

## TECHNICAL FACT SHEET

April 17, 2024

### Purpose and Summary

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), is proposing to act on Permit to Install (PTI) application No. APP-2024-0053 from Marathon Petroleum Company LP (Marathon), application No. APP-2024-0055 from Air Products and Chemicals, Inc. (Air Products), and application No. APP-2024-0054 from MPLX Terminals LLC (MPLX). These three separate companies are part of the Marathon Detroit Refinery stationary source because they are adjacent to each other, and their operations are dependent on each other.

Marathon is requesting to remove throughput limits from some storage tanks so the refinery can operate at its physical capacity, to increase the number of coker drum cycles, to add new criteria pollutant emission limit caps on equipment affected by the removal of the throughput limits, and for some pollution control projects to reduce emissions from the Marathon Detroit Refinery stationary source. Marathon refers to these requests as the Detroit Permitting Project (DPP). The pollution control projects, discussed in greater detail below, are:

- Replace the two naphtha hydrotreater (NHT) unit heaters with new heaters equipped with ultra-low nitrogen oxide (NO<sub>x</sub>) burners to reduce overall NO<sub>x</sub> emissions,
- Remove the crude flare from service by re-routing streams to the Coker Flare System, which has a flare gas recovery system, to reduce flaring and lower emissions,
- Install a geodesic dome on finished gasoline storage tank EUTANK110-S1 that has an external floating roof to reduce VOC emissions, and
- Expand the refinery's leak detection and repair program to include monitoring of at least 3,000 additional flanges and/or connectors to reduce VOC emissions.

In addition, Marathon requested to include two requirements from a [consent decree](#) between Marathon and the United States Environmental Protection Agency (USEPA) in the permit conditions. This will require Marathon to continue to comply with these requirements after the consent decree ends.

Marathon also requested to extend the perimeter air monitoring program at the facility. If Marathon's PTI is issued, they would be required to continue the monitoring program for three years. Note, the requirement for the monitoring program ended on November 5, 2022.

Air Products is requesting to add new criteria pollutant emission limit caps on equipment affected by the removal of Marathon's throughput limits.

MPLX is requesting to raise the height of their Vapor Recovery Unit (VRU) stack from 20 feet to 35 feet. The stack height could be increased without a permit, but MPLX submitted their application to make the stack change legally enforceable.

The proposed changes are subject to permitting requirements of the Department's Rules for Air Pollution Control. Because the processes are connected, we are proposing to act on all three applications at the same time. Before acting on these applications, the AQD is holding a public comment period and a public hearing to allow all interested parties an opportunity to comment on the proposed PTIs. The decision maker will consider all relevant information received during the comment period and hearing before taking final action on the applications. For any of these

requested changes to happen, they must be approvable and able to meet all applicable air quality rules and regulations.

Please refer to Appendix 2 for a summary of the proposed permit condition changes resulting from the DPP.

## Background Information

Marathon is located at 1001 South Oakwood Boulevard in Detroit, Michigan. Marathon uses various hydrocarbon processing units to make consumer and commercial products from crude oil. These products include gasoline, fuel oils, asphalt, propane, and propylene. Finished products are transferred to customers via truck, rail, and barge loading racks as well as through the pipeline.

Air Products is located at 1025 South Oakwood Boulevard in Detroit, Michigan, and provides hydrogen to Marathon for use in some hydrocarbon processing units.

MPLX is located at 12700 Toronto Street in Detroit, Michigan and loads finished products from Marathon into delivery vessels for transport to customers.

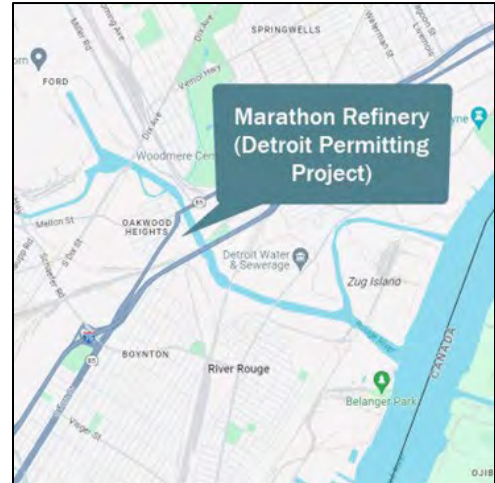


Figure 1: Marathon Detroit Refinery Location

## Proposed Modifications

Marathon has requested to remove limits from their permit and increase the number of coker cycles so that the refinery can operate at maximum capacity to meet demand. Marathon has determined:

- Current storage tank throughput limits are too low to allow the existing refinery equipment to operate at its physical capacity.
- The demand for finished products exceeds what Marathon can produce due to the storage tank throughput permit limits.

No physical changes to existing equipment are needed and no new equipment is needed for the refinery to operate at its capacity. Removal of the following storage tank throughput limits has been requested:

- FGCRUDETANKS-S1 crude oil limit of 140,000 barrels per day on an annual average.
- FGNAPHTHATANKS-S1 monthly average limits for toluene, xylene mixture, cumene, NHT charge, sweet naphtha, reformate naphtha, fluid catalytic cracking unit (FCCU) naphtha, alkylate naphtha, ethanol, gasoline, and coker naphtha.
- FGGROUP2-S1 monthly average limits for sour kerosene, sweet kerosene, sour distillate, sweet distillate, sour gasoil, and sweet gasoil.

In addition, Marathon is requesting to increase the number of coker drum cycles from 487 to 500 per 12-month rolling time period.

Marathon is requesting to remove monthly and annual average limits and modify a 12-month rolling time period limit. These limits do not affect the maximum hourly emissions which are based on the physical capacity of the equipment. Marathon is currently allowed to operate at their

maximum capacity but, to meet the current throughput limits, they rely on periods of reduced operations.

As part of this request, Marathon is proposing to include emission limit caps for the emission units that are affected by the removal of the throughput limits as well as some pollution control projects. See the discussion below for more information.

## Present Air Quality

Marathon is located in the portion of Wayne County which is currently meeting all of the National Ambient Air Quality Standards (NAAQS) set by the USEPA, except for [sulfur dioxide \(SO<sub>2</sub>\)](#).

The [other](#) NAAQS are for carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO<sub>2</sub>), ozone, particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>), and particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>). All of the standards are set at levels designed to protect public health. This includes health protection for sensitive groups like those with heart and lung problems.

The AQD operates 11 [air monitoring stations](#) in Wayne County, 7 of which are in the City of Detroit. The Trinity St. Marks station is one mile from Marathon and four other stations are within two miles of Marathon. The Trinity station measures NO<sub>2</sub>, metals, CO, PM<sub>2.5</sub>, SO<sub>2</sub>, and black carbon. One of the 7 air monitoring stations in the City of Detroit is located in the 48217 zip code at the New Mount Hermon Baptist Church, which is one mile away, and measures SO<sub>2</sub>, particulate matter (PM<sub>2.5</sub>), and metals. Marathon, through the use of an environmental contractor, also operates [4 ambient air monitoring stations](#). Three are on the Marathon property and the fourth is located at Mark Twain Middle School. Marathon's monitors continuously measure SO<sub>2</sub>, total reduced sulfur, CO, and particulate matter (PM<sub>10</sub>); volatile organic compounds (VOC) are sampled every 6-days.

Figure 1: Southwest Detroit Ambient Air Monitors



### Pollutant Emissions

The following table provides the estimated emissions, in tons per year (tpy), for the proposed project for each criteria pollutant. This table does not include the emission reductions proposed by Marathon.

Table 1: Project Emissions Summary

Pollutant	Baseline Actual Emissions (tpy)	Projected Actual Emissions (tpy)	Excludable Emissions (tpy)	Project Emissions Change (tpy)	Significant Emission Rate (SER) (tpy)	Emissions Change Greater than SER <sup>1</sup> ?
SO <sub>2</sub>	172.1	187.6	10.8	4.7	40	No
CO	158.2	164.2*	0.04	5.9	100	No
Oxides of Nitrogen (NO <sub>x</sub> )	348.9	424.4	45.4	30.1	40	No

Pollutant	Baseline Actual Emissions (tpy)	Projected Actual Emissions (tpy)	Excludable Emissions (tpy)	Project Emissions Change (tpy)	Significant Emission Rate (SER) (tpy)	Emissions Change Greater than SER <sup>1</sup> ?
PM	26.4	35.3	7.8	1.2	25	No
PM10	78.4	105.8	24.5	2.9	15	No
PM2.5	78.4	105.8	24.5	2.9	10	No
VOC	125.5	145.7	18.5	1.7	40	No
Sulfuric Acid Mist (SAM)	9.9	17.8	7.0	0.9	7	No
Hydrogen Sulfide (H <sub>2</sub> S)	1.1	1.8	0.1	0.6	10	No
Total Reduced Sulfur (TRS)	1.2	2.0	0.1	0.7	10	No
* The projected actual CO emissions include the 3.8 tpy increase due to the proposed NHT heater replacements that are part of the pollution control projects discussed below. 1. Significant Emission Rate (SER)						

**How to evaluate this table:** To help with understanding the contents of this table, look at whether the project emissions change is greater than the SER. If it is not, then that pollutant is not subject to specific types of permit reviews called Prevention of Significant Deterioration (PSD) and Nonattainment (NA) New Source Review (NSR). As shown in Table 1, the emission changes are all less than the SERs, so the project is not subject to PSD or NA NSR.

Marathon’s proposed pollution control projects will result in emission reductions from the refinery. See the discussion below for more information.

**Key Permit Review Issues**

Staff evaluated the proposed project to identify all [state rules](#) and federal regulations which are, or may be, applicable to the proposed project. The tables in Appendix 1 summarize these rules and regulations.

- Minor/Major Modification Determination for Attainment Pollutants**  
 The facility is in Wayne County which is currently in attainment for NO<sub>x</sub>, CO, PM2.5, PM10, ozone, and lead. The facility is an existing PSD major stationary source. If the source is modified and emissions of any regulated pollutant increase by more than the SER for that pollutant, the change will cause the project to be subject to PSD requirements for that pollutant. The proposed project is not subject to PSD because the emission change for each regulated pollutant is less than the SER for that pollutant. Table 1 summarizes the proposed change in emissions for each regulated pollutant.
- Minor/Major Modification Determination for Nonattainment Pollutants**  
 The facility is in the portion of Wayne County which is currently nonattainment for SO<sub>2</sub>. The facility is a major source for SO<sub>2</sub>. An increase in the SO<sub>2</sub> emission rate above the SER results

in the project being subject to NA NSR review. As shown in Table 1, the proposed change in SO<sub>2</sub> emissions due to the project is less than the SER so the project is not subject NA NSR.

- **Federal NSPS Regulations**

New Source Performance Standards (NSPS) were established under [Title 40 of the Code of Federal Regulations \(40 CFR\) Part 60](#). The facility is subject to multiple NSPS, including the following subparts:

- Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
- Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
- Subpart J - Standards of Performance for Petroleum Refineries
- Subpart Ja – Standards of Performance for Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced after May 14, 2007
- Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (including Petroleum Liquid Storage Vessels) for which construction, Reconstruction, or Modification commenced after July 23, 1984
- Subpart VV - Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry
- Subpart VVa - Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which Construction, Reconstruction, or Modification Commenced after November 7, 2006
- Subpart GGG - Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries
- Subpart GGGa - Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced after November 7, 2006
- Subpart QQQ - Standards of Performance for VOC emissions from Petroleum Refinery Wastewater Systems

Removal of the storage tank throughput limits and the increase in coker drum cycles will result in a change in the method of operation of equipment covered under these NSPS. However, no increase is expected in the hourly emissions of pollutants subject to any NSPS, so these changes do not qualify as a modification under the NSPS. The facility is expected to continue to comply with the applicable NSPS.

Note, the two new NHT heaters (part of the pollution control projects discussed below) will be subject to NSPS Subpart Ja and are expected to comply with this regulation. Also, when the dome is installed on EUTANK110-S1 (part of the pollution control projects discussed below), the tank will be considered an internal floating roof tank and will have to comply with the internal floating roof requirements of NSPS Kb.

- **Federal NESHAP Regulations**

National Emission Standards for Hazardous Air Pollutants (NESHAP) were established under [40 CFR Part 61 or Part 63](#). The facility is subject to multiple NESHAPs, including the following subparts:

- 40 CFR Part 63 Subpart CC – National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries

- 40 CFR Part 63 Subpart UUU – National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units and Sulfur Recover Units
- 40 CFR Part 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
- 40 CFR Part 63 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters
- 40 CFR Part 61 Subpart FF – National Emission Standard for Benzene Waste Operations.

The proposed change in the method of operation will not trigger any new requirements under these NESHAPs. The two new NHT heaters proposed to be installed will not impact how Subpart DDDDD applies to the heaters and boilers.

- **Rule 224 Best Available Control Technology for Toxics (T-BACT) Analysis**

For existing emission units, the AQD has determined in previous permit application reviews that these emission units comply with T-BACT or are exempt from T-BACT because they are subject to NESHAPs and/or comply with Rule 702 (see discussion below). Since there is no increase in the hourly toxic air contaminant (TAC) emission rates and only small increases in the annual TAC emission rates, the AQD has determined that the existing emission units continue to comply with the previous T-BACT determinations because they continue to be subject to NESHAPs and/or continue to comply with Rule 702.

For the proposed two new NHT heaters, use of natural gas and refinery fuel gas will meet the requirements of T-BACT.

- **Rule 225 Toxics Analysis**

The Michigan Air Pollution Control Rules require the ambient air concentration of TACs from the facility be compared against health-based screening levels. Marathon conducted, and AQD staff verified, air quality modeling to evaluate Marathon’s TAC emissions for compliance with Rule 225. As discussed below, Marathon’s TAC emissions comply with Rule 225.

**Combustion Sources**

TAC emissions from the combustion sources affected by removal of the storage tank throughput limits and the increase in drum coker cycles, including the two new NHT heaters, were evaluated using AERMOD dispersion modeling.

The maximum hourly emission rates, based on the maximum rated capacity of the sources, were modeled. This is a worst-case assumption because the combustion sources do not usually operate at their rated capacities. If any combustion sources need to operate at their capacity, they will not all operate this way at the same time.

Each combustion source was modeled separately, and the maximum predicted ambient impacts for all the sources were added together to estimate the maximum impact for each TAC. This is a worst-case analysis because it assumes the ambient impacts of the combustion sources all occur at the same point, which is not the case because the combustion sources are spread out across the facility.

The total impacts from the modeling analysis are less than the AQD health-based screening levels. Some of the TACs identified by Marathon do not have AQD established health-based screening levels. These TACS were evaluated by the AQD Toxics Unit, which determined that

the predicted ambient impacts of these emissions will not negatively impact human health and the environment.

### **Process Operations**

The TAC emissions from process operations at the facility, assuming all processes emit at the same time at their potential to emit, were evaluated using AERMOD dispersion modeling. This evaluation included the entire facility, including fugitive emissions, and not just the emission units affected by removal of the storage tank throughput limits and the increase in drum coker cycles.

Some of the TACs identified by Marathon do not have AQD established health-based screening levels. These TACS were evaluated by the AQD Toxics Unit, which determined that the predicted ambient impacts of these emissions will not negatively impact human health and the environment.

For TACs with AQD established screening levels, the impacts from the modeling comply with the AQD health-based screening levels, except for gasoline in two areas. Because of these two areas, an additional evaluation was done. This evaluation is discussed below.

### **Gasoline Rule 225 Evaluation**

The initial gasoline modeling was done using the existing MPLX VRU stack height. This modeling, which includes all gasoline emissions at the facility, including fugitive emissions, shows the modeled impact is less than the Secondary Risk Screening Level (SRSL) of 20  $\mu\text{g}/\text{m}^3$ , except for two areas on the east side of the facility; one near the MPLX terminal and one near some gasoline storage tanks, including EUTANK110-S1. Figure 2 shows these modeling results. Note, the modeling does not account for the reduction in gasoline emissions that will happen when a dome is installed on EUTANK110-S1 and assumes all processes emit at their potential to emit at the same time.

The two areas that are above the SRSL need further evaluation. Rule 225(3)(b) says that an ambient impact that is less than 10 times the SRSL that occurs on industrial property or public roadway complies with Rule 225. First, we consider 10 times the SRSL. Looking at gasoline, 10 times the SRSL is 200  $\mu\text{g}/\text{m}^3$ . In this case, the maximum gasoline impact is 70.3  $\mu\text{g}/\text{m}^3$ , which is less than 10 times the SRSL and would comply with that portion of Rule 225(3)(b).

Second, we needed to ensure that these two areas would be limited to industrial areas or public roadways. As shown in Figure 2, the impact that is above the SRSL near the gasoline storage tanks occurs on public roadway and, therefore, complies with Rule 225. However, the area near the MPLX terminal where the impact exceeds the SRSL extends beyond the public roadway and does not comply with Rule 225.



**Figure 2: Gasoline Modeling Result with the Existing MPLX VRU Stack**



The shaded area within the white line labelled “20.0” shows the area where the gasoline impact is more than the 20 µg/m<sup>3</sup> SRS� but is less than 200 µg/m<sup>3</sup>. Impacts on the east side extend beyond the public roadway.

To address this issue and reduce the modeled gasoline impact to less than the SRS� in all areas that are beyond the public roadway, MPLX proposed to increase the height of their VRU stack from 20 feet to 35 feet. (Note this change will be completed by June 15, 2024).

The gasoline modeling was redone using the taller VRU stack height. Figure 3 shows that with the taller stack the gasoline impact would be less than the SRS� beyond the public roadway and, therefore, the gasoline emissions comply with Rule 225.

**Figure 3: Gasoline Modeling Result with the Taller MPLX VRU Stack**

The shaded area within the white line labelled “20.0” shows the area where the gasoline impact is more than the 20  $\mu\text{g}/\text{m}^3$  SRSI but is less than 200  $\mu\text{g}/\text{m}^3$ . No impacts are outside industrial property or public roadways.

Although there are no changes in potential gasoline emissions with this proposed project, it appears from Figure 2 that existing stacks and potential emissions did not comply with Rule 225.

Air dispersion modeling happens when a company applies for a permit affecting their process. The last time gasoline modeling was done for the Marathon Detroit Refinery was for a permit modification in 2013 (PTI 63-08D). At that time, with the information available, the gasoline emissions complied with Rule 225. Figure 4 shows the gasoline impact modeling in 2013 to be less than the SRSI on areas that are not industrial property or public roadway.

There are differences between Figures 2 and 4 because updates to the computer dispersion model and meteorological data are made over time.

**Figure 4: Gasoline Modeling Result from PTI 63-08D**



The area within the blue line labelled “20.0” shows the area where the gasoline impact is more than the  $20 \mu\text{g}/\text{m}^3$  SRS� but is less than  $200 \mu\text{g}/\text{m}^3$ . All areas outside of industrial property and public roadways comply with Rule 225.

- **Rule 702 VOC Emissions**

All existing emission units have previously demonstrated compliance with Rule 702. Since there is no increase in allowed short-term emissions and no physical changes to the existing emission units (other than the pollution control projects), the existing emission units continue to comply with Rule 702. Note that most existing emission units are subject to NSPS and NESHAPs that require control of VOC emissions.

The two new NHT heaters that are proposed will be designed to meet the 0.0055 pound per million British Thermal Unit (lb/MMBtu) VOC BACT emission limit and will comply with Rule 702.

- Criteria Pollutants Modeling Analysis**

Computer dispersion modeling was performed to predict the impacts of air emissions from NO<sub>x</sub>, CO, PM10, PM2.5, and SO<sub>2</sub>. NO<sub>x</sub> refers specifically to nitrogen oxide and NO<sub>2</sub>, with the larger portion being NO<sub>2</sub>. NO<sub>2</sub> is a highly reactive gas and is the pollutant for which the USEPA established a NAAQS.

The increases in criteria pollutant emissions resulting from the DPP were evaluated against the Significant Impact Levels (SILs). The modeled impacts, shown in Table 2, are below the SILs.

For pollutants with impacts less than the SILs, the emissions are presumed to comply with the respective NAAQS and the PSD increments, and no further analysis is required. The NAAQS are intended to protect public health, including sensitive populations. PSD increments are intended to allow industrial growth in an area, while ensuring that the area will continue to meet the NAAQS.

**Table 2: Criteria Pollutant Modeled Impacts**

Pollutant	Averaging Time	SIL (µg/m <sup>3</sup> )	Predicted Impact (µg/m <sup>3</sup> )	Additional Modeling Required?
PM2.5	Annual	0.2	0.04	No
PM2.5	24-hr	1.2	0.06	No
PM10	Annual	1	0.33	No
PM10	24-hr	5	0.07	No
SO <sub>2</sub>	Annual	1	0.017	No
SO <sub>2</sub>	24-hr	5	0.133	No
SO <sub>2</sub>	3-hr	25	0.353	No
SO <sub>2</sub>	1-hr	7.8	0.39	No
CO	8-hr	500	0.14	No
CO	1-hr	2,000	0.18	No
NO <sub>2</sub>	Annual	1	0.096	No
NO <sub>2</sub>	1-hr	7.5	2.42	No

While not required, a secondary formation assessment of ozone was performed. Secondary formation of ozone can occur from emissions of NO<sub>x</sub> and VOC, as these criteria pollutants are considered precursors, and is not instantaneous; it happens over time and is highly dependent upon weather conditions. Therefore, the conversion of precursors to ozone is often completed after the precursors have been dispersed away from the immediate area and ozone formation is recognized as a long-range transport issue. As a result, there is no effective modeling method for ozone for single sources: the ozone modeling programs address larger areas of land and air movements and therefore must include many sources.

Marathon’s secondary analysis followed the methodology presented in the USEPA’s [Guidance for Ozone and Fine Particulate Matter Permit Modeling \(7/29/22\)](#) (final guidance) for addressing single source impacts of secondary pollutants. The ozone impact resulting from the Detroit Permitting Project is 0.057 parts per billion (ppb), which is less than the 1 ppb SIL and is therefore not expected to cause or contribute to any violation of the ozone NAAQS.

### Emission Caps and Pollution Control Projects

As part of the Detroit Permitting Project, Marathon is proposing to include emission caps for the emission units that are affected by removal of the throughput limits. Note: although the emission caps are not required for this project to comply with the air quality rules and regulations, Marathon requested that they be included as enforceable limits in the permit conditions.

The emission caps that are included in the permit conditions for both Marathon and Air Products are listed in Table 3. These limits are lower than the emission limits in Marathon’s Renewable Operating Permit (ROP), Permit Number [MI-ROP-A9831-2012\(c\)](#). Marathon proposed to have caps for those pollutants that have NAAQS. For PM, the health impacts are addressed primarily through PM10 and PM2.5. For SAM, H<sub>2</sub>S, and TRS, the permit already contains numerous emission limits.

**Table 3: Emission Caps for DPP Affected Emission Units**

Pollutant	Cap*	Pollutant	Cap*
NO <sub>x</sub>	424.4	SO <sub>2</sub>	187.6
CO	168.4	VOC	153.0
PM10	111.1	PM2.5	111.1
* Tons per 12-month rolling time period as determined at the end of each calendar month			

Marathon is also proposing pollution control projects to reduce emissions from the refinery. While these reductions are voluntary and not required to comply with the air quality rules and regulations, Marathon requested that they be made enforceable. Therefore, the proposed permit requires these projects to be implemented by December 31, 2025.

- Replace the NHT heaters (Emission Units include EU16-NHTSTRIPREBOIL-S1 and EU16-NHTCHARHTR-S1) with new heaters equipped with ultra-low NO<sub>x</sub> burners.
- Remove the crude flare from service.
- Install a dome over external floating roof gasoline storage tank 110 (EUTANK110-S1).
- Expand the LDAR program to cover at least 3,000 additional flanges and/or connectors that are not currently covered by the LDAR program.

Marathon’s pollution control projects will reduce emissions from the refinery, with the exception of CO. Table 4 shows the emission changes due to these projects, which, except for CO, were not considered in the PSD and NA NSR applicability determinations.

**Table 4: Emission Changes From Pollution Control Projects**

Pollutant	NHT Heater Replacement change (tpy)	Crude Flare Removal (tpy)	Gasoline Tank Dome (tpy)	Enhanced LDAR (tpy)	Total Change (tpy)
SO <sub>2</sub>	NA	-1.2	NA	NA	-1.2
CO	3.8	-1.4	NA	NA	2.4
NO <sub>x</sub>	-33.7	-2.7	NA	NA	-36.4
PM	NA	-0.1	NA	NA	-0.1
PM10	NA	-0.4	NA	NA	-0.4
PM2.5	NA	-0.4	NA	NA	-0.4
VOC	NA	-3.3	-3.5	-7.0	-13.8

## Key Aspects of Draft Permit Conditions

The proposed permits for the three companies are based on the current permits for the stationary source. This section focuses on significant changes made to the current permits.

### MPLX Application No. APP-2024-0054

The height of the VRU stack must be increased from 20 feet to 35 feet by June 15, 2024. MPLX must notify the AQD within 30 days after the stack change is made.

### Air Products Application No. APP-2024-0055

The previous emission limits and associated recordkeeping in FGDHOUANNUAL-S3 were removed because they expired on November 5, 2022. The new, voluntary emission limits and corresponding recordkeeping for the DPP were included in a new flexible group, FGDPPANNUAL-S3.

### Marathon Application No. APP-2024-0053

For EUTANK110-S1, all of the requirements were updated to reflect the future installation of the geodesic dome.

- **Emission Limits**

Emission limits for the new NHT heaters are included. In addition, emission limits for EU08-GOHTCHARHTR2-S1 from PTI No. 118-15 (that has not yet been included in the ROP) were included as the heater is part of the DPP.

The previous emission limits in FGDHOUANNUAL-S1 were removed because they expired on November 5, 2022. The new, voluntary emission limits for the DPP were included in a new flexible group, FGDPPANNUAL-S1.

- **Material Limits**

The crude oil throughput limit was removed from FGCRUDETANKS-S1 as requested.

The toluene, xylene mixture, cumene, NHT charge, sweet naphtha, reformat naphtha, FCCU naphtha, alkylate naphtha, ethanol, gasoline, and coker naphtha throughput limits were removed from FGNAPHTHATANKS-S1 as requested.

The sour kerosene, sweet kerosene, sour distillate, sweet distillate, sour gasoil, and sweet gasoil throughput limits were removed from FGGROUP2-S1 as requested.

The EU08-GOHTCHARHTR2-S1 refinery fuel gas TRS content limit from PTI No. 118-15 was included as the heater is part of the DPP.

- **Process/Operational Restrictions**

The crude flare cannot be operated after December 31, 2025.

Heat input limits for the new NHT heaters were added.

Heat input limits for EU08-GOHTCHARHTR2-S1 from PTI 118-15 were included as the heater is part of the DPP.

The number of coker drum cycles was increased to 500 cycles per 12-month rolling time period in EU70-COKER-S1 as requested.

- **Testing Requirements**

Emission testing for the new NHT heaters is included. Testing must be completed within 180 days of commencement of trial operation and every five years thereafter.

Emission testing for EU08-GOHTCHARHTR2-S1 from PTI No. 118-15 is included as the heater is part of the DPP.

- **Monitoring/Recordkeeping**

Each new NHT heater is required to have a NO<sub>x</sub> continuous emissions monitoring system (CEMS).

The requirement to have NO<sub>x</sub> and CO CEMS on EU08-GOHTCHARHTR2-S1 from PTI No. 118-15 is included as the heater is part of the DPP. In addition, the requirement for heat input records for EU08-GOHTCHARHTR2-S1 from PTI No. 118-15 is included.

Recordkeeping for the FGDPPANNUAL-S1 emission limits is required.

“Reasonable Possibility” annual emission records for SO<sub>2</sub> and NO<sub>x</sub> are required for ten years for FGDPPANNUAL-S1. These records are required for NA NSR applicability determinations using projected actual emissions for all NA pollutants. These records are also required for PSD applicability determinations using projected actual emissions for any pollutant with a projected emission increase that is more than fifty percent of the SER. These records are required to demonstrate whether or not the project results in a significant increase in emissions.

An enhanced LDAR program is required to monitor at least 3,000 additional flanges and/or connectors for fugitive emission leaks.

Recordkeeping associated with the FGDHOUANNUAL-S1 emission limits has been removed.

If Marathon’s PTI is issued, they would be required to continue the ambient air monitoring program for three years.

- **Reporting**

Marathon must report to the AQD within 30 days after the crude flare has been shut down.

Marathon must report to the AQD within 30 days after the new NHT heaters are installed.

Marathon must report to the AQD within 30 days after the geodesic dome is installed on EUTANK110-S1.

Marathon must report to the AQD within 30 days after implementing the enhanced LDAR program.

Reporting required for EU08-GOHTCHARHTR2-S1 from PTI No. 118-15 is included as the heater is part of the DPP.

“Reasonable Possibility” annual emission reports for SO<sub>2</sub> and NO<sub>x</sub> are required for FGDPPANNUAL-S1.

Reporting associated with the FGDHOUNANNUAL-S1 emission limits has been removed.

- **Other Requirements**

Marathon must shut down the existing NHT heaters within 180 days of startup of the new heaters, but not later than December 31, 2025. In addition, during the time the existing and new heaters are allowed to operate together, the combined heat input of the existing and new heaters is limited to prevent an increase in fuel usage.

The geodesic dome must be installed on EUTANK110-S1 by December 31, 2025.

## **Conclusion**

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

Based on these conclusions, we have developed proposed permit terms and conditions for each application which would ensure that the proposed facility design and operation are enforceable and that sufficient monitoring, recordkeeping, and reporting would be performed by the applicants to determine compliance with these terms and conditions. If the permit applications are deemed approvable, the delegated decision maker may determine a need for additional or revised conditions to address issues raised during the public participation process. If you would like additional information about this proposal, please contact Andrew Drury, AQD, at [DruryA@Michigan.gov](mailto:DruryA@Michigan.gov) or 517-648-6663.



**Appendix 1  
STATE AIR REGULATIONS**

State Rule	Description of State Air Regulations
R 336.1201	Requires an Air Use Permit for new or modified equipment that emits, or could emit, an air pollutant or contaminant. However, there are other rules that allow smaller emission sources to be installed without a permit (see Rules 336.1279 through 336.1290 below). Rule 336.1201 also states that the Department can add conditions to a permit to assure the air laws are met.
R 336.1205	Outlines the permit conditions that are required by the federal Prevention of Significant Deterioration (PSD) Regulations and/or Section 112 of the Clean Air Act. Also, the same types of conditions are added to their permit when a plant is limiting their air emissions to legally avoid these federal requirements. (See the Federal Regulations table for more details on PSD.)
R 336.1224	New or modified equipment that emits toxic air contaminants must use the Best Available Control Technology for Toxics (T-BACT). The T-BACT review determines what control technology must be applied to the equipment. A T-BACT review considers energy needs, environmental and economic impacts, and other costs. T-BACT may include a change in the raw materials used, the design of the process, or add-on air pollution control equipment. This rule also includes a list of instances where other regulations apply and T-BACT is not required.
R 336.1225 to R 336.1232	The ambient air concentration of each toxic air contaminant emitted from the project must not exceed health-based screening levels. Initial Risk Screening Levels (IRSL) apply to cancer-causing effects of air contaminants and Initial Threshold Screening Levels (ITSL) apply to non-cancer effects of air contaminants. These screening levels, designed to protect public health and the environment, are developed by Air Quality Division toxicologists following methods in the rules and U.S. EPA risk assessment guidance.
R 336.1279 to R 336.1291	These rules list equipment to processes that have very low emissions and do not need to get an Air Use permit. However, these sources must meet all requirements identified in the specific rule and other rules that apply.
R 336.1301	Limits how air emissions are allowed to look at the end of a stack. The color and intensity of the color of the emissions is called opacity.
R 336.1331	The particulate emission limits for certain sources are listed. These limits apply to both new and existing equipment.
R 336.1370	Material collected by air pollution control equipment, such as dust, must be disposed of in a manner, which does not cause more air emissions.
R 336.1401 and R 336.1402	Limit the sulfur dioxide emissions from power plants and other fuel burning equipment.
R 336.1601 to R 336.1651	Volatile organic compounds (VOCs) are a group of chemicals found in such things as paint solvents, degreasing materials, and gasoline. VOCs contribute to the formation of smog. The rules set VOC limits or work practice standards for existing equipment. The limits are based upon Reasonably Available Control Technology (RACT). RACT is required for all equipment listed in Rules 336.1601 through 336.1651.
R 336.1702	New equipment that emits VOCs is required to install the Best Available Control Technology (BACT). The technology is reviewed on a case-by-case basis. The VOC limits and/or work practice standards set for a particular piece of new equipment cannot be less restrictive than the Reasonably Available Control Technology limits for existing equipment outlined in Rules 336.1601 through 336.1651.
R 336.1801	Nitrogen oxide emission limits for larger boilers and stationary internal combustion engines are listed.
R 336.1910	Air pollution control equipment must be installed, maintained, and operated properly.
R 336.1911	When requested by the Department, a facility must develop and submit a malfunction abatement plan (MAP). This plan is to prevent, detect, and correct malfunctions and equipment failures.
R 336.1912	A facility is required to notify the Department if a condition arises which causes emissions that exceed the allowable emission rate in a rule and/or permit.

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

**FEDERAL AIR REGULATIONS**

Citation	Description of Federal Air Regulations or Requirements
Section 109 of the Clean Air Act – National Ambient Air Quality Standards (NAAQS)	The United States Environmental Protection Agency has set maximum permissible levels for seven pollutants. These NAAQS are designed to protect the public health of everyone, including the most susceptible individuals, children, the elderly, and those with chronic respiratory ailments. The seven pollutants, called the criteria pollutants, are carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter less than 10 microns (PM10), particulate matter less than 2.5 microns (PM2.5), and sulfur dioxide (SO <sub>2</sub> ). Portions of Michigan are currently non-attainment for either ozone or SO <sub>2</sub> . Further, in Michigan, State Rules 336.1225 to 336.1232 are used to ensure the public health is protected from other compounds.
<p>40 CFR 52.21 – Prevention of Significant Deterioration (PSD) Regulations</p> <p>Best Available Control Technology (BACT)</p>	<p>The PSD regulations allow the installation and operation of large, new sources and the modification of existing large sources in areas that are meeting the NAAQS. The regulations define what is considered a large or significant source, or modification.</p> <p>In order to assure that the area will continue to meet the NAAQS, the permit applicant must demonstrate that it is installing BACT. By law, BACT must consider the economic, environmental, and energy impacts of each installation on a case-by-case basis. As a result, BACT can be different for similar facilities.</p> <p>In its permit application, the applicant identifies all air pollution control options available, the feasibility of these options, the effectiveness of each option, and why the option proposed represents BACT. As part of its evaluation, the Air Quality Division verifies the applicant's determination and reviews BACT determinations made for similar facilities in Michigan and throughout the nation.</p>

Citation	Description of Federal Air Regulations or Requirements
<b>40 CFR 60 – New Source Performance Standards (NSPS)</b>	The United States Environmental Protection Agency has set national standards for specific sources of pollutants. These New Source Performance Standards (NSPS) apply to new or modified equipment in a particular industrial category. These NSPS set emission limits or work practice standards for over 60 categories of sources.
<b>40 CFR 63— National Emissions Standards for Hazardous Air Pollutants (NESHAP)</b>	The United States Environmental Protection Agency has set national standards for specific sources of pollutants. The National Emissions Standards for Hazardous Air Pollutants (NESHAP) (a.k.a. Maximum Achievable Control Technology (MACT) standards) apply to new or modified equipment in a particular industrial category. These NESHAPs set emission limits or work practice standards for over 100 categories of sources.
<b>Section 112 of the Clean Air Act</b>  <b>Maximum Achievable Control Technology (MACT)</b>  <b>Section 112g</b>	In the Clean Air Act, Congress listed 189 compounds as Hazardous Air Pollutants (HAPS). For facilities which emit, or could emit, HAPS above a certain level, one of the following two requirements must be met:  1) The United States Environmental Protection Agency has established standards for specific types of sources. These Maximum Achievable Control Technology (MACT) standards are based upon the best-demonstrated control technology or practices found in similar sources.  2) For sources where a MACT standard has not been established, the level of control technology required is determined on a case-by-case basis.

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

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

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

**Appendix 2**

**Detroit Permitting Project Proposed Permit Condition Comparison**

Marathon is proposing changes to their section of the Renewable Operating Permit [MI-ROP-A9831-2012c](#) (ROP) for the facility. In addition to changes to the ROP conditions, conditions for FGFLARES from PTI No. [57-20](#) and EU08-GOHTCHARHTR2-S1 from PTI No. [118-15](#) have been included in the proposed permit conditions because these PTIs have not yet been included in the facility ROP, so their conditions are the most up to date for these emission units.

In addition, Air Products is proposing changes to their section of the ROP and MPLX is proposing changes to their current PTI No. [52-15](#).

The tables below show the existing permit special condition numbers, the proposed special condition numbers, and the proposed changes.

**Table 2.1: Marathon’s proposed permit changes**

<b>Existing ROP Special Condition Number(s)</b>	<b>Proposed Permit Special Condition Number(s)</b>	<b>Proposed Change(s)</b>
FGCRUDETANKS-S1 II.1	NA	The throughput limit was removed from FGCRUDETANKS-S1.
FGNAPHTHATANKS-S1 II.1 – II.11	NA	The throughput limits were removed from FGNAPHTHATANKS-S1.
FGGROUP2-S1 II.1 – II.11	NA	The throughput limits were removed from FGGROUP2-S1.
NA	EU-CRUDEFLARE-S1 III.1 and VII.1	The crude flare can no longer operate after December 31, 2025, and Marathon has to notify the AQD when the flare is shut down.
FGIFRTTANKS-S1 III.1 – III.3, VI.1 – VI.16, IX.1 – IX.16	FGIFRTANKS-S1 III.1 – III.3, VI.1 – VI.16, IX.1 – IX.16	These conditions will apply to EUTANK110-S1 because it will be an internal floating roof (IFR) tank after the dome is installed. These conditions are not new because they apply to other IFR tanks, as well.
NA	FGIFRTANKS-S1 V.3	Any testing required for an IFR tank will be required for EUTANK110-S1 after the dome is installed.
NA	FGIFRTANKS-S1 VI.19	EUTANK110-S1 is required to comply with 40 CFR 60.116b after the dome is installed.
FGEFRTANKS-S1 III.1 – III.3, V.2, VI.1 – VI.18, IX.1 – IX.12	FGEFRTANKS-S1 III.1 – III.3, V.2, VI.1 – VI.18, IX.1 – IX.12	These conditions for external floating roof tanks will no longer apply to EUTANK110-S1 because it will be an IFR tank after the dome is installed. These conditions are not being removed because they apply to other EFR tanks, as well.
FGNAPHTHATANKS-S1 IV.1	FGNAPHTHATANKS-S1 IV.1	The requirement for slotted guidepole controls will no longer apply to EUTANK110-S1 after the dome is installed. This condition is not being removed because it applies to other tanks, as well.
FGNAPHTHATANKS-S1 IV.2	FGNAPHTHATANKS-S1 IV.2	The required deck and seal configuration for EUTANK110-S1 was updated to reflect future installation of the dome.

Existing ROP Special Condition Number(s)	Proposed Permit Special Condition Number(s)	Proposed Change(s)
NA	FGDPPANNUAL-S1 VII.3	Marathon must notify the AQD when the dome is installed on EUTANK110-S1.
NA	FGDPPANNUAL-S1 IX.1	On and after December 31, 2025, Marathon cannot operate EUTANK110-S1 unless the dome is installed.
EU70-COKER-S1 III.5	EU70-COKER-S1 III.5	The number of times the coker drums can be cycled was increased from 487 to 500 cycles per 12-month rolling time period.
NA	FGHEATERS-S1 I.21 – I.22, I.35 – I.38, I.40, II.3, III.23 – III.26, V.15, VI.7 – VI.8, VI.13, VII.2 – VII.5, VIII.16, IX.4	Conditions for EU08-GOHTCHARHTR2-S1 from PTI 118-15 were added to FGHEATERS-S1 because these conditions have not yet been included in the ROP. These conditions include emission limits, fuel sulfur content limit, heat input limits, low-NO <sub>x</sub> burners, emission testing, continuous NO <sub>x</sub> and CO monitoring, heat input records, reporting requirements, stack parameters, and a requirement to comply with the boiler MACT.
NA	FGHEATERS-S1 I.10, I.12, I.21 – I.22, I.36, I.39 – I.41, III.10, III.12, III.27, V.16 – V.17, VI.14, VII.6, VIII.8, VIII.10, IX.3 – IX.5	Conditions for the two new heaters, EU16-NHT2STRIPREBOIL-S1 and EU16-NHT2CHARHTR-S1, were added to FGHEATERS-S1 including emission limits, heat input limits, ultra-low-NO <sub>x</sub> burners, emission testing, continuous NO <sub>x</sub> monitoring, stack parameters, a requirement that the old and new NHT heaters cannot operate at the same time, and a shutdown date for the old NHT heaters. Marathon has to notify the AQD when the new heaters are installed.
NA	FGDPPANNUAL-S1 VI.4, VII.4	The enhanced leak detection and repair (LDAR) program has to be implemented by December 31, 2025. Marathon must submit the enhanced LDAR program to the AQD and notify the AQD when it is implemented
NA	FGDPPANNUAL-S1 I.1 – I.6, VI.1	New emission caps and corresponding recordkeeping.
NA	FGDPPANNUAL-S1 VI.2 – VI.3, VII.1 – VII.2, Appendix A, Appendix B	SO <sub>2</sub> and NO <sub>x</sub> recordkeeping and reporting are required for the applicability analyses.
FGDHOUANNUAL-S1 I.1 – I.9, VI.1 – VI.3, VII.4 – VII.5	NA	The emission caps and the recordkeeping and reporting were removed because they have been replaced by the new caps and some of the requirements expired in 2022.
NA	FGFLARES-S1 II.2, III.14	Two requirements of a USEPA <a href="#">consent decree</a> were added; these conditions cannot be modified by the AQD.
FGLARES-S1 VII.5	NA	The requirement was removed that expired.

Existing ROP Special Condition Number(s)	Proposed Permit Special Condition Number(s)	Proposed Change(s)
B-S1 SOURCE-WIDE CONDITIONS VI.2	FGFACILITY VI.1	If Marathon's PTI is issued, they would be required to continue the ambient air monitoring program for three years.

**Table 2.2: Air Products' proposed permit changes**

Existing ROP Special Condition Number(s)	Proposed Permit Special Condition Number(s)	Proposed Change(s)
FGDHOU PANNUAL-S3 I.1 – I.9, VI.1 – VI.3, VII.45	NA	The emission caps and the recordkeeping and reporting were removed because they have been replaced by the new caps and some of the requirements expired in 2022.
NA	FGDPPANNUAL-S3 I.1 – I.6, VI.1	New emission caps and corresponding recordkeeping.
NA	FGDPPANNUAL-S3 VI.2 – VI.3, VII.1 – VII.2, Appendix A, Appendix B	SO <sub>2</sub> and NO <sub>x</sub> recordkeeping and reporting are required for the applicability analyses.

**Table 2.3: MPLX's proposed permit changes**

Existing PIT 52-15 Special Condition Number(s)	Proposed Permit Special Condition Number(s)	Proposed Change(s)
EULOADINGRACKS-S2 VIII.1 – VIII.2	EULOADINGRACKS-S2 VIII.1 – VIII.2	These stack parameters no longer apply after June 15, 2024
NA	EULOADINGRACKS-S2 VIII.3	These stack parameters apply on and after June 15, 2024