



**APPLICATION FOR A VARIANCE AS PROVIDED FOR BY CHAPTER 22 ARTICLE V.
BULK SOLID MATERIAL DIVISION 5. VARIANCES**

Date Submitted: August 31, 2018 Permit No. # _____

Location: 1300 S. Fort Street
(Number) (Street)

Owner: Marathon Petroleum Company LP Email Address: GBennethum@MarathonPetroleum.com
(Name)

Address: 1300 S. Fort Street, Detroit, MI 48217
(Number) (Street) (City) (Zip)

Phone No: 313-297-6000 Cell No: _____

Applicant: Same as above Email Address: _____
(Name)

Address: _____
(Number) (Street) (City) (Zip)

Phone No: _____ Cell No: _____

Contact person regarding meeting date: Greg Bennethum 313-297-6000
(Name) (Phone No.)

I hereby make application for Administrative Hearing seeking modification to Code Provisions, or the approval through administrative procedure, as required in the Code, from the Building Official, for the following.

Code, Section No. and Code requirement	See attached.
Reason for Noncompliance	
Alternate Method Proposed	
How is the alternate Equivalent to Code	

(Attach any additional informational sheets if needed to present case)

Owner's and applicant's Affidavit

State of Michigan) The undersigned being duly sworn, deposes and says that the foregoing statements and
County of Wayne) answers herein contained and accompanied information and date are in all respects true and correct to the best of my
knowledge and belief.

Applicant _____

Owner _____

Subscribed and sworn in before me this _____ Day of _____ 20 _____

Subscribed and sworn in before me this 31st Day of August 2018

(Notary Public Wayne County, Michigan) My Commission Expires _____

Kelly M. Bertera
(Notary Public Wayne County, Michigan) My Commission Expires 9/20/2018

KELLY M. BERTERA
NOTARY PUBLIC, STATE OF MI
COUNTY OF WAYNE
MY COMMISSION EXPIRES Sep 20, 2018
NOTARY IN COUNTY OF

Department Use Only

The above applicant has requested a variance under Chapter 22, Article V, Division 5 of the City Code and is entitled to an Administrative Hearing. A report will be prepared and submitted three days from the submitted date for scheduling.

Received by _____ Assigned to _____

MRC _____ Hearing # _____



Date August 31, 2018

BULK SOLID MATERIALS STORAGE APPLICATION
City of Detroit
Buildings, Safety Engineering & Environmental Department
2 Woodward Avenue, Room 401, Detroit, MI 48226

Property Information
Address 1300 S. Fort Street, Detroit, MI AKA Marathon Petroleum Co. LP - Detroit Refinery ZIP 48217
Parcel ID #(s) N/A - Coke Handling Unit Total Acres ~2.5 Lot Width 700' Depth 150'

Facility Information (Check all that apply)

- New Existing Addition
 Carbonaceous Materials General Bulk Solid Material Scrap Processor
 Certificate of Operation Temporary Certificate of Operation Certificate of Alternate Compliance
 Other _____

Identification

Property Owner Property Owner is the applicant
Name Marathon Petroleum Company LP Company Name Marathon Petroleum Company LP
Address 1300 S. Fort Street City Detroit State MI Zip 48217
Phone 313-297-6000 Mobile _____ E-mail (Required) GBennethum@MarathonPetroleum.com

Facility Operator Facility Operator is the applicant
Name Same as Owner Company Name _____
Phone _____ E-mail (Required) _____

YOU MUST ATTACH AN ELECTRONIC COPY OF YOUR STATE OPERATING PLAN OR YOUR FUGITIVE DUST PLAN

For Department Use Only

Received by _____ Date _____ Review and Inspection Due By _____
Assigned to _____
Current Legal Land Use _____
Zoning District _____ Zoning Grants _____

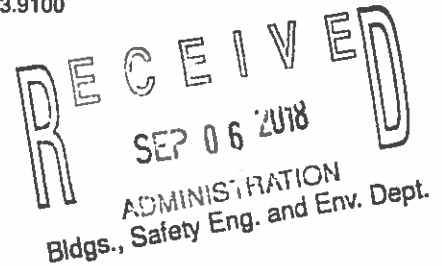


Marathon Petroleum Company LP

1001 S. Oakwood Ave.
Detroit, MI 48217
Tel: 313.843.9100

August 31, 2018

Mr. David Bell
Director
Buildings, Safety Engineering & Environmental Department
City of Detroit
2 Woodward Avenue, Room 401
Detroit, MI 48226



Re: Bulk Solid Materials Storage Application and Request for Variance from Certain Requirements, Marathon Petroleum Company LP, Detroit, Michigan

Dear Mr. Bell:

Marathon Petroleum Company LP (MPC) owns and operates a petroleum refinery in the City of Detroit (the Detroit Refinery) located at 1300 S. Fort Street. On October 31, 2017, Chapter 22 of the 1984 Detroit City Code was amended to include provisions covering the storage, handling, and off-site trucking of bulk solid materials. The provisions are codified in Article V of Chapter 22, commonly referred to as the Bulk Solid Material Ordinance (Ordinance). The Detroit Refinery does store and handle bulk solid materials that are regulated under the Ordinance. Therefore, in accordance with the Ordinance, MPC is submitting this application to obtain a Bulk Material Certificate that covers operation of bulk solid material storage operations at the Detroit Refinery. The required application form is enclosed in **Appendix A**.

Bulk material storage and handling operations at the Detroit Refinery are regulated under Renewable Operating Permit No. MI-ROP-A9831-2012c (the ROP), issued by the Michigan Department of Environmental Quality, Air Quality Division (AQD) on March 26, 2012 and last amended on July 8, 2016. The ROP is submitted in electronic format (USB drive) in **Appendix B**. In accordance with the ROP, MPC has implemented an AQD-approved Fugitive Dust Control Plan (FDC Plan) that satisfies applicable provisions of the Natural Resources and Environmental Protection Act (Act) and Michigan's Administrative Rules for Air Pollution Control. The Detroit Refinery has been operating under the FDC Plan since 2012. An electronic copy of the plan is provided in **Appendix B** as well as in hardcopy form in **Appendix C**. In accordance with Section 22-5-18(m), a fact sheet summarizing MPC's fugitive dust control program has been developed for the city's website and is included in **Appendix C**.

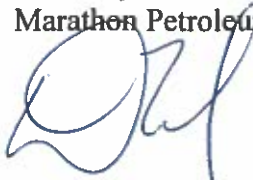
Operations at the Detroit Refinery include a Coker Unit, which processes residual crude oil and produces various intermediate streams that are further refined into saleable products. Petroleum coke is produced and subsequently trucked off-site. Pursuant to Section 22-5-5 of the Ordinance, petroleum coke is classified as a carbonaceous bulk solid material and is, therefore, subject to regulation under the Ordinance. Consequently, the petroleum coke processing, handling, and off-site trucking operation currently operating at the Detroit refinery is subject to regulation under the Ordinance.

Though the petroleum coke processing, handling, and off-site trucking operation has been designed specifically to prevent fugitive dust as required by the ROP. It does not fully meet the enclosure requirements of Section 22-5-42. Specifically, the petroleum coke pit, which is surrounded on all sides by a 30-foot wall, is not equipped with a roof. However, as demonstrated through routine and on-going visible emissions monitoring and testing, it is not necessary to install a roof on the existing petroleum coke storage facility to meet the emission reduction requirements of the Ordinance. Therefore, in accordance with Section 22-5-60, MPC is submitting this request for a variance from certain provisions of the enclosure requirement and other requirements for the petroleum coke storage pile.

Information supporting the proposed variance, including a completed Bulk Solid Materials Variance Application form, is provided in **Appendix D**. The Bulk Solid Materials Variance Application fee of \$362 is also enclosed. *NO check included per Greg 9/6/18*

If you have any questions regarding this submittal or require any additional supporting information, please do not hesitate to contact Greg Bennethum at 313-297-6310.

Sincerely,
Marathon Petroleum Company LP



David T. Roland
Refining General Manager

Attachments

Confidential
CO
\$02
PM10-
TR5
6 day (BENNETHUM PANTSTER)

Application for Variance

August 31, 2018

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- I. For any request for a variance from the enclosure deadline set forth in section 22-5-71, if the applicant is not the owner or operator of a facility operating on the effective date of the ordinance, the applicant must also submit all of the following: 10
 - (1) Fugitive dust monitoring reports for the four months before the date of the variance application, and 10
 - (2) In the event that the variance is granted, monthly fugitive monitoring reports for the duration of the variance which shall be due fourteen (14) days following the end of the month which the report covers..... 10

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1.0 Introduction

Marathon Petroleum Company LP (MPC) owns and operates a petroleum refinery located at 1300 South Fort Street, Detroit (the Detroit Refinery). Operations at the Detroit Refinery include a Coker Unit, which processes heavy crude oil and produces various intermediate streams, including petroleum coke, that are further refined into saleable products. The petroleum coke produced at the Coker Unit is also sold as a product, and is processed and loaded into trucks before being trucked off-site. The processing time from completion of water cutting a coke drum to shipment of the coke off-site typically ranges from 1 to 4 days. Long-term storage of petroleum coke does not occur at the Detroit Refinery.

Air emission sources at the Detroit Refinery, including the Coker Unit, are regulated under Renewable Operating Permit No. MI-ROP-A9831-2012c (the ROP), issued by the Michigan Department of Environmental Quality, Air Quality Division (AQD) on March 26, 2012 and last amended on July 8, 2016. The ROP sets stringent control technology requirements, emission limitations, and operational restrictions for emission units at the Detroit Refinery, including the petroleum coke processing, handling, and off-site trucking operation. The ROP further requires that MPC implement an AQD-approved Fugitive Dust Control Plan¹ that addresses the petroleum coke processing, handling, and off-site trucking operation. The Detroit Refinery has been operating under this Fugitive Dust Control Plan since the Coker Unit commenced operation in 2012.

On October 31, 2017, Chapter 22 of the 1984 Detroit City Code was amended to include provisions covering the storage, handling, and off-site trucking of bulk solid materials. The provisions are codified in Article V of Chapter 22, commonly referred to as the Bulk Solid Material Ordinance (Ordinance). Pursuant to Section 22-5-5 of the Ordinance, petroleum coke is classified as a carbonaceous bulk solid material and is, therefore, subject to regulation under the Ordinance regardless of the amount stored or handled. Consequently, the petroleum coke processing, handling, and off-site trucking operation currently operating at the Detroit refinery is subject to regulation under the Ordinance which, pursuant to Section 22-5-70, has staged implementation requirements.

Based on pre-existing requirements set forth in the Detroit Refinery ROP and associated Fugitive Dust Control Plan, particulate matter (PM) emissions from the petroleum coke processing, handling, and trucking operation are well-controlled and already comply with the majority of applicable provisions of the Ordinance. Though the petroleum coke processing, handling, and off-site trucking operation is designed to meet stringent fugitive emission control standards, it is not fully enclosed as Section 22-5-42 of the Ordinance requires. Specifically, the first stages of the petroleum coke processing and handling operation, where the coke exits the coke drums and is initially dewatered before being transferred to the crushing and loading system, are conducted in a partially-enclosed pit. The pit has an impermeable concrete floor and is surrounded on all sides by 30-foot high walls. The coke pit is not equipped with a roof, but all coke processing and operations conducted in the pit are conducted below the height of the walls to shield the coke from wind. The walls are also equipped with spray bars that assist in maintaining

¹ Fugitive and Coker Handling Dust Control Guide, August 23, 2018.

the moisture content of the coke at a level that prevents dust from the coke handling operations from becoming airborne. After the coke is loaded from the coke pit and into the crusher, it is transferred in a fully enclosed conveyor system before being loaded into trucks in the enclosed load-out building. To prevent product spillage during transport, truck beds are tarped prior to exiting the enclosed load-out building.

The coke processing, handling, and off-site trucking operation is not designed to allow for the long-term storage of coke. The processing time from water removal of coke from the coke drum to off-site shipment is typically 1-4 days. Coke is not stored at the Detroit Refinery for extended periods.

As demonstrated through routine and on-going visible emissions monitoring and testing, existing control strategies and regulatory requirements effectively limit visible emissions from the Detroit Refinery's petroleum coke processing and handling activities. Accordingly, MPC will be able to meet the fugitive emissions control objectives of the Ordinance without fully enclosing the existing petroleum coke processing and handling areas. Further, based on the design of the existing coke processing operation, full enclosure may not be technically feasible. Even if feasible, full enclosure would be prohibitively expensive for little or no gain in fugitive emissions control. For these reasons, in accordance with Section 22-5-60, MPC is submitting this request for a variance from the enclosure requirement for the petroleum coke storage pile. The following points briefly summarize the basis for the requested variance:

- The petroleum coke processing, handling, and trucking operation has been in operation since 2012 and has never received an AQD violation or citizen complaint.
- Visible emissions testing of the existing operation demonstrate that the petroleum coke storage, handling, and trucking operation meets the emission limits specified in the Ordinance.
- The petroleum coke processing area is enclosed on five sides, and the 30-foot high walls surrounding the processing area serve as an effective wind barrier.
- The walls around the coke pit are equipped with spray bars and moisture content of the petroleum coke is maintained at a level sufficient to limit its emission potential.
- Equipment transferring petroleum coke from the storage pit to trucks is enclosed.
- Truck tires are cleaned by a water wash system to prevent track-out.
- Petroleum coke is transferred from the coke pit using an overhead crane system. Installation of a roof on the coke pit, even if technically feasible, would require a comprehensive retrofit of the operation. The cost associated with such a retrofit would be in the tens of millions of dollars. Further, the Coker Unit, a critical processing unit at the Detroit Refinery, would likely have to be shut down to allow for retrofit construction activities. A temporary shutdown of the Coker Unit would also affect the operation of other upstream and downstream processing units at the Detroit Refinery, leading to probable fuel supply disruptions to the region.
- Complete enclosure of the coke pit could create unsafe worker conditions.

A completed Bulk Solid Materials Variance Application form is enclosed with this submittal. Supporting narrative is provided in the following section, which follows the sequence set forth in the application form (Items a. through i.) as well as Section 22-5-61 of the Ordinance (Requirements of the Variance Application).

2.0 Application for Variance

A. The provision or requirements of the Code from which the variance is requested;

MPC requests a variance from the following provisions of the Ordinance:

- | | |
|--------------------|--|
| a) Sec. 22-5-16(c) | Opacity measurement test method |
| b) Sec. 22-5-20(a) | Wind monitor location |
| c) Sec. 22-5-22(d) | Rumble strips for outgoing material transport trucks |
| d) Sec. 22-5-29 | Roadway Cleaning |
| e) Sec. 22-5-40 | Enclosure of Carbonaceous Bulk Solid Materials |
| f) Sec. 22-5-41 | Enclosure Plan |
| g) Sec. 22-5-42 | Enclosure Requirements |
| h) Sec. 22-5-71 | Enclosure Deadline |
| i) Sec. 22-5-72 | Enclosure Reporting |

B. Description of the facility for which the variance is requested, including pertinent data on location, size, and the population and geographic area potentially affected by the facility;

Facility Description

The only area of carbonaceous material processing and handling at the Detroit Refinery is the Coker Unit. Therefore, the variance request focuses exclusively on this area of the refinery.

As part of the Coker Unit operation, petroleum coke is cut from the inside of the coker drum using a hydraulic high-pressure water cutter. The petroleum coke exits the bottom of the coke drum, dropping onto the coke chute through a water curtain and then into an adjacent pit. The petroleum coke remains in the pit until it has cooled and becomes saturated with water. A bridge crane moves coke from the pit and stages it on an adjacent pad for dewatering. The bridge crane loads dewatered coke from the pad onto a grizzly screen at the coke feed conveyor hopper. The coke feed hopper discharges coke to the belt feeder conveyor in the feed conveyor transfer building. Coke passes through a magnetic separator and transfer chute, then leaves the transfer building on the enclosed coke crusher feed conveyor. The coke crusher feed conveyor discharges coke to the crusher feed chute and into the crusher. Crushed coke is discharged to the enclosed plant transfer conveyor and coke sampling system. The plant transfer conveyor discharges to the surge bin feed chute in the truck load out building. Coke from the surge and weigh bins is loaded onto trucks in the truck load out building. The process has numerous dust

controls include bag house filter systems at each transfer point which are required to be operational.

The coke handling system, from after the coke feed conveyor hopper through to the truck load out, is enclosed. The crusher shed is enclosed with water sprays utilized to suppress dust during coke crushing. Crushed coke is conveyed in a totally enclosed gallery from the crusher shed to an enclosed shed housing the surge/weigh bin system. The surge bins are equipped with a vent filter and there is also an air curtain pickup for dust at the truck loading chute.

Location and Size of the Storage, Handling, and Off-site Trucking Operation

The location of the petroleum coke processing, handling, and off-site trucking operation is shown in **Figure 1**. The lateral dimensions of the coke storage pit, which is surrounded on all sides by a 30 foot wall, are approximately 250 feet x 135 feet.

Population and Geographical Area potentially affected by the Storage, Handling, and Off-site Trucking Operation

The Detroit Refinery and surrounding areas are shown in **Figure 2**. As shown in the figure, the petroleum coke processing, handling, and off-site trucking operation is surrounded by land zoned industrial. The nearest single residence is located more than 900 feet from the operation, with no established neighborhoods within 2,000 feet.

Due to the height of the surrounding walls, the petroleum coke storage pile is not visible to the public. Conveying and truck loading of petroleum coke is conducted in enclosed and controlled structures². Further, visible emissions observations since 2012 demonstrate that the existing operation does not result in noticeable visible emissions. Therefore, the storage, handling, and off-site trucking operation does not affect local populations.

C. Quantity and type of materials used in the process or activity in connection with which the variance is requested;

Following is a summary of the type and quantity of material produced by the Coker Unit:

- | | |
|--|----------------|
| a) Type of material used in the process: | Petroleum Coke |
|--|----------------|

² The conveyor entering the truck loadout building is totally enclosed. The loadout building is equipped a baghouse dust collection system with collection hoods at the surge bin feed chute and truck loadout area. Coke is loaded onto trucks through a telescoping load out chute. Loaded trucks pass through a wheel wash station to control track-out.

-
- | | |
|--|--------------------------------|
| b) Approximate annual coke production: | 652,175 tons/year ³ |
| c) Daily average staging amount ⁴ : | 4550 tons |

D. Demonstration that issuance of the variance will not create a public nuisance or adversely impact the surrounding area, surrounding environment, or surrounding property uses;

Petroleum Coke Processing Area

MPC has been operating the Coker Unit and coke handling process continuously, except for planned maintenance turnarounds or other temporary shutdowns, since 2012. Since being placed in operation, the coke handling process has not been a source of visible emissions or public nuisance. The coke pit is partially-enclosed and equipped with spray bars intended to minimize visible emissions. Coke crushing, conveying, and loading are all enclosed. The Coker Unit is a strictly regulated process unit in the refinery's ROP and is designed to comply with all applicable federal and state air emission regulations. The ROP incorporates a comprehensive fugitive dust control plan to minimize visible emissions. An offsite impact analysis was reviewed and approved by the AQD as part of the air permit application.

Best management practices utilized by MPC for the handling of coke are described in greater detail in Section G of this report.

Opacity measurement test method

Pursuant to Condition VI.2., EU70-COKER-S1 of the ROP, MPC is already required to conduct daily visible emissions observations of the coke handling system and truck loading operation. Visible emissions observations are also required under Section 22-5-16 of the Ordinance. However, Section 22-5-16(c) requires that the visible emissions observations be conducted using U.S. EPA Method 9d. The ROP also requires daily visible emissions observations, but specifies a different observation method. The visible emissions observation requirement in the Ordinance creates redundant emissions monitoring requirements.

Observational records dating back to 2013 confirm that the coke handling system and truck loading operation are well controlled and not a source of visible emissions. Therefore, because the visible observation requirements in the ROP are sufficient to ensure good operation of the coke handling system and truck loading operation, MPC

³ Average annual coke production during the years 2015 through 2017.

⁴ There is no long-term storage or accumulation of petroleum coke at the Detroit Refinery. The coke processing and handling operations at the Detroit Refinery are designed such that coke is manufactured, processed, and shipped on a continuous basis. Petroleum coke typically remains in the coke pit for no more than 4 days before loading out in trucks.

requests a variance from this provision of the Ordinance. However, MPC will continue to conduct daily visible emissions observations in accordance with the ROP.

Location of Wind Monitor

For facilities storing carbonaceous materials, the Ordinance requires operation of a weather station to monitor and log wind speed and direction. Specifically, Section 22-5-20(a) states that the weather station must be "centrally positioned in relation to the storage piles".

As an initial matter, MPC does not maintain coke storage piles at the Detroit refinery, so a wind monitor could not be centrally positioned in relation to storage piles. MPC has been monitoring meteorological parameters, including wind speed and direction, using the Perimeter Air Monitoring System ("PAMS") at the Detroit Refinery since December 2011. Except for location, the weather station meets all the monitoring requirements of the Ordinance. The locations of the two existing wind monitors at the Detroit Refinery, as well as four particulate matter ambient monitoring stations, are shown in **Figure 3**. The measurements recorded at the two existing wind monitors will be representative of the wind speed and direction at the Coker Unit.

Based on the layout and density of equipment in the Coker Unit area, it would not be easily feasible to relocate the existing weather station to this part of the refinery.

- Moreover, the weather station may not meet U.S. EPA siting criteria associated with MPC's ambient monitoring program if it were to be moved into the Coker Unit. Therefore, MPC requests a variance from the siting requirement to allow MPC to monitor wind speed and direction at the existing monitoring stations.

Rumble Strips

Section 22-5-22(d) of the Ordinance states that trucks exiting a bulk materials storage facility must pass over rumble strips designed to vibrate the trucks and shake off loose material and dust. Rumble strips are effective in facilities that routinely transfer material to trucks using techniques (e.g., front-end loaders) that cause loose material and dust to adhere to the outside of the truck. The loading of petroleum coke at the Detroit Refinery is done by chute in the enclosed load building. Further, the petroleum coke contains a high moisture content that also serves to reduce dust emissions. Finally, the roadways used by trucks entering and exiting the Coker Unit are all paved, and there is a wheel wash station at the exit to remove any material that may cling to vehicle tires. These existing measures are intended to minimize the potential for dust or other loose material to adhere to the outside of trucks and are a better fit than rumble strips for the type of truck loading conducted at the Coker Unit. Therefore, MPC requests a variance from this provision of the Ordinance.

Road Cleaning Frequency

Section 22-5-29 of the Ordinance requires bulk material storage facility to implement a street sweeping program to reduce potential particulate emissions associated with material track-out by exiting trucks. Street sweeping must occur at least every 8 hours or every 100 truck material dispatches. By the counts provided in the Ordinance, the street sweeping requirement appears to be designed for facilities that experience high material truck traffic (e.g., bulk material storage yards, asphalt plants, material crushing facilities).

The Detroit Refinery petroleum coke storage and handling operation results in the average use of only 65 trucks per day. Further, pursuant to Section 6 of its Fugitive Dust Control Plan, MPC has already implemented an enhanced street sweeping program that includes public roadways in the vicinity of the Detroit Refinery. As shown in Attachment B of the Fugitive Dust Control Plan, the enhanced street sweeping program results in a 69.5 ton per year reduction in total particulate emissions and a 13.8 ton per year reduction in PM₁₀ emissions from roadways adjacent to the Detroit Refinery. Paved roadways, a wheel wash station, and method of loading trucks also serve to minimize track-out of dirt or other materials onto public roadways. Considering the nature of the petroleum coke transport operation at the Detroit Refinery, including the enhanced street sweeping program, MPC requests a variance from Section 22-5-29 to the extent those provisions are not consistent with the existing Fugitive Dust Control Plan program maintained in accordance with the ROP.

E. A statement explaining:

(1) Why compliance with the regulations imposes an arbitrary or unreasonable hardship; or

Full enclosure of the existing coke pit may not be technically feasible. Petroleum coke is transferred from the coke pit using an overhead crane system. Installation of a roof on the coke pit, even if technically feasible, would require a comprehensive retrofit of the operation. The cost associated with such a retrofit would be in the tens of millions of dollars. Further, the Coker Unit, a critical processing unit at the Detroit Refinery, would likely have to be shut down to allow for retrofit construction activities. A temporary shutdown of the Coker Unit would also affect the operation of other downstream processing units at the Detroit Refinery with probable fuel supply disruption to the region.

There are numerous safety concerns associated with the processing of high temperature coke in a pit equipped with a roof. Limited visibility due to steam generated during processing could result in inadequate wetting and the potential for coke fires/combustible dust explosions.

Because the existing control measures on the coke handling and processing operations are legally enforceable and adequate to minimize visible emissions, the significant costs

and potential safety concerns associated with fully enclosing the coke pit exceed the utility of those measures, and would, therefore, impose an unreasonable hardship.

For each of the other requirements from which MPC requests a variance, existing control and/or monitoring measures provide an equivalent level of visible emissions control. The utility of requiring redundant or duplicative monitoring or control requirements would not exceed the costs, and would therefore be arbitrary and impose an unreasonable hardship.

(2) Why compliance cannot be accomplished during the required timeframe due to events beyond the facility owner or operator's control such as permitting delays or natural disasters; or

Even if technically feasible, project implementation, from design and engineering to initiation and completion of construction activities, is of such magnitude that it is not possible to accomplish a total enclosure installation in the Ordinance-mandated timeframe.

(3) Why the proposed alternative measure is superior or preferable.

Notwithstanding the cost and feasibility limitations described above, the petroleum coke handling operation, which has been in operation since 2012, is regulated and already controlled to a level that meets the fugitive emission reduction objectives of the Ordinance. The petroleum coke handling operation is covered under a comprehensive Fugitive Dust Control Plan. Further:

- Visible emissions monitoring of the existing operation demonstrate that the petroleum coke processing, handling, and trucking operation is already in compliance with the emission limits specified in the Ordinance.
- The petroleum coke staging pile is located in a pit and is surrounded on all sides by 30-foot walls, which serve as an effective wind barrier.
- The ROP requires the height of any coke staged or processed in the pit to be below the height of the perimeter walls.
- The moisture content of the petroleum coke staging pile is maintained at a level sufficient to limit its emission potential.
- The coke crushing, conveying, and loading systems, from the coke feed conveyor hopper through to the truck load out, are all enclosed..
- Truck tires are cleaned by a water wash system to prevent track-out, which is superior to rumble strips or expanded street-sweeping.

The coke processing and handling system is already regulated and well controlled, and the installation of a total enclosure (i.e., roof over the coke pit retaining walls) would provide little to no discernable change in emissions as compared to the existing coke handling system.

For each of the other requirements from which MPC requests a variance, existing control and/or monitoring measures provide an equivalent level of visible emissions control.

F. A description of the proposed methods to achieve compliance with the regulations and a timetable for achieving that compliance, if applicable;

Not applicable.

G. A discussion of the alternate methods of compliance and of the factors influencing the choice of applying for a variance;

Section 22-5-40 *Enclosure of Carbonaceous Bulk Solid Materials* is intended to reduce fugitive particulate matter emissions from carbonaceous material storage, handling, and trucking operations. Based on a robust fugitive dust control program, including controls specific to the storage and handling of petroleum coke, particulate matter emissions from coke processing and handling operations at the Detroit Refinery are minimal. Installation of a roof on the existing enclosure would not result in a substantive reduction in emissions from this operation.

MPC's coke handling operation is unique in the City of Detroit's ordinance jurisdiction because it is the only facility that is part of an operating Coker Unit at a petroleum refinery. MPC does not store petroleum coke in open piles that are exposed to the elements. The coke pit is enclosed on five sides with a water spray system on the walls as described in Section 2.2, and is designed to be operated with the top exposed to accommodate an overhead bridge crane to handle coke within the coke pit. The ROP requires use of the bridge crane rather than front-end loaders or other vehicles to handle coke, and limits the use of front-end loaders or other vehicles to periods when the bridge crane breaks down or requires maintenance. Though the top side of the coke pit is not enclosed, the water spray system on the coke pit walls is used to maintain moisture in the coke to prevent dust from escaping the coke pit. Coke exiting the two Coke Drums is wet, and enters the wall enclosure near the bottom through a water curtain. The overhead bridge crane system is used to move coke within the coke pit to the fully enclosed conveyor system that is equipped with bag house filter systems at transfer points and water spray hoses/nozzles if needed. Enclosure of the coke pit would require removal of the existing overhead crane system and a complete re-design of the coke handling system. Refer to the Coker Unit photos in **Attachment A**.

MPC maintains a Fugitive Dust Control Plan that includes steps taken to minimize particulate emissions from coke handling. These steps include the following:

- a) The primary method of dust control is maintaining an adequate moisture level in the coke. This is accomplished by controlling the amount of time coke is allowed to be staged on the pad and ensuring water spray systems are operating when needed.
- b) Coke is sampled three times per week and analyzed for moisture content. A graph of the coke moisture is provided in **Attachment B**. The average coke moisture content is maintained at 10 wt%.

-
- c) Moisture levels of coke on the storage pad can be increased by using a wall-mounted sprinkler system.
 - d) Coke handling operators conduct visual observations of the process and make adjustments as needed to minimize particulate emissions. These daily activities are documented on a daily log sheet.

MPC's coke pit operation is enclosed on five sides (with an impermeable concrete floor and four 30-foot concrete walls), is staffed continuously, and is wetted as part of routine operations. Existing Best Management Practices included in the refinery's Fugitive Dust Control Plan are intended to ensure consistent and optimal operation of the coke handling system.

The factors described above in this section justify the request for a variance from the requirement to install a complete enclosure over the existing coke storage pile. For each of the other requirements from which MPC requests a variance, existing control and/or monitoring measures provide an equivalent level of visible emissions control.

H. A statement regarding the person's current status as related to the subject matter of the variance request;

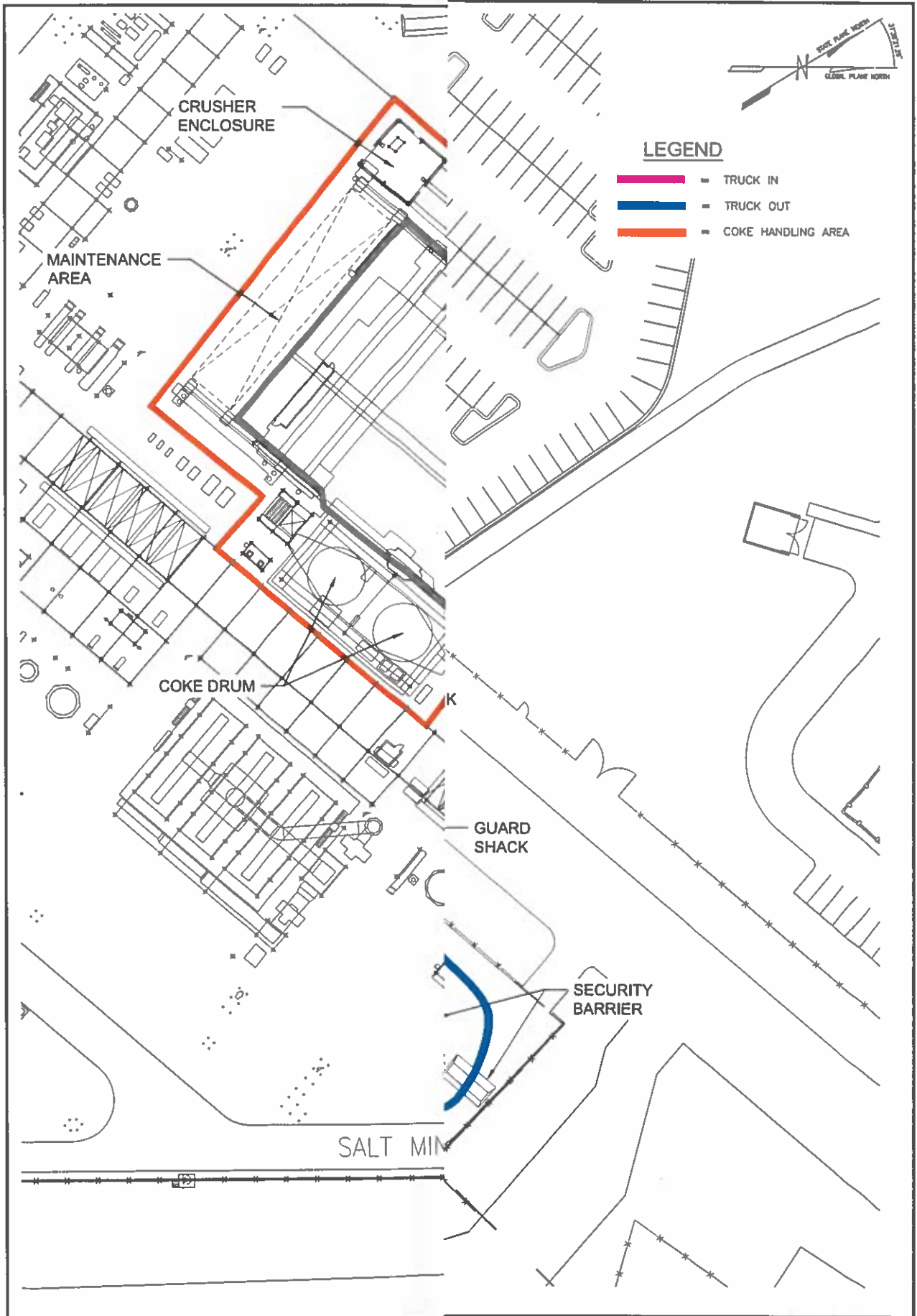
The petroleum coke material handling operation has been in operation since 2012. The operation is in compliance with applicable emission limits promulgated under the Ordinance and Michigan air rule.

I. For any request for a variance from the enclosure deadline set forth in section 22-5-71, if the applicant is not the owner or operator of a facility operating on the effective date of the ordinance, the applicant must also submit all of the following:

- (1) Fugitive dust monitoring reports for the four months before the date of the variance application, and**
- (2) In the event that the variance is granted, monthly fugitive monitoring reports for the duration of the variance which shall be due fourteen (14) days following the end of the month which the report covers.**

Marathon Petroleum Company LP is the owner of the Detroit Refinery and the Coker Unit. The requirements of this section are therefore not applicable. However, to demonstrate that visible emissions observations of the coker area are being conducted, fugitive dust monitoring reports for the past four months are being provided (**Attachment C – refer to USB drive**).

Figures

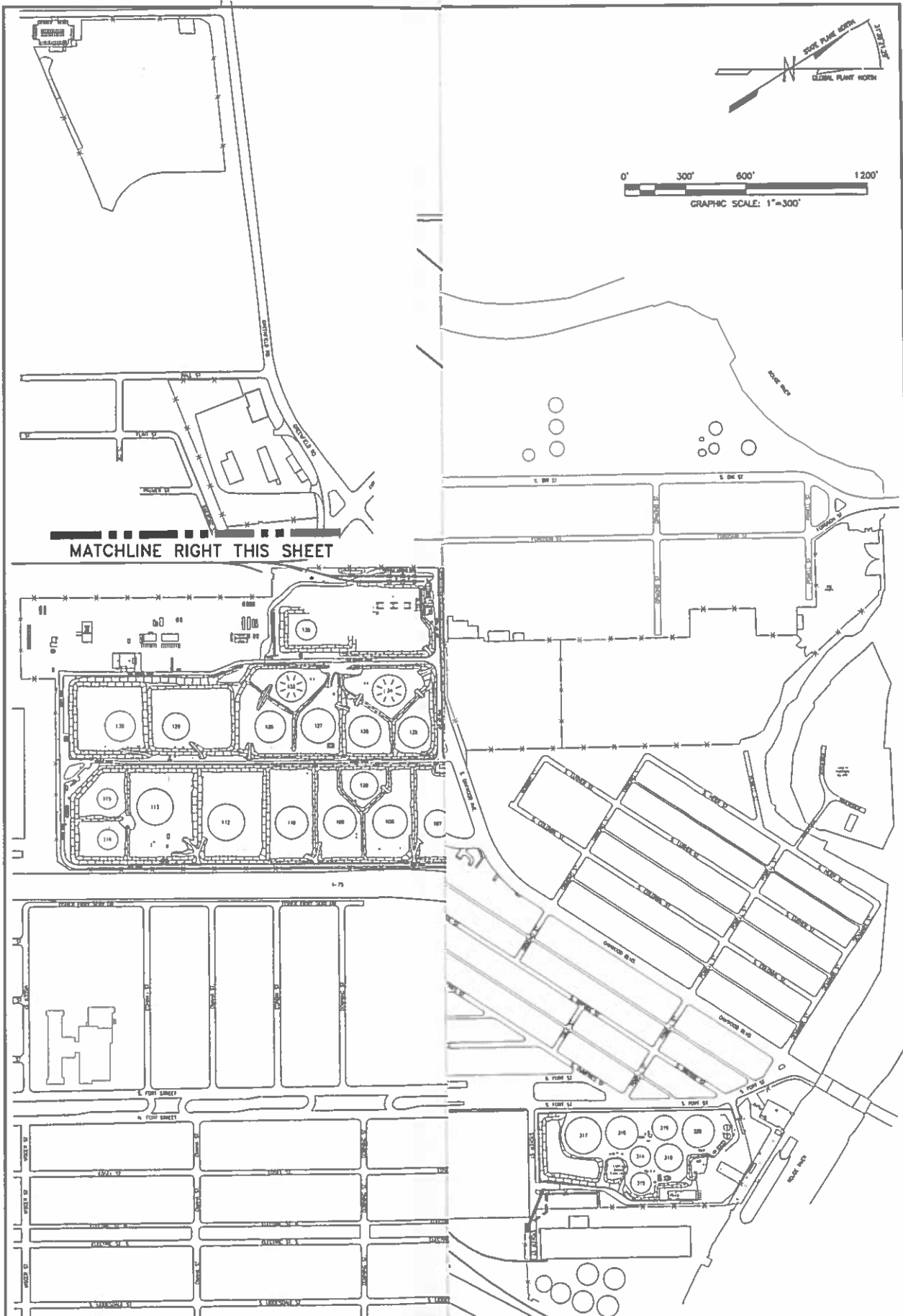


NO.	DATE	BY	REVISIONS	CK.	APP.	N
9
10
11
12

MICHIGAN REFINING DIVISION
 PLOT PLANS INTERBATTERY
**MAINTENANCE
 COKE PIT/
 HANDLING AREA**

CONTRACTOR AND PROJECT NO.			
CREATED BY: SHK	DATE: 07/12/2018		
SCALE: NONE	UNIT: 25		
DATE:	SH: ELV: REF:		
D25-2563	11	1	

FILENAME: 25256311.DWG



NO.	DATE	BY	REVISIONS	CK.	APP.	NO
9						5
10						6
11						7
12						8/UP

MICHIGAN REFINING DIVISION
 INTERBATTERY
PLOT PLAN
OVERALL REFINERY

CONTRACTOR AND PROJECT NO:			
CREATED BY: ROMA	DATE: 05/25/12		
SCALE: 1"=300'	UNIT: 25		
SH: 01	BLV: -	REV: -	
D25-2563			

FILENAME: 25256301.DWG

Detroit Refinery

Site 2A ("North") Parcel 14a
Air Monitoring Shelter

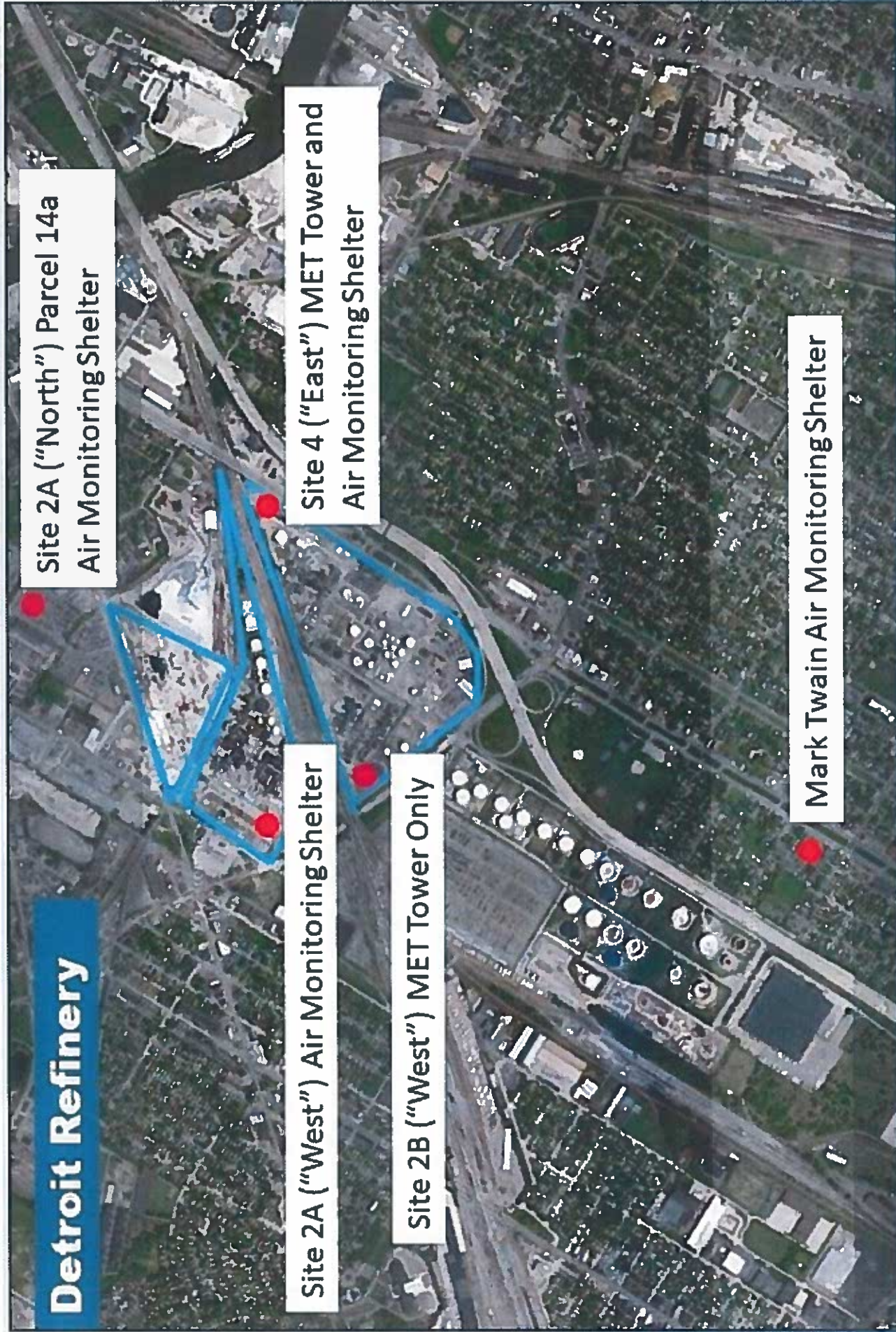
Site 2A ("West") Air Monitoring Shelter

Site 4 ("East") MET Tower and
Air Monitoring Shelter

Site 2B ("West") MET Tower Only

Mark Twain Air Monitoring Shelter

● = Location for Ambient Monitoring Station



Attachments

Attachment A – Images of the Coke Handling Area

Overhead Views of Coke Pit



View Inside of Coke Pit (Coke/Steam/Water Spray)



View of Coke Pit Wall/Coker/Conveyor from Northeast



View of Enclosed Conveyors from Northeast



View of Enclosed Conveyor/Loadout Building from Northwest



View of Coke Pit Wall from Southwest



View of Coke Pit Wall from South



View of Southern Coke Pit Wall under Coke Drums



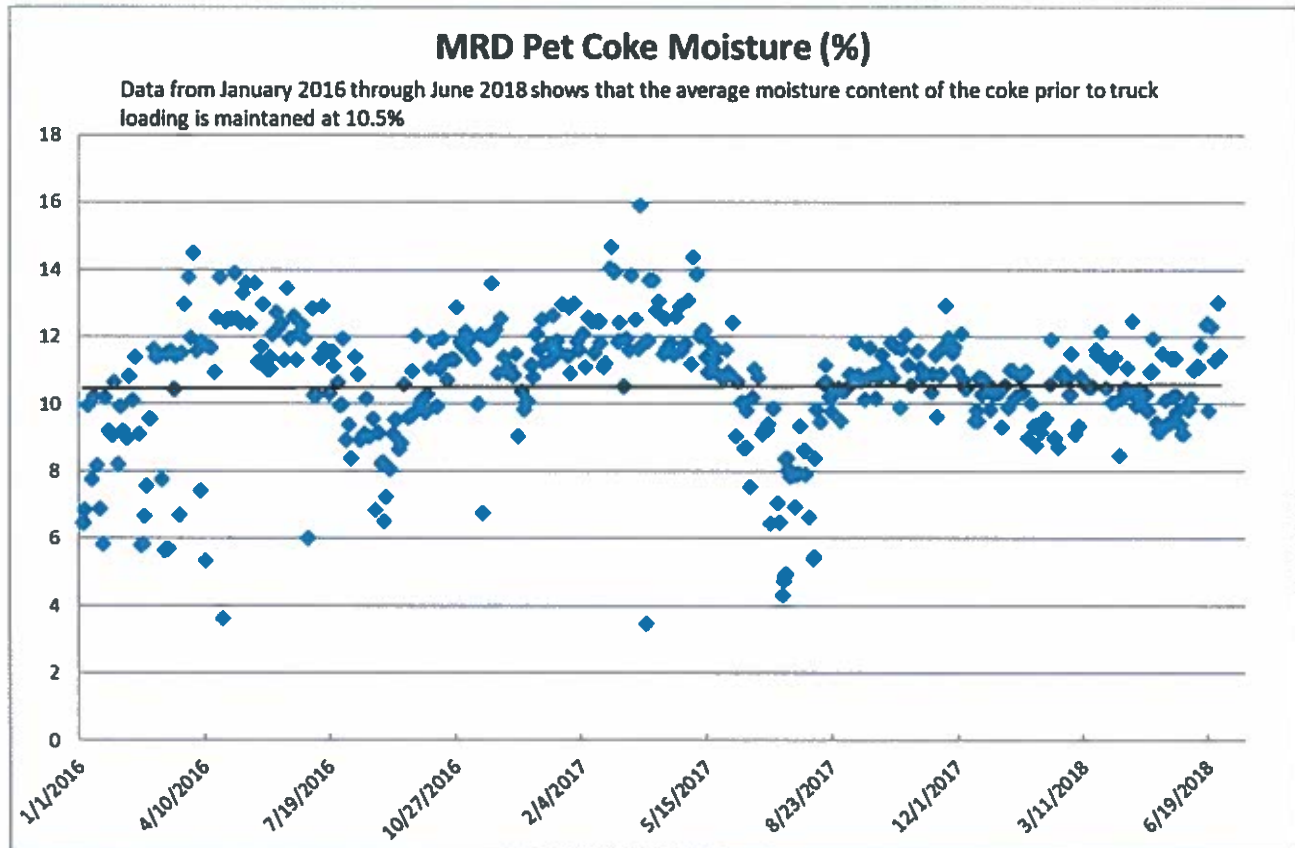
View Inside Coke Truck Loadout Building



View Inside Enclosed Transfer Conveyor



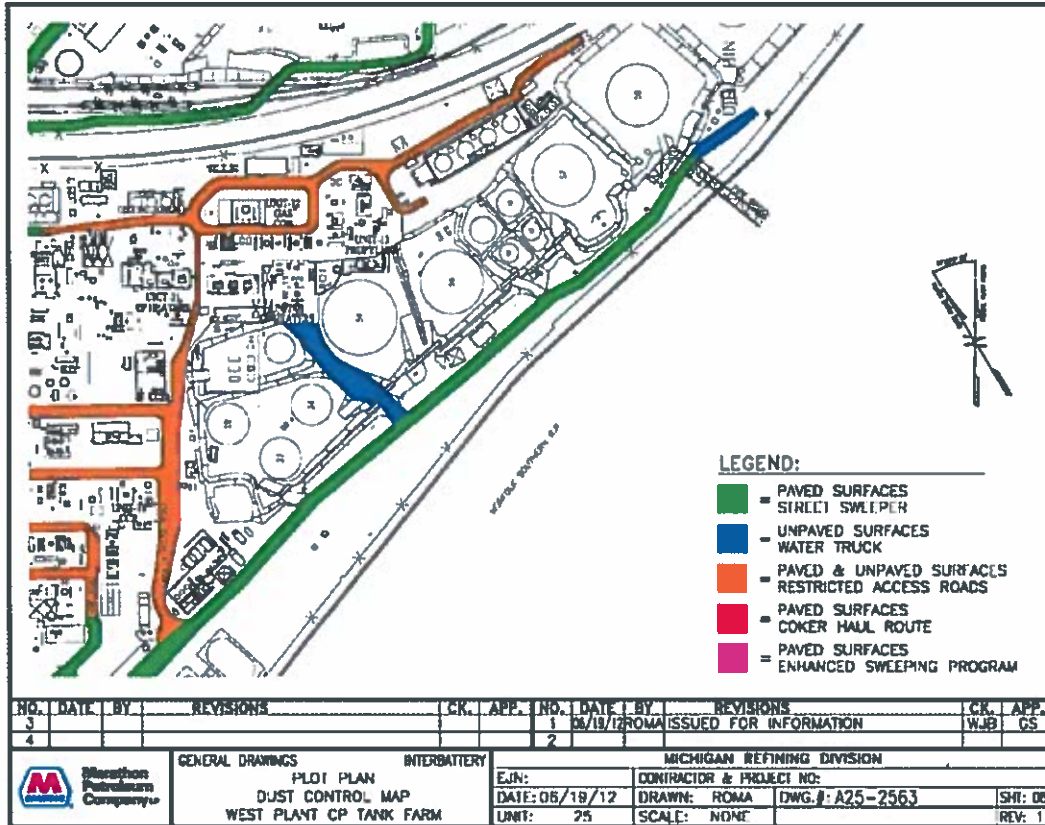
Attachment B – Coke Moisture Analysis Graph



Attachment C – Fugitive Dust Monitoring Reports

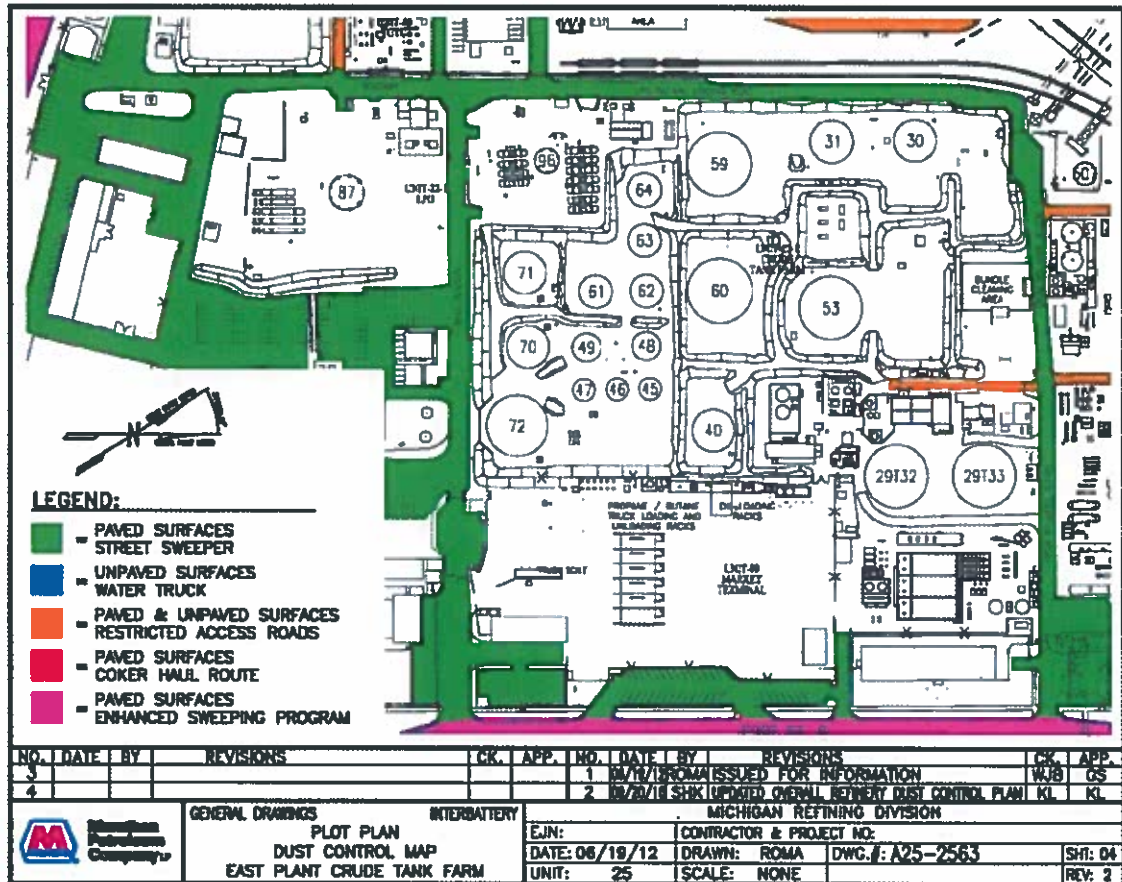
(Refer to USB Drive)

WEST PLANT CP TANK FARM



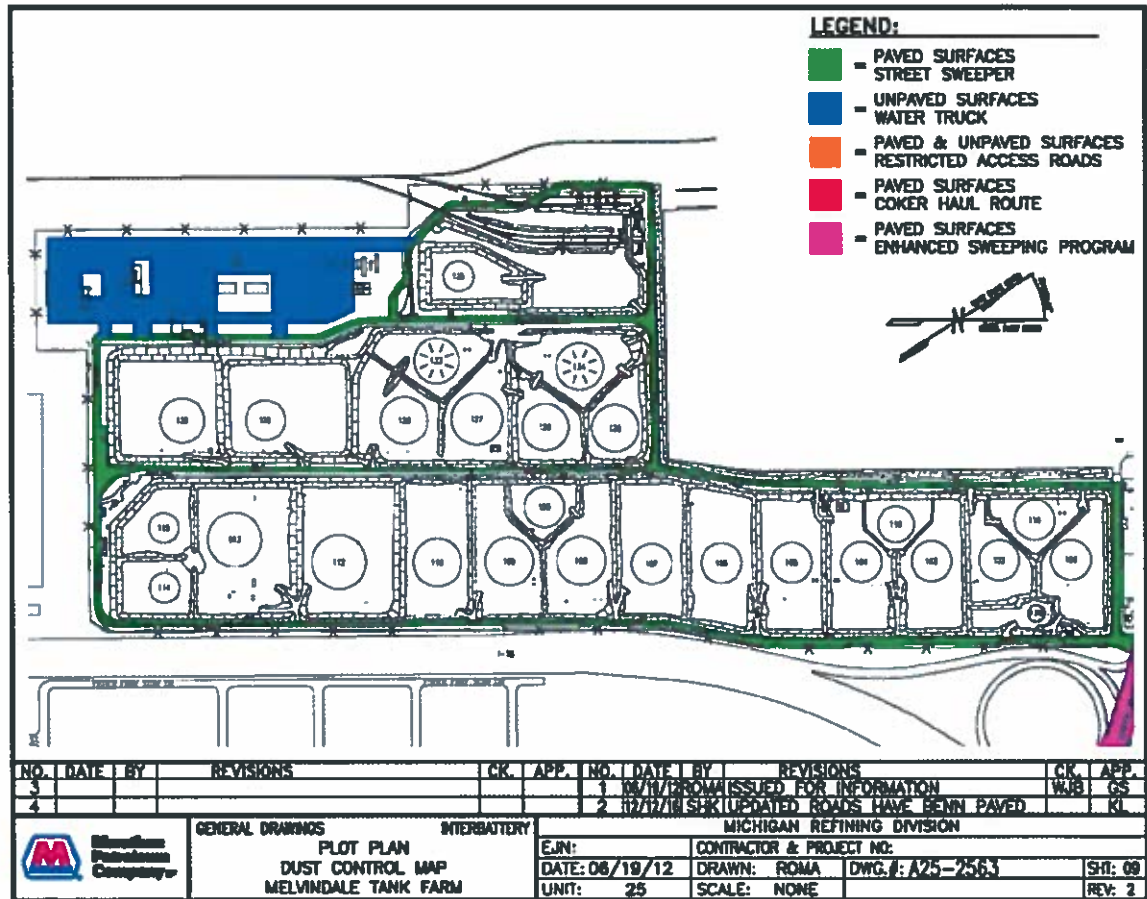
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EAST PLANT CRUDE TANK FARM



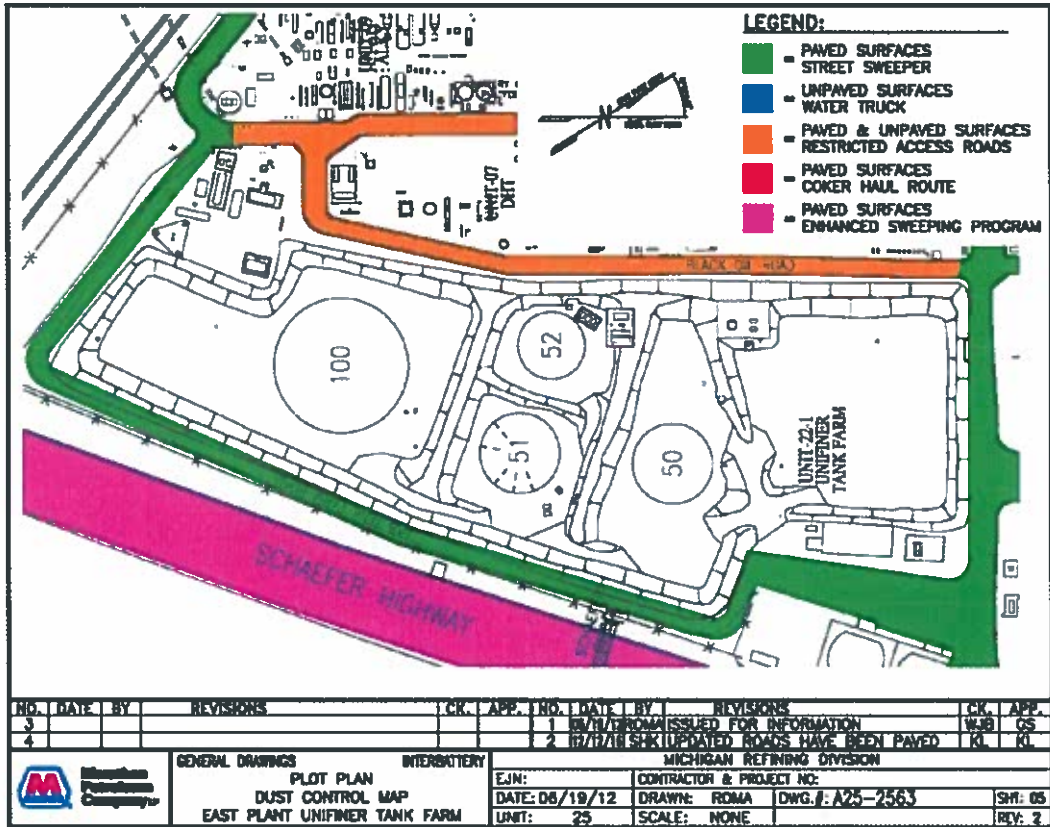
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MELVINDALE TANK FARM



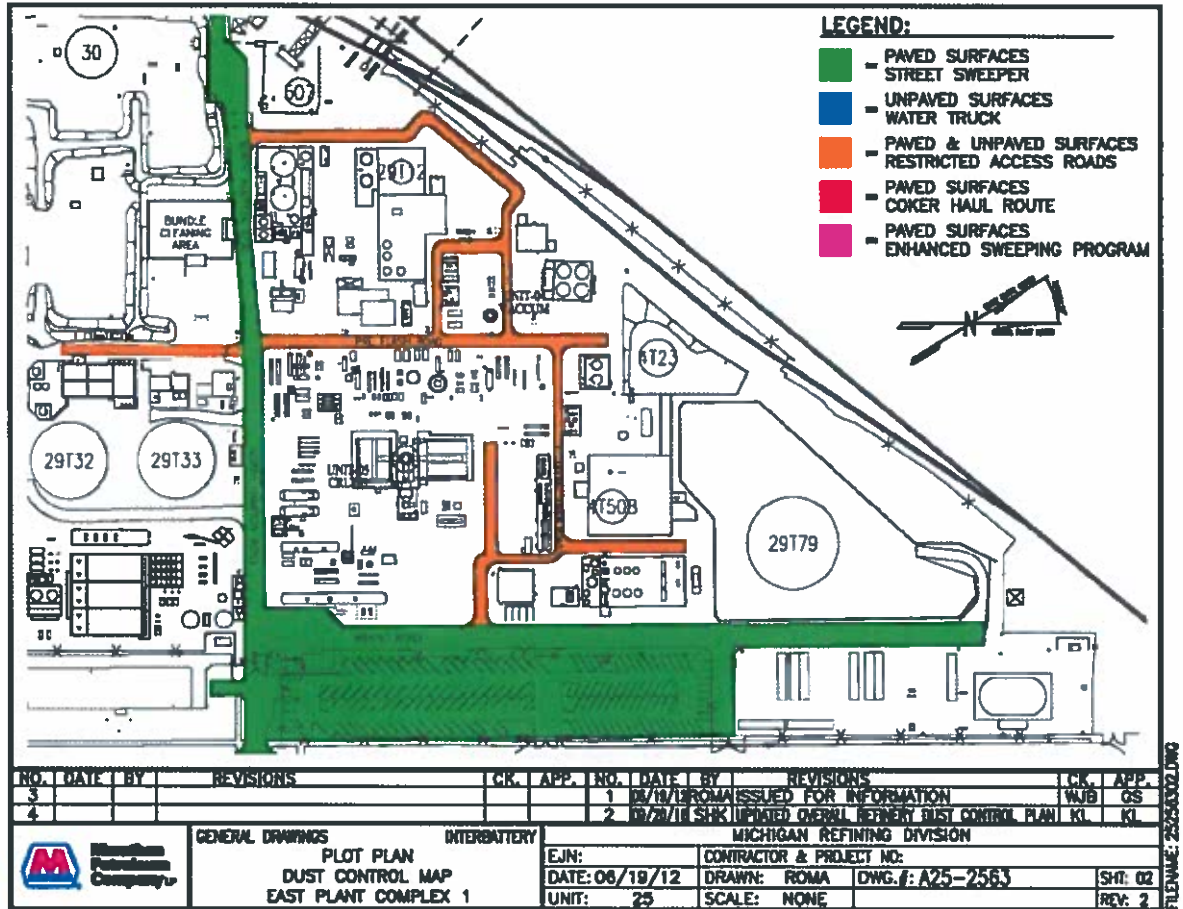
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EAST PLANT UNIFINER TANK FARM



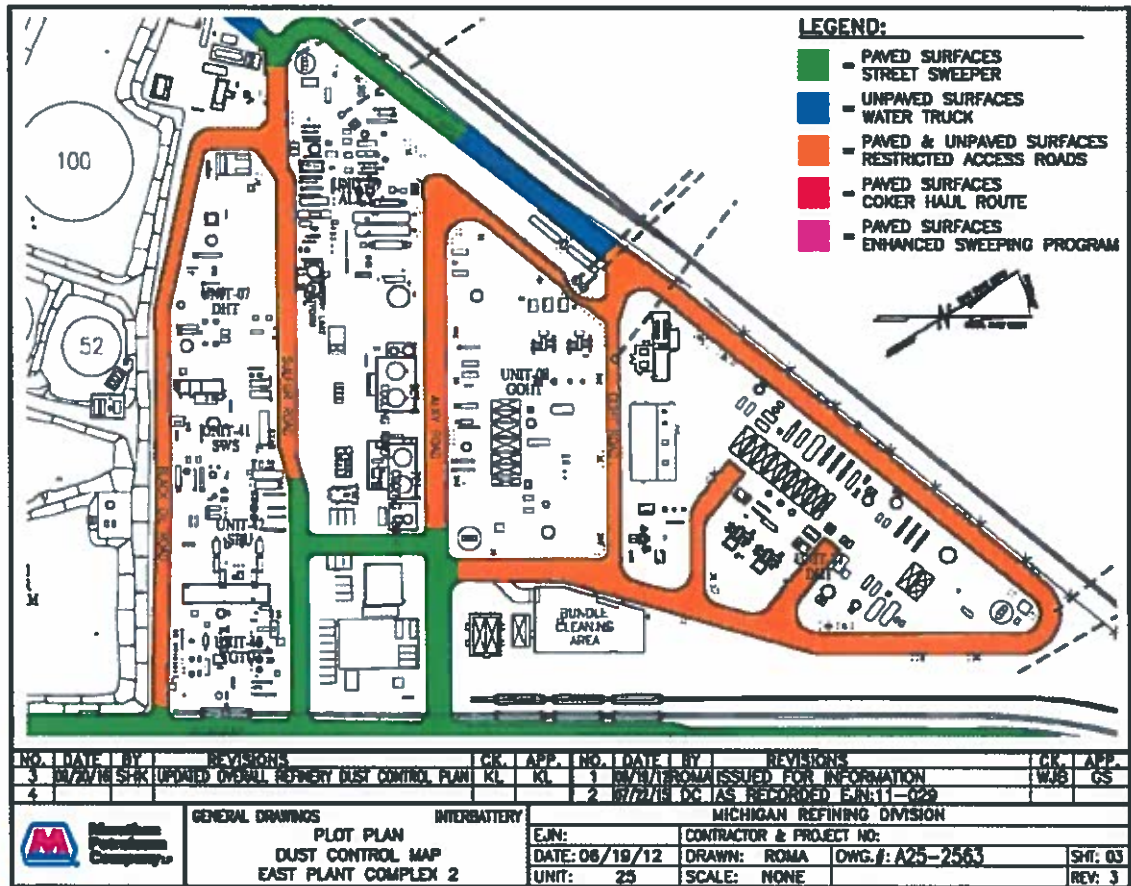
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EAST PLANT COMPLEX 1



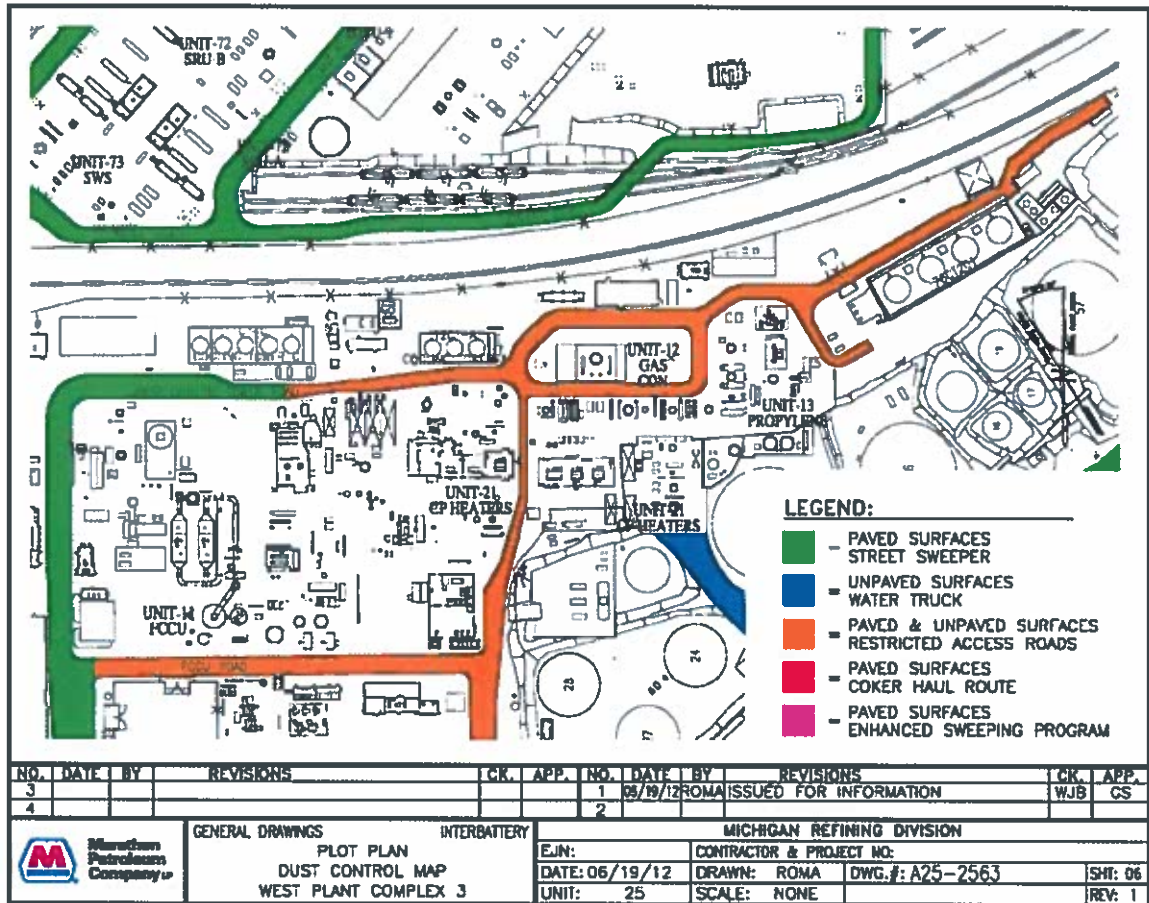
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EAST PLANT COMPLEX 2



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WEST PLANT COMPLEX 3



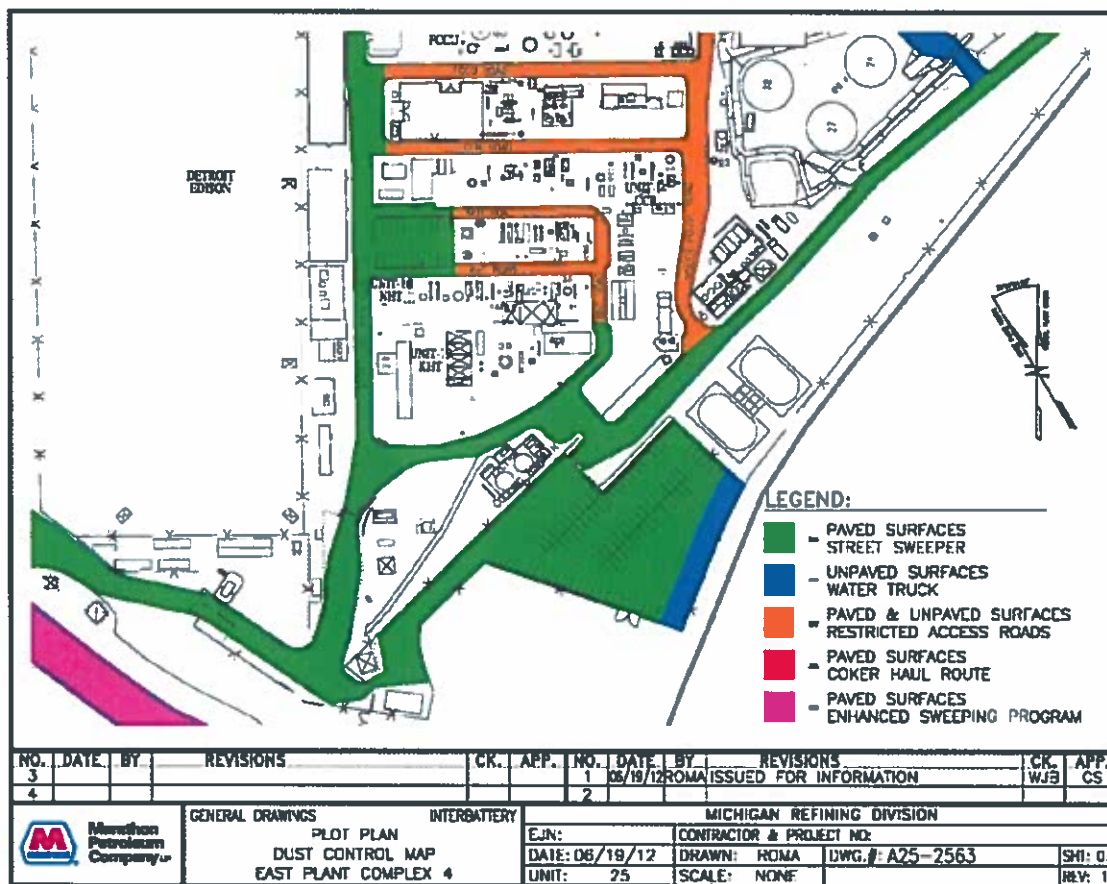
NO.	DATE	BY	REVISIONS	CK.	APP.	NO.	DATE	BY	REVISIONS	CK.	APP.
3						1	05/19/12	ROMA	ISSUED FOR INFORMATION	WJB	CS
4						2					

	GENERAL DRAWINGS	INTERBATTERY	MICHIGAN REFINING DIVISION			
	PLOT PLAN		CONTRACTOR & PROJECT NO:			
	DUST CONTROL MAP		DATE: 06/19/12	DRAWN: ROMA	DWG.#: A25-2563	SHT: 06
WEST PLANT COMPLEX 3		UNIT: 25	SCALE: NONE		REV: 1	

FILENAME: 25256306L.DWG

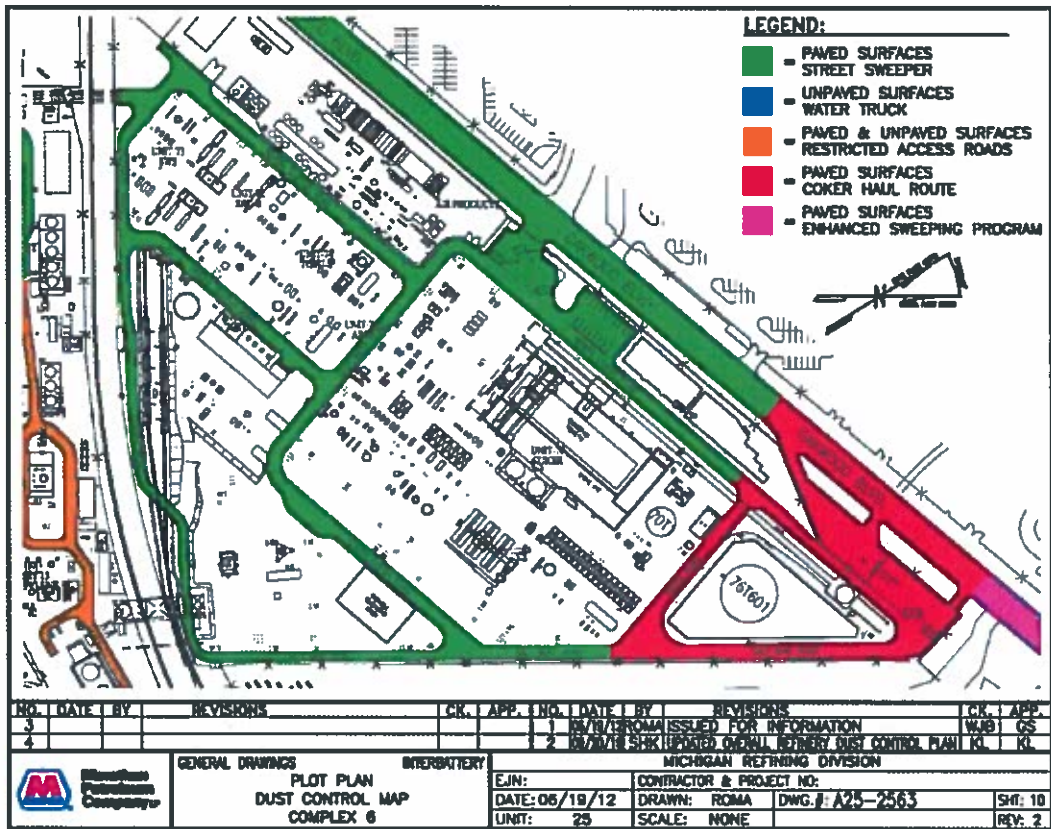
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WEST PLANT COMPLEX 4



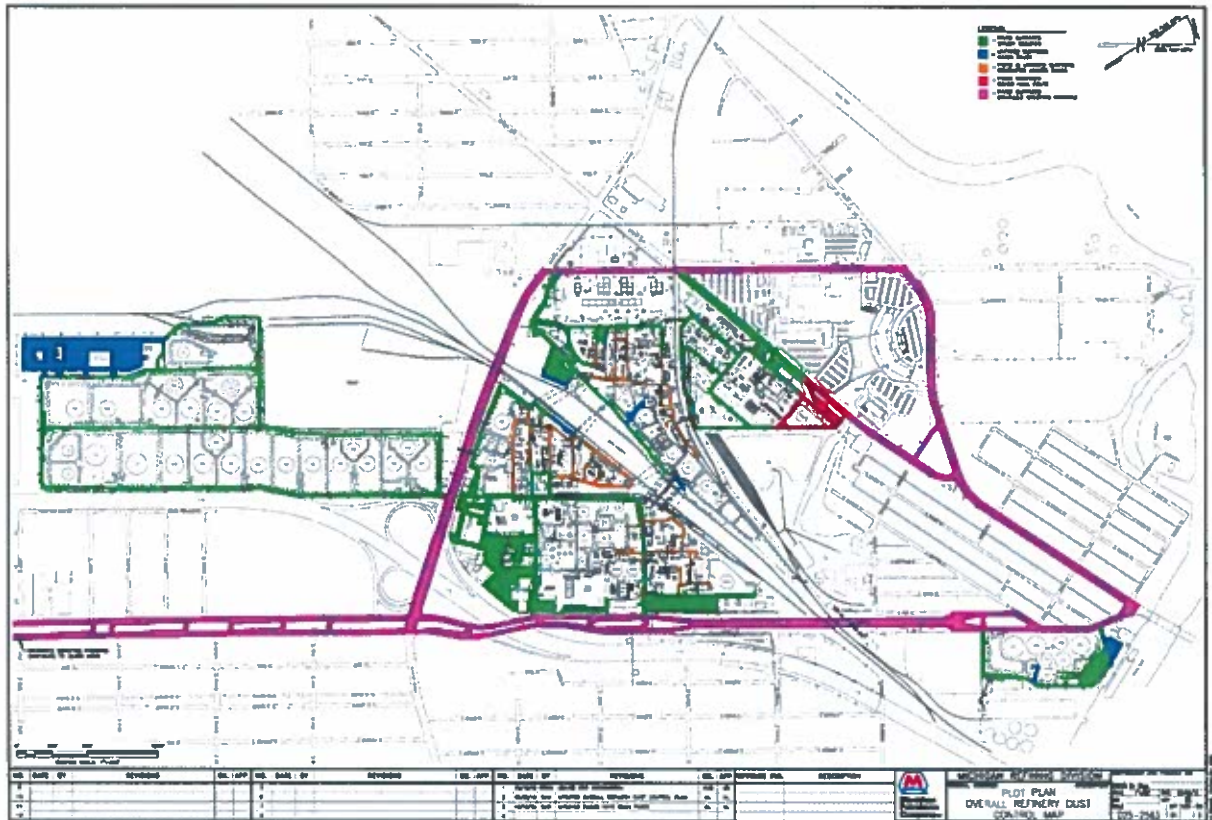
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NORTH PLANT COMPLEX 6



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OVERALL REFINERY DUST CONTROL MAP



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ATTACHMENT B OFFSET CALCULATIONS

PM OFFSET CALCULATIONS

Option	Total Road Length (miles)	Pre-Controlled Emission Rate (tons/yr)	Controlled Emission Rate (tons/yr)	PM Emission Offset (tons/yr)
Original Sweeping Plan (55.9% Control) - Once Per Month Sweeping for 12 Months	8.3	188.4	121.0	67.4
Updated Route/Traffic Volumes (80% Control) - Twice Monthly Sweeping for 6 Months	8.9	220.6	131.3	89.3

PM10 OFFSET CALCULATIONS

Option	Total Road Length (miles)	Pre-Controlled Emission Rate (tons/yr)	Controlled Emission Rate (tons/yr)	PM10 Emission Offset (tons/yr)
Original Sweeping Plan (55.9% Control) - Once Per Month Sweeping for 12 Months	8.3	33.3	19.7	13.5
Updated Route/Traffic Volumes (80% Control) - Twice Monthly Sweeping for 6 Months	8.9	38.6	24.7	13.9

Notes:

- Based on the paved roadway predictive emission factor equation, AP-42, Section 13.2.1.
- Road traffic volume data obtained from SEMCOG and MDOT traffic databases.
- Mean vehicle weight based on an estimated average of passenger vehicles, pickup trucks, gravel trains, and semi-tractor trailers.
- Surface silt loading data obtained from AP-42, Section 13.2.1 and is dependent on the amount of vehicle traffic and type of precipitation.
- Existing road control program consists of sweeping primary roads only 4-5 times per year; therefore, emissions based on an assumed 10% control efficiency.
- Original control program consists of sweeping once per month; therefore, emissions based on an assumed 55.9% control efficiency based upon a study with similar control strategy.

Key changes since original submittal:

- Sweeping route (have eliminated a portion of Oakwood Blvd and have added a portion of Dix Rd and Sanders Rd).
- Road traffic volume data from SEMCOG and MDOT has been updated.

PM OFFSET CALCULATIONS

Location	Direction of Travel	Road Length (miles)	SEMCOG Traffic Volume ¹ (vehicles/day)	MDOT Traffic Volume ² (vehicles/day)	Selected Traffic Volume ³ (vehicles/day)	Mean Vehicle Weight ⁴ (tons)	Surface Silt Loading ⁵ (lbs/MT)	PM Emission Rate (lb/MT)	Uncontrolled Emission Rate (tons/yr)	Production Emission Rate (tons/yr)	Controlled Emission Rate (tons/yr)	Silt Reduction ⁶ (By Enhanced Sweeping)	Surface Silt Loading ⁷ (lbs/MT)	PM Emission Rate (lb/MT)	Controlled Emission Rate (tons/yr)	PM Emission Offset (tons/yr)
Fort Street (Outer Drive to Mears)	NS	0.17	8,800	8,800	8,800	5.5	0.05	0.030	3.2	0	29.5	80%	0.02	0.004	26.3	3.1
Fort Street (Mears to Schaefer)	NS	1.8	9,200	9,200	9,200	5.5	0.03	0.018	16.4	0	1.6	80%	0.02	0.004	14.9	1.6
Fort Street (Schaefer to Mears Drive)	NS	1.5	9,200	9,200	9,200	5.5	0.03	0.015	12.3	0	2.1	80%	0.02	0.004	9.2	2.1
Fort Street (Schaefer to Dix Entrance)	NS	0.5	9,200	9,200	9,200	5.5	0.03	0.015	4.1	0	5.1	80%	0.02	0.004	2.0	3.1
Fort Street (Dix Entrance to Oakwood)	NS	1.05	9,200	9,200	9,200	5.5	0.03	0.030	20.2	0	8.2	80%	0.02	0.004	12.0	8.2
Fort Street (Oakwood to Schaefer)	NS	1.20	9,200	9,200	9,200	5.5	0.03	0.030	22.3	0	20.1	80%	0.02	0.004	11.1	8.2
Oakwood (Sanders to Fort)	NS	0.44	4,300	NO	4,300	5.5	0.20	0.040	11.5	0	9.1	80%	0.02	0.004	3.0	4.0
Oakwood (Fort to Sanders)	NS	0.44	4,300	NO	4,300	5.5	0.20	0.040	11.5	0	9.1	80%	0.02	0.004	3.0	4.0
Dix (Sanders to Schaefer)	NS	0.53	9,200	NO	9,200	5.5	0.03	0.030	11.0	0	8.1	80%	0.02	0.004	2.9	4.0
Dix (Schaefer to Sanders)	NS	0.53	9,200	NO	9,200	5.5	0.03	0.030	11.0	0	9.0	80%	0.02	0.004	2.9	3.1
Sanders (Dix to Oakwood)	NS	0.30	1,000	NO	1,000	5.5	0.20	0.040	2.5	0	2.7	80%	0.02	0.004	1.5	0.7
Sanders (Oakwood to Dix)	NS	0.30	1,000	NO	1,000	5.5	0.20	0.040	2.5	0	2.7	80%	0.02	0.004	1.5	0.7
Schaefer (Dix to Dix)	NS	0.15	20,000	NO	20,000	5.5	0.03	0.030	24.0	0	2.1	80%	0.02	0.004	2.1	0.0
Schaefer (Dix to Dix)	NS	0.15	20,000	NO	20,000	5.5	0.03	0.030	24.0	0	2.1	80%	0.02	0.004	2.1	0.0
Schaefer (Dix to Fort)	NS	0.15	20,000	NO	20,000	5.5	0.03	0.030	24.0	0	2.0	80%	0.02	0.004	2.0	1.0
Schaefer (Fort to Dix)	NS	0.15	20,000	NO	20,000	5.5	0.03	0.030	24.0	0	2.0	80%	0.02	0.004	2.0	1.0
Schaefer (Fort to Dix)	NS	0.15	20,000	NO	20,000	5.5	0.03	0.030	24.0	0	2.0	80%	0.02	0.004	2.0	1.0
Total:		8.7							228.6						91.7	69.9

PM10 OFFSET CALCULATIONS

Location	Direction of Travel	Road Length (miles)	SEMCOG Traffic Volume ¹ (vehicles/day)	MDOT Traffic Volume ² (vehicles/day)	Selected Traffic Volume ³ (vehicles/day)	Mean Vehicle Weight ⁴ (tons)	Surface Silt Loading ⁵ (lbs/MT)	PM10 Emission Rate (lb/MT)	Uncontrolled Emission Rate (tons/yr)	Production Emission Rate (tons/yr)	Controlled Emission Rate (tons/yr)	Silt Reduction ⁶ (By Enhanced Sweeping)	Surface Silt Loading ⁷ (lbs/MT)	PM10 Emission Rate (lb/MT)	Controlled Emission Rate (tons/yr)	PM10 Emission Offset (tons/yr)
Fort Street (Outer Drive to Mears)	NS	0.17	8,800	8,800	8,800	5.5	0.05	0.024	3.8	0	3.2	80%	0.02	0.003	2.4	1.4
Fort Street (Mears to Schaefer)	NS	1.8	9,200	9,200	9,200	5.5	0.03	0.020	16.4	0	0.8	80%	0.02	0.003	6.5	0.8
Fort Street (Schaefer to Mears Drive)	NS	1.5	9,200	9,200	9,200	5.5	0.03	0.024	12.3	0	2.7	80%	0.02	0.003	2.8	1.5
Fort Street (Schaefer to Dix Entrance)	NS	0.5	9,200	9,200	9,200	5.5	0.03	0.024	4.1	0	5.1	80%	0.02	0.003	0.9	0.7
Fort Street (Dix Entrance to Oakwood)	NS	1.05	9,200	9,200	9,200	5.5	0.03	0.030	16.4	0	8.2	80%	0.02	0.003	2.8	8.2
Fort Street (Oakwood to Schaefer)	NS	1.20	9,200	9,200	9,200	5.5	0.03	0.030	22.3	0	21.5	80%	0.02	0.003	2.8	1.3
Oakwood (Sanders to Fort)	NS	0.44	4,300	NO	4,300	5.5	0.20	0.025	2.7	0	2.7	80%	0.02	0.003	1.8	0.8
Oakwood (Fort to Sanders)	NS	0.44	4,300	NO	4,300	5.5	0.20	0.025	2.7	0	2.7	80%	0.02	0.003	1.8	0.8
Dix (Sanders to Schaefer)	NS	0.53	9,200	NO	9,200	5.5	0.03	0.030	11.0	0	8.1	80%	0.02	0.003	1.9	0.9
Dix (Schaefer to Sanders)	NS	0.53	9,200	NO	9,200	5.5	0.03	0.030	11.0	0	1.3	80%	0.02	0.003	1.2	0.7
Sanders (Dix to Oakwood)	NS	0.30	1,000	NO	1,000	5.5	0.20	0.025	0.9	0	0.7	80%	0.02	0.003	0.2	0.1
Sanders (Oakwood to Dix)	NS	0.30	1,000	NO	1,000	5.5	0.20	0.025	0.9	0	0.7	80%	0.02	0.003	0.2	0.1
Schaefer (Dix to Dix)	NS	0.15	20,000	NO	20,000	5.5	0.03	0.025	24.0	0	0.4	80%	0.02	0.003	0.2	0.1
Schaefer (Dix to Dix)	NS	0.15	20,000	NO	20,000	5.5	0.03	0.025	24.0	0	0.4	80%	0.02	0.003	0.2	0.0
Schaefer (Dix to Fort)	NS	0.15	20,000	NO	20,000	5.5	0.03	0.025	24.0	0	0.3	80%	0.02	0.003	0.2	0.2
Schaefer (Fort to Dix)	NS	0.15	20,000	NO	20,000	5.5	0.03	0.025	24.0	0	0.3	80%	0.02	0.003	0.2	0.2
Schaefer (Fort to Dix)	NS	0.15	20,000	NO	20,000	5.5	0.03	0.025	24.0	0	0.3	80%	0.02	0.003	0.2	0.2
Total:		8.7							39.6						13.9	13.9

Notes:

- Based on the paved roadway predictive emission factor equation, AP-42, Section 13.2.1 (Nov. 2005).
 - Road traffic volume data obtained from SEMCOG and MDOT traffic databases. Where data exists from both resources, the lower traffic volume was chosen. The traffic volume for Sanders streets is an estimate based on location and low onto speed traffic volume.
 - Mean vehicle weight based on an estimated average of passenger vehicles, pickup trucks, gravel trains, and semi-tractor trailers.
 - Surface silt loading data obtained from AP-42, Section 13.2.1 and is dependent on the amount of vehicle traffic and type of precipitation.
 - Existing road control program consists of sweeping primary roads only 4-5 times per year (for Dix Road, Wayne County); therefore, emissions based on an assumed 10% control efficiency.
 - Proposed control program consists of sweeping once per month; therefore, emissions based on an assumed 55.9% control efficiency based upon a study with similar control strategy.
- Key changes since original submittal:**
- Sweeping route (have eliminated a portion of Oakwood Blvd and have added a portion of Dix Rd and Sanders Rd)
 - Road traffic volume data from SEMCOG and MDOT has been updated.
 - The length of Sanders Road that extends from Dix Road to Oakwood Boulevard has recently been renamed Oakwood Boulevard.
 - Proposed control program consists of sweeping twice per month during the period May through October; therefore, emissions based on an assumed 80% control efficiency.

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Appendix D

Bulk Solid Material Ordinance Application for Variance