 Stack) : Stack on EUENGINE7



Image 9(FGENGINE89) : Building housing EUENGINE8 and EUENGINE9

NAME Michelle Luplow

DATE 6/14/21

SUPERVISOR B.M.

City of St. Louis Municipal Electric Utility
Emissions Summary from Diesel Fuel & Natural Gas
July-19

1				
Consumption:		Gallons		
Consumption:		ft ³		
Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
0.045		130		5.85
	0.0017	399		0.68
0.045		604		27.18
	0.0017	2840		4.83
0.045		42.5		1.91
	0.0017	20.11		0.03
0.045		39.7	0.047	0.08
	0.0017	0.6		0.00

2				
Consumption:		Gallons		
Consumption:		ft ³		
Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
0		130		0.00
	0	399		0.00
0		604		0.00
	0	2840		0.00
0		42.5		0.00
	0	20.11		0.00
0		39.7	0.047	0.00
	0	0.6		0.00

3				
Consumption:		Gallons		
Consumption:		ft ³		
Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
0		130		0.00
	0	399		0.00
0		604		0.00
	0	2840		0.00
0		42.5		0.00
	0	20.11		0.00
0		39.7	0.047	0.00
	0	0.6		0.00

7				
Consumption:		Gallons		
Consumption:		ft ³		
Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
0.035		130		4.55
	0.0015	399		0.60
0.035		604		21.14
	0.0015	2840		4.26
0.035		42.5		1.49
	0.0015	20.11		0.03
0.035		39.7	0.047	0.07
	0.0015	0.6		0.00

8				
Consumption:		Gallons		
Consumption:		ft ³		
Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
0.257		130		33.41
	0	399		0.00
0.257		604		155.23
	0	2840		0.00
0.257		42.5		10.92
	0	20.11		0.00
0.257		39.7	0.047	0.48
	0	0.6		0.00

9				
Consumption:		Gallons		
Consumption:		ft ³		
Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
0.214		130		27.82
	0	399		0.00
0.214		604		129.26
	0	2840		0.00
0.214		42.5		9.10
	0	20.11		0.00
0.214		39.7	0.047	0.40
	0	0.6		0.00

Subtotals
CO
Nox
PM10
Sox

87.25
408.38
28.20
1.28

City of St. Louis Municipal Electric Utility
Emissions Summary from Diesel Fuel & Natural Gas
June-19

Unit # : 1						
Diesel Consumption:		Gallons				
Nat. Gas Consumption:		ft ³				
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
CO	0		130		0.00	
CO		0	399		0.00	
NOx	0		604		0.00	
NOx		0	2840		0.00	
PM10	0		42.5		0.00	
PM10		0	20.11		0.00	
SOx	0		39.7	0.047	0.00	
SOx		0	0.6		0.00	

Unit # : 2						
Diesel Consumption:		Gallons				
Nat. Gas Consumption:		ft ³				
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
CO	0		130		0.00	
CO		0	399		0.00	
NOx	0		604		0.00	
NOx		0	2840		0.00	
PM10	0		42.5		0.00	
PM10		0	20.11		0.00	
SOx	0		39.7	0.047	0.00	
SOx		0	0.6		0.00	

Unit # : 3						
Diesel Consumption:		Gallons				
Nat. Gas Consumption:		ft ³				
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
CO	0		130		0.00	
CO		0	399		0.00	
NOx	0		604		0.00	
NOx		0	2840		0.00	
PM10	0		42.5		0.00	
PM10		0	20.11		0.00	
SOx	0		39.7	0.047	0.00	
SOx		0	0.6		0.00	

Unit # : 7						
Diesel Consumption:		Gallons				
Nat. Gas Consumption:		ft ³				
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
CO	0		130		0.00	
CO		0	399		0.00	
NOx	0		604		0.00	
NOx		0	2840		0.00	
PM10	0		42.5		0.00	
PM10		0	20.11		0.00	
SOx	0		39.7	0.047	0.00	
SOx		0	0.6		0.00	

Unit # : 8						
Diesel Consumption:		Gallons				
Nat. Gas Consumption:		ft ³				
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
CO	0		130		0.00	
CO		0	399		0.00	
NOx	0		604		0.00	
NOx		0	2840		0.00	
PM10	0		42.5		0.00	
PM10		0	20.11		0.00	
SOx	0		39.7	0.047	0.00	
SOx		0	0.6		0.00	

Unit # : 9						
Diesel Consumption:		Gallons				
Nat. Gas Consumption:		ft ³				
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
CO	0		130		0.00	
CO		0	399		0.00	
NOx	0		604		0.00	
NOx		0	2840		0.00	
PM10	0		42.5		0.00	
PM10		0	20.11		0.00	
SOx	0		39.7	0.047	0.00	
SOx		0	0.6		0.00	

Subtotals
CO
Nox
PM10
Sox

14.35
66.49
4.72
0.25

City of St. Louis Municipal Electric Utility
Emissions Summary from Diesel Fuel & Natural Gas
May-19

Unit # : 1						
Diesel Consumption:		Gallons				
Nat. Gas Consumption:		ft ³				
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
CO	0		130		0.00	
CO		0	399		0.00	
NOx	0		604		0.00	
NOx		0	2840		0.00	
PM10	0		42.5		0.00	
PM10		0	20.11		0.00	
SOx	0		39.7	0.047	0.00	
SOx		0	0.6		0.00	

Unit # : 2						
Diesel Consumption:		Gallons				
Nat. Gas Consumption:		ft ³				
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
CO	0		130		0.00	
CO		0	399		0.00	
NOx	0		604		0.00	
NOx		0	2840		0.00	
PM10	0		42.5		0.00	
PM10		0	20.11		0.00	
SOx	0		39.7	0.047	0.00	
SOx		0	0.6		0.00	

Unit # : 3						
Diesel Consumption:		Gallons				
Nat. Gas Consumption:		ft ³				
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
CO	0		130		0.00	
CO		0	399		0.00	
NOx	0		604		0.00	
NOx		0	2840		0.00	
PM10	0		42.5		0.00	
PM10		0	20.11		0.00	
SOx	0		39.7	0.047	0.00	
SOx		0	0.6		0.00	

Unit # : 7						
Diesel Consumption:		Gallons				
Nat. Gas Consumption:		ft ³				
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
CO	0		130		0.00	
CO		0	399		0.00	
NOx	0		604		0.00	
NOx		0	2840		0.00	
PM10	0		42.5		0.00	
PM10		0	20.11		0.00	
SOx	0		39.7	0.047	0.00	
SOx		0	0.6		0.00	

Unit # : 8						
Diesel Consumption:		Gallons				
Nat. Gas Consumption:		ft ³				
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
CO	0		130		0.00	
CO		0	399		0.00	
NOx	0		604		0.00	
NOx		0	2840		0.00	
PM10	0		42.5		0.00	
PM10		0	20.11		0.00	
SOx	0		39.7	0.047	0.00	
SOx		0	0.6		0.00	

Unit # : 9						
Diesel Consumption:		Gallons				
Nat. Gas Consumption:		ft ³				
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
CO	0		130		0.00	
CO		0	399		0.00	
NOx	0		604		0.00	
NOx		0	2840		0.00	
PM10	0		42.5		0.00	
PM10		0	20.11		0.00	
SOx	0		39.7	0.047	0.00	
SOx		0	0.6		0.00	

Subtotals
CO
Nox
PM10
Sox

14.35
66.49
4.72
0.25

City of St. Louis Municipal Electric Utility
Emissions Summary from Diesel Fuel & Natural Gas
April-19

Unit # : 1						
Diesel Consumption:		Gallons				

Plus
 Prev. 11
 Mo.

0 Gallons 0 ft ³			
Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
	130		0.00
0	399		0.00
	604		0.00
0	2840		0.00
	42.5		0.00
0	20.11		0.00
	39.7	0.047	0.00
0	0.6		0.00

Unit # : 1 Diesel Consumption: 0 Gallons Nat. Gas Consumption: 0 ft ³					
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
0.00 CO	0		130		0.00
0.00 CO		0	399		0.00
0.00 NOx	0		604		0.00
0.00 NOx		0	2840		0.00
0.00 PM10	0		42.5		0.00
0.00 PM10		0	20.11		0.00
0.00 SOx	0		39.7	0.047	0.00
0.00 SOx		0	0.6		0.00

0 Gallons 0 ft ³			
Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
	130		0.00
0	399		0.00
	604		0.00
0	2840		0.00
	42.5		0.00
0	20.11		0.00
	39.7	0.047	0.00
0	0.6		0.00

Unit # : 2 Diesel Consumption: 0 Gallons Nat. Gas Consumption: 0 ft ³					
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
0.00 CO	0		130		0.00
0.00 CO		0	399		0.00
0.00 NOx	0		604		0.00
0.00 NOx		0	2840		0.00
0.00 PM10	0		42.5		0.00
0.00 PM10		0	20.11		0.00
0.00 SOx	0		39.7	0.047	0.00
0.00 SOx		0	0.6		0.00

0 Gallons 0 ft ³			
Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
	130		0.00
0	399		0.00
	604		0.00
0	2840		0.00
	42.5		0.00
0	20.11		0.00
	39.7	0.047	0.00
0	0.6		0.00

Unit # : 3 Diesel Consumption: 0 Gallons Nat. Gas Consumption: 0 ft ³					
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
0.00 CO	0		130		0.00
0.00 CO		0	399		0.00
0.00 NOx	0		604		0.00
0.00 NOx		0	2840		0.00
0.00 PM10	0		42.5		0.00
0.00 PM10		0	20.11		0.00
0.00 SOx	0		39.7	0.047	0.00
0.00 SOx		0	0.6		0.00

0 Gallons 0 ft ³			
Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
	130		0.00
0	399		0.00
	604		0.00
0	2840		0.00
	42.5		0.00
0	20.11		0.00
	39.7	0.047	0.00
0	0.6		0.00

Unit # : 7 Diesel Consumption: 0 Gallons Nat. Gas Consumption: 0 ft ³					
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
0.00 CO	0		130		0.00
0.00 CO		0	399		0.00
0.00 NOx	0		604		0.00
0.00 NOx		0	2840		0.00
0.00 PM10	0		42.5		0.00
0.00 PM10		0	20.11		0.00
0.00 SOx	0		39.7	0.047	0.00
0.00 SOx		0	0.6		0.00

0 Gallons 0 ft ³			
Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
	130		0.00
0	399		0.00
	604		0.00
0	2840		0.00
	42.5		0.00
0	20.11		0.00
	39.7	0.047	0.00
0	0.6		0.00

Unit # : 8 Diesel Consumption: 0 Gallons Nat. Gas Consumption: 0 ft ³					
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
0.00 CO	0		130		0.00
0.00 CO		0	399		0.00
0.00 NOx	0		604		0.00
0.00 NOx		0	2840		0.00
0.00 PM10	0		42.5		0.00
0.00 PM10		0	20.11		0.00
0.00 SOx	0		39.7	0.047	0.00
0.00 SOx		0	0.6		0.00

0 Gallons 0 ft ³			
Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
	130		0.00
0	399		0.00
	604		0.00
0	2840		0.00
	42.5		0.00
0	20.11		0.00
	39.7	0.047	0.00
0	0.6		0.00

Unit # : 9 Diesel Consumption: 0 Gallons Nat. Gas Consumption: 0 ft ³					
Criteria Pollutant	Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)
0.00 CO	0		130		0.00
0.00 CO		0	399		0.00
0.00 NOx	0		604		0.00
0.00 NOx		0	2840		0.00
0.00 PM10	0		42.5		0.00
0.00 PM10		0	20.11		0.00
0.00 SOx	0		39.7	0.047	0.00
0.00 SOx		0	0.6		0.00

Subtotals
 CO
 Nox
 PM10
 Sox

0.00
 0.00
 0.00
 0.00

Subtotals
 CO
 Nox
 PM10
 Sox

0.00
 0.00
 0.00
 0.00

City of St. Louis Municipal Electric Utility
Emissions Summary from Diesel Fuel & Natural Gas
February-20

1					Plus Prev. 11 Mo.
Diesel Consumption:		0 Gallons		Emissions	
Gas Consumption:		0 ft ³			Totals (lbs)
Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
0		130		0.00	0.00
	0	399		0.00	0.00
0		604		0.00	0.00
	0	2840		0.00	0.00
0		42.5		0.00	0.00
	0	20.11		0.00	0.00
0		39.7	0.047	0.00	0.00
	0	0.6		0.00	0.00

2					0.00
Diesel Consumption:		0 Gallons		Emissions	
Gas Consumption:		0 ft ³			Totals (lbs)
Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
0		130		0.00	0.00
	0	399		0.00	0.00
0		604		0.00	0.00
	0	2840		0.00	0.00
0		42.5		0.00	0.00
	0	20.11		0.00	0.00
0		39.7	0.047	0.00	0.00
	0	0.6		0.00	0.00

3					0.00
Diesel Consumption:		0 Gallons		Emissions	
Gas Consumption:		0 ft ³			Totals (lbs)
Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
0		130		0.00	0.00
	0	399		0.00	0.00
0		604		0.00	0.00
	0	2840		0.00	0.00
0		42.5		0.00	0.00
	0	20.11		0.00	0.00
0		39.7	0.047	0.00	0.00
	0	0.6		0.00	0.00

7					0.00
Diesel Consumption:		0 Gallons		Emissions	
Gas Consumption:		0 ft ³			Totals (lbs)
Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
0		130		0.00	0.00
	0	399		0.00	0.00
0		604		0.00	0.00
	0	2840		0.00	0.00
0		42.5		0.00	0.00
	0	20.11		0.00	0.00
0		39.7	0.047	0.00	0.00
	0	0.6		0.00	0.00

8					0.00
Diesel Consumption:		0 Gallons		Emissions	
Gas Consumption:		0 ft ³			Totals (lbs)
Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
0		130		0.00	0.00
	0	399		0.00	0.00
0		604		0.00	0.00
	0	2840		0.00	0.00
0		42.5		0.00	0.00
	0	20.11		0.00	0.00
0		39.7	0.047	0.00	0.00
	0	0.6		0.00	0.00

9					0.00
Diesel Consumption:		0 Gallons		Emissions	
Gas Consumption:		0 ft ³			Totals (lbs)
Diesel Cons. (1000 gal)	Nat. Gas. Cons. (10 ⁶ ft ³)	Emissions Factors	Sulfur Content (%)	Emissions Totals (lbs)	
0		130		0.00	0.00
	0	399		0.00	0.00
0		604		0.00	0.00
	0	2840		0.00	0.00
0		42.5		0.00	0.00
	0	20.11		0.00	0.00
0		39.7	0.047	0.00	0.00
	0	0.6		0.00	0.00

Subtotals	
CO	0.00
Nox	0.00
PM10	0.00
Sox	0.00



SAFETY DATA SHEET

SDS ID NO.: 0290MAR019
Revision Date: 05/14/2015

1. IDENTIFICATION

Product Name: Marathon Petroleum No. 2 Ultra Low Sulfur Diesel 15 ppm Sulfur Max

Synonym: Ultra Low Sulfur Diesel No. 2 15 ppm Sulfur Max; Ultra Low Sulfur Diesel No. 2 15 ppm Sulfur Max with Polar Plus; No. 2 Diesel, Motor Vehicle Use, Undyed; No. 2 Diesel, Motor Vehicle Use, Undyed, with Polar Plus; ULSD No. 2 Diesel 15 ppm Sulfur Max; ULSD No. 2 Diesel 15 ppm Sulfur Max with Polar Plus; No. 2 MV 15 Diesel; No. 2 MV 15 Diesel with Polar Plus

Chemical Family: Complex Hydrocarbon Substance

Recommended Use: Fuel.

Use Restrictions: All others.

Supplier Name and Address:
MARATHON PETROLEUM COMPANY LP
539 South Main Street
Findlay, OH 45840

SDS information: 1-419-421-3070

Emergency Telephone: 1-877-627-5463

2. HAZARD IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Category 2
Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 2
Aspiration toxicity	Category 1
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

Hazards Not Otherwise Classified (HNOC)

Static accumulating flammable liquid

Label elements

EMERGENCY OVERVIEW