Marathon Petroleum Company LP
Detroit, Michigan

RESPONSE TO COMMENTS DOCUMENT

May 26, 2016

PERMIT Nos. 118-15 and 122-15

Rick Snyder, Governor

Air Quality Division
Michigan Department of Environmental Quality

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Table of Contents

Section **Page**

I. PUBLIC PARTICIPATION PROCESS

Permit to Install (PTI) application No. 118-15 is for the installation and operation of a gasoil hydrotreater (GOHT) feed heater and a GOHT reactor, and is referred to as the "Tier 3 Fuels Project", and PTI application No. 122-15 is for the installation and operation of eight liquefied petroleum gas (LPG) storage tanks and an LPG railcar load rack, and is referred to as the "LPG Storage and Transfer Project". The equipment in these applications is to be installed at Marathon Petroleum Company LP's (Marathon) Detroit Refinery, located at 1300 South Fort Street, Detroit, Michigan. The public participation process involved providing information for public review including a Fact Sheet, proposed permit terms and conditions, a public comment period, a public hearing, and the receipt of written and verbal public comments on staff's analysis of the applications and the proposed permits.

On November 18, 2015, copies of the Notice of Air Pollution Comment Period and Public Hearing, the Fact Sheet, and the draft terms and conditions were placed on the Michigan Department of Environmental Quality (MDEQ), Air Quality Division Home Page (http://www.michigan.gov/air). Also on that date, the MDEQ sent approximately 280 letters and e-mails to persons who had previously expressed interest via letter and had provided a complete address, including the Director of the Detroit Health Department, the Mayor of Detroit, the Wayne County Clerk's office, and several Wayne County Commissioners. Anyone who would like to be added to the MDEQ mailing list for the Marathon Detroit Refinery may do so by contacting the MDEQ at 517-284-6793.

In addition, a notice announcing the public comment period and public hearing was placed in the *Michigan Chronicle*. The MDEQ also placed information about the public comment period and public hearing in the November 30, 2015 MDEQ Environmental Calendar. The notice provided pertinent information regarding the proposed actions; the locations of available information; a telephone number to request additional information; the date, time, and location of the public hearing; the closing date of the public comment period; and the address where written comments were being received. The notice also requested that individuals needing special assistance contact the MDEQ. The MDEQ did not receive any requests for special assistance regarding a language barrier beyond a request for an extension of the public comment period.

The public hearing was held on January 6, 2016, in the Auditorium at the River Rouge High School, 1460 West Coolidge Highway, River Rouge, Michigan, a location near the Marathon Detroit Refinery. The hearing began at approximately 7:07 PM with Ms. Barb Rosenbaum as the Hearings Officer and Ms. Lynn Fiedler as the decision maker. Only comments on the proposed permit actions were received. In addition, staff of the MDEQ was available outside the auditorium to answer any questions. Approximately 300 people were in attendance at the Public Hearing with 58 providing verbal comments. The public hearing concluded at approximately 11:15 PM. A total of approximately 3,900 written comments were received during the public comment period.

The MDEQ accounted for the holiday season by having a public comment period longer than the required 30 days. The public comment period was originally scheduled to last for 50 days, ending on January 6, 2016. Multiple requests to extend the public comment period were received. In response, the MDEQ extended the public comment period for an additional 23 days. The public comment period ended at 5:00 PM on January 29, 2016. Construction cannot commence unless the permit application is approved.

II. SUMMARY OF COMMENTS RESULTING IN CHANGES TO THE PERMIT

Based on the comments received during the public comment period and at the public hearing, the MDEQ made several changes to the permit conditions, including the following:

- Marathon is required to remove the 16 existing LPG tanks from service after the new LPG tanks have been placed into service.
- The total reduced sulfur (TRS) content of the refinery fuel gas burned in the new GOHT charge heater is limited and Marathon is required to monitor it.
- Marathon is required to test the volatile organic compound (VOC) emission from the new GOHT charge heater.

More details on the comments that resulted in changes to the permit conditions, the MDEQ's responses to those comments, and the changes that were made to the conditions can be found in Appendix A.

III. SUMMARY OF MARATHON'S VOLUNTARY CHANGES

In response to the public comments that were submitted during the public comment period and at the public hearing, the MDEQ asked Marathon to evaluate possible reductions in sulfur dioxide (SO_2) emissions from the Tier 3 Fuels Project and/or the facility. In response, Marathon proposed several voluntary changes to the Tier 3 Fuels Project and several other voluntary changes at the Detroit Refinery. These changes result in an overall decrease in SO_2, oxides of nitrogen (NOx), hydrogen sulfide (H_2S), and sulfuric acid mist (H_2SO_4) emissions from the facility after the Tier 3 Fuels Project is implemented. Proposed levels of other pollutant emissions have also been revised downward, including carbon monoxide (CO), particulate matter (PM), 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). In addition, Marathon has reduced the overall amount of SO_2 the facility is allowed to emit. These voluntary changes are not required to comply with state and federal rules and regulations, but have been included as enforceable requirements in the final permit conditions. These changes will be completed before the new GOHT charge heater or the new GOHT reactor begin operation. Table 1 summarizes the emissions reductions from Marathon's voluntary changes and also provides Marathon's reported emissions for 2014 for reference.

Table 1 – Summary of Voluntary Emission Changes
(All values in tons per year (tpy))

Pollutant	2014 Actual Emissions[A]	Originally Proposed Emission Changes	Revised Post Tier 3 Emission Changes[B]
NOx	430	22	- 6.6
CO	148	9	4.4
VOC	436	3	1.2
PM	NA[C]	3	1.5
PM10	91	7	4.5
PM2.5	83	7	4.5
H_2SO_4	NA[C]	2	-0.5
H_2S	NA[C]	0	0.0
TRS	NA[C]	0	0.0
SO_2	211	22	-1.0

[A] From the Michigan Air Emissions Reporting System (MAERS).
[B] Includes all voluntary changes at the facility, except for the emission reductions due to the flare gas recovery systems.
[C] Not reported to MAERS.

Marathon's voluntary changes include the following:

- Install a system to reduce SO_2 emissions from the Unit 42 Sulfur Recovery Unit (SRU).
- Revised the projected actual emission rates for the Unit 72 SRU.
- Reduced the new GOHT charge heater CO limit and committed to installing a CO continuous emission monitoring system (CEMS).
- Reduced the sulfur content of the refinery fuel gas used in the new GOHT charge heater and committed to continuously monitor the TRS content of the fuel gas.
- Emission testing every five years of H_2SO_4 and VOC emissions from the new GOHT charge heater.
- An enforceable heat input cap for the existing GOHT charge heater and the new GOHT charge heater combined.
- Reduced the projected Hydrogen Plant Heater firing rate.
- An enforceable SO_2 emissions cap for six emission units at the facility that is 1 tpy less than the SO_2 emissions in the 2013/2014 baseline period.
- Install low NOx burners and flue gas recirculation on the Zurn Boiler to reduce NOx emissions.
- Reduced the Detroit Heavy Oil Upgrade Project (DHOUP) SO_2 emission cap from 371 tpy to 300 tpy.
- Add flare gas recovery to the Unifiner Flare and increase the capacity of the existing flare gas recovery system on the Coker Flare.

More details on these changes and the corresponding changes to the permit conditions can be found in Appendix B.

IV. SUMMARY OF SIGNIFICANT COMMENTS

A. Public Health and Environment Concerns

Comment
The MDEQ received a number of comments questioning whether or not the emissions from the proposed projects meet Michigan and United States Environmental Protection Agency (USEPA) standards.

MDEQ Response
The regulatory process the MDEQ follows is designed to protect the health and welfare of all citizens of the State of Michigan. To accomplish this, the MDEQ utilizes the state and federal air quality rules and regulations that are in place to protect public health and the environment. The federal Clean Air Act (CAA) includes the National Ambient Air Quality Standards (NAAQS) to protect public health. These standards define the maximum concentration of certain air emissions in the breathing zone that would protect the health of the most sensitive individuals, including those with heart, respiratory, neurological and asthma problems. In addition, impacts of criteria pollutants that are below the NAAQS will not typically result in harmful effects to soils, vegetation and wildlife.

The USEPA has also established Significant Impact Levels (SILs). The USEPA has determined that criteria pollutant impacts below the SILs will not interfere with attainment of the NAAQS as long as the ambient air quality in the area is sufficiently below the NAAQS. Additional modeling is not required if the project impacts are below the SILs.

The emissions from the proposed Tier 3 Fuels Project were evaluated and compared to their respective SILs, and found to be well below them (see Table 3 of the Fact Sheet).

The MDEQ also evaluated the proposed SO_2 increase from the proposed Tier 3 Fuels Project using the dispersion modeling methodology used for the State Implementation Plan (SIP) process. Note the LPG Storage and Transfer Project will not emit SO_2. This modeling shows that the originally proposed increase of 22 tpy of SO_2 from the Marathon Detroit Refinery would result in a maximum ambient concentration of 0.5 parts per billion (ppb). Given that the highest monitored SO_2 concentration in the area is 64 ppb (design value), a 0.5 ppb increase would not result in an exceedance of the health protective NAAQS of 75 ppb and would not cause an adverse health effect. It should also be noted that SO_2 is not considered a human carcinogen. As the voluntary measures have now resulted in no increase in SO_2 emissions, the overall impacts are lower.

Any lead emissions increase from these projects would be associated with the combustion of natural gas and are estimated to be 0.9 pounds per year. This level is well below the levels expected to result in any adverse health impacts.

Chemicals that do not have an established NAAQS, including H_2SO_4, benzene, and toluene, are often referred to as toxic air contaminants (TACs). TAC emissions must meet the applicable MDEQ health-based screening levels established in accordance with Rule 225. Screening levels are developed to protect from cancer and non-cancer effects based on toxicological research. The best available information is used to establish safe exposure levels and exposure times that are protective against cancer and non-cancer health effects. Harmful health effects are not anticipated to occur over a lifetime of exposure for any pollutant concentrations that are below these health-based criteria. The TAC emissions from the proposed projects were modeled to determine the maximum impacts, which were then compared to the applicable MDEQ health-based screening levels. All emissions are well below the applicable health-based screening levels.

Note that the ambient impacts from the modeling represent the points of maximum impact, which occur near the facility boundary. The ambient impacts at all other locations will be lower. Since the maximum impacts comply with the health protective standards, the impacts in surrounding communities will be lower and will also meet the health protective standards.

Comment
The 48217 ZIP code is the most polluted in the state, and the air pollution is affecting student's academic achievement. A 2011 study by the University of Michigan cites a link between pollution and school performance. It cites the link to the Marathon regional area being the most polluted and having the lowest test scores in the area.

There needs to be a cumulative study of the effects of all of the pollutants combined from all of the facilities in the area, not just evaluating each pollutant on its own for each specific permit. A cumulative impact study should be required for any new air quality permit.

A small increase in emissions will have a further detrimental effect on people's health. Health effects of pollutants are worse in vulnerable populations, and MDEQ makes no special consideration of vulnerability in its decision making. The air pollution is causing a variety of illnesses, including asthma, COPD, allergies, and other respiratory illnesses as well as sore throats, headaches, learning disabilities, nose bleeds, rashes, depression, premature birth, ADD, cancer and cardiovascular disease. The asthma and cancer rates in Detroit are higher than the rest of Michigan.

Marathon should be required to reduce emissions; the permit application should be denied to protect the health of the people in the area.

MDEQ Response
The statement that the 48217 ZIP code is the most polluted in the state originated with an analysis by University of Michigan (UM) researchers, which was published in a newspaper article in 2010. That analysis used the USEPA Toxics Release Inventory (TRI) air emissions data, and a USEPA screening model for combining all air toxics emissions. Based on the USEPA's TRI data and model, the researchers reported that the 48217 ZIP code had the highest "score" among all of the Michigan ZIP codes. The ways that this USEPA model may be used, and the ways it should not be used, are described at the USEPA website: https://www.epa.gov/rsei. As explained by the USEPA, this screening model is not a risk assessment. It cannot be used to conclude that chemical releases are causing harm. It cannot be used to make any decisions about risk. It should only be used to rank areas, chemicals, or facilities, for further consideration or assessment. For example, the ranking results can be used to help agencies consider placement of air monitors, or consider if detailed risk assessments should be pursued. The general public may be confused about what is meant by, "the most polluted ZIP code". The general public may think that the phrase means that the air is toxic and harmful to the residents. However, any suggestion of that is beyond the legitimate uses of the USEPA model.

The comment about air pollution being relatively higher in areas with poorer academic performance in Michigan is presumably based on a 2011 publication (http://content.healthaffairs.org/content/30/5/852.abstract). This paper does raise some interesting considerations about school siting, but it does not provide credible evidence that air pollution is a cause of poor academic performance in Detroit.

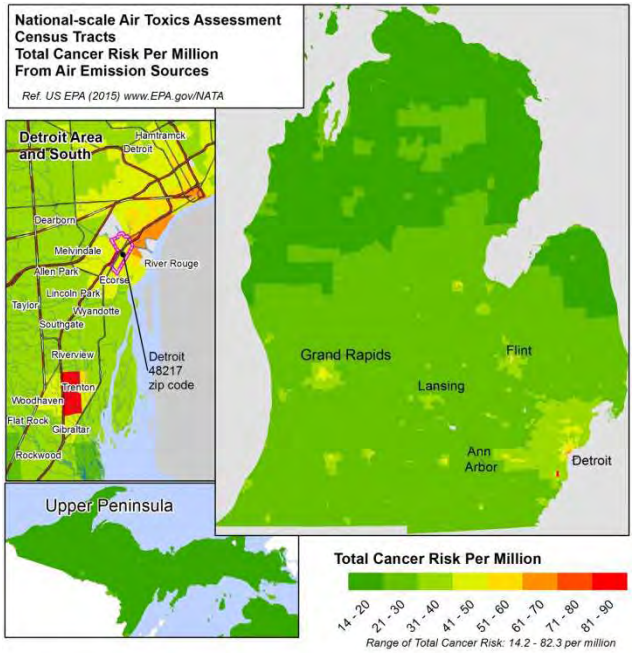
There is an extensive MDEQ ambient air monitoring network in Detroit, especially in Southwest Detroit. Eight monitoring sites are within five miles of the 48217 ZIP code and three sites are within two miles. These sites surround the Marathon facility to the north, south and east. Also, Marathon began an ambient air monitoring program in January 2012 using an independent professional environmental consultant. This monitoring is conducted at three locations on the facility property to the north, east and west, as well as at the Mark Twain Academy to the south. This monitoring network is much more comprehensive than elsewhere in the state. The USEPA has described Detroit as one of the most comprehensively monitored cities in the country. In addition, the MDEQ is currently working with a 48217 community group to add another monitoring site within the 48217 ZIP code.

The MDEQ has evaluated the cumulative levels of each of the USEPA's seven "criteria pollutants" using the data from these monitors. The seven criteria pollutants are CO, lead, SO_2, ozone, nitrogen dioxide (NO_2), PM10, and PM2.5. The monitored cumulative impacts of all emission sources are compared to the NAAQS, which have been established by the USEPA to provide public health protection. The data shows that all of the standards are being met, except for SO_2 levels that were measured through 2013 at the West Fort Street (Southwestern High School) ambient air monitor. More recent SO_2 monitoring data indicate a significant reduction in the SO_2 level since 2012, and the health protective standard is now being met at the West Fort Street monitor. The emissions from Marathon's proposed Tier 3 Fuels Project do not significantly cause or contribute to the area's nonattainment with the SO_2 standard.

Air pollutants that are not among the seven "criteria pollutants" are referred to as "air toxics". The cumulative impacts of air toxics in Detroit have been evaluated by the MDEQ and the USEPA. The MDEQ has conducted two risk assessment studies, in 2005 and in 2010, interpreting the public health significance of the air toxics monitoring data (http://www.michigan.gov/deq/0,4561,7-135-3310_70316-139044--,00.html). The USEPA has also performed air toxics risk assessments for the Detroit area as well as the entire nation (https://www.epa.gov/national-air-toxics-assessment; https://archive.epa.gov/heasd/archive-dears/web/html/index.html). These MDEQ and USEPA risk assessment efforts provide information that goes well beyond the USEPA screening and ranking model as applied by the UM researchers.

The Detroit air pollutant levels are typical for large urban areas in the United States (U.S.), due to vehicle emissions and industrial emissions. The USEPA's National Scale Air Toxics Assessment (NATA) includes an evaluation of cumulative cancer risk and cumulative noncancerous hazards for air toxics. The USEPA has focused on areas where cumulative ambient air cancer risk levels are greater than 100 in one million, and Detroit is not one of the twelve urban areas in the U.S. that exceeds that level. The air toxics in Detroit's 48217 ZIP code pose a lifetime cancer risk of approximately 40 to 50 in one million, which is slightly higher than the national average of 40 in one million. These studies do not suggest that respiratory or other non-cancer health effects would be expected due to the air toxics levels in Detroit, and they do not suggest that ambient air toxics levels are a significant cause of observed cancer rates in Detroit. The map in Figure 1 provides cancer risk information for Michigan and the Detroit area based on the NATA data.

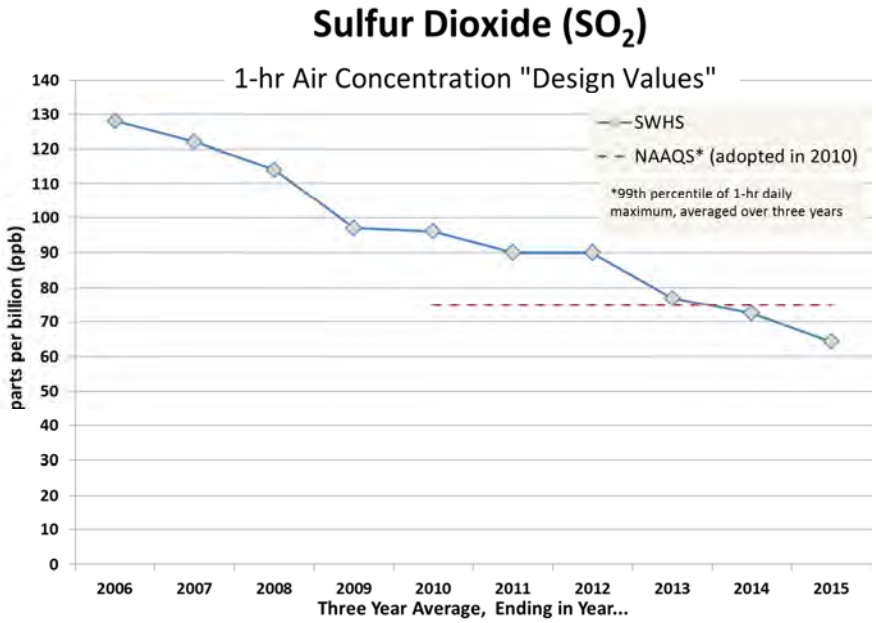
Figure 1 - NATA Cancer Risk Map



In addition, cancer incidence rates have been compiled for each of the counties of Michigan (http://www.michigan.gov/mdhhs/0,5885,7-339-73970_2944_5323---,00.html). However, there have been community concerns about cancer incidence rates at the local level. In 2012, the Michigan Department of Community Health concluded a study of the cancer incidence rates in 48217 and in three other ZIP codes in southwest Detroit. The study is called the "Southwest Detroit Cancer Incidence and Mortality Report" (https://www.michigan.gov/mdhhs/0,5885,7-339-71548_54783_54784-288951--,00.html). They did not find an elevation in the incidence of all cancers combined, or in six of the seven specific types of cancer evaluated, for the four ZIP codes. However, they did report that the incidence rate for cancer of the lung and bronchus was elevated in the four ZIP codes when compared to the State of Michigan rate. The Michigan Department of Community Health stated that the elevated rate of cancer of the lung and bronchus could have many possible causes, including a higher rate of smoking among Detroiters.

The asthma prevalence rates in Detroit have been evaluated by the Michigan Department of Health and Human Services (http://caphedetroit.sph.umich.edu/wp-content/uploads/2016/03/Final_Detroit-The-Epicenter-of-Asthma-Burden_2-29-2016.pdf), and asthma rates are known to be relatively high in the Detroit area. Asthma is a multi-factorial disease that has many indoor and outdoor "triggers" and other factors that can contribute to the high rate. Elevated SO_2 may have been a contributing factor, and it is being addressed separate from this permit action. The MDEQ and the USEPA are currently pursuing emission reductions from contributing sources, so that the health protective SO_2 standard will be met in the future; Marathon is not one of the contributing sources. The monitored SO_2 levels have decreased significantly since 2012, and the health protective standard is now being met at the West Fort Street monitor (see Figure 2). It should be noted that the SO_2 levels in the area have not increased. Instead, the area has been designated nonattainment because the USEPA made the NAAQS more stringent.

Figure 2. SO_2 3-Year Average of 99th Percentile Maximum Daily 1 Hour at Detroit – W. Fort Street (Southwestern High School)



Some researchers, including Drs. Tim Dvonch and Stuart Batterman of the University of Michigan, have evaluated the health effects of air pollution in Detroit. While some findings suggest that fine particulate matter and SO_2 may be associated with health effects at low levels, the possible contributing and confounding effects of other air pollutants and other stressors may also be relevant. The research findings should be accounted for by the USEPA when they update their NAAQS reviews.

The states and USEPA do not have a scientifically supported method to quantitatively develop more multi-pollutant standards to more comprehensively address concerns for cumulative effects. Despite the absence of a clear scientific method, the MDEQ would be happy to discuss with stakeholders or legislators how to potentially address cumulative air pollution concerns. The City of Detroit could also develop further restrictions on sources within their jurisdiction. The MDEQ does not have broad discretionary legal authority to restrict air pollutant emissions based on general concerns for multiple mobile and stationary sources of air pollution in urban areas. The MDEQ is bound by the constraints of the laws developed by Congress and the Michigan legislature, and the regulations promulgated by USEPA.

The state and federal air quality rules and regulations do not require, or allow, the MDEQ to require Marathon to reduce emissions. The nonattainment new source review (NANSR) regulations specifically allow for emissions increases in nonattainment areas for nonattainment pollutants that are less than the significant emission rate (SER).

The MDEQ believes that the permit review process addressed all of the proposed air pollutant emissions from the Tier 3 Fuels Project and the LPG Storage and Transfer Project. Criteria pollutants were addressed through the standard MDEQ and USEPA approach designed to ensure that emissions do not cause or contribute to NAAQS exceedances, and air toxics were addressed through Michigan's health-based regulatory requirements. The MDEQ believes that there would be no unacceptable public health effects associated with the projects, based on the final permit conditions that were developed according to MDEQ's regulatory authority. However, we recognize that many commenters believe that any amount of increased emissions in this area would be unacceptable. Since Marathon has agreed to significantly reduce the proposed emissions in response to public comments (see Section III of this document), the MDEQ presumes that the final permit conditions help to alleviate the concerns raised in this comment.

The MDEQ will continue to prioritize air monitoring and air pollution assessment in the Detroit area and MDEQ will continue to work cooperatively with the USEPA and the Michigan Department of Health and Human Services to share air quality and health information with the local residents. The MDEQ is currently working with community and agency partners in the planning of a Detroit Asthma Summit to help understand and address the asthma problem in Detroit.

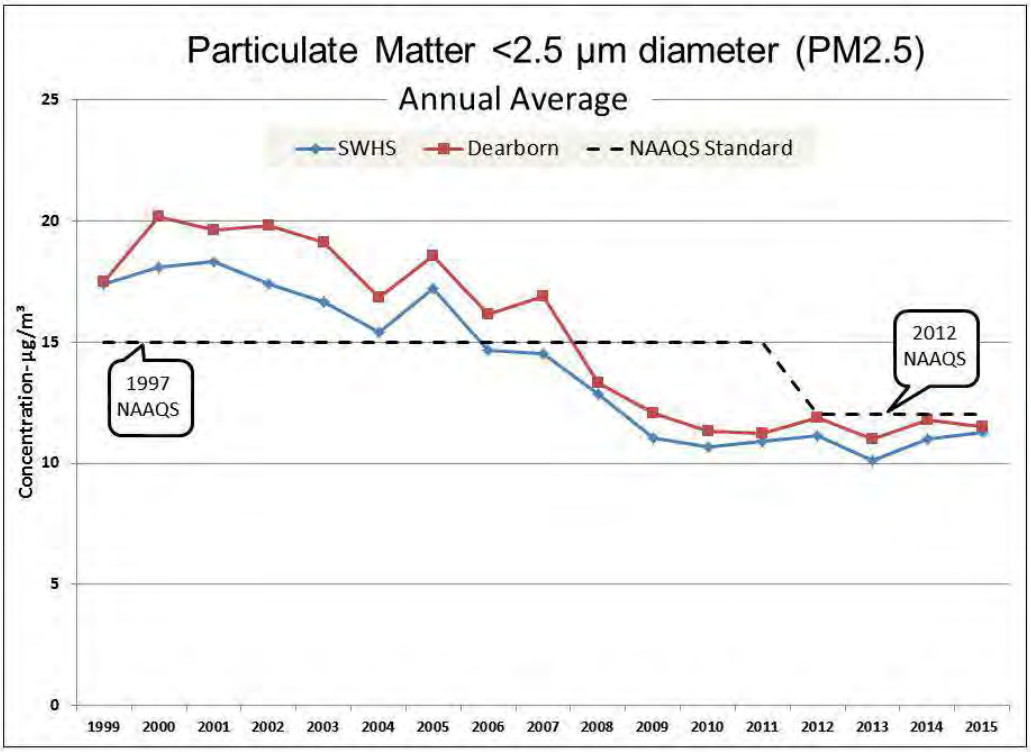
Comment

The MDEQ should consider the 2014 Clean Air Task Force data which illustrate that Wayne County is already enduring adverse health risks associated with air pollution.

MDEQ Response

The Clean Air Task Force (http://www.catf.us/resources/publications/) has a number of publications available at their website. Generally, the group advocates for a transition away from fossil fuel use by the electric power sector, partly because of health effects of air emissions of fine particulate matter. This information does not appear to be particularly relevant to the MDEQ's permit review process, which is based upon applicable rules and regulations, including health protective standards, and specific criteria that may affect the permit decision. Detroit and all of Michigan is in attainment with the health protective NAAQS for fine particulate matter (see Figure 3).

Figure 3. Particulate Matter <2.5 µm in Diameter ($PM_{2.5}$) Annual Average Concentrations



Comment
SO_2 levels are unacceptably high and would be worsened if Marathon is permitted to increase emissions. Based on ambient monitoring data for 2014, peak SO_2 concentrations exceeded 75 ppb, the NAAQS value, multiple times at the north and east Marathon monitoring sites, as well as at Southwestern High School. This suggests that concentrations around Marathon are sufficient to cause health problems. The one hour SO_2 standard does not address long term exposure. The draft permit for Marathon violates Rule 901 because human health is being harmed by any increase in SO_2 and other pollutants.

MDEQ Response
The USEPA establishes health protective primary NAAQS for SO_2 and other criteria air pollutants. In 2010, USEPA revised the primary NAAQS for SO_2 to a new 1-hour standard at a level of 75 ppb. Prior to that change, the NAAQS for SO_2 included a 24-hour standard of 140 ppb and an annual average standard of 30 ppb. USEPA revoked the two existing primary standards because they would not provide additional public health protection given the 1-hour standard at 75 ppb. Therefore, USEPA has determined that the current 1-hour NAAQS standard is protective for long-term as well as short-term exposures and effects.

The NAAQS for SO_2 is designed to provide health protection for all people, including sensitive subpopulations. In setting the NAAQS, USEPA regarded the most sensitive effect to be bronchoconstriction and aggravation of asthma in people who suffer from asthma. The at-risk population included children, the elderly, and asthmatics. Besides the health concerns for SO_2 gas, SO_2 and other sulfur oxides can react with other compounds in the air to form small particles. These small particles can penetrate deeply into the lungs and cause or worsen respiratory disease and can aggravate heart disease. USEPA has also established NAAQS for small particles to provide protection against these health effects.

While it is possible that peak exposure levels for periods much shorter than 1 hour can aggravate asthma, USEPA determined that the 1-hour standard is the most scientifically supportable approach and provides adequate protection of the public health. It is also noted that the health protective primary NAAQS for SO_2 is a three year average of the 99^{th} percentile of hourly values. This means that there may be individual hours that exceed 75 parts per billion while meeting the three year average. Recent research on the health effects of SO_2 highlight the importance of attaining the NAAQS and will be evaluated by the USEPA as they consider if revisions to the NAAQS are warranted to ensure public health protection. The CAA requires USEPA to re-evaluate the primary NAAQS every five years, and they are currently in the process of doing that. This entails a review of the scientific literature to determine if the existing standard still meets the requirements for the health protective NAAQS, or if changes are warranted. Through this process, USEPA will evaluate all available and relevant data, and will seek public comment on the draft findings and proposed approach.

The CAA restricts increases in emissions in areas that are not meeting the NAAQS, but does not prohibit increases in emissions. The MDEQ's evaluation of the proposed projects concluded that they met all applicable legal requirements, including the proposed increase in SO_2 emissions. Rule 901 requires clear scientific evidence that specific emissions from a source have caused specific injurious effects before the MDEQ can take enforcement action against an air emission source. Note that Rule 901 does not specify emission limits for any pollutants and is not intended to be used for the purpose of attaining or maintaining any NAAQS, which are established by the USEPA under the CAA to protect human health, safety and welfare. The draft permit conditions did not constitute a violation of Rule 901.

Since Marathon has agreed to significantly reduce the proposed emissions in response to public comments, the MDEQ presumes that the final permit conditions help to alleviate the concerns raised in this comment.

Comment
At 5:30 PM on January 6, 2016, the PM2.5 concentration at the West Lafayette air monitor was “moderate” with an AQI greater than 60. This is not even a baseline healthy level. In Wayne County, there have been 138 “unhealthy for sensitive groups” AQI readings between 2005 and 2014.

MDEQ Response
The NAAQSs were developed by the USEPA to protect public health with an adequate margin of safety. While it is true that on January 6, 2016, MDEQ’s air monitoring sites at Allen Park, Dearborn and West Lafayette Street all recorded PM2.5 levels corresponding to “moderate” on the Air Quality Index (AQI), the particulate readings associated with these moderate levels (12.8, 17.3 and 15.4 micrograms per cubic meter, respectively) were all well below the 24 hour NAAQS of 35 micrograms per cubic meter. Wayne County is in attainment with the PM2.5 NAAQS.

Comment
The air quality is worse than ever.

MDEQ Response
The federal CAA has established NAAQS for six pollutants: SO_2, NO_2, lead, CO, PM10, PM2.5, and ozone. As can be seen by the trends in figures 2 through 7, all six of these pollutants have shown decreasing concentrations in Wayne County (and elsewhere in Michigan) over the past several years.

Figure 4. NO_2 in Michigan (3-year average of the 98th percentile of 1-hr values)

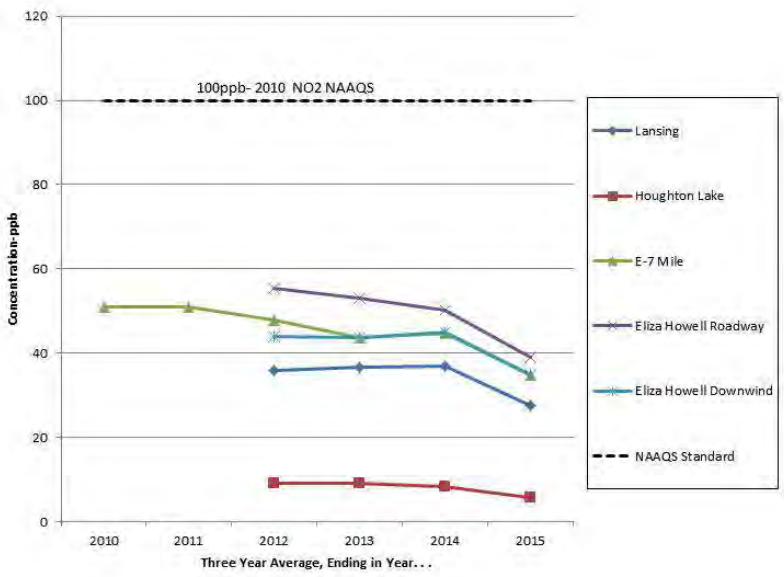


Figure 5. Lead: Historical Quarterly / 3-Month Averages

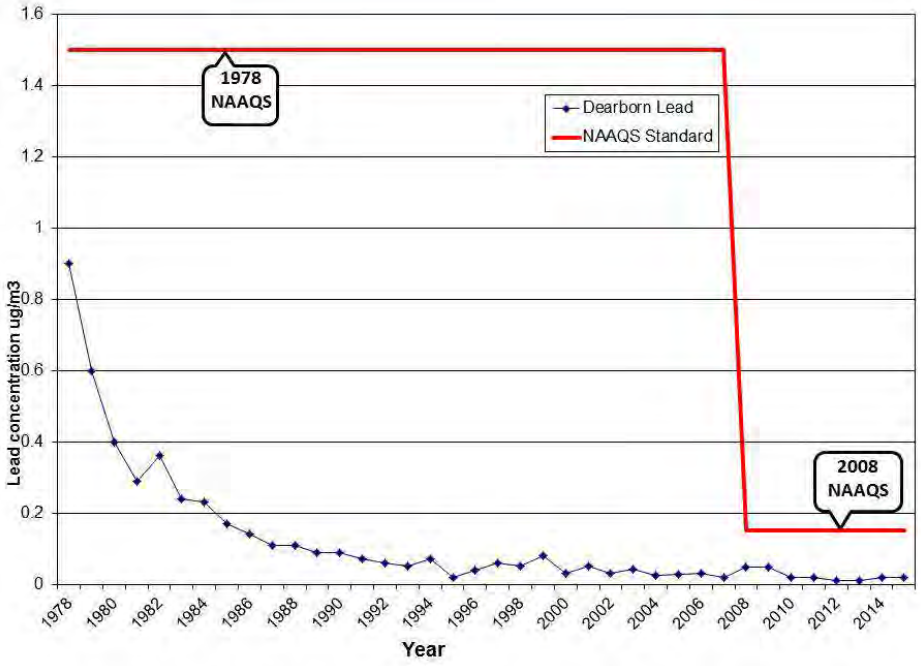


Figure 6. Carbon Monoxide Levels

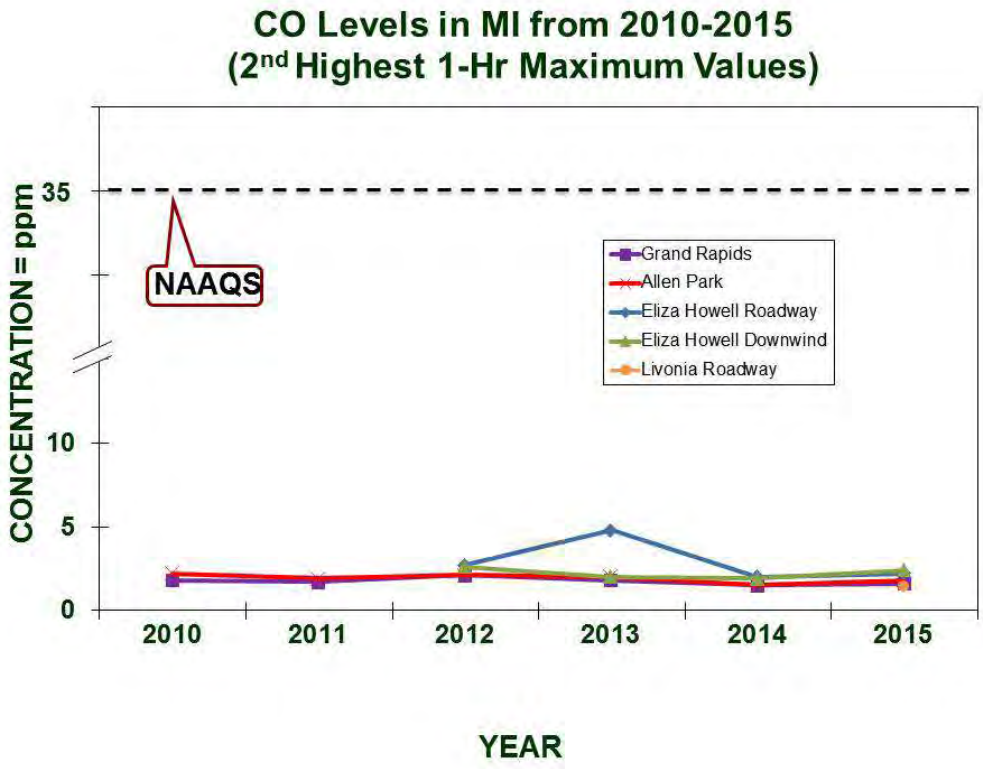
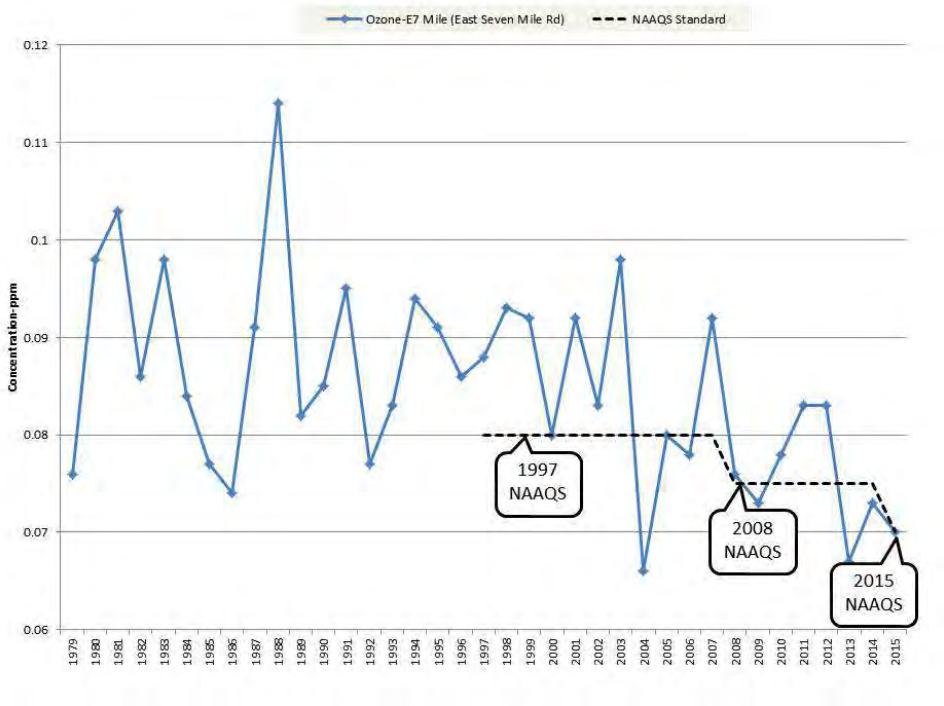


Figure 7. Ozone (O_3) 4th Maximum 8-Hour Concentration



Comment

There were multiple comments regarding particulate and fine dust. Also, comments regarding the degradation of property.

MDEQ Response

The particulate matter emission increase from these projects is low, estimated to be 3 tpy, and is generated from the combustion of natural gas and refinery fuel gas. Given the low emission rate, the MDEQ does not expect any particulate fall out from these projects. The MDEQ is responsible for responding to citizen complaints. Citizens should call 313-456-4700 to report complaints to the MDEQ to make the MDEQ aware of the problem. Every complaint will be investigated following the MDEQ Complaint Investigation Procedures.

B. LPG Storage and Transfer Project

Comment
Multiple comments were received regarding the LPG Storage and Transfer Project. Where will these eight (8) new storage tanks be located? Will they increase productivity? The increase in LPG storage capacity could accommodate future increases in LPG annual production. Any future projects that would increase LPG production must include the new LPG storage tanks to ensure the tank project is not improperly segmented from future projects. The increase in LPG storage capacity increases the short-term storage. This short term increase must be taken into account in assessing air toxics.

MDEQ Response
The new LPG storage tanks will be located in the same area of the refinery as the existing LPG tanks. The new LPG storage tanks will increase the LPG storage capacity at the facility, but they will not increase the amount of LPG that can be produced. The permit review for any future project that involves LPG production will have to take the new LPG tanks into consideration to determine if these tanks are part of that future project. The MDEQ cannot determine at this time whether or not these new tanks are part of projects that have not been proposed.

The LPG storage tanks are pressurized and do not normally vent to the atmosphere. The only emissions from these tanks are fugitive in nature due to leaks from valves, flanges, and other piping components. These fugitive emissions depend on the number of components associated with the tanks and are independent of the amount of material stored in the tanks. The emission calculations accounted for all of the piping components associated with these tanks and the air toxics emissions from the tanks were properly evaluated and found to meet the health-based standards.

Comment
For the LPG project, Best Available Control Technology (BACT) is monitoring 90 percent of flanges and connections. Why not 100 percent?

MDEQ Response
BACT has been determined to be monitoring 90 percent of the flanges and connectors because there are some flanges and connectors that cannot be safely or easily monitored on a routine basis. The small amount of additional VOC control that could result from monitoring these components does not outweigh the safety of the employees at the facility. USEPA regulations for leak detection programs, such as New Source Performance Standard (NSPS) VVa (40 CFR Part 60 Subpart VVa), allow for less frequent monitoring of components that are unsafe or difficult to monitor.

Comment
For the LPG project, Marathon plans to flare leftover hydrocarbons. Flares are dangerous and can be highly polluting. Another flare is not needed.

MDEQ Response
There is no new flare proposed in conjunction with the LPG storage and handling project. Marathon intends to use the existing Unifiner Flare to safely control emissions from excess hydrocarbons in loading hoses after railcar loadings. As part of the voluntary changes Marathon is making to the facility, as discussed in Section III of this document, Marathon will be adding a flare gas recovery system to the Unifiner Flare that will reduce emissions from the flare.

C. Emergencies and Safety Concerns

Comment
In regards to the hydrotreater explosion on April 27, 2013, local fire departments were told by Marathon's fire department that they were not equipped to handle the situation and Marathon would deal with the emergency.

MDEQ Response
The incident on April 27, 2013, involved a "sour" water storage tank that is not associated with the gasoil hydrotreater.

The CAA requires that Marathon file a risk management plan (RMP) with the USEPA and work with the local emergency planning committee to ensure a response plan is in place in the event of an emergency. Marathon has developed an emergency preparedness plan with local officials, which must be continuously maintained and updated annually. Marathon also has a RMP on file with the USEPA. The MDEQ works with the primary responders in a support role during emergencies.

D. Best Available Control Technology (BACT) Review

Comment
Marathon should be required to use best available control technology, including scrubbers.

MDEQ Response
As shown in Table 1 of the Fact Sheet, the Tier 3 Fuels Project is not subject to the Prevention of Significant Deterioration (PSD) regulations and therefore the emissions from the project are not subject to PSD BACT. In addition, as shown in Table 2 of the Fact Sheet, the Tier 3 Fuels Project is not subject to major NANSR and therefore the SO_2 emissions from the project are not subject to the Lowest Achievable Emission Rate (LAER) control technology requirement.

Comment
The increase in emissions does not meet General Condition 12, which says:

> "Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**"

MDEQ Response
Rule 370 (R 336.1370), which is the basis for General Condition 12, is from Part 3 of Michigan's Air Pollution Control Rules. Part 3 is titled "Emission Limitations and Prohibitions – Particulate Matter" and Rule 370 refers to the proper collection and disposal of particulate matter, such as particulate matter collected in a dust collector or an electrostatic precipitator. As part of these projects, Marathon is not collecting any particulate matter and therefore will not have any collected particulate matter to dispose of. The increases in emissions from the projects do meet the requirements of General Condition 12.

E. Permit Requirements

Comment
How will Marathon be required to calculate the annual emissions of SO_2? It could be the facility will emit even more than they've stated. The annual emissions should be made available to the public online.

MDEQ Response
Actual emission data for the facility is available through the Michigan Air Emissions Reporting System (MAERS) on the internet at http://www.deq.state.mi.us/maers/emissions_query.asp or through the Freedom of Information Act (FOIA) process.

Comment
The PTI should express an SO_2 limit in the form commensurate with the SO_2 NAAQS – i.e. on a 1-hr basis.

MDEQ Response
Although the SO_2 NAAQS is represented as a 1-hour standard, compliance with the NAAQS is not based on the 1-hour emissions from any individual source of emissions. Rather, compliance with the NAAQS is determined based on the three year average of the annual 99^{th} percentile of 1-hour daily maximum concentrations from the ambient air monitors. An emission limit based on a 3-year average of the annual 99^{th} percentile of the 1-hour daily maximum emission rate would not be enforceable.

The permit limits, and requires continuous monitoring of, the sulfur content of the refinery fuel gas and also limits, and requires daily records of, the amount of fuel gas that is burned in the new GOHT charge heater. These restrictions sufficiently limit the SO_2 emissions from the heater.

Comment
MDEQ does not monitor, or require Marathon to monitor, all of the pollutants that will be emitted. There should be independent monitoring; Marathon should not be monitoring itself.

MDEQ Response
The state and federal air quality rules and regulations do not require facilities to monitor for every possible pollutant emitted from their facility.

Marathon is a major source and has a Renewable Operating Permit (ROP) that requires them to certify that they are in compliance with the terms and conditions of their permit on a semi-annual basis. Therefore, self-monitoring is not discretionary.

Marathon will show compliance with their emission limits through the use of CEMS, recordkeeping, and stack testing. Federal regulations require certification that CEMS are calibrated and working properly. MDEQ staff will review this information and will verify that calibrations are done correctly.

Records for emissions and process parameters will be stored and retained for at least five years and shared with the MDEQ. The MDEQ has the ability to perform an independent analysis of the facility at any time.

In addition, Marathon has hired an independent contractor to carry out the SO_2, TRS, CO, PM10, and VOC ambient air monitoring at four locations around the Marathon Detroit Refinery, as required by PTI 63-08D. This air monitoring data is reviewed by the MDEQ prior to the data being uploaded to the USEPA's national data repository. Once uploaded, this data is available to the public.

Comment
Commenters requested that an ambient air monitor be placed at Boynton School and near Patricia Street and Liebold Street.

MDEQ Response
Section 110 (a)(2)(B) requires the State of Michigan to monitor, compile, and analyze data on ambient air quality. The rationale for where these monitors should be placed is given in 40 CFR Part 58 Appendix D. That said, MDEQ has four air monitoring locations within approximately three miles of the Marathon refinery: Dearborn, River Rouge, Detroit-West Jefferson and Detroit-Southwestern High School. In addition, Marathon is required by permit to carry out air monitoring at four sites, including Boynton School (now known as Mark Twain Academy). Marathon monitors for SO_2, TRS, CO, PM10, and VOC at these sites. The MDEQ is also working with the citizens of southwest Detroit to install a new air monitoring station in the 48217 area.

F. Permit Review Process

Comment
Was there any netting analysis done? Were any emissions excluded or credited?

Marathon has not demonstrated that emissions from the GOHT charge heater, hydrogen plant heater, SRU Unit 42 and SRU Unit 72 are excludable per 40 CFR 52.21(b)(41)(ii)(c). Marathon has not shown that the increases are unrelated to the Tier 3 Fuels Project, that the emission levels were achieved in the past and could be achieved in the future, or how the Tier 3 Fuels Project would impact the ability of these units to operate at the prior peak production rates.

MDEQ Response
No netting analysis was done and the MDEQ did not rely on excludable emissions in determining whether or not the project constituted a major modification. The projected actual emissions for the existing emission units plus the potential to emit of the new emission units were less than the SERs for all regulated pollutants without considering emissions that could have been accommodated by the emission units (i.e. “excludable emissions”).

However, Marathon did calculate “excluded emissions” in the PTI application.

Comment
PTI application 118-15 should be denied per part 17 of the Natural Resources and Environmental Protection Act because there has been no analysis regarding prudent and feasible alternatives to the proposed increase in SO_2 emissions in the nonattainment area. MCLA 324.1705(2) states:

> In administrative, licensing, or other proceedings, and in any judicial review of such a proceeding, the alleged pollution, impairment, or destruction of the air, water, or other natural resources, or the public trust in these resources, shall be determined, and conduct shall not be authorized or approved that has or is likely to have such an effect if there is a feasible and prudent alternative consistent with the reasonable requirements of the public health, safety, and welfare. (MCLA 324.1705(2))

MDEQ Response
Based on the MDEQ’s evaluation, the Tier 3 Fuels Project is expected to comply with all applicable air quality rules and regulations. Therefore, the project is not expected to result in the pollution, impairment, or destruction of the air natural resource and no analysis of feasible and prudent alternatives is required.

Comment
Please provide further information on the calculations used to determine the 4,900 tpy decrease in emissions.

MDEQ Response
The 4,900 tpy SO_2 reduction mentioned in the Fact Sheet was calculated from the estimated 6 long tons per day (LTPD) of sulfur that would be removed from the gasoil process stream as a result of the Tier 3 Fuels Project. (A long ton is 2,240 pounds.) It was assumed that removing 6 LTPD of sulfur from the gasoil stream would lead to an equivalent reduction in SO_2 emissions, as follows:

6 LTPD of sulfur * 1.12 tons per long ton = 6.72 tons of sulfur per day

6.72 tons of sulfur per day * 365 days per year = 2,453 tpy of sulfur

2,453 tpy of sulfur * 2 tons of SO_2 per ton of sulfur = 4,906 tpy SO_2

This calculated reduction in SO_2 emissions was provided for information only and was not relied upon in the review of the permit application.

In response to this comment, Marathon provided the following information, which was also not relied upon in the review of the permit application:

> The Tier 3 Motor Vehicle and Fuel Standards will reduce both tailpipe and evaporative emissions from mobile sources such as passenger cars, trucks, and some heavy-duty vehicles. These measures are expected to significantly reduce vehicle emissions of SO_2, NOx, VOC and other pollutants. The USEPA forecasts the tail-pipe emission reductions achieved by these regulations will have immediate benefits by reducing community exposure to vehicle pollution along major highways, such as I-75 near the Detroit Refinery.
>
> Potential reductions in vehicle SO_2 emissions have been estimated at:
>
> - 14,813 tons per year nation-wide.[1]
> - 576 tons per year state-wide.[2]
> - 230 tons per year in metro Detroit area.[3]

Comment
The draft permit does not account for SO_2 emissions during periods of startup, shutdown, and malfunction (SSM), with only a brief mention of an SSM plan to be submitted later down the road. SSM emissions must be estimated, including from GOHT upsets, which can be significant (1-3 tons per episode), and included in the NSR applicability determination.

[1] From USEPA Fact Sheet USEPA-420-F-14-009 included as Attachment 1.
[2] Derived from gasoline consumption data reported by U.S. Energy Information Administration as shown in Attachment 2.
[3] Derived from gasoline consumption data and population estimates for Michigan and metro Detroit area taken from U.S. census data at www.census.gov and shown in Attachment 3.

MDEQ Response
The GOHT is the only existing process unit undergoing a physical change or change in the method of operation as part of the Tier 3 Fuels Project, and these changes do not increase the throughput capacity of the unit. Other emission units affected by the project will see utilization impacts, but the project does not involve any changes to these units. Therefore, the project will not change the number or duration of outages at these units. The project is not expected to result in an increase in emissions due to SSM events. SSM emissions must be included when Marathon reports actual emissions to MAERS.

By the end of 2018 when the Tier 3 Fuels Project comes online, Marathon will eliminate one existing flare stack and install flare gas recovery equipment on two other flare systems (see Section III of this document). These measures will substantially reduce flaring emissions during SSM events. The NSR applicability determination for the Tier 3 Fuels Project did not include the reductions from these flare changes.

All emissions from the Marathon Detroit Refinery, including SSM emissions and accidental releases, have to be reported through MAERS and have to be included when determining compliance with applicable emission limits.

Comment
USEPA should review the request to provide a more objective evaluation.

MDEQ Response
The USEPA did review the draft permit conditions, as well as the emission calculations for the proposed Tier 3 Fuels Project, and provided comments during the public comment period.

Comment
MDEQ has not accounted for uncertainty in the modeling, monitoring, and other analyses in evaluating the proposed PTI.

MDEQ Response
Both the modeling analysis and the development of health protective standards account for uncertainties, and are therefore considered conservative. In addition, the emissions used in the analysis were based on worst-case data, assuming that all emission units would operate at their maximum short term permitted capacity.

Comment
The emission factors used in the PSD applicability determination in the application appear to have been obtained from previous PTI's issued for the facility for similar units. USEPA recommends that MDEQ review the emission factors for the heater, and per any actual test results at the facility of the existing heater, use those emission factors which are most representative in the netting analysis.

MDEQ Response
No netting analysis was conducted for the Tier 3 Fuels Project.

The emission factors used to calculate the potential emissions from the new GOHT charge heater are based on CEMS data and test data for other heaters at the Marathon Detroit Refinery. The actual emissions from the new GOHT charge heater will be verified as follows:

- CEMS to verify CO and NOx emissions,
- Continuous monitoring of the amount of fuel burned in the heater and the sulfur content of the fuel gas, to verify SO_2 emissions,
- Emission testing to verify emissions of PM10, PM2.5, VOC, and sulfuric acid mist.

G. Enforcement

Comment
Marathon has been in "significant violation" of the CAA for the last twelve quarters. No permit should be approved until the facility is in compliance.

MDEQ Response
This comment appears to be based on information from the Enforcement and Compliance History Online website (ECHO) maintained by the USEPA. The information shown on the ECHO website comes from the states and the USEPA. The noncompliance status for the Marathon Detroit Refinery on the ECHO website stems from two USEPA Consent Decrees, one from 2001 and one from 2012. Both Consent Decrees were global settlements involving several Marathon Refineries, including the Detroit Refinery. Since both of these Consent Decrees are still in effect, the USEPA considers the facility to be in noncompliance, as shown on the ECHO website. The USEPA maintains the ECHO database and further questions should be directed to them at www.epa.gov/echo.

H. Nonattainment Issues

Comment
Marathon's allowed SO_2 emissions are much higher than their actual emissions. In addition, Marathon's actual SO_2 emissions have increased since the area was designated nonattainment.

MDEQ Response
The commenter is correct that Marathon's allowed SO_2 emissions are higher than their actual emissions. However, the commenter is incorrect that Marathon's emissions have increased since the area was designated nonattainment on October 4, 2013. Marathon's actual SO_2 emissions in 2013 were 265 tpy. The emissions have decreased since then, with 211 tpy emitted in 2014 and 193 tpy emitted in 2015. In addition, the actual SO_2 emissions from the Detroit Refinery have been substantially reduced from the 1,480 tons emitted in 1999. In response to the comments received during the public comment period, Marathon is making several voluntary reductions in emissions from the Tier 3 Fuels Project and other emission sources at the Detroit Refinery, as discussed in Section III of this document.

Comment
What method was used to show the increase is less than the SER and the project is not subject to NANSR?

MDEQ Response
Note that the area is in attainment for all pollutants except SO_2; therefore this comment relates only to SO_2.

A "hybrid" applicability test was used to determine that the Tier 3 Fuels Project is not subject to NANSR. A "hybrid" test uses projected actual emissions for existing emission units and the potential to emit for new emission units (See Table 2 of the Fact Sheet).

I. State Implementation Plan

These comments are directly related to the draft SIP and were received outside of the associated public comment period, which closed in September of 2015. However, the MDEQ recognizes the importance of providing a response to these comments.

Comment
The MDEQ needs to look at the total SO_2, not just SO_2 from the proposed increase.

MDEQ Response
The ambient air monitors in the area measure the total SO_2 emissions from all sources. This data indicates that the actual levels of SO_2 comply with the NAAQS.

The air dispersion modeling study for the SIP process also takes into consideration all of the SO_2 emissions in the area, either directly or as background. This modeling shows that there are four receptors in the nonattainment area that could have SO_2 levels above the NAAQS. However, the contribution from the approximately 400 tpy allowed SO_2 emissions from the Marathon Detroit Refinery is 0.1 ppb or less at these receptors. Marathon's emissions are not contributing to the modeled exceedances of the NAAQS. Since the projects will not result in an increase in allowed SO_2 emissions, the facility's contribution to the modeled NAAQS exceedances will not change.

Comment
MDEQ does not show how SO_2 plumes go beyond the defined nonattainment region. In addition, the Fort Street monitor is east and north of the modeled hotspot, so concentrations are likely higher than those captured by this monitor (which recorded the NAAQS exceedance). None of this information has been presented in the proposed PTI or the proposed SIP, but it is necessary for understanding the impacts of SO_2 emissions in Detroit. MDEQ should provide a comprehensive modeling analysis that uses allowable emissions for all SO_2 sources, with appropriate background concentrations, and incorporate a margin of safety given that the commenter alleges that SO_2 is affecting the health of Detroiters at levels below the NAAQS.

MDEQ Response
The PTI application review process evaluates the proposed emissions from the proposed project. As discussed below, the proposed SO_2 increase from the Tier 3 Fuels Project would not result in ambient SO_2 concentrations that would cause or contribute to an exceedance of the SO_2 NAAQS.

The MDEQ is in the process of addressing the NAAQS nonattainment area. The modeling analysis the commenter referred to has been conducted for the SIP process and the information is available from the MDEQ upon request.

Comment
The Marathon Detroit refinery is located in an area designated as "nonattainment" for the one hour SO_2 NAAQS. Allowing a 22 tpy increase in SO_2 emissions will only make the problem worse and should not be allowed.

MDEQ Response
The MDEQ evaluated the proposed SO_2 increase from the projects using the dispersion modeling methodology used for the SIP process. This modeling shows that the originally proposed 22 tpy SO_2 increase from the Marathon Detroit Refinery would result in a maximum ambient concentration of 0.5 ppb at the refinery; this concentration would decrease with distance from the refinery. Given that the air monitoring data shows ambient levels are at least 10 ppb below the NAAQS of 75 ppb, a 0.5 ppb increase would not interfere with bringing the area into attainment with the NAAQS.

Comment
A presentation given by MDEQ in April of 2015 showed that the 3-year average of 99% maximum daily 1-hour SO_2 levels at Southwestern High School for the past 30 years, since 1984, has been above 75 ppb.

In addition, the ambient monitoring data show high levels of SO_2; 108 ppb at one of the Marathon monitors and a little lower at Southwestern High School; it is affecting people's health.

MDEQ Response
While it is true that the SO_2 monitor at Southwestern High School has shown hourly numbers above the NAAQS of 75 ppb, the most recent data shows that the 75 ppb NAAQS is now being met (see Figure 2).

The NAAQS for SO_2 is a three year average of the 99th percentile of hourly values. This means that there may be individual hours that exceed 75 ppb while still meeting the three year average. The USEPA sets the NAAQSs to be protective of public health.

Note the current 75 ppb NAAQS was set in 2010. Since October 20, 1982, the entire State of Michigan complied with the previous NAAQS, which was replaced by the 75 ppb NAAQS.

Comment
MDEQ has not produced an adequate plan to address the SO_2 nonattainment area. No permit should be issued until an adequate plan is developed.

MDEQ Response
There is no legal basis for the MDEQ to deny an air permit application on the basis that an attainment plan has not been developed.

Comment
There should be a moratorium on additional pollution emissions until the area meets the SO_2 NAAQS.

MDEQ Response
There is no legal basis for the MDEQ to deny an air permit application on the basis that the facility is located in a nonattainment area. The NANSR program specifically allows for increases in nonattainment pollutants when the increase is less than the SER. The MDEQ evaluated the proposed SO_2 emission increase from the Tier 3 Fuels Project and determined that it will not interfere with attaining the NAAQS.

Comment
The modeling that shows hotspots located away from the ambient SO_2 monitors highlight the need for additional SO_2 monitoring in the area.

MDEQ Response
The modeling carried out by the MDEQ does show areas where SO_2 concentrations exceed the levels being recorded at the MDEQ's Southwestern High School air monitoring station. The MDEQ is working with the citizens of southwest Detroit to install a new air monitoring station in the 48217 community.

Comment
No permit should be granted to any company proposing to increase emissions until the MDEQ creates a plan to reduce emissions in areas disproportionately impacted by industries.

MDEQ Response
There are no laws, rules, or regulations that require the MDEQ to develop a plan to reduce emissions in areas disproportionately impacted by industries or that allow the MDEQ to not issue permits until such a plan is developed. The air permitting process involves a thorough review of the proposed Tier 3 Fuels Project and the LPG Storage and Transfer Project and the projects' impacts on the environment, including whether or not the projects meet the applicable air quality rules and regulations. The MDEQ reviewed the permit applications and has determined that the proposed projects meet the applicable rules and requirements.

J. Public Participation Process

Comment
The citizens of Michigan need to have a voice into industrial plans and changes proposed in their vicinity.

MDEQ Response
The MDEQ provides the opportunity for public participation through the public comment period and the public hearing. Citizens can also participate in the zoning process and other planning activities carried out by their local government. The MDEQ has no authority over local zoning.

Comment
Commenters encourage MDEQ to reach out to community leaders and other interested stakeholders in the preliminary phases of the regulatory process. Engaging interested parties even before permits are put on public notice will help avoid any conflict or dissatisfaction in the notice and comment process and result in more effective public participation.

MDEQ Response
All air permit applications received by the MDEQ can be found on the MDEQ website in the "NSR Pending Applications Query", located at http://www.deq.state.mi.us/aps/PendApps.asp, which can be searched in a number of ways, including by company name, city, and county. Community leaders and interested stakeholders can check this query and, if there are any applications of interest, can contact the MDEQ to get further information about the application.

Comment
The letter the MDEQ sent to the company said the public comment period was "on the intent of the MDEQ to approve the permits." Based on this, the MDEQ has already decided to issue the permits.

MDEQ Response
The letter sent to the company indicates that, based on the MDEQ's review of the applications to date, the proposed projects would comply with the applicable air quality rules and regulations and that the MDEQ is proposing to approve the permits. However, the review process is not complete until all affected parties, including the applicant and general public, have the opportunity to provide additional information for the MDEQ to consider prior to a final decision on the permit applications. The MDEQ is required to provide a draft permit for the public to comment on.

Typically, when the MDEQ holds a public comment period on a draft permit, there are four possible outcomes:

- The permit may be approved as drafted;
- The permit may be approved with changes, based upon comments received from the public;
- The permit may be denied if, during the public comment period, information is received that demonstrates the proposed project cannot comply with all applicable air quality rules and regulations;
- The permit application may be withdrawn before the MDEQ makes a final decision.

K. Miscellaneous

Comment
The new hydrotreater should be located outside the nonattainment area so the community around the refinery won't have to suffer more pollution to reduce gasoline related emissions elsewhere.

MDEQ Response
The new hydrotreater is an integral part of the refining process and it would not be feasible to install it at a remote location.

Comment
How did Marathon and other sources get permitted?

MDEQ Response
Marathon and many of the other sources in the area were initially constructed prior to 1965, before state or federal law required air permits to be obtained. For those that did require PTIs, or for sources that made changes that required PTIs, the permits were issued in compliance with the rules and regulations in effect at that time. Many of the PTIs that have been issued to sources in the area have undergone the public participation process to allow interested parties the opportunity to provide input on the PTIs.

Comment
How will the new USEPA rule (Petroleum Refinery Sector Risk and Technology Review and new Source Performance Standards) affect these permits?

MDEQ Response
The refinery sector rule will add work practice standards, pollution control measures, monitoring, testing and reporting requirements to many of the existing refinery emission units, including emission units not affected by the Tier 3 Fuels Project. Applicable provisions of the Refinery Sector Rule will be incorporated in future updates of the ROP.

Comment
How did MDEQ determine that the 22 tpy SO_2 increase does not cause interference with the comfortable enjoyment of life and property for residents? The majority of the people believe the emissions from the plant are causing unreasonable interference with the comfortable enjoyment of life and property as stated in General Condition No. 6 of the draft permit terms and conditions, and the increase in emissions will make the situation worse.

The area around the refinery stinks, especially at night, and the smells interfere with comfortable enjoyment of life and property in the surrounding residential areas. There are also odors from the sewer line.

MDEQ Response
General Condition 6, which is a summary of Rule 901 (R 336.1901), is applicable to all sources of air pollution and is enforced by the MDEQ through the District Office.

The permit requirements developed pursuant to the CAA and Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), to address air emissions are designed to be protective of public health and the environment.

Rule 901 consists of two parts. Rule 901(a) addresses "injurious effects" and Rule 901(b) addresses "unreasonable interference". For both parts of the rule, clear scientific evidence that specific emissions from the source have caused specific "injurious effects" or "unreasonable interference" is required before the MDEQ can take enforcement action against an air emission source. The emissions from the proposed projects are not expected to exceed any of the health protective standards. Note that Rule 901 does not specify emission limits for any pollutants and is not intended to be used for the purpose of attaining or maintaining any NAAQS which are established by the USEPA under the CAA to protect human health, safety and welfare.

The MDEQ evaluated the proposed SO_2 increase from the projects using the dispersion modeling methodology used for the SIP process. This modeling shows that the originally proposed 22 tpy SO_2 increase from the Marathon Detroit Refinery would result in a maximum ambient concentration of 0.5 ppb. Given that the air monitoring data shows ambient levels are at least 10 ppb below the NAAQS of 75 ppb, a 0.5 ppb increase would not cause an adverse health effect or cause interference with the comfortable enjoyment of life and property.

Regarding odors, which fall under Rule 901(b), verification of a violation would require that the MDEQ staff person witness the odor, and make the determination that there was an "unreasonable interference with the comfortable enjoyment of life and property". The MDEQ staff continues to follow-up on all odor complaints alleged against facilities regulated by the MDEQ to determine compliance with Rule 901. All of the information needed to make this correlation is collected at the time that an odor complaint is received by the MDEQ. Wind speed and ambient temperature are also used to determine whether or not the alleged odor being emitted could be from a stack or a ground level source. A description of the odor is used to determine whether or not the odor is characteristic of the source or could be emitted from other sources located in the vicinity.

If there are odors from the facility, it is important to notify the MDEQ when the odors are occurring so that the source of the odors may be determined. During business hours, odor complaints can be called in to the MDEQ Detroit Office at 313-456-4700. The MDEQ staff will make a record of the specific complaint information and make every effort to follow up with the complainant.

Comment
Multiple commenters stated that environmental justice has to be considered in the permit review process.

MDEQ Response

The MDEQ provided an enhanced public comment period for the Tier 3 Fuels Project and the LPG Transfer and Storage Project, as follows:

- Extended the public comment period beyond the required 30 days. The comment period was initially scheduled to last for 50 days and was extended an additional 23 days.
- Made information regarding the proposed projects available on the MDEQ Home Page.
- Sent approximately 280 letters and e-mails to persons who had previously expressed interest in the Marathon Detroit Refinery.
- Held an informational session prior to the public hearing where MDEQ staff was available to answer questions about the proposed projects.
- Held a public hearing to allow interested persons to provide comments on the proposed projects.

The MDEQ is responsible for protecting the health and welfare of all citizens of the State of Michigan. The MDEQ evaluated the health and environmental impacts of the proposed Tier 3 Fuels Project and the LPG Storage and Transfer Project and determined that the projects meet all of the applicable air quality rules and regulations, including the health protective standards. This evaluation was conducted before Marathon proposed voluntary emission reductions (see Section III of this document). Marathon's voluntary changes result in even lower health and environmental impacts.

Comment
Has a permit ever been denied?

MDEQ Response
The MDEQ has denied air permit applications in the past. The MDEQ does not formally deny very many air permit applications. Many of the air permit applications submitted to the MDEQ are not approvable as received. When that happens, the MDEQ works with the company to amend the application so that it can be approved. If the application cannot be made approvable, the company usually withdraws it rather than have the MDEQ deny it.

Comment
Several general comments, not related to air quality, were received, including:

- The soil is contaminated and people can't grow gardens.
- Air cleaners should be provided for people's houses.
- Residents aren't properly equipped with respiratory gear.
- People want a buyout. Low income people cannot afford to move away.
- Fracking should not be allowed.
- The cost of health care in the area will go up due to increased health risks.
- Property values have dropped.
- There are loud noises, especially at night.
- The projects will negatively affect water quality.

MDEQ Response
As a regulatory agency, the MDEQ cannot exercise non-technical discretion in the issuance of air use permits. The permit review process is a technical review of the proposed projects and issuance of the permits is based solely on expected compliance with all applicable state and federal air quality rules and regulations. The MDEQ reviewed the permit applications to determine if the proposed Tier 3 Fuels Project and LPG Storage and Transfer Project meet the applicable state and federal air quality rules and regulations, and the MDEQ has determined that the proposed projects meet those requirements. The MDEQ cannot address the issues raised by the commenters because they are outside the authority of the MDEQ.

V. SUMMARY OF COMMENTS RECEIVED IN SUPPORT

Several commenters support issuance of PTI 118-15 because the proposed changes will allow Marathon to comply with the USEPA Tier 3 Fuels Standard and produce cleaner burning gasoline.

Prepared by: Andy Drury

Appendix A. SUMMARY OF COMMENTS RESULTING IN CHANGES TO THE PERMIT

This appendix contains summaries of the comments received during the public comment period and at the public hearing that resulted in changes to the permit conditions, the MDEQ's responses to those comments, and the changes that were made to the conditions.

Comment
Special Condition VI.6 of EU08-GOHTCHARHTR2-S1 in draft PTI 118-15 references 45 FR 29270 (sic). Please review this reference and revise, as appropriate.

MDEQ Response
The special conditions for EU08-GOHTCHARHTR2-S1 in the draft permit were based on the FGHEATERS-S1 special conditions in PTI 63-08D and the reference in question, 45 FR 29720, was carried forward from those conditions because this new heater will be part of the FGHEATERS-S1 flexible group.

40 FR 29720 is the Federal Register notice that Rule 201 (R 336.1201) had been incorporated into Michigan's SIP and should not be referenced in the special condition. This reference was corrected.

Condition Change
The permittee shall keep daily records of the type and amount of fuel used in EU08-GOHTCHARHTR2-S1. **(R 336.1205, R 336.1225, 40 CFR 52.21 (c) and (d))**

Comment
On pages 7 and 8 of Draft Permit No. 118-15, there are references to particular appendices of the ROP MI-ROP-A9831-2012b. It would be clearer to include the particular language from each appendix, as appropriate, for the permit conditions being cited. The general reference to the ROP appendices on these pages does not add clarity to the draft permit terms.

MDEQ Response
The referenced appendices (Appendix 3-S1 and Appendix 8-S1) do not contain any requirements that apply to EU08-GOHTCHARHTR2-S1.

Condition Change
The references to the ROP appendices have been removed.

Comment
The 16 existing LPG tanks should be removed.

MDEQ Response
The 16 existing LPG tanks are currently permitted and did not have to be removed in order for Marathon to install the new LPG tanks. However, since Marathon intends to remove the tanks, the following condition was added to require the 16 existing LPG tanks to be taken out of service.

Condition Change
Within 180 days after the last tank in FGPVTANKS-S1 has been placed into service, the permittee shall remove tanks 22T80, 22T81, 22T82, 22T83, 22T84, 22T89, 22T90, 22T91, 22T92, 22T93, 22T94, 22T95, 22T98, 22T99, 22T190, and 22T191 from service.[3] **(R 336.1201(3))**

Comment
MDEQ needs to ensure that the proposed modifications comply with NSR requirements, particularly since the SO_2 increase is only 18 tons below the SER of 40 tons per year. The permit only limits the H_2S content of the fuel gas stream, but there are many other sulfur containing compounds in the fuel gas. TRS or total sulfur content should be used to ensure the SO_2 emissions have not been underestimated. The draft permit should be revised to include a limit on the total sulfur in the fuel gas with total sulfur monitoring requirements.

MDEQ Response
The commenter is correct that the draft permit conditions limit and require monitoring of the H_2S content of the fuel gas stream, as required by NSPS Ja (40 CFR Part 60 Subpart Ja). However, Marathon has indicated that they actually monitor the TRS content of the fuel gas stream and use the monitored TRS data when calculating actual SO_2 emissions.

In response to this comment, a limit on the TRS content of the refinery fuel gas stream and requirements to monitor and report the TRS content of the refinery fuel gas stream have been added to the permit conditions.

Condition Change

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
3. TRS content of the refinery fuel gas	45 ppmv[3]	Daily on a 365 successive calendar day rolling average basis	EU08-GOHTCHARHTR2-S1	SC VI.2	R 336.1201(3)

ppmv = parts per million by volume
Note, SC VI.2 refers to Special Condition VI.2 in the final permit conditions, which is included below:

VI. MONITORING/RECORDKEEPING

2. The permittee shall monitor and keep records of the concentration of total reduced sulfur (TRS) in the refinery fuel gas burned in EU08-GOHTCHARHTR2-S1, in a manner and with instrumentation acceptable to the Air Quality Division.[3] **(R 336.1201(3), R 336.1205[4], 40 CFR 60.107a(a)(2)[4])**

VII. REPORTING

2. The permittee shall submit the data on the concentration of total reduced sulfur in the refinery fuel gas burned in EU08-GOHTCHARHTR2-S1 to the Air Quality Division (AQD) District Supervisor in acceptable format within 30 days following the end of the quarter in which the data were collected.[3] **(R 336.1201(3))**

Comment
EU08-GOHTCHARHTR2-S1, special condition (SC) I Emission Limits (page 6). The underlying applicable requirement for the volatile organic compound (VOC) emission limit provided in Table I is R 336.1702. Rule 336.1702 requires VOC emissions from new sources to be minimized by applying BACT. For the Tier 3 Fuels Project, BACT for VOC is verifying the VOC emission limit by emission testing and monitoring at least 90 percent of the flanges and connectors in gas/vapor and light liquid VOC service for leaks, and to repair any leaks that are detected. Table I indicates that the VOC emission limit will be verified by performance testing listed in general condition 13 of the Draft Permit. Please verify that the testing/monitoring method listed in Table I fulfills the requirements of R 336.1702.

MDEQ Response
Rule 702 BACT for the new GOHT charge heater (EU08-GOHTCHARHTR2-S1) is considered to be the use of natural gas and refinery fuel gas, with an emission limit of 0.0055 pounds per million British Thermal Unit (lb/MMBTU). The permit conditions have been changed to require testing of the VOC emissions.

Rule 702 BACT for the GOHT process unit (EU08-GOHT-S1) is considered to be monitoring at least 90 percent of the flanges and connectors in gas/vapor and light liquid VOC service for leaks, and to repair any leaks that are detected.

Condition Change

V. TESTING/SAMPLING
Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 180 days after commencement of trial operation of EU08-GOHTCHARHTR2-S1 and every five years thereafter, the permittee shall verify emission rates from EU08-GOHTCHARHTR2-S1 of the pollutants listed below by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. For verification of PM10 and PM2.5 emissions, testing shall include both the filterable and condensable fractions. **(R 336.2001, R 336.2003, R 336.2004)**

PM10	**(R 336.1205, 40 CFR 52.21 (c) and (d))**
PM2.5	**(R 336.1205, 40 CFR 52.21 (c) and (d))**
VOC[3]	**(R 336.1201(3))**
Sulfuric acid mist[3]	**(R 336.1201(3))**

Appendix B. SUMMARY OF MARATHON'S VOLUNTARY CHANGES

In response to the public comments that were submitted during the public comment period and at the public hearing, the MDEQ asked Marathon to evaluate possible reductions in SO_2 emissions from the Tier 3 Fuels Project and/or the facility. In response, Marathon proposed several voluntary changes to the Tier 3 Fuels Project and several other voluntary changes at the Detroit Refinery. These changes result in an overall decrease in SO_2, NOx, H_2S, and H_2SO_4 emissions from the facility after the Tier 3 Fuels Project is implemented. Proposed levels of other pollutant emissions have also been revised downward, including CO, PM, PM10, and PM2.5. In addition, Marathon has reduced the overall amount of SO_2 the facility is allowed to emit. These voluntary changes are not required to comply with state and federal rules and regulations, but have been included as enforceable requirements in the final permit conditions.

A. Voluntary Changes to the Tier 3 Fuels Project

The following voluntary changes to the Tier 3 Fuels Project result in lower pollutant emissions than originally proposed in the PTI application. Table 2 shows the original Tier 3 Fuels Project proposed emission increases, the revised NSR emission increases, and the revised total emission increases based on the voluntary changes.

Table 2 – Summary of Tier 3 Fuels Project Changes
(All values in tons per year (tpy))

Pollutant	Originally Proposed NSR Emissions Increases[A]	Revised NSR Emissions Increases[A]	Revised Total Emissions Increases[C]
NOx	22	19.5	-6.6
CO	9	4.5	4.4
VOC	3	2.9[B]	1.2
PM	3	1.7	1.5
PM10	7	4.8	4.5
PM2.5	7	4.8	4.5
H_2SO_4	2	1.1[B]	-0.5
H_2S	0	0.16[B]	0.0
TRS	0	0.16[B]	0.0
SO_2	22	15.8[B]	-1.0

[A] The projected increase above the baseline actual emissions for existing emission units plus the potential to emit for the new emission units. This does not include the excludable emissions.

[B] The project increase does not include the full reductions due to the sulfur eductor system or the increased leak detection. These reductions can only be considered in the applicability determination to the extent that the project emissions increase for the affected emission unit is zero or greater.

[C] Includes all voluntary changes at the facility (changes related to the Tier 3 Fuels Project and other changes), except for the emission reductions due to the flare gas recovery systems. This emission data is provided for information only and was not used for the NSR applicability determinations.

Voluntary Change

Marathon will install an eductor system to reduce SO_2 emissions from the Unit 42 SRU to re-route sulfur pit gases from the thermal oxidizer to the front end of the SRU. This change will reduce the SO_2 concentration in the thermal oxidizer exhaust from approximately 100 ppmv to 65 ppmv and result in a 9.1 tpy decrease in SO_2 emissions and a 0.6 tpy decrease in sulfuric acid emissions from the 2013/2014 baseline emission rate. Marathon estimates the cost of this project to be about $2 million. The eductor system will be installed and operational before the Tier 3 Fuels Project is completed.

Enforceable Condition
The permittee shall equip and maintain the EU42-43SULRECOV-S1 sulfur pit with a properly operating system to capture and remove vapors from the sulfur pit. Installation shall be completed prior to startup of EU08-GOHTCHARHTR2-S1 or the new reactor in EU08-GOHT-S1, whichever occurs first. Gases captured and removed from the sulfur pit shall be returned to the inlet of EU42-43SULRECOV-S1 or routed to the thermal oxidizer.[3] **(R 336.1201(3))**

Voluntary Change
The projected actual pollutant emission rates for the Unit 72 SRU, as documented in the original PTI application, was conservatively based on the highest 30-day average production rate of 249 LTPD achieved in the baseline period. Marathon has revised the projected actual emission rates for the Unit 72 SRU to use the highest 3-month average sulfur production rate of 239 LTPD to better reflect the seasonal variation in refinery operations and potential refinery processing rates in the future. The projected actual emissions also include an additional 6 LTPD of sulfur production based on the worst case projection of incremental sulfur loading from the Tier 3 Fuels Project.

This change does not result in actual emission reductions, but it adjusts the calculated emission increases for the Tier 3 Fuels Project, making the calculation more realistic and reducing the estimated emission increases.

No enforceable permit condition is necessary for this change.

Voluntary Change
Marathon has reduced the potential emissions from the new GOHT charge heater by reducing the CO emission factor from 0.02 lb/MMBtu to 0.01 lb/MMBtu on an annual basis. This change results in a 3.7 tpy decrease in the potential CO emissions from the new GOHT charge heater. Marathon has also committed to installing a CO CEMS to demonstrate compliance with the reduced CO emission rate.

Enforceable Conditions

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
5. CO	0.01 lb/MMBTU[3]	Based on an annual rolling average, as determined at the end of each calendar month	EU08-GOHTCHARHTR2-S1	SC VI.6	R 336.1201(3)

VI. MONITORING/RECORDKEEPING
Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

6. The permittee shall install, calibrate, maintain and operate in a satisfactory manner devices to monitor and record on a continuous basis the CO and oxygen emissions from EU08-GOHTCHARHTR2-S1, The permittee shall install and operate the CEMS in accordance with the requirements of 40 CFR §§60.11, 60.13, and Part 60, Appendix A, the applicable performance specification test of 40 CFR Part 60 Appendices B and F. With respect to 40 CFR Part 60 Appendix F, in lieu of the requirements of 40 CFR Part 60 Appendix F §§5.1.1, 5.1.3, and 5.1.4, the permittee shall conduct either a Relative Accuracy Audit (RAA) or a Relative Accuracy Test Audit (RATA) once every twelve (12) calendar quarters, provided that a Cylinder Gas Audit is conducted each calendar quarter. Within 30 days following the end of each calendar quarter, the permittee shall submit the results to the AQD in the format of the data assessment report.[3] **(R 336.1201(3))**

VII. REPORTING

4. The permittee shall submit the data on the concentration of CO in the exhaust gas from EU08-GOHTCHARHTR2-S1 to the Air Quality Division (AQD) District Supervisor in an acceptable format within 30 days following the end of the quarter in which the data were collected.[3] **(R 336.1201(3))**

Appendix A of the final permit conditions has been revised to include Performance Specification 4 for the CO CEMS and to specify a CO span value of 50 ppmv.

Voluntary Change

Marathon has reduced the sulfur concentration used in the new GOHT charge heater SO_2 emission estimate from 60 ppmv to 45 ppmv. This change results in a 1.3 tpy decrease in the potential SO_2 emissions and a 0.1 tpy decrease in the potential sulfuric acid mist emissions from the new GOHT charge heater compared to the original PTI application submittal. Marathon will also continuously monitor the TRS content of the fuel gas burned in the new GOHT charge heater and conduct emission testing every five years for the sulfuric acid mist emissions from the new GOHT charge heater.

Marathon has also committed to conduct emission testing every five years for the VOC emissions from the new GOHT charge heater.

Enforceable Conditions

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
3. TRS content of the refinery fuel gas	45 ppmv[3]	Daily on a 365 successive calendar day rolling average basis	EU08-GOHTCHARHTR2-S1	SC VI.2	R 336.1201(3)

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

2. The permittee shall monitor and keep records of the concentration of total reduced sulfur (TRS) in the refinery fuel gas burned in EU08-GOHTCHARHTR2-S1, in a manner and with instrumentation acceptable to the Air Quality Division.[3] **(R 336.1201(3))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Within 180 days after commencement of trial operation of EU08-GOHTCHARHTR2-S1 and every five years thereafter, the permittee shall verify emission rates from EU08-GOHTCHARHTR2-S1 of the pollutants listed below by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. For verification of PM10 and PM2.5 emissions, testing shall include both the filterable and condensable fractions. **(R 336.2001, R 336.2003, R 336.2004)**

PM10	**(R 336.1205, 40 CFR 52.21 (c) and (d))**
PM2.5	**(R 336.1205, 40 CFR 52.21 (c) and (d))**
VOC[3]	**(R 336.1201(3))**
Sulfuric acid mist[3]	**(R 336.1201(3))**

VII. REPORTING

2. The permittee shall submit the data on the concentration of total reduced sulfur in the refinery fuel gas burned in EU08-GOHTCHARHTR2-S1 to the Air Quality Division (AQD) District Supervisor in acceptable format within 30 days following the end of the quarter in which the data were collected.[3] **(R 336.1201(3))**

Voluntary Change

Marathon has accepted an enforceable heat input cap of 100 MMBtu/hour, on an annual average basis, for the existing GOHT charge heater and the new GOHT charge heater combined. In the original PTI application submittal, each heater was limited to 85 MMBtu/hour, on an annual average basis, for a total of 170 MMBtu/hour. This restriction will reduce the projected and potential emissions of all pollutants from the two heaters.

Enforceable Conditions

III. PROCESS/OPERATIONAL RESTRICTIONS

4. The combined heat input to EU08-GOHTCHARHTR-S1 and EU08-GOHTCHARHTR2-S1 shall not exceed 100 MMBTU/hr on an annual rolling average, as determined at the end of each calendar month.[3] **(R 336.1201(3))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

10. The permittee shall keep, in a satisfactory manner, daily, monthly, and rolling 12-month time period records of the combined heat input for EU08-GOHTCHARHTR-S1 and EU08-GOHTCHARHTR2-S1, in MMBTU/hr.[3] **(R 336.1201(3))**

Voluntary Change

The projected firing rate for the Hydrogen Plant Heater has been adjusted based on a refined estimate of hydrogen consumption needed for the Tier 3 Fuels Project. The projected increase in firing rate is 24 MMBtu/hour.

In addition, the projected actual pollutant emission rates for the Hydrogen Plant Heater, as documented in the original PTI application, was conservatively based on the highest 30-day average heat input rate of 483 MMBtu/hour achieved in the baseline period. Marathon has revised the projected actual emission rates for the Hydrogen Plant Heater to use the highest 3-month average heat input rate of 474 MMBtu/hour to better reflect the seasonal variation in refinery operations and potential refinery processing rates in the future. The projected actual emissions also include an additional 24 MMBtu/hour due to the increased hydrogen consumption for the Tier 3 Fuels Project.

This change does not result in actual emission reductions, but it adjusts the calculated emission increases for the Tier 3 Fuels Project, making the calculation more realistic and reducing the estimated emission increases.

No enforceable permit condition is necessary for this change.

B. Other Voluntary Changes at the Marathon Detroit Refinery

The following voluntary changes at the Detroit Refinery are not related to the Tier 3 Fuels Project. These changes have been made to reduce actual and allowed pollutant emissions at the facility after the Tier 3 Fuels Project is implemented. As shown in Table 2, Marathon expects actual reductions in NOx, SO_2, and sulfuric acid mist emissions from the facility.

Voluntary Change

Marathon has accepted an enforceable SO_2 emissions cap for the following six emission units at the facility: the existing gasoil hydrotreater charge heater (EU08-GOHTCHARHTR-S1), the new gasoil hydrotreater charge heater (EU08-GOHTCHARHTR2-S1), the fluid catalytic cracking unit (EU11-FCCU-S1), the hydrogen plant heater (EU71-H2HTR-S1), the Unit 42 SRU (EU42-43SULRECOV-S1), and the Unit 72 SRU (EU72-SULRBLOCK2-S1).

The emissions cap accounts for a projected SO_2 emission decrease of 7.4 tpy from the FCCU regenerator. While no physical change or change in the method of operation is being made to the FCCU as part of the Tier 3 Fuels Project, the gasoil that is fed to the FCCU will have a lower sulfur content as a result of the Tier 3 Fuels Project. The lower sulfur content of the gasoil will in turn result in a reduction in SO_2 emissions from the FCCU. This cap also accounts for the eductor system being installed on the Unit 42 SRU as well as the more realistic projected actual emissions for the Unit 42 SRU, the Unit 72 SRU, and the hydrogen plant heater.

In addition, this cap accounts for the reduced fuel gas sulfur concentration for the new GOHT charge heater and the firing rate cap of 100 MMBtu/hour, on an annual average basis, for the existing GOHT charge heater and the new GOHT charge heater combined.

This cap imposes an 88 tpy SO_2 emission limit for these six emissions units, which is 1 tpy less than the SO_2 emissions in the baseline period of 2013/2014. Each of these emission units has continuous monitoring systems for either the sulfur content of the fuel burned in the emission unit or the SO_2 emissions from the emission unit, so Marathon will be able to demonstrate compliance with the emission cap.

Enforceable Conditions

A new flexible group has been added to the final conditions that implements this SO_2 emission cap. The flexible group includes the following emission units: EU08-GOHTCHARHTR-S1, EU08-GOHTCHARHTR2-S1, EU11-FCCU-S1, EU71-H2HTR-S1, EU42-43SULRECOV-S1, and EU72-SULRBLOCK2-S1.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. SO_2	88.0 tpy[3]	Annual rolling average as determined at the end of each calendar month	FGTIER3SO2-S1	SC VI.1	R 336.1201(3)

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall calculate and keep records of the annual emissions of SO_2 from FGTIER3SO2-S1 described in Appendix C, in tons per calendar year. Calculations and record keeping shall begin upon startup of EU08-GOHTCHARHTR2-S1 or the new reactor in EU08-GOHT-S1, whichever occurs first.[3] **(R 336.1201(3))**

VII. REPORTING

1. The permittee shall submit records of the annual emission of SO_2 from FGTIER3SO2-S1 described in Appendix C, in tons per calendar year, to the AQD Permit Section Supervisor within 60 days following the end of each reporting year. Reporting shall begin upon startup of EU08-GOHTCHARHTR2-S1 or the new reactor in EU08-GOHT-S1, whichever occurs first, and continue for five (5) years. The report shall contain the name, address, and telephone number of the facility (major stationary source); the annual emissions as calculated pursuant to VI.1, and any other information the owner or operator wishes to include.[3] **(R 336.1201(3))**

Voluntary Change

While no physical change or change in the method of operation is being made to the existing Zurn Boiler as part of the Tier 3 Fuels Project, Marathon will install low NOx burners and flue gas recirculation on the Zurn Boiler, which will reduce NOx emissions by about 19.5 tpy. These changes are being made to reduce the NOx emissions from the Detroit Refinery and will be made during the 2018 refinery turnaround.

Marathon has determined that the proposed changes to the Zurn Boiler meet the criteria of the R 336.1285(b) exemption from the requirement to obtain a PTI. These changes do not constitute reconstruction of the boiler. The cost of the changes, estimated to be $3.2 million for the low NOx burners and flue gas recirculation system and $3.8 million for repairs to the boiler, will not exceed 50 percent of the estimated $17 million cost of a new boiler of a similar design and size.

Note that, due to limited space at the refinery where the Zurn Boiler is located, and the need to have the Zurn Boiler operating during the time it would take to construct a new boiler, a new boiler would have to be built at another location at the refinery. Therefore, existing infrastructure for the Zurn Boiler could not be used for a new boiler to replace the Zurn Boiler.

Enforceable Conditions

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NOx	0.08 lb/MMBTU[3,a]	Annual rolling average as determined at the end of each calendar month	EU27-ZURNBOILER	SC VI.1	R 336.1201(3)

[a] This emission limit applies upon startup of EU08-GOHTCHARHTR2-S1 or the new reactor in EU08-GOHT-S1, whichever occurs first.

IV. DESIGN/EQUIPMENT PARAMETER(S)

2. The permittee shall not operate EU27-ZURNBOILER-S1 unless the low NOx burners are installed and operating properly. Installation shall be completed prior to startup of EU08-GOHTCHARHTR2-S1 or the new reactor in EU08-GOHT-S1, whichever occurs first.[3] **(R 336.1201(3))**

3. The permittee shall install a flue gas recirculation system on EU27-ZURNBOILER-S1 to meet the emission limit in SC I.1 above. Installation shall be completed prior to startup of EU08-GOHTCHARHTR2-S1 or the new reactor in EU08-GOHT-S1, whichever occurs first. The flue gas recirculation system shall be operated and maintained in a manner consistent with the manufacturer's guidelines.[3] **(R 336.1201(3))**

Voluntary Change
In November 2012, Marathon completed the installation of new refinery process units and the modification of existing process units which allowed the refinery to process additional types of crude oil. The project was completed under PTI 63-08D and was referred to as the DHOUP.

PTI 63-08D contains conditions limiting potential emissions of SO_2 and other regulated NSR pollutants from most of the refinery emission units. Equipment installed for the Tier 3 Fuels Project will be included under the DHOUP emission caps. This will ensure that emissions from the Tier 3 Fuels Project, when combined with other covered emission units, will not exceed previously permitted levels.

In addition, to further address concerns regarding SO_2 emissions, Marathon has reduced the DHOUP SO_2 emission cap from the existing limit of 371 tpy to 300 tpy (Condition I.4 in FGDHOUPANNUAL-S1 of PTI 63-08D). This reduces the refinery allowable SO_2 emissions used by the MDEQ in the SO_2 modeling demonstration supporting the 2015 State Implementation Plan.

Enforceable Condition
The FGDHOUPANNUAL-S1 permit conditions from PTI 63-08D have been included in the final permit conditions. The following SO_2 emission limit has been added:

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
5. SO_2	300 tpy[3]	Rolling 12-month time period *	FGDHOUPANNUAL-S1	SC VI.1	R 336.1201(3)
* Rolling 12-month time period as determined at the end of each calendar month.					

C. Flare Gas Recovery Systems
By the end of 2018, when the Tier 3 Fuels Project comes online, Marathon will eliminate one existing flare stack and install flare gas recovery equipment on two other flare systems. Marathon will add flare gas recovery to the Unifiner Flare and increase the capacity of the existing flare gas recovery system on the Coker Flare. Flare gas recovery will be installed on the Unifiner Flare no later than June 30, 2016, while enhancements to the Coker flare gas recovery system will be completed no later than December 31, 2018. Marathon has requested that the flare gas recovery requirements and completion dates be incorporated into the final permit conditions.

The addition of flare gas recovery to the Unifiner Flare and the flare gas recovery enhancements on the Coker Flare will result in a reduction in NOx, SO_2, CO, VOC, PM, H_2SO4, and TRS emissions from the two flares. However, no credit for these emission reductions is being taken in conjunction with the Tier 3 Fuels Project and these reductions are not included in Table 2.

Enforceable Conditions

IV. DESIGN/EQUIPMENT PARAMETER(S)

4. The permittee shall install a flare gas recovery system upstream of EU-UNIFFLARE-S1 to recover and route flare gas to the refinery fuel gas treatment system. The installation shall be completed by June 30, 2016.[3] **(R 336.1201(3))**

5. The permittee shall install a flare gas recovery system upstream of EU-COKERFLARE-S1 to recover and route flare gas to the fuel gas treatment system. The installation shall be completed by December 31, 2018.[3] **(R 336.1201(3))**