

Marathon Air Monitoring in SW Detroit

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Air Monitoring Unit

AWMA Air Monitoring Workshop
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Marathon Expansion

- Detroit Heavy Oil Upgrade Project (DHOUP)
 - Ability to process a new source of crude oil
 - Increase Refinery Capacity by 15%
- Community Groups and Sierra Club opposed to expansion

Marathon's Proactive Idea

- Marathon wanted to address citizen's concerns
- Marathon volunteered to install monitoring stations
- Marathon sought input from MDEQ and Sierra Club on monitor placement
 - Located one monitor at a school per Sierra Club's request

South West Detroit Area

Air Emission Sources and Air Monitoring Locations



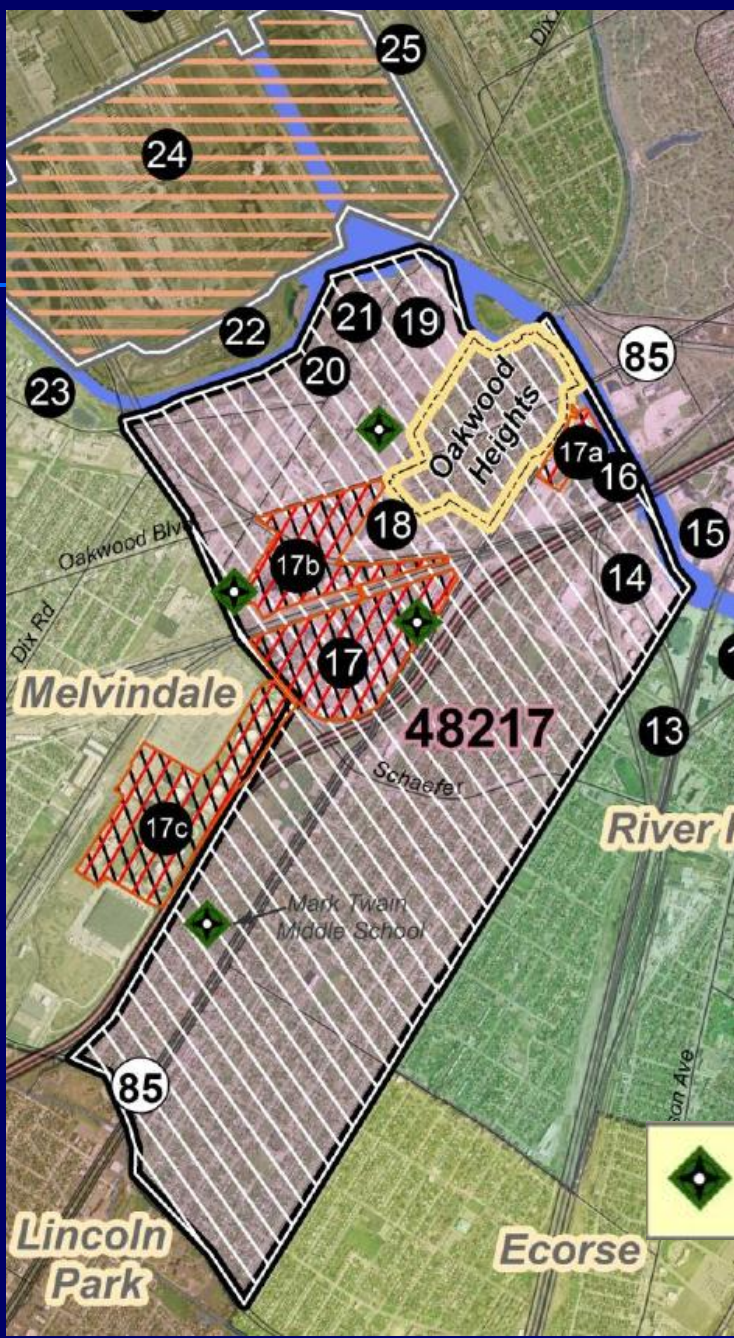
2012 sources that were required to report air emissions to the Michigan Air Emission Reporting System (MAERS):

- | | | |
|-----------------------------------|---|--------------------------------|
| 1 Praxair, Inc. | 11 United States Gypsum | 21 Sunoco Partners River Rouge |
| 2 Great Lakes Aggr. Oil Storage | 12 Detroit Wastewater Treatment Plant | 22 Edw. C. Levy Co. Plant 6 |
| 3 DTE - Electric, River Rouge | 13 Fabricon Products Inc. | 23 Darling International Inc. |
| 4 Fritz Products | 14 Buckeye Terminals | 24 Severstal Dearborn |
| 5 Buckeye Terminals, River Rouge | 15 St Mary's Cement | 25 Dearborn Industrial Gen. |
| 6 EES Coke Battery | 16 Great Lakes Petroleum | 26 Ford Motor |
| 7 U S Steel Great Lakes Works | 17 Marathon Petroleum Co. | 27 Xcel Steel Pickling |
| 8 DTE - Electric, Delray | 18 Detroit Salt Co. | 28 Edw. C. Levy Co. Plant 1 |
| 9 Detroit Public Lighting Depart. | 19 Recycling Treatment and Technologies | 29 Magni Industries |
| 10 Carmeuse Lime | 20 Cadillac Asphalt Products | |

Abbreviations:
 CO: carbon monoxide
 FRM: federal reference method
 NITC: New International Trade Crossing
 PM2.5: particulate matter <2.5µm diameter
 PM10: particulate matter <10µm diameter
 SO2: sulfur dioxide
 Spec.: speciation
 SVOC: semi-VOC
 TSP: total suspended particulate
 VOC: volatile organic compound



Marathon Monitoring Sites



 **Marathon Monitors:** *PM10, CO, SO2, Total Reduced Sulfur, VOCs*

Marathon Sites 1 & 2A



Site 1 "North"

Pictures: Courtesy of Marathon

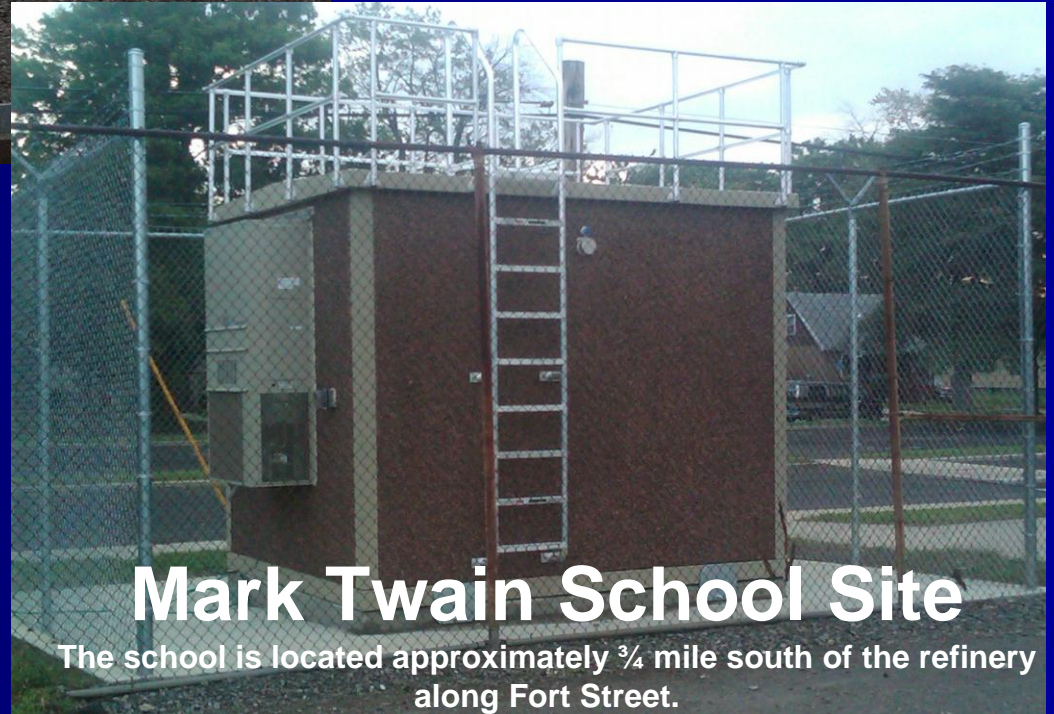


Site 2A "West"

Marathon Site 4 & Mark Twain School



Site 4 "East"



Mark Twain School Site

The school is located approximately $\frac{3}{4}$ mile south of the refinery along Fort Street.

Pictures: Courtesy of Marathon



What is Monitored?

- PM10 – Continuous
- CO
- SO₂
- Total Reduced Sulfur – includes H₂S, Methyl Mercaptan, Dimethyl Sulfide, and Dimethyl Disulfide
- VOCs
- Meteorological – WS, WD, Temp, RH, BP

Who Monitors?

- Marathon hired Enviroplan Consulting
- Enviroplan Consulting
 - Developed Monitoring Plan
 - Developed all QA/QC documents
 - Carries out Monitoring tasks
 - Conducts QA/QC checks

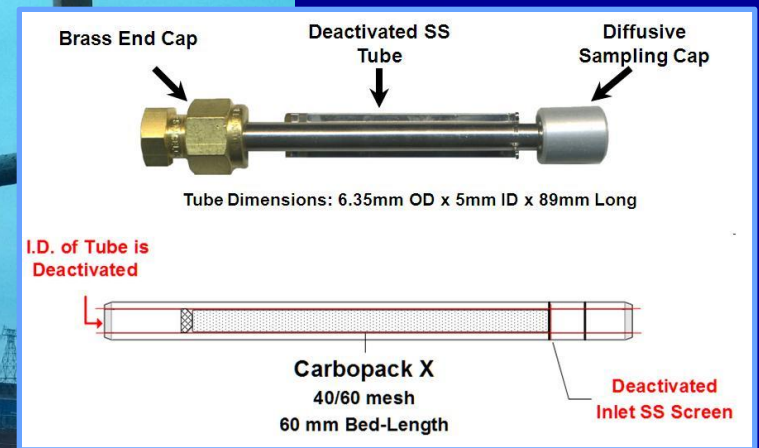
What is MDEQ – AQD Role?

- Approved Monitoring Plan
- Approved siting of all stations
- Review's monthly and quarterly data submittals
- Uploads data to EPA's AQS system
- Observes audits performed
- Discusses data issues with AQD District Staff and Marathon Staff

EPA Proposed Petroleum Rule – Monitoring Issues

- Requirement for VOC Monitoring at Refineries
 - Use of passive tubes at fence line of refinery
 - Two-week passive samples
 - Corrective Action Plan if Benzene above threshold

Passive Tube Technology



Monitoring Design

- Tubes would be located around fence line of facility, up to 24 tubes
- Tubes remain in place for two-weeks
- Tubes analyzed at a laboratory
- Tube with lowest concentration is considered background and this value is subtracted from remaining tubes
- Action Level – $9 \mu\text{g}/\text{m}^3$

Questions?



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