MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Response to Comments Document

APPLICANT DETAILS

Project Description: The request, called the Detroit Permitting Project (DPP), is to allow Marathon to operate at its physical capacity; add air pollution limits at Marathon and Air Products; implement voluntary pollution control projects at Marathon; and increase the height of the vapor recovery unit stack at MPLX.

Companies, Locations, Application Numbers, and Permit Numbers:

- Marathon Petroleum Company LP (Marathon), 1001 South Oakwood Blvd, Detroit, Michigan APP-2024-0053
  Permit to Install (PTI) No. 94-24
- Air Products and Chemicals, Inc. (Air Products) 1025 South Oakwood Blvd, Detroit Michigan APP-2024-0055
  PTI No. 95-24
- MPLX Terminals LLC – Detroit LP Terminal (MPLX) 12700 Toronto Street, Detroit, Michigan APP-2024-0054
  PTI No. 52-15A

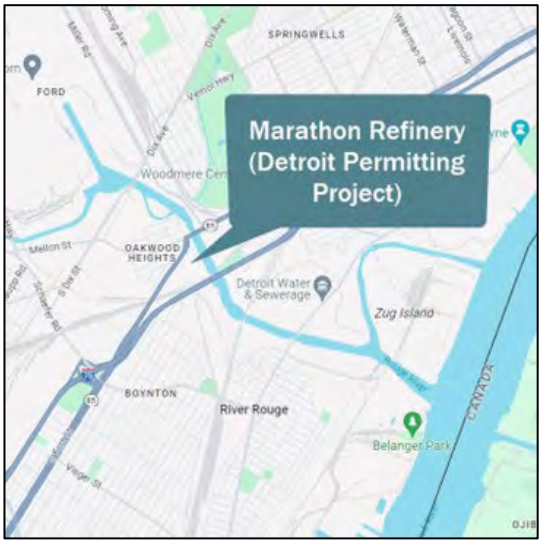

Figure 1: Marathon Detroit Refinery Location

DECISION

The proposed permits were approved, with changes to two of them, by the decision maker on September 10, 2024. The decision maker for this project was Annette Switzer, Director, Air Quality Division (AQD) for the Michigan Department of Environment, Great Lakes, and Energy (EGLE).

PURPOSE

The Response to Comments document discusses the public participation process for the Detroit Permitting Project, details the comments received during the comment period and our responses, and discusses the changes made, if any. In addition, the document contains the decision maker's final decision on the proposed project.

PUBLIC PARTICIPATION PROCESS

The public participation process involved providing information for public review including a summary of the proposed project; a technical fact sheet; proposed permit terms and conditions for Marathon, Air Products, and MPLX; a public comment period; an in-person informational session and public hearing that also utilized an online broadcast; and the receipt of written and verbal public comments on staff's analysis of the applications and the proposed permits.

On April 17, 2024, the AQD communicated about the public comment period in the following ways:

- Copies of the Notice of Air Permit Public Comment Period and Public Hearing and supporting documents were posted at Michigan.gov/EGLEAirPublicNotice.

- 163 persons who had previously expressed interest and had provided a complete email address or mailing address were either emailed or mailed information about the public comment period in an interested party letter.

- A notice announcing the public comment period and the hybrid public informational session and hearing was placed in the Michigan Chronicle and the EGLE Calendar. The notice provided pertinent information regarding the proposed action; the locations of available information; a telephone number to request additional information; the date, time, and location of the hybrid public informational session and public hearing; the closing date of the public comment period; and the address where written comments were being received.

- An article with information about the public comment period and the hybrid public informational session and hearing was sent out through EGLE's subscription services. This English article was translated into Spanish and Arabic and went to the Air Quality News and Info and Environmental Justice lists comprising approximately 15,000 persons. A reminder notice in all three languages was also sent on May 14, 2024.

- The hybrid public informational session was held online and at the Kemeny Center, 2260 South Fort Street, Detroit on May 22, 2024, and approximately 37 people attended. A panel of representatives from the AQD was available to answer questions and provide information regarding the proposed project. The meeting began at 5:30 p.m. and concluded at approximately 7:00 p.m. The meeting was recorded and is available to view.

- Following the hybrid public informational session, a hybrid public hearing was held the same night and at the same location. The hearing began at 7:00 p.m. with Jenifer Dixon as the hearings officer and Annette Switzer as the decision maker. Only comments on the proposed permit action were received. Approximately 37 people attended the public hearing with 5 providing oral comments. The public hearing concluded at 7:38 p.m.

Approximately 23 written comments were received during the public comment period and the hearing.

SUMMARY OF COMMENTS RECEIVED AND AQD'S RESPONSE

The remainder of this document is a listing of the comments received during the public comment period and the hybrid public hearing and the department's response. The first section discusses the comments received that resulted in changes to the final permit terms and conditions, if any, and the basis for each change. The last section discusses the department's response to all other significant comments not resulting in changes to the final permit.

Comments Resulting in Changes to the Final Permits

As a result of comments received, one change was made to the final MPLX permit and several changes were made to the final Marathon permit.

1. Comment

The proposed Marathon permit has numerous conditions which include an underlying applicable requirement (UAR) of "40 CFR 52.21." 40 CFR 52.21 contains the Federal rules for the Prevention of Significant Deterioration (PSD) major source construction permitting program. Citing 40 CFR 52.21 as a UAR appears to include all of the PSD program, so these permit conditions could be viewed as Best Available Control Technology (BACT) limits. The commenter recommends that the AQD clarify the 40 CFR 52.21 citations.

AQD Response:

The 40 CFR 52.21 citations were included in Marathon's permits that were issued before the AQD implemented our approved PSD permitting program. Therefore, these citations are obsolete and should not be in the permit conditions.

Condition Change

All "40 CFR 52.21" citations have been removed from the permit conditions.

2. Comment

The proposed Marathon permit has conditions in EU70-COKER-S1 that include the term "installed, maintained, and operated in a satisfactory manner." The term "satisfactory manner" is not defined in these draft permit conditions. The commenter recommends the term be defined, such as a reference to an applicable plan for the proper installation, maintenance, and operation of the equipment. Specific conditions that should be revised are Special Conditions (SC) IV.4, IV.5, VI.1, VI.3, VI.4, VI.5, VI.6, and VI.8.

AQD Response:

The AQD agrees that clarification of the conditions cited by the commenter is warranted.

Condition Change

SC IV.4 and IV.5 were revised so that "satisfactory manner" refers to compliance with the visible emission limit (SC I.1), as follows:

4. The permittee shall not convey crushed coke to the surge bins unless the totally enclosed conveyors and surge bin dust collector are installed, maintained, and operated in a satisfactory manner **to ensure compliance with SC I.1**. **(R 336.1910)**

5. The permittee shall not load trucks with crushed coke unless the surge bin dust collector is installed, maintained, and operated in a satisfactory manner **to ensure compliance with SC I.1**. **(R 336.1910)**

If the opacity limit is not complied with, then the totally enclosed conveyors and surge bin dust collector are not installed, maintained, and operated in a “satisfactory manner” and Marathon is not complying with SC IV.4 and IV.5.

SC VI.1, VI.3, VI.4, VI.5, VI.6, and VI.8 were revised to add “acceptable to the AQD District Supervisor” after “satisfactory manner,” as follows:

1. The permittee shall keep, in a satisfactory manner **acceptable to the AQD District Supervisor**, a record of the coke drum pressure at which the active drum is vented to the atmosphere. **(R 336.1205, R 336.1702, 40 CFR Part 60, Subparts A and Ja)**

3. The permittee shall monitor, in a satisfactory manner **acceptable to the AQD District Supervisor**, the moisture of the coke on the coke storage pad and other non-enclosed areas three times per week, as provided in the approved fugitive dust control program for EU70-COKER-S1. **(R 336.1205, Act 451 324.5524)**

4. The permittee shall keep, in a satisfactory manner **acceptable to the AQD District Supervisor**, a daily record of the amount of coke loaded onto trucks for shipping. **(R 336.1205)**

5. The permittee shall keep, in a satisfactory manner **acceptable to the AQD District Supervisor**, records of coke moisture, as required by SC VI.3. **(R 336.1205, Act 451 324.5524)**

6. The permittee shall keep, in a satisfactory manner **acceptable to the AQD District Supervisor**, records of all visible emission readings required by SC VI.2. At a minimum, records shall include the date, time, name of observer/reader, and status of visible emissions. **(R 336.1301)**

8. The permittee shall keep, in a satisfactory manner **acceptable to the AQD District Supervisor**, records of the number of times the coke drums are cycled for each month and for each 12-month rolling time period as determined at the end of each calendar month. **(R 336.1205, R 336.2802)**

3. Comment

The perimeter air monitoring program should continue throughout the installation of the voluntary emission reductions and the 3-year extension of the perimeter air monitoring program should begin only after all voluntary emission reductions have been completed.

AQD Response:

Marathon has agreed to extend its air monitoring program for 6 years. This will extend the monitoring for more than 3 years after the voluntary emission reductions have been completed.

Condition Change

The condition requiring Marathon to conduct an enhanced air monitoring program, SC VI.1 in FGFACILITY, has been revised to require the monitoring program to continue for at least six years after the permit issuance date, which is September 10, 2024.

Other changes to the final permit

The proposed permit for MPLX required the vapor recovery unit (VRU) stack height to be increased to 35 feet on and after June 15, 2024. On June 4, 2024, MPLX notified the AQD that the stack height increase was completed on June 1, 2024. Therefore, the AQD revised the permit conditions for the stacks. The final conditions are included below.

Stack & Vent ID	Maximum Exhaust Diameter / Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVVRU-PORT	78[1]	13[1]	R 336.1225
2. SVVRU	16[1]	35[1]	R 336.1225 40 CFR 52.21 (c) & (d)
[1] The exhaust gases from the stacks are not exhausted unobstructed vertically. However, the emissions from this emission unit were modeled taking the shape of the stack into account.			

Summary of Significant Comments

This section summarizes the comments received during the comment period that did not result in changes to the final permits. The section is sorted by the type of comment, or what topic the comment was related to.

A. Permit Requirements

1. Comment

The Technical Fact Sheet states that Marathon will "Expand the refinery's leak detection and repair (LDAR) program to include monitoring at least 3,000 additional flanges and/or connectors to reduce volatile organic compound (VOC) emissions."

The facility's LDAR program is not included in the permit record, so the commenter recommends that the AQD make Marathon's current LDAR program available to the public. Commenter recommends that Marathon provide additional information on the specific emission units where the additional flanges and connectors will be added to the LDAR program.

AQD Response:

In response to this comment, Marathon provided the following:

> The refinery LDAR program contains over 109,000 components that are monitored at regularly scheduled intervals in accordance with applicable regulations. All leaks identified are repaired within applicable timelines, primarily corresponding to the 5-day first repair attempt and 15-day final repair timelines prescribed by New Source Performance Standard (NSPS) VVa and GGGa. Marathon also submits quarterly reports that detail compliance with LDAR regulations.
>
> At this point, Marathon is planning to begin monitoring an additional 3,000 components (flanges and/or connectors) in the Alkylation Unit at regularly scheduled intervals corresponding to applicable regulations for associated valves.

Marathon's LDAR program is a database maintained at the facility. The database lists the components that are monitored, the regulations that apply to each component, and the monitoring and repair history of each component. The permit conditions require Marathon to submit the enhanced LDAR program to the AQD before December 31, 2025. This enhanced plan may be available through MiEnviro Portal (michigan.gov) once it's online. Note, the NSPS are federal regulations put in place by the United States Environmental Protection Agency (USEPA).

2. Comment

The proposed Marathon permit has SC III.6 in EU70-COKER-S1 that says, "The permittee shall keep the coke adequately wetted to ensure that the opacity limit in SC I.1 is met." The term "adequately wetted" is not defined. As coke is hydrophobic versus coal, which is hydrophilic, the AQD EGLE should ensure this condition includes adequate application, monitoring, and compliance measures factoring in the nature of the materials. "Adequately wetted" should be defined and be made practically enforceable.

AQD Response:

For this condition, the indicator for the coke being "adequately wetted" is the lack of an opacity exceedance. Therefore, the coke is "adequately wetted" if the opacity limit in SC I.1 is met. If Marathon does not comply with the opacity limit, then the coke would not be considered "adequately wetted" and not in compliance with SC III.6.

3. Comment

The proposed Marathon permit has SC VI.1 in FGFACILITY which requires Marathon to conduct an enhanced air monitoring program at the facility to address citizen concerns. Marathon is required to submit this monitoring data to the AQD Air Monitoring Unit on a quarterly basis.

The commenter recommends the AQD provide information on how this air monitoring data can be accessed by the public and be made available to review as it is submitted to the AQD by Marathon.

AQD Response:

Marathon's air monitoring data is posted on Marathon's Detroit Refinery Perimeter Air Monitoring System website which is publicly accessible. EGLE's Marathon Petroleum webpage

also has a link to Marathon's air monitoring data. In the future, once the system is available online, the quarterly reports may also be available through MiEnviro Portal (michigan.gov).

4. Comment

Increasing the height of the MPLX VRU stack does not reduce pollution, it just spreads it around.

AQD Response:

The commenter is correct that increasing the stack height does not reduce the amount of emissions coming from the VRU. The VRU stack height was increased to reduce the allowed ground-level gasoline concentration that people could be exposed to to comply with AQD Rule 225. Because the allowed concentration of gasoline emissions from the refinery complies with Rule 225, no reduction in VRU emissions is required. Figure 3 in the technical fact sheet shows the gasoline modeling results, based on the VRU permit limit of 7.5 milligrams (mg) of VOC per liter (L) of gasoline loaded and the taller VRU stack, comply with Rule 225.

As mentioned during the informational meeting on May 22, 2024, the AQD also used a VRU emission rate of 2 mg/L and the shorter stack to estimate a more realistic ground-level gasoline concentration. Based on emission testing, the actual VRU emission rate is about 1 mg/L. As shown in Figure 2, the gasoline concentration from this scenario is less than the secondary risk screening level in all areas that are not public roadways or industrial property. This indicates people have not been exposed to actual gasoline concentrations from the facility that would exceed the Rule 225 health-based screening level.

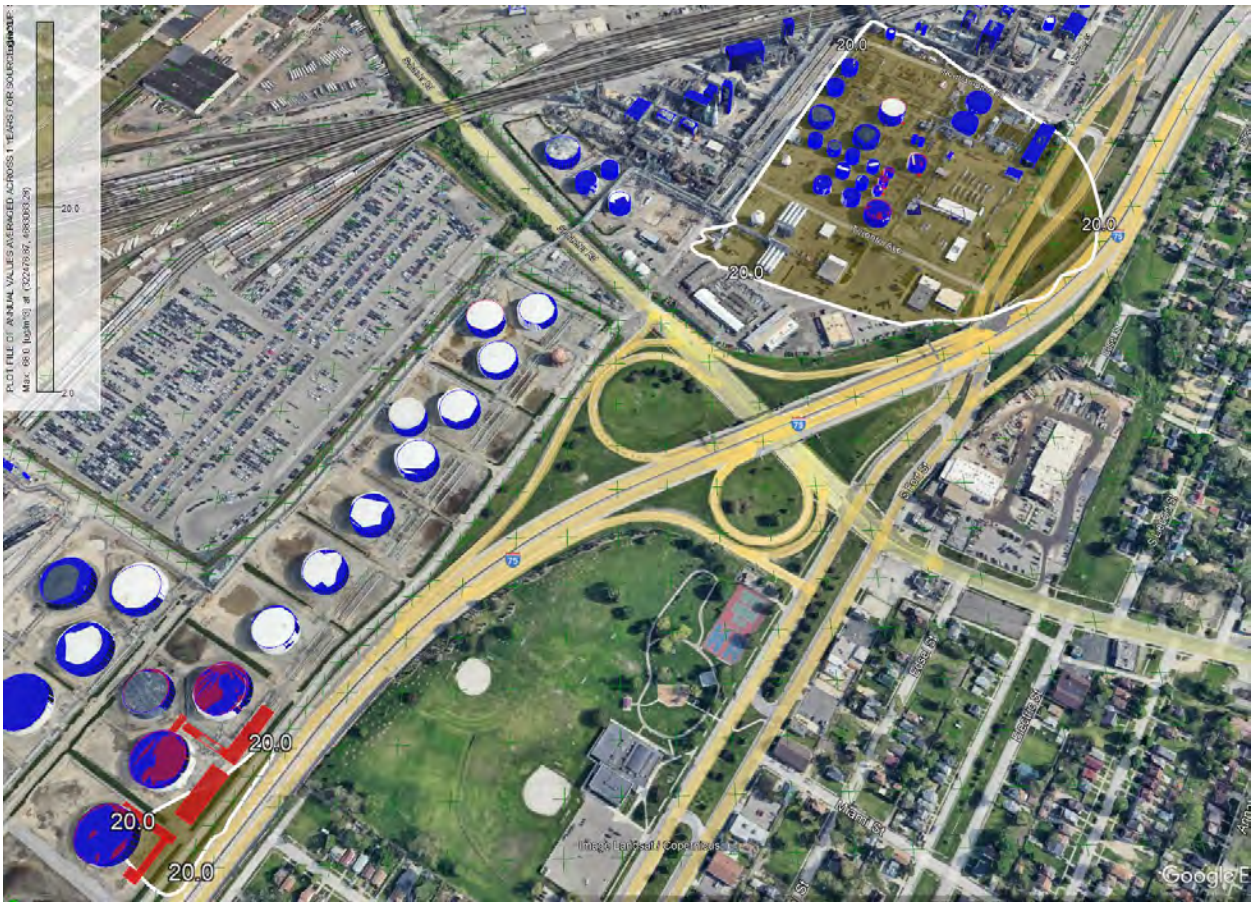

Figure 2 AQD Gasoline modeling using a 2 mg/L VRU emission rate and 20 foot VRU stack.

5. Comment

The 1,300 ton per year (tpy) pollutant emissions cap should be a rolling 12-month cap that is reported monthly and there should also be a monthly or rolling 30-day criteria pollutant emissions cap.

AQD Response:

There are limits on individual criteria pollutants that add up to 1,155.6 tpy, not a 1,300 tpy emissions cap.

At the end of each calendar month, Marathon must calculate the 12-month rolling time period emission rate for each criteria pollutant with an emission limit in FGDPPANNUAL-S1. Marathon is not required to report the emissions to the AQD but must keep the emission data at the facility and make it available to us upon request.

There is no regulatory justification for monthly or 30-day rolling criteria pollutant emission limits.

6. Comment

The new emissions cap and the removal of the crude throughput limit should go into effect only after the voluntary emission reductions have been completed.

AQD Response:

The technical review of the DPP was based on the proposed emission increases and did not rely on the emission reductions from the pollution control projects. The review showed that emissions without the throughput limits, and without the emission reductions, comply with the applicable air quality rules and regulations. Therefore, the throughput limits, including the crude oil throughput limit, can be removed before the pollution control projects are completed.

7. Comment

While the voluntary actions to reduce emissions proposed by Marathon are appreciated, the beneficial impact of these actions on the local community will potentially be lessened by increased crude throughput. Marathon could and should take additional actions to reduce emissions at their facility including the different heaters and boilers, sulfur recovery unit, and fluid catalytic cracking unit regenerator vent as well as continue to address fugitive emissions from storage tanks, flanges, and connectors. Such actions would further reduce emissions that adversely impact the local community and the health of its residents.

AQD Response:

The Detroit Refinery currently operates in compliance with the state and federal air quality rules and regulations. While additional emission reductions would be beneficial to the community, we do not have the authority to require Marathon to make additional emission reductions.

8. Comment

The removal of throughput limits in favor of emissions limits increases the exposure of communities already burdened by a history of ineffective regulatory oversight to the risks of a less effective form of regulation. The removal of throughput limits complicates enforcement and increases the potential for further regulatory evasion. Throughput limits provide a straightforward, easily verifiable method to help control emissions by capping the amount of material processed. This direct approach ensures compliance with little room for ambiguity. EGLE ought to reject this package of permits on this basis alone.

AQD Response:

For many processes, material throughput is directly related to emissions, so throughput limits directly restrict emissions. Refineries are complex facilities, so throughput limits do not directly restrict emissions. Emissions from the Detroit Refinery depend on numerous factors, including the crude oil composition, the products being produced, the age of the catalysts in the various process units, and the ambient temperature in addition to throughput. Figure 2-2 in Marathon's application shows how crude oil throughput has increased while emissions have generally decreased. Marathon's application is available on the AQD website AQD Permit to Install (PTI) Applications of Interest.

B. Public Health and Environment Concerns

1. Comment

Explain how the proposed permits will not interfere with the maintenance or attainment of the ozone National Ambient Air Quality Standard (NAAQS). Marathon operating continuously at maximum capacity would cause increases in annual emissions. Are these emissions within the United States Environmental Protection Agency guidelines? Please pay close attention to the health impacts caused by sulfur dioxide (SO_2), oxides of nitrogen (NO_x), particulate matter equal to or less than 10 microns in diameter (PM10) and particulate matter equal to or less than 2.5 microns in diameter (PM2.5).

AQD Response:

The throughput limits Marathon requested to remove are monthly and annual average limits, which do not restrict the hourly, 8-hour, daily, or weekly emissions from the facility. Marathon is currently allowed to operate at full capacity for extended periods.

For NAAQS with short-term averaging times, such as ozone (8-hour average), Marathon has already operated at or near their maximum capacity, so no increase in short-term ambient concentrations is expected. Therefore, removal of the throughput limits is not expected to interfere with attainment of the ozone NAAQS. In addition, Marathon's pollution control projects will reduce short-term emissions, which could have a positive impact on ozone levels.

The AQD conducted an analysis of the secondary formation of ozone due to the projected annual increases in NO_x and VOC emissions from the DPP. The analysis showed that the ozone impact from the DPP is 0.057 parts per billion (ppb). This impact is less than the 1 ppb Significant Impact Level (SIL), so the DPP is not expected to cause or contribute to any violation of the ozone NAAQS.

There are only four criteria pollutants that have NAAQS with annual averaging times: PM2.5, PM10, SO_2, and NO_x. Based on the AQD's ambient air monitoring data for the area, ambient levels of PM10, SO_2, and NO_x are well below the annual NAAQS. Marathon's potential annual PM2.5 emission increase represents a small fraction of the total emissions in the area and Marathon's pollution control projects are intended to make up for the potential increase in emissions from removing the throughput limits.

The potential increases in annual emissions are within the USEPA guidelines, primarily because there are no increases in hourly emissions. The potential increases are less than the PSD Significant Emission Rate (SER), indicating no adverse environmental effects are expected. Marathon will continue to comply with the various federal regulations that apply to the facility.

2. Comment

Consider indoor air pollution when you're modeling. Workers are being impacted by serious concentrations of air pollution inside of buildings if you don't have a great filtration system.

AQD Response:

The AQD does not have the regulatory authority to evaluate indoor air quality. Indoor air quality at places of employment is regulated by the federal Occupational Health and Safety Administration and the Michigan Occupational Health and Safety Administration.

3. Comment

One commenter provided information on potential health impacts from several chemicals that were monitored in the 48217 zip code, as well as carbon monoxide (CO), ozone, and nitrogen dioxide, and asked what the impacts of those chemicals are on people.

AQD Response:

The AQD evaluated the pollutant emissions from the DPP using the state and federal air quality rules and regulations that apply to the project. We determined the toxic air contaminant (TAC) emissions from the facility comply with the rules and regulations, including the applicable health-based standards. We also determined that, since there is no increase in short term emissions except for CO, the criteria pollutant emissions from the DPP will also comply with the applicable health-based standards, designed to be protective of sensitive subpopulations, including children and people with asthma. See the CO dispersion modeling discussion below. Therefore, the air emissions from the DPP are not likely to result in health effects.

4. Comment

An extensive health study is needed in the 48217 (Southwest Detroit), 48218 (River Rouge), and 48229 (Ecorse) zip code communities. A number of print articles exist describing zip code 48217 as the most polluted zip code in Michigan. Residents complain of health-related illnesses throughout the Tri-City area.

AQD Response:

The evaluation of the health status of individuals and communities involves obtaining and analyzing health records; this is not within EGLE's regulatory authority. The analysis also requires certain expertise, such as a seasoned epidemiologist, which is outside the AQD's resources. The AQD encourages engaging local and state health departments to determine if, how, and when such a study could be performed and acquire the necessary resources.

5. Comment

Numerous commenters oppose allowing the Detroit Refinery to operate at full capacity due to the potential increase in emissions in an area with many large air emission sources that has higher cancer, asthma, and heart disease rates than other areas in Michigan; is in Michigan's most polluted zip code; and because the facility is very close to residents. Cancer risks far exceed benchmark levels primarily due to formaldehyde, benzene, and 1,4 dioxane. Many comments were received about the potential for cumulative exposure to air pollution and potential for health effects. One commenter stated that Rule 228 can be used to conduct a cumulative analysis.

AQD Response:

The AQD acknowledges that the Detroit area has a higher concentration of air pollution sources than other areas in Michigan. Emergency department visits and hospitalizations for asthma are higher in the Detroit area (MDHHS: Asthma). Detroit-Asthma Burden-2021 Update.pdf. However, the available studies have not indicated a compelling problem with industrial air pollution driving community disease rates, although outdoor air pollution can be a contributor to diseases including asthma and cardiovascular diseases.

The AQD is not authorized to assess cumulative impacts in the way community members are concerned about. However, the cumulative impact and health risks associated with exposure to some air toxics can be found in USEPA's AirToxScreen (ATS) which calculates cumulative risk at the census block level for about 140 of the 188 Hazardous Air Pollutants (HAP). The ATS is meant to give a snapshot of outdoor air quality for air toxics released from factories, automobiles, fires, and background sources, and includes chemical transformations in the air. The latest ATS cancer risk data from 2020 showed cancer risk in the Detroit area is less than the USEPA's 100 per million risk level and the latest non-cancer respiratory risk data from 2019 showed the hazard is less than "1." The ATS data indicates public health is adequately protected from the effects of air pollution. The ATS does not calculate health risk from indoor air, or from other sources of exposure such as ingestion or skin contact, but the health standards used by the USEPA do take into account sensitive subpopulations such as children and asthmatics. The methods used to calculate inhalation health risk are described here: AirToxScreen Assessment Methods. Formaldehyde and benzene are discussed in more detail in Section C comment 2 and Section C comment 5.

There may be other reasons why health disparities are notably higher in urban areas than in rural areas. Harvard University published The State of the Nation's Housing 2024 which found in urban areas that low-income, racial, and ethnic minority neighborhoods carry a disproportionate burden of substandard and poor-quality housing. Substandard housing and indoor environmental exposures have been linked to increased indoor allergen exposure and sensitization (The influence of urban exposures and residence on childhood asthma - PMC).

Marathon's TAC emissions were evaluated using Michigan's air toxics rules and complied with the AQD's health-based screening levels. While the AQD does not have authority through the PTI process to evaluate cumulative risks, the results from the USEPA's ATS and the AQD's TAC evaluation indicate that Marathon's increases in air emissions are unlikely to result in cumulative health risks of concern. Note, Marathon is not proposing any increases in their short-term emission rates and the pollution control projects will result in reduced short-term emissions.

The degree that chemicals build up over time in the soil, water, or food-chain can cause public health concerns and degrade the environment. Characterizing the potential risks to public health and the environment from the deposition of air contaminants is necessary to determine if air emission limits are protective of public health. The AQD uses Rule 228 to assess environmentally persistent, bioaccumulative, and toxic (PBT) chemicals emitted to the air. PBTs may deposit to the soils and water surrounding an industrial facility. Risk assessments of air emissions of PBTs sometimes include exposure pathways other than inhalation. Risk assessments that include more than one type of exposure are called multipathway risk assessments (MPRA). Rule 228 gives the AQD authority to require companies that emit PBTs to perform MPRAs. Marathon's emissions of PBTs, specifically mercury, were determined to be lower than levels that would cause multipathway risks of concern, therefore, a MPRA was not

required for this permit. Cumulative inhalation exposure to multiple pollutants is not assessed using Rule 228, nor are aggregate or additive exposure to a single air pollutant from multiple sources.

The potential increase in emissions was evaluated and was shown to comply with all currently applicable air quality rules and regulations, including health-based standards.

6. Comment

The public should know what the current emissions are over the period of time that the permit is granted. Then the public should be informed if there's been an increase and a decrease in emissions with real time data.

AQD Response:

Once a permit is approved, it is good for the life of the equipment unless the company requests to reconstruct, modify, or change the process in a way that requires a new permit. In addition to regular inspections and reporting, Marathon is required to report all its emissions on an annual basis. Although there is no rule requiring the public to be notified of the emissions from a company, we provide this information online. It is available through a Freedom of Information Act (FOIA) Request or to see high-level data, visit the MAERS Point Source Air Emissions Inventory: 1990-Current (michigan.gov) in database form.

C. Air Toxics and Risk Assessment

1. Comment

The 140,000 barrels per day crude oil throughput limit was required to comply with the Rule 225 health-based screening levels. How can Marathon comply with Rule 225 without this limit?

AQD Response:

For the DPP, Marathon conducted a Rule 225 analysis for the Detroit Refinery assuming all equipment operates at its maximum capacity at the same time. The AQD evaluated and concurred with this analysis. Some combustion equipment can use natural gas and refinery fuel gas, so the highest TAC emission rates from the two fuels were used. The analysis also included fugitive TAC emissions.

The maximum hourly emission rates of all TACs emitted from the facility were modeled. With the taller MPLX VRU stack, all TAC emissions were determined to comply with the Rule 225 health-based screening levels without the product-specific throughput limits, including the crude oil throughput limit. Since the Rule 225 analysis used the maximum potential hourly TAC emission rates, assuming the emissions occur continuously for an entire year, the monthly and annual average throughput limits are not needed to comply with Rule 225.

2. Comment

The information for the proposed PTI does not include formaldehyde. Real-time air monitoring of formaldehyde around Marathon would be helpful in understanding emissions and health impacts. Formaldehyde cancer risks around Marathon far exceed benchmark levels and

formaldehyde levels exceed the 0.1 benchmark that is sometimes used for non-cancer endpoints.

AQD Response:

The TAC analysis for the DPP includes all formaldehyde emissions from the Marathon refinery. The dispersion modeling done by Marathon, which was confirmed by the AQD, shows formaldehyde emissions from the facility are less than 5% of the Initial Risk Screening Level (IRSL). This analysis assumes all equipment operates at the maximum hourly emission rate at the same time, which is a worst-case assumption because the facility does not operate that way, and is based on burning natural gas, the worst-case fuel for formaldehyde emissions. Marathon's application, including the modeling, is available on the AQD website AQD Permit to Install (PTI) Applications of Interest. TAC modeling results are in Attachment 1.

In addition to being directly emitted from a source, formaldehyde can be formed in the atmosphere. Many sources in the area, including Marathon, emit formaldehyde or formaldehyde precursors which contribute to the ambient concentration of formaldehyde in the area. Note that Marathon is not increasing the short-term (hourly, 8-hour, 24-hour) formaldehyde or precursor emissions as a result of the DPP and the pollution control projects will result in a decrease in short-term emissions.

The AQD monitors for formaldehyde and similar compounds in Southwest Detroit, Dearborn, and River Rouge. The method that is used follows the USEPA Method TO-11A and is conducted on a one in six-day schedule. The levels that are measured are representative of the area and not tied to any specific facility. The most recent formaldehyde air monitoring data is shown in Table 1. In 2022, the Dearborn monitor showed a 24-hr formaldehyde concentration approximately two times higher than other monitors in the area. However, the annual average Dearborn monitor formaldehyde concentration was closer to the other monitors in the area. Both the non-cancer, as measured by hazard quotient (HQ), and cancer, as measured by cancer risk per million, are below levels used to assess public health. The HQ is calculated by taking the highest 24-hr concentration and dividing it by the health-based screening level, which is 30 $\mu g/m^3$, 24-hr average, for formaldehyde. The cancer risk can be calculated as the annual average concentration divided by the IRSL, which is the concentration where the incremental risk of cancer is 1 per million. Note, the AQD health-based screening levels are not ambient standards.

The USEPA's presumptive level of concern is the 100 per million cancer risk level; risks below this level show that public health is adequately protected. For non-cancer health effects, the USEPA uses an HQ of "1." HQs below 1 show that public health is adequately protected. Since the highest formaldehyde concentrations show HQs less than 1 and cancer risks less than 100 per million, the ambient concentration of formaldehyde is less than these levels of concern.

Table 1. 2022 Annual Average Air Concentrations, Hazard Quotients, and Cancer Risks for Formaldehyde

Site	Maximum 24-hr Concentration (µg/m³)	HQ*	HQ Less Than 1?	Annual Average Concentration (µg/m³)	Cancer Risk per Million**	Cancer Risk Less Than 100 per Million?
Dearborn	13.1	0.44	Yes	2.67	35	Yes
River Rouge	6.53	0.22	Yes	2.36	31	Yes
Detroit - SW	5.93	0.2	Yes	2.3	30	Yes

* HQ = short-term air concentration divided by the health-based screening level.

** Cancer Risk per Million = long-term air concentration multiplied by the Inhalation Unit Risk of 1.3E-5 per µg/m³.

3. Comment

The proposed PTI allows toxic emissions to increase.

AQD Response:

The short-term emissions from the facility will not increase; there may be increases in monthly and annual emissions. TAC emissions from the facility, based on maximum hourly emission rates, were evaluated and found to comply with the AQD's health-based screening levels. Hourly TAC emissions from the facility will be reduced by the pollution control projects.

4. Comment

While recognizing that the Toxics Release Inventory (TRI) is not a regulatory emissions inventory, there appear to be significant discrepancies with permit-related emissions and the TRI data. Hydrogen sulfide and TRS emission estimates in the application are less than the TRI data and the baseline and projected VOC emissions exceed TRI listings.

AQD Response:

The commenter is correct, the TRI is not a regulatory emissions inventory. The TRI is a USEPA program that requires companies to report their management of chemicals every year with approximate estimates of their air emissions.

The AQD does not rely on TRI data when conducting PTI application reviews because the criteria for reporting to the TRI do not meet the needs of the air permitting program.

PTI applicants are required to provide accurate emission estimates based on emission testing, emission monitoring, process operating and design parameters, emission factors specifically designed to estimate air emissions, and other source specific information. Permit applicants understand they have to provide accurate emissions data because their emission estimates may become permit limits that have to be verified through emission testing.

5. Comment

The AQD's IRSL for benzene, one of the more toxic components of gasoline, is 0.1 micrograms per cubic meter (µg/m^3). The current levels of benzene at the four Marathon sites average 1.46 ppb or 4.98 ug/m^3, well above the benzene IRSL of 0.1 µg/m^3, and the secondary risk screening level (SRSL) of 1 µg/m^3. An analysis in which VOC levels were speciated and an IRSL analysis under Rule 225 likely would show higher risks and thus not demonstrate attainment with the Rule. EGLE should perform this analysis.

AQD Response:

The AQD health-based screening levels are not ambient standards and are not being used in the PTI process to evaluate ambient pollutant levels. The screening levels are used to evaluate emissions from new or modified emission units that require a permit to install. However, there may be other emissions in the area that are not being considered in the Rule 225 evaluation such that the permitted emissions and their resulting ambient impacts from a facility could result in ambient air concentrations above the screening level.

Under the federal Clean Air Act, the USEPA evaluated petroleum refineries and developed a Maximum Achievable Control Technology (MACT) standard to regulate HAP emissions. After the USEPA develops a MACT standard, they are required to do another evaluation called a Risk and Technology Review (RTR). The purpose of the RTR is to determine if additional standards are needed to reduce residual risks remaining after the MACT is implemented.

Both the MACT and the RTR are required by the USEPA's National Emission Standards for Hazardous Air Pollutants (NESHAPs). Marathon is required to comply with the Petroleum Refinery NESHAP, which included an evaluation of benzene risks to communities around refineries. See National Emission Standards for Hazardous Air Pollutants (NESHAP) for Petroleum Refineries and NESHAP for Petroleum Refineries Reconsideration. Note that Michigan's air toxics rules (Rule 226(b)) exempt emissions of HAPs if they were evaluated in a RTR and resulted in a final published NESHAP. Therefore, benzene emissions from equipment subject to the NESHAP are not subject to the Rule 225 screening level requirement.

As part of the petroleum refinery NESHAP, including the RTR, the USEPA established an "action level" ambient benzene concentration of 9 µg/m^3, as measured on the fenceline. The USEPA stated that the "fenceline monitoring work practice standard will be a further improvement in the way fugitive emissions are managed and will provide an extra measure of protection for surrounding communities." (From page 75190 of the Federal Register, Vol. 80, No. 230, Tuesday, December 1, 2015, Rules and Regulations.)

Marathon has been monitoring for benzene at 17 fenceline monitors since 2018. The USEPA publishes the results of benzene monitors; see Fenceline Monitoring Data Collection and Reporting, scroll down to "Facility Name" and type in "Marathon Detroit," and then go to the "Sampling Period Trend" tab. The ambient concentrations mentioned by the commenter are below this action level and are therefore considered acceptable. See Attachment 2 for historical graph of Marathon's benzene fenceline monitoring.

Marathon has been operating four perimeter air monitoring stations since 2012 that monitor VOCs using USEPA Method TO-15, which includes benzene. The AQD analyzed the 2023

benzene data from Marathon's perimeter air monitoring stations and calculated the average benzene concentrations, as shown in Table 2.

Table 2. 2023 Average Benzene Concentration and Cancer Risk

Site	Annual Average Concentration (µg/m³)	Cancer Risk per Million*	Cancer Risk Less Than 100 per Million?
1-NORTH	2.62	20	Yes
2A-WEST	1.05	8	Yes
4-EAST	0.97	8	Yes
Mark Twain	0.92	7	Yes
*Based on Inhalation Unit Risk of 7.8E-5 per µg/m³ (rounded to 1 significant figure).			

The USEPA's presumptive level of concern is 100 per million cancer risk, and risks below this level show that public health is adequately protected. The ambient benzene concentrations from Marathon's ambient monitors result in cancer risks below the 100 per million and, therefore, benzene levels are below levels of health concern.

6. Comment

The measured annual average VOC levels at Marathon's four perimeter sites, even after adjustment for background, exceed 100 µg/m^3. This far exceeds the 20 µg/m^3 SRSL for gasoline. Ideally, this analysis would be repeated for speciated VOC data in an analysis that accounts for hourly wind shifts and other factors, however, the analysis using total VOC appears robust. To increase reliability and validity, the modelling demonstration for Rule 225 should consider actual levels.

AQD Response:

VOC levels at Marathon's perimeter monitors cannot be equated with gasoline because there are several VOCs measured at these monitors that are not in gasoline.

As shown in Appendix 1, the AQD evaluated several hydrocarbon mixtures for compliance with Rule 225. The total process stream VOC emissions from the facility, including fugitive emissions, were evaluated as heavy alkylate naphtha and the modeled impact of 690 µg/m^3, on an 8-hour average, is less than the AQD's health-based Initial Threshold Screening Level (ITSL) of 3,500 µg/m^3.

7. Comment

Average air toxics at four monitors around Marathon are higher than average national levels. Methyl Tert-Butyl Ether (MTBE) was much higher than national averages and is a mystery since it has not been used in gasoline since 2005. Noncancer risks exceed the benchmark due to acrolein.

AQD Response:

The AQD acknowledges that air concentrations of some pollutants are higher than national averages. However, national average air concentrations are the result of combining monitoring data from both urban and rural areas. Rural areas are expected to have lower VOC concentrations and urban areas are expected to have higher VOC concentrations. The air concentrations around Marathon are not above health standard levels used for evaluating ambient air.

Note, MTBE is not emitted by Marathon and the AQD does not know its source.

The commenter listed one compound as "Acrolein – Unverified." The USEPA says unverified acrolein concentrations are probably higher than actual ambient concentrations because acrolein can be created inside the sampling canister before it is analyzed in the laboratory (Data Quality Evaluation Guidelines for Ambient Air Acrolein Measurements). The actual acrolein concentration is probably lower than the reported value, but it is not known how much lower.

The Agency for Toxic Substances and Disease Registry (ATSDR) evaluated the toxicity of acrolein in 2024 and developed a provisional Minimal Risk Level (MRL) of 0.9 µg/m³ with an annual averaging time; this level is currently available for public comment (Draft Toxicology Profile for Acrolein). ATSDR's MRL is higher than the AQD's health-based Initial Threshold Screening Level (ITSL) for acrolein of 0.4 µg/m³ on an annual average that is used for air permit application reviews. The AQD ITSL is based on a California short-term study report published in 2008. The MRL is based on a 2021 long-term rat study and ASTDR's derivation used the most up-to-date bench-mark dose methodology, so the MRL appears to be more accurate.

The AQD samples for acrolein at a site in Dearborn and uses a method that produces data that is "verified." The annual average verified acrolein concentrations at the Dearborn monitor are shown in Table 3 and are below the ATSDR's MRL but above the AQD ITSL. The AQD is evaluating the MRL which appears to be a more appropriate and valid assessment of acrolein toxicity. Note the AQD ITSL is not an ambient standard.

Table 3. Annual Average Verified Acrolein as Measured at the Dearborn Monitor

	2019	2020	2021	2022	2023
Acrolein -verified (µg/m³)	0.6	0.61	0.5	0.48	0.87

The commenter stated acrolein concentrations around Marathon are higher than the national average concentration of 0.577 ppb. There is some evidence to the contrary; ATSDR stated that, "In 2022, the average concentrations of acrolein from 61 monitoring stations across the United States ranged from 0.062 to 0.591 ppbv[1] (0.14–1.36 µg/m³), with maximum values of 1.27 ppbv (2.91 µg/m³)." It is important to recognize that the air monitored around Marathon measures the impacts from all nearby sources and are not likely the result of a single facility. Sources of acrolein include facilities that manufacture and use acrolein, combustion processes (including automobiles and smoke from any type of fire including cigarettes), and degradation of other pollutants. The AQD will continue to evaluate acrolein concentrations as well as the other air toxics (e.g., benzene, MTBE, and formaldehyde) in the area with the goals of protecting

[1] Parts per billion by volume (ppbv)

public health, evaluating the effectiveness of emissions control strategies, providing information on air quality trends, the evaluation of air quality models, and supporting research.

AQD Response:

D. Ambient Monitoring

1. Comment

Marathon's current air monitors provide limited data as more of a pass/fail system and no actual data on pollutants being released. It is unreasonable to assume the current monitors are accurately measuring the pollution coming from Marathon because the stations do not record daily samples of each pollutant. Marathon's Perimeter Air Monitoring (PAM) website does not provide any actual VOC data. Please request laboratory test results from Marathon and provide laboratory test results that are captured by our own AQR agents. EGLE should be receiving real data from Marathon if they would like to operate at the levels they are currently operating at. None of this falls within "good practice" which constitutes Marathon acting in "bad faith." At best, Marathon is providing qualitative information, not quantitative data.

AQD Response:

Marathon has been voluntarily operating four perimeter air monitoring sites since 2012. Three sites are on the facility property, and one is at the Mark Twain School to the south. Marathon sends the results from their continuous monitoring and every 6-day VOC samples to the AQD each month. We review this data and report it to the USEPA's Air Quality System (AQS) database. The public-facing portal to this database is Air Data: Air Quality Data Collected at Outdoor Monitors Across the US | US EPA. Marathon posts their continuous real-time data (CO, SO_2, TRS, meteorological parameters, and PM10) to a website (Marathon (drdas.cloud)). Marathon does not post VOC data to this website because it is not a continuous measurement. Marathon collects a sample of air every 6 days and sends it to a laboratory for analysis and Marathon includes the laboratory data in a report they send to the AQD. Marathon's monitoring sites follow the USEPA measurement methods and requirements.

The AQD owns and operates several monitoring stations near the Marathon facility. The purpose of these air monitors is not to measure emissions from a specific facility but rather to evaluate air quality for an area or region. Most of the pollutants that are measured at the air monitoring stations near the Marathon facility are measured continuously. These continuously monitored pollutants are limited to a small set of criteria pollutants and total VOCs. A different set of pollutants are measured every 6 days using manual methods, such as filters, cartridges, or canisters, to collect samples that are sent to a laboratory for analysis.

In addition to the monitoring data, Marathon submits a substantial amount of other information to the AQD, including emission test results. The AQD is often on-site to observe emission testing. Marathon is required by their permit and federal regulations to keep a substantial amount of information, including monitoring and operational data, at the facility and is required to make the information available for the AQD to review at any time.

2. Comment

How do we get the real-time VOC data, which was a part of Marathon's agreement? What VOC's does Marathon monitor?

AQD Response:

The VOCs are not measured in real time. They are collected every 6 days and sent to a laboratory for analysis. VOC data is available on the USEPA's AQS database. The public facing portal to this database is Air Data: Air Quality Data Collected at Outdoor Monitors Across the US | US EPA.

Marathon measures the following VOCs:

Acrolein	1,1-Dichloroethane	n-Octane
Acrylonitrile	1,1-Dichloroethene	Propene
Benzene	cis-1,2-Dichloroethene	Styrene
Benzyl chloride	trans-1,2-Dichloroethene	tert-Amyl Methyl Ether
Bromodichloromethane	1,2-Dichloropropane	1,1,2,2-Tetrachloroethane
Bromoform	cis-1,3-Dichloropropene	Tetrachloroethylene
Bromomethane	trans-1,3-Dichloropropene	Toluene
1,3-Butadiene	Ethylbenzene	1,2,4-Trichlorobenzene
Carbon tetrachloride	Ethyl tert-butyl ether	1,1,1-Trichloroethane
Chlorobenzene	Trichlorofluoromethane	1,1,2-Trichloroethane
Chloroethane	Dichlorodifluoromethane	Trichloroethylene
Chloroform	1,1,2-Trichlorotrifluoroethane	1,2,4-Trimethylbenzene
Chloromethane	1,2-Dichlorotetrafluoroethane	1,3,5-Trimethylbenzene
Dibromochloromethane	Hexachloro-1,3-butadiene	Vinyl chloride
1,2-Dibromoethane	Methylene Chloride	m&p-Xylene
1,2-Dichlorobenzene	2-Butanone (MEK)	o-Xylene
1,3-Dichlorobenzene	4-Methyl-2-pentanone (MIBK)	

3. Comment

Marathon's PAM dashboard states "all data are preliminary and subject to change." What does this mean?

AQD Response:

The data that is posted to the website or dashboard is real-time data that has not been reviewed or validated. Such data review and validation takes time and is conducted before the final data is sent to the AQD.

4. Comment

The report does not state if any air quality monitoring stations include ground-level ozone.

AQD Response:

Marathon's monitors do not include ozone. However, the AQD monitors for ozone at the East 7 Mile site in Detroit. Other monitoring stations downwind from Detroit also monitor for ozone. Information on all AQD air monitoring sites can be found at Air Monitoring Sites (arcgis.com).

5. Comment

Marathon should make the Mark Twain monitor permanent and they should add black carbon testing at that monitor. Marathon should commit to maintaining toxics monitoring at the four sites while the facility is operating and add monitoring of reduced sulfur gases and formaldehyde using real-time instrumentation.

AQD Response:

The AQD cannot require Marathon to make the Mark Twain monitor permanent and we cannot require them to add black carbon monitoring.

Marathon has committed to continuing the ambient monitoring for 6 years after issuance of the permit, including the toxics monitoring.

Marathon currently monitors for TRS at all four of their monitors. The AQD cannot require Marathon to add formaldehyde monitoring through the PTI process as there is no regulatory requirement for Marathon to conduct the ambient monitoring.

Marathon is aware of this request and any questions should be directed to Marathon.

6. Comment

The speciated toxics monitoring data for 2021 and beyond are not available or do not meet completeness criteria, e.g., for 1-in-6-day sampling, only about 15 observations were available in 2021, 10 in 2022, and none in 2023 from the USEPA files. No other easy and public (web) access point was located. These data should be made available, ideally on the Marathon portal, and there should be reports that provide a descriptive evaluation of the monitoring data.

AQD Response:

Marathon submits their data to the AQD, and we upload it to the USEPA's AQS database as time allows; we acknowledge that data can be difficult to find in the database. Marathon's data is available through a FOIA request and it may be available in the future through MiEnviro Portal once it's online. There is no regulatory requirement for Marathon or the AQD to provide reports that describe or evaluate the monitoring data.

The AQD reviews the data and believes Marathon is complying with the requirements of their air monitoring program, including the sampling frequency.

7. Comment

Michigan should maintain and increase toxics monitoring, validate the modeling, and provide appropriate analyses that will protect and enhance public health. There should be a detailed risk assessment and apportionment studies for toxics.

AQD Response:

The AQD uses the rules and laws within our regulatory authority to protect public health and the environment. For the PTI application review process for the Marathon DPP, it is beyond our authority to require a health study. For the DPP, the AQD used the most up-to-date risk

assessment methodology and tools provided by the USEPA and determined that the emissions from Marathon, and the ambient air levels around the facility, are less than levels of concern.

EGLE currently conducts ambient air toxics monitoring at sites in Southwest Detroit, Dearborn, and River Rouge. Through recent federal grant funding, there are plans to add air toxics monitoring in central, north, and on the eastside of Detroit in the future.

The AQD follows research on the relationship between air pollution and public health and is aware of local health statistics and health studies in the metro Detroit area. EGLE uses data published by the Department of Health and Human Services on their MiTracking website to further identify community health burdens. However, as noted on the MiTracking website, "The exact cause of chronic diseases and health conditions cannot be determined by these data and may never be known." The available research linking air pollution and public health effects does not indicate that exposure to toxic air contaminants that are kept below the USEPA's 100 per million cancer risk and HQ of less than 1 cause or contribute to adverse health effects in nearby communities.

E. Dispersion Modeling

1. Comment

When modeling is being done, real time data should be included. Take into account local pollution standards and the real impact the project has as it operates today. Field data, including monitoring, should be used to confirm the modeling results and compliance with Rule 225.

AQD Response:

When conducting dispersion modeling, the AQD uses the most up-to-date models and the most current meteorological data that is available. The modeling predicts what the future pollutant concentrations could be based on the emissions associated with the project.

Ambient monitoring around the Marathon facility picks up emissions from Marathon as well as emissions from the other industrial facilities and other sources, like vehicle traffic. Determining if the DPP complies with Rule 225 is based only on emissions from the Marathon Refinery. Therefore, ambient monitoring data cannot be used to verify compliance with Rule 225. Dispersion modeling is the tool used to determine compliance with Rule 225.

Marathon is required to do emission testing, LDAR, and monitoring and recordkeeping of a wide variety of operational parameters. This information provides verification of emissions from the facility and, therefore, verification of compliance with Rule 225.

2. Comment

EGLE must require new dispersion models be run to assess the actual impact of the real-world "projected actual emissions" without first deducting excludables.

AQD Response:

Aside from CO, new dispersion modeling is not warranted. When conducting SIL modeling, the change (increase or decrease) in the hourly emission rate resulting from the project should be used. In the case of the DPP, there are no increases in hourly emission rates except for CO.

The new heaters that are part of the pollution control projects will have higher CO emissions than the existing heaters. The AQD modeled the maximum hourly CO emission rates from the new heaters and determined the impacts are less than the SILs, so no additional CO modeling is required. See Table 4.

Table 4. Carbon Monoxide Impacts from the New Heaters

CO 1-hr impact (µg/m³)	CO 1-hr SIL (µg/m³)	Less than SIL?	CO 8-hr impact (µg/m³)	CO 8-hr SIL (µg/m³)	Less than SIL?
56	2,000	Yes	110	500	Yes

It is important to note that Marathon's modeling used the annual project emission changes and converted them to hourly emission rates (pounds per year increase divided by 8,760 hours per year) rather than using the change in hourly emissions, as discussed above.

F. Best Available Control Technology (BACT) Review

1. Comment

EGLE should anticipate the effects of stricter ozone, PM2.5 and potentially other standards and act proactively to reduce emissions, particularly since the area will likely exceed the NAAQS for both ozone and PM2.5. Specific steps that could be undertaken include eliminating routine flaring and updating/upgrading all storage tanks utilizing sealed roofs and other systems and set a meaningful reduction target, in the range of 25-50% for all VOC emissions.

Regulators on the state level can always go above and beyond the federal limitations. Why isn't the department going above and beyond to protect the health and safety of the public, especially as public servants?

AQD Response:

The AQD can only require Marathon to comply with the existing air quality rules and regulations. Existing regulations do not require Marathon to eliminate routine flaring, upgrade their storage tanks, or reduce VOC emissions.

The commenter is correct that state rules can go beyond federal rules, like Michigan's air toxics rules do. The review of the DPP determined the project complies with the AQD's air toxics rules. The AQD is required to follow the current applicable air quality regulations and cannot impose requirements on Marathon that go beyond our legal authority.

G. Permit Review Process

1. Comment

Allowing Marathon, Air Products, and MPLX, three separate companies, to submit three separate "Permits to Install" under one application should not be allowed. This places a hardship on community and commenters, lay-people, and non-speaking folks who have to try to understand highly scientific, technical and legal permits in thirty days. Residents should be allowed to have the PTIs sent to them as soon as the company files the PTI. In this case Marathon filed their PTI a year ago; May 30, 2023. This allowed EGLE to review it for a year and interested parties should have the same time of review.

AQD Response:

One company cannot legally submit an air permit application on behalf of another company. Marathon, MPLX, and Air Products are three separate legal entities, even though they are all located at the Detroit Refinery and their operations depend on each other.

The Detroit Permitting Project affects emissions from all three companies and the AQD is legally required to consider all emissions from the project together. The DPP primarily affects Marathon, so Marathon's application included the technical information for all three companies that was required to evaluate the DPP.

The DPP includes changing the refinery-wide emission caps that apply to Air Products. Therefore, to cap emissions, Air Products had to submit a permit application.

The DPP technical review included evaluating the gasoline emissions from the entire facility, including MPLX. This evaluation showed the height of the VRU stack at MPLX had to be increased for the gasoline emissions to comply with Rule 225. Therefore, to make the VRU stack height increase enforceable, MPLX had to submit a permit application.

The AQD held a single public comment period and public hearing for the proposed permits for all three companies because the permits are part of the same project and depend on each other. All three permits must be issued at the same time for the DPP to comply with the applicable air quality rules and regulations

When we received the original applications in 2023, they were placed on our website (AQD Permit to Install (PTI) Applications of Interest) where they were available for the public to review. We also created an application summary to help the public understand what the project entailed. This summary was translated into Spanish and Arabic and shared with interested parties in June 2023. The companies withdrew the original applications, which are still on the website, and submitted new applications in March of 2024. These new applications are also on the website for the public to review.

Note that residents may request to have the AQD or the permit applicant send copies of an air permit application to them, which one resident did that for the DPP applications. We do not have the resources to automatically send copies of permit applications to local residents. Future air permit applications can still be requested and will be available through MiEnviro Portal (michigan.gov) once it's online.

2. Comment

A commenter expressed concern about the correlation between NO_x and SO_2, noting they recalled discussions in 2007 for the PTI No. 63-08 application review indicating that, for SO_2 to decrease NO_x had to increase.

AQD Response:

The AQD is not aware of a correlation showing NO_x emissions have to increase in order for SO_2 emissions to decrease. The discussions referenced by the commenter were likely specific to changes made during the Detroit Heavy Oil Upgrade Project permitted in PTI No. 63-08.

3. Comment

Although allowed by the regulations, Marathon should not be allowed to include "excludable" emissions in their major source applicability determination. Removing throughput limits will result in increased emissions of at least 10 pollutants, including substantial rises in NO_x by 75.5 tpy, PM2.5 by 27.4 tpy, and sulfuric acid mist by 7.9 tpy. Marathon's pollution control projects will only mitigate a small fraction of these increases.

At the public hearing, the AQD presented a table showing the project emissions changes being below the SER for each criteria pollutant and explained that these numbers were the justification for why PSD procedures and impact analyses were not required of Marathon for any of the criteria pollutants that would increase. To be eligible for use as excludable emissions, the emission unit must be capable of accommodating that level of emissions in the future. During the baseline period, the area was in nonattainment for both SO_2 and ozone. Nonattainment requirements have to be factored in when assessing the excludable emissions. The lack of a clear explanation of excludables in both the presentation and in the proposed project summary was a reckless subversion of the public feedback process.

The nearby AQD ambient air monitor at the Trinity Site regularly records PM 2.5 levels above the recently federally reduced PM2.5 standard. This means that while not officially in nonattainment until that regulatory process plays out, nearby EJ neighborhoods are already facing substantial health risks, including increased rates of mortality, due to PM2.5. It is absolutely reckless to approve a permit that allows a potential actual increase of 274% of the SER for PM2.5 without PSD or nonattainment new source (NANSR) review.

Allowing Marathon to use excludable emissions to avoid PSD requirements for significant emission increases, while technically legal, contradicts EGLE's commitment to environmental justice. EGLE should reject this application and require use of actual baseline emissions, without excludables, for determining the emissions increase. This is crucial to ensure that significant real-world emission increases trigger PSD review, preventing further harm to overburdened communities. EGLE must either reject the DPP or extend the public comment date, release a modified proposed project summary, and schedule another public hearing for the DPP.

AQD Response:

"Excludable" emissions are emissions that could have been accommodated by the existing equipment during the baseline period. Emissions that could have been accommodated must be based on emissions that actually occurred for one month during the baseline period and that

were allowed by the permit limits. The monthly emissions are annualized to obtain the ton per year excludable emissions. Marathon reduced its calculated excludable emissions to reflect the annual average crude oil throughput limit of 140,000 barrels per day. No nonattainment requirements affected Marathon's excludable emissions. Table 1 in the AQD's technical fact sheet includes the excludable emissions.

The commenter is correct that the regulations allow use of excludable emissions when determining if emission increases from a project are above the SERs. The use of excludable emissions is found both in state (Rules 1802 and 1902) and federal New Source Review regulations. The AQD cannot prohibit a permit applicant from doing something that is allowed by the regulations, like prohibiting Marathon from using excludable emissions in their applicability analysis.

The commenter is correct that PM2.5 levels monitored in the area are above the newly revised annual NAAQS for PM2.5. An area that does not meet the NAAQS is called a nonattainment area and is subject to special permitting requirements. At this time, as the commenter points out, the area has not been reclassified by the USEPA and therefore is not a PM2.5 nonattainment area.

Since the project PM2.5 emission increase is less than the SER, there would be no change to the application review if the area was nonattainment. The only change to the permit conditions would be addition of Rule 1902 "reasonable possibility" records.

Marathon's analysis showing that all criteria pollutant emission increases are below the SERs and that PSD and NANSR are not triggered is correct.

4. Comment

I'm concerned about potential increase in trucks in the area. It's not your responsibility to regulate them, but it is your responsibility to consider their impacts combined with the changes that are happening at the facility.

AQD Response:

The air emissions from trucks on public roadways cannot be considered in the PTI application review process because the emissions are not from the stationary source seeking the PTI.

5. Comment

The numbers reported by Marathon are unreliable. The AQD should conduct additional state-administered monitoring and testing to ensure that Marathon is accurately reporting its pollutant outputs.

AQD Response:

The AQD does not perform stack testing. Companies either conduct emission tests using their own staff or use emission testing firms to conduct emission tests. The AQD reviews test plans, observes the testing, and reviews the final test reports to ensure the testing was done correctly. The AQD receives numerous reports from Marathon, including emissions reports, and conducts periodic inspections at the facility to evaluate compliance with the applicable air quality rules and regulations.

6. Comment

As evidenced by Marathon's history of failed emissions monitoring (Marathon Petroleum Corporation Clean Air Settlement), emissions data is often compromised by technical errors, inconsistent measurement practices, and failures to adequately self-report or monitor. Since Michigan does not have strong polluter accountability policies that can require Marathon to fully remediate the environment when it fails to comply with pollution regulations, we simply do not have strong enough punitive measures to disincentivize irresponsible self-monitoring practices.

AQD Response:

The USEPA enforcement action referenced by the commenter as evidence that Marathon has a history of failed emission monitoring does not appear to be related to the Detroit refinery. There have not been any recent violations at the Detroit refinery related to emission monitoring.

7. Comment

The emission reduction projects should be the only topics being considered. The AQD cannot prevent Marathon from applying for a permit but can deny the permit.

AQD Response:

The AQD evaluated the potential increase in emissions and determined the DPP will comply with all applicable air quality rules and regulations. We are legally required to issue the permit because the project complies with all applicable air quality rules and regulations.

H. Enforcement

1. Comment

Marathon repeatedly violated the air quality rules and regulations in the past, so the permit should not be issued.

AQD Response:

Marathon is currently operating in compliance with the air quality rules and regulations. Current rules and regulations do not allow us to consider a company’s compliance history when determining whether to issue a proposed permit.

2. Comment

For 10 violations of state and federal air quality rules over the past three years, state regulators are proposing that Marathon’s Detroit oil refinery pay a penalty of $81,853. Where has all the money gone from this consent order?

AQD Response:

Fines paid as a result of AQD enforcement action goes into the State of Michigan General Fund.

I. Environmental Justice & Public Participation Process

1. Comment

There have been many, many hearings that we've attended for other companies and on other issues. There should be a combined list for anybody that's within the area or has attended a meeting or made a comment.

AQD Response:

The AQD is continually working to improve our public comment process, including who to notify of public comment periods and public hearings. We try to notify as many persons as we can and do take into account other recent meetings and hearings. In this case, we combined other facility lists with those who have showed interest in activities at Marathon in the past.

2. Comment

A recent study in Environmental Health News about public comment participation showed that people who were most engaged in public participation processes had significantly greater mental health impacts than people who didn't engage. However, this public comment is disempowering because it's not done in a meaningful way where people can influence the decision. When people engage in public participation processes that have little or no effect on agency decision-making, it disempowers and can harm those individuals and erode their trust in government institutions. Providing the public with participation opportunities with little ability to influence decision-making outcomes is a violation of both procedural, and recognition, of justice. Two of the core tenets of environmental justice.

AQD Response:

The AQD values input from the public and seeks to enhance our public participation process as much as possible. All comments are considered and often result in changes to the final permit decision.

However, the public participation process for a specific PTI application is legally limited in the scope of comments that can be considered. Only comments about the project's ability to comply with applicable air quality rules and regulations can be considered in deciding to approve the proposed permit.

3. Comment

Michigan should consider the environmental justice implications in the air permit process.

Approving this permit contributes to longstanding environmental racism in the region. The majority of communities surrounding the oil refinery are low-income, predominantly Black, Arab, and Latina/o. Authorizing Marathon to increase already impactful production levels is a conscious decision to exacerbate racial and economic inequity further.

Various levels of government have placed the value of their economy over the existence of people. Decisions made or not made by elected officials have had negative consequences for communities, including 48217. It is common for lobbyists to write the bills that elected officials pass on to USEPA. In many instances, USEPA is unable to protect the communities because

politics, economy, and profits for companies control and rule what is permitted into our environment.

AQD Response:

At this time, the air quality rules and regulations do not have a way to consider additional demographic and community health information when deciding whether to issue a proposed permit. The decision is based solely on whether or not the proposed project complies with the applicable air quality rules and regulations.

We recognize the environmental justice concerns the community has brought forth. Although EGLE does not have an official environmental justice policy outside of the considerations in our Limited English Proficiency Plan, we do our best to meet the needs of the community. Our staff have been working to better and more regularly engage with this community during and outside of permitting actions. Outreach around these applications included:

- As part of early outreach, we posted all the applications on the Application of Interest page once it was considered administratively complete in January 2023. An application summary was written and translated into Spanish and Arabic. The summary was posted at Michigan.gov/EGLEMarathon and shared with those who have previously expressed interest in air quality actions for Marathon in June 2023.

- A local advocacy group, that has previously expressed interest in this action, was consulted about the type of public informational session and hearing (in-person, virtual, or hybrid) and the appropriateness of the location. Based on their feedback, we held a hybrid informational session and hearing at the Kemeny Center in Detroit, MI. The purpose was to allow as much access to as many community members as possible.

- The 47-day comment period started on February 21 and ran through April 8, 2024. Outreach around the comment period is further detailed in the “Public Participation” portion of this document.

4. Comment

The public comment period should be extended.

AQD Response:

The proposed permit was subject to the public participation process specified in section 5511(3) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. EGLE is required to provide at least 30 days for public comment; we provided 47 days. The actions taken by EGLE to notify the public regarding this proposed permit met or exceeded the minimum public participation requirements of state and federal law. This included providing information for public review (Technical Fact Sheet and Proposed Project Summary), a public comment period, an informational session, a public hearing, and the receipt of written and verbal public comments on staff’s analysis of the applications and the proposed permits. In addition, the permit applications were made available to the public shortly after they were received. Based on this, an extension to the comment period is not warranted.

J. Miscellaneous

1. Comment

One commenter noted an ongoing labor dispute between Marathon and Teamsters Local 283. The commenter stated that Marathon is preparing to bring in temporary workers who, according to the commenter, would come from southern refineries, known for poor training, high incidents of injury, death, chemical releases, et cetera. The commenter also stated that increasing permit limits with an inferior and inexperienced workforce, most of whom will not have City of Detroit boiler licenses, will potentially put the city, community, and people of this community at risk and requested that Marathon's requests be rejected until the labor dispute is resolved.

AQD Response

Having the refinery operating in a safe manner is vitally important. However, the AQD cannot consider the training, skills, and experience of the workers at the facility when reviewing Marathon's air permit application. The permit application review process is a technical review of the proposed changes at the facility and issuance of the permit is based solely on expected compliance with all applicable state and federal air quality rules and regulations.

Compliance with the permit conditions will be enforced regardless of who is working at the facility. Results from inspection reports, record keeping, and monitoring, including benzene fenceline monitoring required under the NESHAP Benzene Fenceline Monitoring will be available to ensure the facility is operating properly and public health is protected.

2. Comment

When Marathon applied for PTI No. 63-08, their presentation to the city of Detroit Council did not indicate hydrogen would become a part of the DHOUP. Community inquiries were presented as to hydrogen being produced on the facilities that brought the process being on Marathon property but leased to a private company. That entire process of cloaked information left the 48217 zip code community suspect of operations at the Marathon facility.

AQD Response

The hydrogen plant that was part of the DHOUP was included in PTI Application No. 63-08, submitted in 2008, and was also included in two prior PTI applications (Nos. 388-07 and 123-07) submitted in 2007, that Marathon withdrew before the AQD finished reviewing the applications.

The hydrogen plant was initially presented as being owned by Marathon. However, it was constructed by, and is owned and operated by, Air Products. Emissions from the hydrogen plant were properly included in the reviews of the DHOUP and the DPP because, while Marathon and Air Products are two separate companies, they are part of the same stationary source because all of the hydrogen produced at the hydrogen plant is used by Marathon at the Detroit Refinery.

3. Comment

Figure 2.2 from the Marathon's application shows no correlation between the amount of crude throughput and the criteria pollutant emissions. Could other factors impact the emissions, such

emission reduction actions, a change in crude composition, a change in product mix, or a combination of these? What is the projected crude throughput capacity of the refinery as expressed in barrels per day? What percent capacity are they currently operating at?

Removing the crude throughput limit and capping the criteria pollutant emissions seems appropriate.

AQD Response:

The commenter is correct that emissions from the refinery are not directly related to the crude oil throughput rate. Emissions depend on numerous factors, including the crude oil composition, the products being produced, the age of the catalysts in the various process units, and the ambient temperature. Marathon also implements activities, such as maintaining a constant liquid level in storage tanks regardless of the tank throughput, that reduce emissions.

Estimating the maximum crude oil throughput capacity of the refinery is difficult for many of the same reasons that emissions are not directly related to throughput. The highest crude oil throughput in Table C.5 of the application, which is available at AQD Permit to Install (PTI) Applications of Interest, is a monthly average of 152,704 barrels per day. Since this is a monthly average, the daily maximum throughput capacity is higher.

Based on the data in Table C.5, Marathon routinely operates at a crude oil throughput rate of more than 140,000 barrels per day on a short-term basis, relying on periods of reduced operation, including periodic shutdowns, to stay below the throughput limit of 140,000 barrels per day based on an annual average.

4. Comment

Please hold off on approving the project until you assess how this expansion will conflict or conform with the laws passed as part of the MI Healthy Climate Plan.

SEMCOG has a Southeast Michigan Healthy Climate Plan: Priority Action Plan that includes reducing air pollution. There is no reference to this document, which has been filed with the USEPA and was created by local governing bodies with jurisdiction over the Refinery.

Increasing the production of oil, tar sands in particular, during a climate crisis will have widespread impacts, especially on communities like ZIP code 48217, which have a disproportionate amount of pollution and are more exposed to climate impacts.

AQD Response

We have noted the commenters' concerns. There are no rules and regulations related to the MI Healthy Climate Plan, and it was not considered in this permit review process. The permit review process is a technical and regulatory review of the proposed project. Whether a permit is issued is solely based on compliance with all applicable state and federal air quality rules and regulations. By law, we can only base a permit decision on whether a proposed project meets the applicable air quality requirements. Our review of the DPP determined the project will comply with all applicable air quality rules and regulations.

The AQD cannot consider plans developed by local governing bodies when evaluating the DPP because we do not have authority to enforce local regulations.

In addition, the AQD has no authority to evaluate potential climate impacts of the DPP through the NSR permitting process beyond the air emissions from the Detroit Refinery. Note, because the DPP does not trigger PSD review, the AQD cannot evaluate potential carbon dioxide or other greenhouse gas emissions from the project.

5. Comment

Commenters state that the following should be considered when evaluating the DPP:

- The proposed pollution controls may not address the new regulation passed by the City of Detroit's fugitive dust ordinance.

- The removal of the cap on the Marathon refinery should be assessed to see if it is in compliance with the United States international treaty regulations. This is especially relevant given that Marathon is adjacent to an international border. Report the impact of the project as it would fit within state and national obligations laid out in the Paris Accords.

- The Fifth National Climate Assessment reports that air pollution is a leading concern for the Midwest region and Detroit. It also outlines the best behaviors possible to ensure long-term economic and human health in the face of climate change. Issue a report that addresses how this expansion will adhere to the best practices determined by experts on the federal level.

- Expanding the refinery could incentivize continued and increased use of the aging Line 5 pipeline, threatening our state's drinking water, tourism, agriculture, and overall way of life.

- International laws dictate that clean air is a human right. Review the air quality in the area and see if this proposed expansion will infringe upon people’s human rights.

- The last time Marathon proposed to expand their operations residents, many of whom live directly adjacent to the plant, voiced strong opposition. Conduct additional outreach to local community members in addition to the one public comment that has already occurred. Based on this input and reasonable judgment of expected community impacts please deny this permit outright.

- The permit should not be approved. The air quality in the area is already bad and is detrimental to the real estate values in the area. The ecological dangers are too great to allow this.

AQD Response

These comments are outside of the scope and authority of the current decision. The permit review process is a technical and legal review of the proposed project. Whether a permit is issued is solely based on compliance with all applicable state and federal air quality rules and regulations. By law, we can only base a permit decision on whether a proposed project meets the applicable air quality requirements. We cannot base a decision on whether there is opposition to, or support for, the project. Our review of the DPP determined the project will comply with all applicable air quality rules and regulations.

6. Comment

Marathon should not be allowed to use the emission reductions from the pollution control projects to avoid a more stringent permitting review for future permit applications to increase emissions and the emissions reductions from the pollution control projects should be permanent for future permits. EGLE should require Marathon to waive using decreases in emissions from these pollution control projects as creditable emission reductions for future permits or communicate whether Marathon intends to use these emissions decreases in future permits.

AQD Response:

The emission reductions from the pollution control projects were not relied upon in determining if the DPP constitutes a major modification under the PSD and NANSR permitting programs, and the reductions are enforceable through the permit. Therefore, it is possible these reductions could be relied upon for future permit applications. We cannot prevent Marathon from using these reductions in future permit applications and cannot require Marathon to communicate whether they intend to use the emissions decreases in future applications.

7. Comment

The proposed pollution control projects may represent deferred maintenance projects for an old facility, specifically, the replacement of old NOx burners, and the removal of an aged and likely deteriorated crude flare. Moreover, the two projects dealing with VOCs are routine and represent modest changes: replacing an obsolete floating roof on a storage tank with a sealed dome and expanding the LDAR program.

AQD Response:

The pollution control projects do not appear to be deferred maintenance projects. The current burners in the NHT Stripper Reboiler (EU16-NHTSTRIPREBOIL-S1) and the NHT Charge Heater (EU16-NHTCHARHTR-S1), the crude flare, the floating roof on the storage tank, and Marathon's current LDAR program comply with applicable air quality rules and regulations. The AQD cannot compel Marathon to make changes that are not required by the rules and regulations.

8. Comment

What specifically is being monitored to detect a leak and how is it monitored? Is the monitoring continuous or periodic? Is there a central monitoring station with alarms to indicate a leak or that the detection device is not working? Is there a required time-period for corrective action when a leak is detected?

AQD Response:

Marathon uses a hand-held Flame Ionization Detector (FID) to detect leaks from valves, flanges, and connectors. A person moves the FID around the component being checked for leaks. The FID provides a reading of the VOC concentration around the component and if the reading exceeds the threshold defined as a leak in NSPS VVa and/or NSPS GGGa, then the component is determined to be leaking.

The monitoring is done periodically and there is no central monitoring station that is able to determine component leaks. Marathon follows USEPA Method 21 (Method 21 - Volatile Organic Compound Leaks | US EPA) for conducting the LDAR program.

Marathon is required to attempt a first repair for most leaking components within 5 days and final repair within 15 days.

9. Comment

Residents and visitors to the area quickly note odor, eye and respiratory irritation and other symptoms. Marathon is not the sole source of air emissions that cause such problems but is a sizable source. Marathon should commit to eliminating odors

AQD Response:

During recent odor investigations conducted by the AQD, the AQD has not verified nuisance odors attributed to Marathon. While odors may be detected in the area at times, the presence of odors does not mean there is a violation of the AQD's nuisance rule, Rule 901.

If odors are detected, call the Pollution Emergency Alerting System (PEAS) at 800-292-4706. EGLE often responds to odor complaints by sending an inspector to investigate the complaint.

10. Comment

Why is the department accepting the explanation that shutdowns are the issue?

AQD Response:

The only reference Marathon has made to shutdowns is to say that they operate the facility at maximum capacity for a period of time and rely on periods of reduced operation, including shutdowns, to comply with the throughput limits. Marathon requested to remove the throughput limits to operate the facility at capacity all of the time.

Summary of Comments Received in Support

The following is a list of the benefits cited in the comments received:

- The project will lower the price of gasoline, which will bring down inflation, which would be good for the economy.

PREPARED BY: Andrew Drury
517-648-6663
DruryA@Michigan.gov

ATTACHMENT 1: RULE 225 SCREENING LEVEL ANALYSIS

TAC	CAS Number	Averaging Period	Acceptable Impact (µg/m^3)	PAI (µg/m^3)	Percent of Acceptable Impact
TAC Impacts from Natural Gas and Refinery Fuel Gas Combustion[1]					
2-Methylnaphthalene	91-57-6	Annual	10	0.0000012	<0.001
Acenaphthene	83-32-9	Annual	210	0.0000009	<0.001
Acenaphthylene	208-96-8	Annual	35	0.0000009	<0.001
Acetaldehyde	75-07-0	Annual	9	0.000087	0.001
		Annual	0.5	0.000087	0.017
Anthracene	120-12-7	Annual	1000	0.0000012	<0.001
Arsenic	7440-38-2	Annual	0.0002	0.0000103	5.17
Barium and soluble barium compounds	7440-39-3	8 hr	5	0.00525	0.11
Benzene	71-43-2	Annual	30	0.02	0.065
		24 hr	30	0.19	0.63
		Annual	0.1	0.02	19.6
Benzo(a)pyrene	50-32-8	24 hr	0.002	0.00046	22.9
		Annual	0.001	0.000048	4.77
Benzo(g,h,i)perylene	191-24-2	Annual	13	0.00000006	<0.001
Beryllium	7440-41-7	24 hr	0.02	0.000006	0.03
		Annual	0.0004	0.00000062	0.16
Butane	106-97-8	8 hr	23800	2.51	0.11
Cadmium	7440-43-9	Annual	0.0006	0.000057	9.48
Chromium, trivalent	16065-83-1	8 hr	5	0.0017	0.033
Chromium, hexavalent - particulate	18540-29-9	Annual	0.1	0.000015	0.015
		Annual	0.000083	0.000015	17.8
Cobalt & cobalt compounds that release cobalt ions	7440-48-4	8 hr	0.2	0.0001	0.05
		Annual	0.0001	0.00000431	3.34
1,3-dichlorobenzene	541-73-1	Annual	3	0.000062	0.002
Fluoranthene	206-44-0	Annual	140	0.000088	<0.001
Fluorene	86-73-7	Annual	140	0.00000014	<0.001
Formaldehyde	50-00-0	24 hr	30	0.0377	0.126
		Annual	0.08	0.00388	4.85
n-Hexane	110-54-3	Annual	700	0.093	0.013
Manganese and manganese compounds	7439-96-5	Annual	0.3	0.00028	0.095
Molybdenum	7439-98-7	8 hr	30	0.0013	0.004
Molybdenum trioxide	1313-27-5	8 hr	5	0.0013	0.026
		Annual	0.12	0.000057	0.047
Naphthalene	91-20-3	Annual	3	0.000075	0.002
		8 hr	520	0.0017	<0.001
		Annual	0.08	0.000075	0.093
Pentane	109-66-0	8 hr	17700	3.1	0.018
Phenanthrene	85-01-8	Annual	0.1	0.00000088	0.001
Phenol	108-95-2	8 hr	190	0.0041	0.002
Pyrene	129-00-0	Annual	100	0.00000026	<0.001
Selenium and inorganic selenium compounds	7782-49-2	8 hr	2	0.000029	0.001
Toluene	108-88-3	24 hr	5000	0.318	0.006

TAC	CAS Number	Averaging Period	Acceptable Impact (µg/m^3)	PAI (µg/m^3)	Percent of Acceptable Impact
Total carcinogenic polycyclic aromatic hydrocarbons	NA	Annual	0.001	0.00044	43.9
TAC Impacts from Fluid Catalytic Cracking Unit (FCCU) Electrostatic Precipitator (ESP)[1]					
Antimony	7440-36-0	Annual	0.2	0.000031	0.015
Calcium divanadium hexaoxide	14100-64-2	1 hr	0.5	0.00039	0.078
Copper oxide	1317-38-0	8 hr	2	0.00058	0.029
Kaolin	1332-58-7	8 hr	20	0.087	0.44
magnesium oxide	1309-48-4	8 hr	100	0.37	0.37
Magnesium divanadium hexaoxide	13573-13-2	1 hr	0.6	0.00064	0.11
Palladium	7440-05-3	Annual	0.1	0.00011	0.11
Phosphoric acid, aluminum Salt	7784-30-7	8 hr	140	0.044	0.031
Potassium oxide	12136457	Annual	0.1	0.001	0.1
Rhenium oxide	1314-28-9	Annual	0.1	0.00091	0.91
Silcon dioxide - amorphous	7631-86-9	8 hr	60	0.16	0.27
Tin	7440-31-5	8 hr	20	0.000012	<0.001
Titanium dioxide	13463-67-7	8 hr	24	0.088	0.37
Zeolites, slica rich, crystalline, sythetic, non-fibrous	1318-02-1	24 hr	35	0.038	0.11
		Annual	12	0.0042	0.035
Zeolites, NaX	68989-23-1	24 hr	35	0.61	1.73
		Annual	12	0.068	0.57
Zeolites as PM2.5	20-00-0	24 hr	35	0.00024	0.001
		Annual	12	0.072	0.60
TAC Impact from CCR Platformer Regenerator[1]					
Hydrogen chloride	7647-01-0	Annual	20	0.033	0.017
		1 hr	2100	0.37	0.018
Combined Ammonia Impact from FCCU ESP and Hydrogen Plant[1]					
Ammonia	7664-41-7	1 hr	350	4.25	1.21
Combined TAC Combined Impacts from Combustion and FCCU ESP[1]					
Copper	7440-50-8	8 hr	2	0.0011	0.055
Mercury and mercury compounds	7439-97-6	Annual	0.3	0.000021	0.007
		24 hr	1	0.0002	0.02
Nickel	7440-02-0	Annual	0.006	0.00078	12.9
Vanadium pentoxide	1314-62-1	1 hr	0.5	0.009	1.8
Zinc oxide	1314-13-2	8 hr	20	0.035	0.18
Combined TAC Impacts from Combustion, FCCU ESP, and CCR Platformer Regenerator[1]					
Sulfuric acid	7664-93-9	Annual	1	0.051	5.1
		1 hr	120	1.86	1.6
TAC Impacts from Process Streams[1]					
Heavy alkylate naphtha[2]	64741657	8 hr	3500	690	19.7
Gasoline, non-industrial/non-roadway[2]	8006-61-9	Annual	20	18.7	93.5
Gasoline, industrial/roadway[3]	8006-61-9	Annual	200	70.3	35.1
Naphtha, full range straight run	64741-42-0	Annual	18	18.0	100
Deodorized kerosene	8020-83-5	Annual	200	17.0	8.51
		8 hr	2000	141.1	7.1
Straight run middle distillate	64741-44-2	Annual	36	5.6	15.6

TAC	CAS Number	Averaging Period	Acceptable Impact (µg/m³)	PAI (µg/m³)	Percent of Acceptable Impact
Distillates (petroleum), crude oil	68410-00-4	Annual	19	5.97	31.4
Residues, (petroleum), vacuum	64741-56-6	Annual	16	12.9	80.8
Naphtha (petroleum) hydrodesulfurized heavy	64742-82-1	Annual	14	9.1	64.7
Hydrodesulfurized kerosene	64742-81-0	Annual	200	4.67	2.33
		8 hr	2000	35.8	1.79
Hydrodesulfurized middle distillate	64742-80-9	Annual	2	0.15	7.29
Hydrotreated light naphthenic distillate[3]	64742-53-6	8 hr	50	27.1	54.3
Hydrotreated light paraffinic distillate[3]	64742-55-8	8 hr	50	27.1	54.3
Hydrotreated heavy naphthenic distillate[3]	64742-52-5	8 hr	50	27.1	54.3
Hydrotreated heavy paraffinic mineral oil[3]	64742-54-7	8 hr	50	27.1	54.3
Distillates, (petroleum), light catalytic cracked	647415-9-9	Annual	93	5.66	6.08
Clarified oils (petroleum), catalytic cracked	64741-62-4	Annual	12	5.11	42.6
Naphtha (petroleum), light catalytic cracked	64741-55-5	Annual	5600	8.41	0.15
Naphtha, catalytic reformed	68955-35-1	Annual	350	17.1	4.87
Hydrogen sulfide	7783-06-4	Annual	10	3.35	33.5
		24 hr	100	19.9	19.9
Naphtha, heavy thermal cracked	64741-83-9	Annual	5600	36.0	0.64
Distillates (petroleum), light thermal cracked	64741-82-8	Annual	93	11.5	12.3
Distillates (petroleum), light thermal cracked	64741-82-8	Annual	93	12.1	13.0
Distillates, (petroleum), light catalytic cracked	64741-59-9	Annual	93	12.4	13.0
Distillates (petroleum), heavy thermal cracked	64741-81-7	Annual	15	11.6	77.1
Methyl mercaptan	74-93-1	1 hr	10	9.59	95.9
Dimethylsulfide	75-18-3	Annual	7	0.83	11.9
Carbon disulfide	75-15-0	Annual	700	0.83	0.12
Carbonyl sulfide	463-58-1	Annual	9	0.83	9.24
Dimethyl disulfide	624-92-0	Annual	16	0.83	5.2
		24 hr	1200	3.19	0.27
Diesel fuel	68334-30-5	Annual	70	4.94	7.06
All kerosene-type petroleum distillates combined[4]	NA	Annual	200	21.7	10.9
		8 hr	2000	3.19	8.85
All TACs with Footnote 24	NA	Annual	93	29.2	31.4
All TACs with Footnote 25	NA	Annual	5600	44.4	0.79

[1] For the TAC analysis, Marathon broke the facility into different categories represented by these subheadings. Organic TACs from combustion sources were evaluated against their individual screening

levels. For process streams, these TACs were evaluated as part of the various hydrocarbon mixtures rather than individually. Combined process VOC emissions were evaluated as heavy alkylate naphtha. The process stream modeling included fugitive emissions.

[2] This run satisfies the AQD's Toxics Screening level requirement where the combined impact of all kerosene-type petroleum distillates cannot exceed the acute ITSL of 2000 µg/m3 (8-hour averaging time) and the chronic ITSL of 200 µg/m3 (annual averaging time). All kerosene ambient impacts are to be combined with the impacts of all petroleum hydrocarbon materials, and the total of these impacts cannot exceed the ITSL of 3500 µg/m3 (8-hour averaging time).

[3] For more information on gasoline, refer to the technical fact sheet.

[4] AQD requires that the combined ambient impact of all petroleum hydrocarbon materials cannot exceed the ITSL of 50 µg/m3 (8-hour average).

ATTACHMENT 2: MARATHON NESHAP BENZENE MONITORING