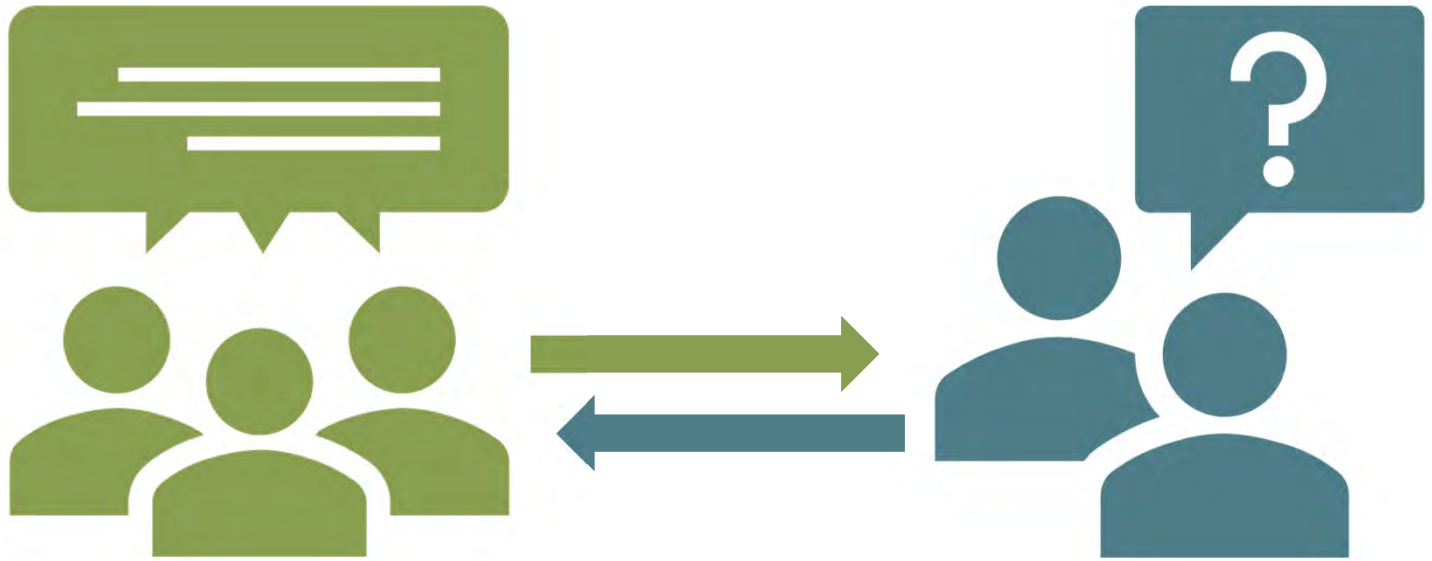
Community Update Meeting for the area around the Stellantis Detroit Assembly Complex

January 27, 2022

All lines are muted during the meeting.

We are recording this meeting.

How will things work tonight?



How to ask a question?

Use the "**Q/A**" box in at the bottom of your screen.

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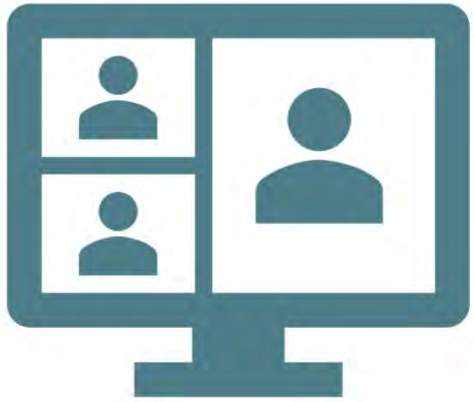
EGLE

Agenda

- Introduction of speakers and partners
- Background and company information
- Introduction of AQD Investigations
  - Odor observations
  - Violations
  - Stellantis Odor Plan
- Details of sampling events
  - EPA GMAP study
  - DHHS sampling
- Where to find other information
- Whom to contact with further questions



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COMMUNITY'S CONCERNS

- Our community is over-burdened and under-represented
- What is causing the odors?
- How are the odors affecting people’s health?
- What is being done to stop the odors?
- What is the overall air quality in this area?
- How is Stellantis being held accountable?

EGLE

COMPANY INFORMATION AND BACKGROUND

EGLE

Detroit Assembly Complex

- Jefferson North Assembly
- Mack Assembly (shown)
- Each facility consists of a Body Shop, a Paint Shop and General Assembly

Why are we here?

Community Concerns

	Odor Complaints Received
July	5
August	4
September	21
October	17
November	9
December	6
January	2

Violations issued to Stellantis

Community Concerns

4 Violations for Odors

1 Violation for improper Ducting

- Control Equipment – Concentrator & Regenerative Thermal Oxidizer (RTO)

Reported emissions and permit limits for VOCs

3rd/4th Quarter 2021	Reported lbs VOC per Job (Permit Limit)	Reported VOC ton per year (Permit Limit)
Mack Assembly	2.1 (3.0)	85.4 (381.2)
Jefferson North Assembly	4.7 (4.8)	659.7 (1085.8)

How has EGLE Responded and next steps?

- Respond to odor complaints and engage the public
- Conduct inspections and observe compliance tests
- Nuisance Odor Violations of Rule 901 and Enforcement
- Continue to collaborate with the city of Detroit, MDHHS, and USEPA

What has Stellantis been doing to reduce odors?

- Connected Primer Ambient Flash to existing Concentrator/RTO
- Completed a third-party odor study and odor mitigation plan January 2022
- New RTO for clearcoat observation and ambient flash zones.
- Proposed routing existing concentrator exhaust to the stack of the new RTO
- Proposed additional odor mitigation technologies for Primer/topcoat cooling tunnels and sludge tank exhaust

How to ask a question?

Use the "**Q/A**" box in at the bottom of your screen.

Click the "hand" icon at the bottom of your screen.

Type #2 into your phone.

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EGLE

Panel

Robert Byrnes – EGLE Inspector

Brandon Reid - DHHS

Marta Fuoco - USEPA

Jennine Camilleri – EGLE Enforcement

Jenifer Dixon – Moderator

Where to find other information

- Sampling maps and results
- Compliance information
- Permit information
- Odor Plans
- Links to meeting recordings
- More

Michigan.gov/EGLEStellantis

Who to contact with further questions

Robert Byrnes
EGLE Inspector
ByrnesR@Michigan.gov
517-275-0439

Brandon Reid
DHHS Toxicologist
ReidB1@Michigan.gov
517-897-3552

Marta Fuoco
USEPA
Fuoco.Marta@EPA.gov
312-866-6243

Jenine Camilleri
EGLE Enforcement
CamilleriJ@Michigan.gov
517-643-2612

Pollution Emergency Number: 800-292-4706/Detroit Complaint Line 313-456-4681

THANK YOU!

We will share the slides and a recording and subtitled copy of the today's conversation via email and on our website in the next few days.

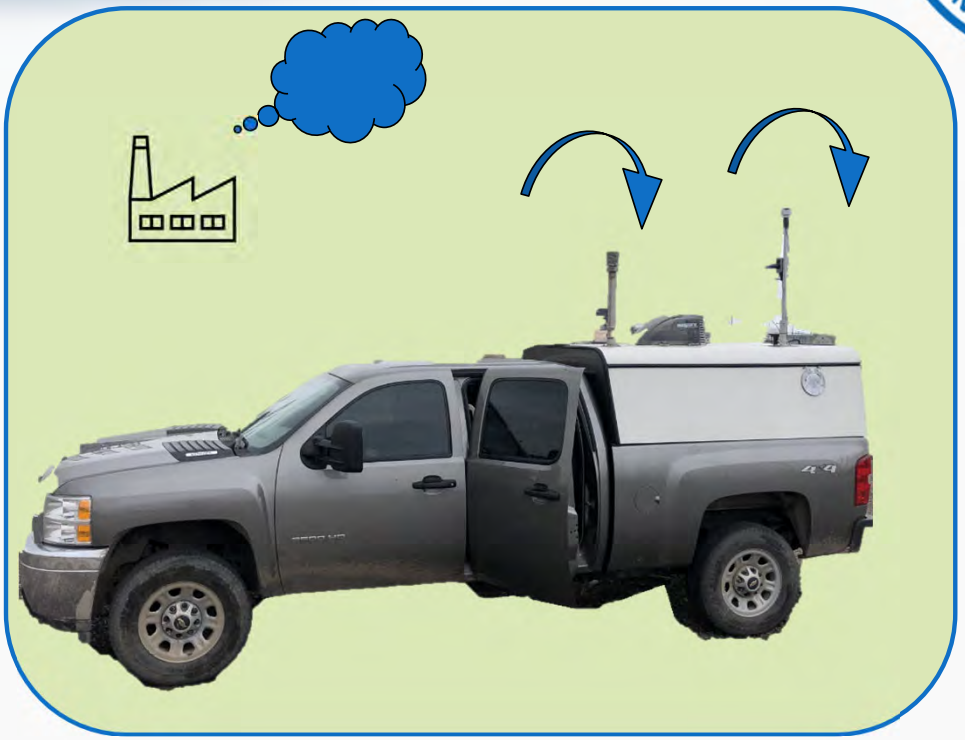
COMMUNITY UPDATE – STELLANTIS

GEOSPATIAL MONITORING OF AIR POLLUTION

MARTA A. FUOCO
US EPA R5

R5 Geospatial Monitoring of Air Pollution

1-second measurement
hydrogen sulfide (H_2S)
methane (CH_4)
benzene (C_6H_6)
toluene (C_7H_8)
p-xylene (C_8H_{10})
wind speed/wind direction
latitude/longitude



Marta A. Fuoco • U.S. EPA R5 • 312.886.6243 • Fuoco.Marta@epa.gov

EPA R5 MONITORING

- R5 EPA monitored in Detroit:
  - Spent 2 days in November 2021 under ideal monitoring conditions
  - Monitored using very specialized, sophisticated equipment
  - Dawn to dusk when conditions are ideal to measure heavy gas such as H_2S
  - Field staff observed odors

- Analyzed > 100,000 data points
  - Most values below reporting limits
    - Background levels of methane observed

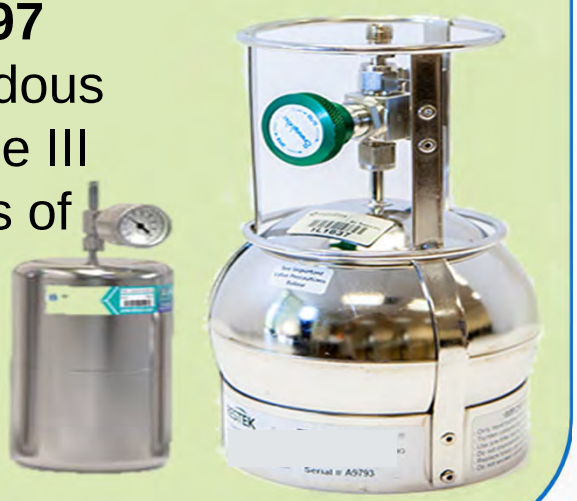
- Although we observed odor in the field, we did not measure any concentrations of the parameters that we could monitor for

Marta A. Fuoco • U.S. EPA R5 • 312.886.6243 • Fuoco.Marta@epa.gov

TO-15 SAMPLING

Chloromethane (methyl chloride), Carbonyl sulfide, Chloroethene (vinyl chloride), Diazomethane, Formaldehyde, 1,3-Butadiene (butadiene), Bromomethane (methyl bromide), Phosgene (carbonyl dichloride), Vinyl bromide (bromoethene), Ethylene oxide, Chloroethane (ethyl chloride), Acetaldehyde (ethanal), 1,1-Dichloroethene (vinylidene chloride), Propylene oxide, Methyl iodide (iodomethane), Dichloromethane (methylene chloride), Methyl isocyanate, Allyl chloride (3-chloropropene), Carbon disulfide (methanedithione), 2-Methoxy-2-methylpropane (methyl tert-butyl ether, MTBE), Propionaldehyde (propanal), 1,1-Dichloroethane (ethylidene chloride), 2-Chloro-1,3-butadiene (chloroprene), Chloromethyl methyl ether (chloro(methoxy)methane), 2-Propenal (acrolein), 1,2-Epoxybutane (1,2-butylene oxide), Trichloromethane (chloroform), Ethyleneimine (aziridine), 1,1-Dimethylhydrazine, Hexane, Propyleneimine (2-methylaziridine), 2-Propenenitrile (acrylonitrile), 1,1,1-Trichloroethane (methyl chloroform), Methanol (methyl alcohol), Carbon tetrachloride (tetrachloromethane), Ethenyl acetate (vinyl acetate), 2-Butanone (methyl ethyl ketone, MEK), Benzene, Acetonitrile (cyanomethane), 1,2-Dichloroethane (ethylene dichloride), Triethylamine (N,N-diethylethanamine), Methylhydrazine, 1,2-Dichloropropane (propylene dichloride), 2,2,4-Trimethylpentane (isooctane), 1,4-Dioxane (p-dioxane), bis(Chloromethyl) ether (chloro(chloromethoxy)methane), Ethyl acrylate (ethyl prop-2-enoate), Methyl methacrylate (methyl 2-methylprop-2-enoate), cis-1,3-Dichloropropene (cis-1,3-dichloropropylene), Toluene (methylbenzene), 1,1,2-Trichloroethene (trichloroethene), 1,1,2-Trichloroethane, Tetrachloroethene (perchloroethylene), Epichlorohydrin (2-(chloromethyl)oxirane), 1,2-Dibromoethane (ethylene dibromide), N-Nitroso-N-methylurea (1-methyl-1-nitrosourea), 2-Nitropropane, Chlorobenzene, Ethylbenzene, Xylenes (isomer and mixtures), Styrene (vinylbenzene), p-Xylene (1,4-xylene), m-Xylene (1,3-xylene), 4-Methyl-2-pentanone (methyl isobutyl ketone, MBK), Tribromomethane (bromoform), 1,1,2,2-Tetrachloroethane (tetrachloroethane), o-Xylene (1,2-xylene), Dimethylcarbamoyl chloride (dimethylcarbamyl chloride), N-Nitrosodimethylamine (N,N-dimethylnitrous amide), beta-Propiolactone, Isopropylbenzene (cumene), Acrylic acid (2-propenoic acid), N,N-Dimethylformamide, 1,3-Propane sultone, Acetophenone, Dimethyl sulfate, Chloromethylbenzene (benzyl chloride), 1,2-Dibromo-3-chloropropane, bis(2-Chloroethyl)ether, 2-Chloroacetic acid, Aniline (aminobenzene), p-Dichlorobenzene (1,4-dichlorobenzene), Ethyl carbamate (urethane), Acrylamide (2-propenamide), N,N-Dimethylaniline, Hexachloroethane (1,1,1,2,2,2-hexachloroethane), Hexachlorobutadiene (hexachloro-1,3-butadiene), Isophorone, N-Nitrosomorpholine (4-nitrosomorpholine), Styrene oxide (2-phenyloxirane), Diethyl sulfate, Cresylic acid (cresol isomer mixture), o-Cresol (2-methylphenol), Catechol (1,2-dihydroxybenzene), Phenol, 1,2,4-Trichlorobenzene, Nitrobenzene

TO-15 canister air sampling and analysis method provides procedures for **measuring a subset of the 97 VOCs** included in the 189 hazardous air pollutants (HAPs) listed in Title III of the Clean Air Act Amendments of 1990



BENCHMARKS

MOBILE MEASUREMENTS – MAY 11-13, 2021	H_2S (PPB)	CH_4 (PPM)	BEN (PPB)	TOL (PPB)	XYP (PPB)
ATSDR ACUTE (≤14 DAY) MRL	70	-	9	2000	2000
ATSDR INTERMEDIATE (15-364 DAYS) MRL	20	-	6	-	600
ATSDR CHRONIC (≥365 DAYS) MRL	-	-	3	1000	50
GMAP MINIMUM DETECTION LIMIT	7.86	0.00	4.80	3.69	4.05
GMAP REPORTING LIMIT	23.58	0.00	24.00	18.45	20.25

EPA's GMAP Reporting Limit for H2S is higher than ATSDR's intermediate H2S MRL
EPA's GMAP Reporting Limit for benzene is higher than ATSDR's acute, intermediate, and chronic MRL


Chandler Park Dr
E Warren Ave
Mack Ave
Dickerson Ave
48215
E Edsel Ford Fwy
Conner St
St Jean
E Jefferson
French Rd
Kercheval Ave
E Vernor Hwy
94
Google Earth
Image Landsat / Copernicus
3000 ft
N

CANISTER SAMPLES

EPA Monitoring Conclusion

1. Field operators smelled an odor however, sampling did not detect reportable concentrations of H_2S, benzene, toluene, or p-xylene with the GMAP. Methane was detected at background levels.
2. Additional canister samples were taken when staff were experiencing odors. Results identified nine compounds; all concentrations were below levels of health concern.
3. In August 2021, limited sampling near Stellantis was done as part of another project. Based on preliminarily validated data, no elevated concentrations were observed from the direction of the facility.
4. We will continue working to support EGLE.

Stellantis Community Update: MDHHS

Brandon Reid, Toxicologist

Michigan Department of Health and Human Services

January 27, 2021

MDHHS
Michigan Department of Health & Human Services

Overview

- MDHHS has reviewed air sampling data for the community surrounding the Stellantis Detroit Assembly Complex for health risks.
- No short-term or long-term health risks have been found based on currently available data. However, this data is limited.
- Foul odors, like the ones reported by residents near Stellantis, are a nuisance and can cause health symptoms that worsen quality of life.
- MDHHS will review future air sampling data and continue to work with our partners at EGLE, EPA, and ATSDR to protect the health and quality of life of communities near the facility.

MDHHS
Michigan Department of Health & Human Services

Why is MDHHS investigating air quality near Stellantis?

- Many residents have reported foul odors since Stellantis started operating new equipment in March 2021.
- Stellantis is located near several fenceline communities, which often are the most impacted by noise, odors, and chemical emissions from industrial plants.
- MDHHS reviews air sampling data to determine if levels of pollutants could cause a health risk.

MDHHS
Michigan Department of Health & Human Services

How can foul odors and chemicals impact my health?

- Odors are caused by substances in the air that have a scent.
- Foul odors worsen quality of life and can cause headaches, nausea, and irritation.
  - Most symptoms from foul odors go away when the odor is gone.
- **Environmental odors are a nuisance and unacceptable, but they do not cause chronic or long-lasting health effects.**
- This is different from chemicals that are toxic, which can cause health harms that are more severe or longer-lasting.
- The primary role of MDHHS is to find out whether air pollutants near the Stellantis Mack Plant could increase the risk of long-lasting health effects.

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Michigan Department of Health & Human Services

How do we review air data for health impacts?

1. We compile all air sampling or monitoring data for a community.

2. We compare the levels of chemicals in the samples against health risk comparison values (CVs).

Health risk comparison values are designed to be protective for everyone, even sensitive populations, based on the best available science.

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Michigan Department of Health & Human Services

Health Risk Comparison Values used in this assessment

Agency Name	Comparison Value Name	Is this value protective of short-term exposures to a chemical (less than one year) or long-term exposures (more than one year)?
	Acute and Intermediate Minimal Risk Level (MRL)	Short-term exposures
ATSDR	Chronic Minimal Risk Level (MRL)	Long-term exposures
EGLE	Residential Recommended Interim Action Screening Level (RIASL)	Long-term exposures
EGLE	Annual Interim Threshold Screening Level (ITSL)	Long-term exposures
EPA	Reference Concentration (RfC)	Long-term exposures
EPA	Indoor Air Regional Screening Level (RSL)	Long-term exposures
OEHHA	Chronic Reference Exposure Level (REL)	Long-term exposures

ATSDR = Agency for Toxic Substances and Disease Registry
EPA = Environmental Protection Agency
EGLE = Michigan Department of Environment, Great Lakes, and Energy
OEHHA= California Office of Environmental Health Hazard Assessment

You can click any of the comparison value names to go to a webpage with more information

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What data has been collected?

Study	Dates	Chemicals measured
Stellantis Monitoring and Periodic Air Sampling	January 2021-Present	Volatile Organic Compounds Particulate matter, Nitrogen oxides
EGLE MOOSE Air Quality Study	May-June 2021	Volatile Organic Compounds
EPA GMAP Mobile Monitoring Vehicle and Air Sampling	November 16 and 17, 2021	Volatile Organic Compounds Hydrogen Sulfide
MDHHS November Air Sampling and Monitoring	November 22, 2021	Volatile Organic Compounds Hydrogen Sulfide
MDHHS December Air Sampling	December 8 and 17, 2021	Volatile Organic Compounds Specific chemicals used at Stellantis

MDHHS has also reviewed the chemical compositions of products used at the Stellantis Mack Plant to identify chemicals used in their operations

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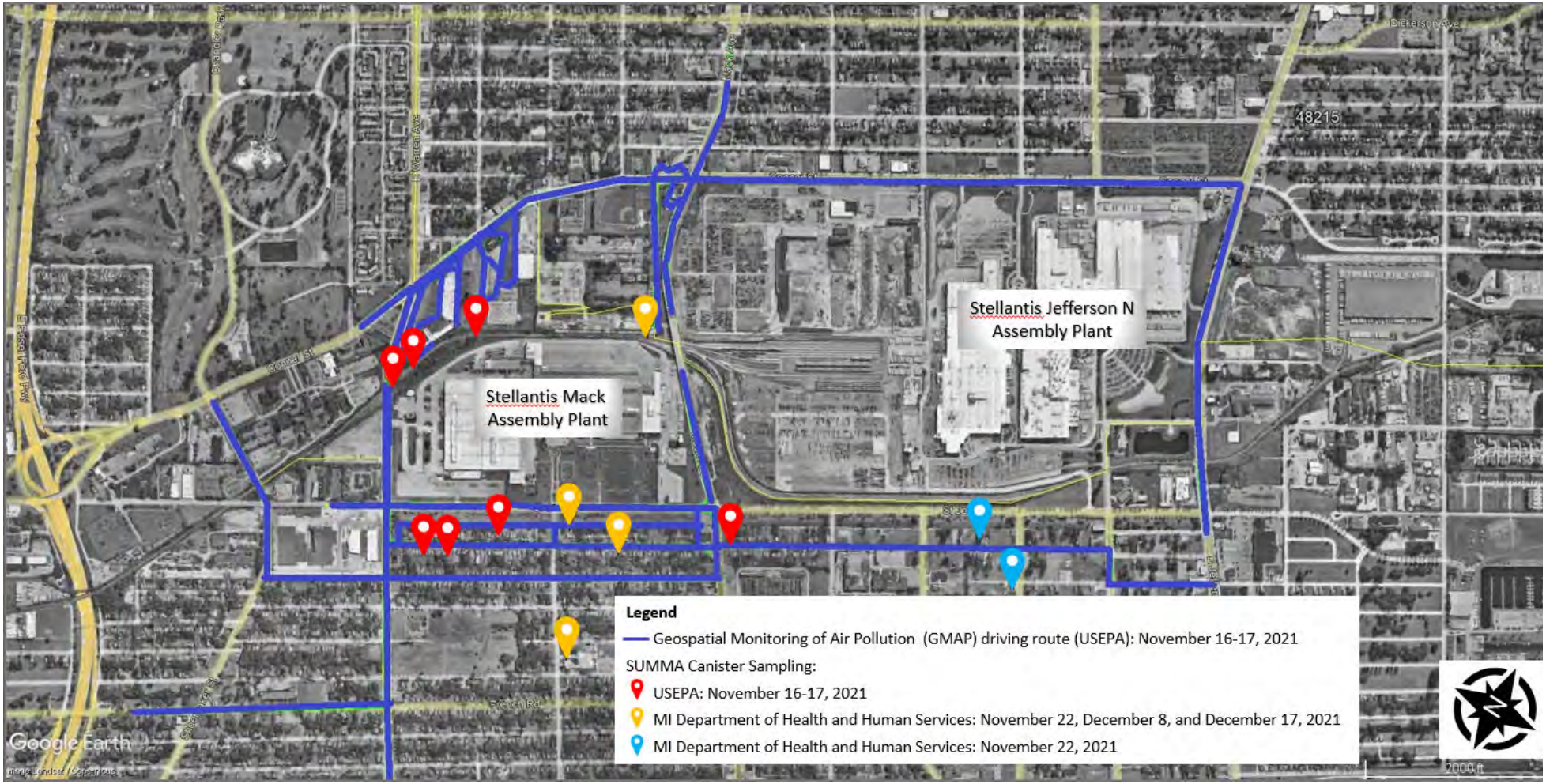
Michigan Department of Health & Human Services

Where has data been collected?



Data Review: Stellantis Monitoring and Sampling

- Stellantis installed an ambient air quality monitoring station at the Mack Plant (star).
  - This station monitors nitrogen oxides and particulate matter, which are air pollutants regulated through the EPA NAAQS Standards.
- Contaminant levels were below NAAQS standards from January-September 2021.
  - You can learn more about current levels of air pollutants like these at AirNow.gov.

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Data Review: EPA Monitoring and Sampling

- Results from EPA's air canister samples are included in the table to the right.
- 1,2,4-Trimethylbenzene, xylenes, and toluene are known to be used at the Stellantis Mack Plant.
- All chemicals detected in these samples were below their health risk comparison values.

Chemical	Result (ppb)	Comparison Value (ppb)	
1,2,3-Trimethylbenzene	ND-0.59	5	EPA Chronic p-RfC
1,2,4-Trimethylbenzene	ND-2.64	13	EGLE/MDHHS RIASL
1,3,5-Trimethylbenzene	ND-0.69	13	EGLE/MDHHS RIASL
Chloromethane	0.48-0.58	45	EGLE/MDHHS RIASL
Dichlorodifluoromethane	0.44-0.47	20.38	EPA Subchronic p-RfC
m & p-Xylene	ND-0.83	23	RMEG, total xylenes
n-Propylbenzene	ND-0.35	203	EPA Subchronic RfC
o-Xylene	ND-0.37	53	RMEG, total xylenes
Toluene	ND-0.29	1400	EGLE/MDHHS RIASL

Bold = used at Stellantis Mack Plant
ND = non-detect

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Data Review: Stellantis Monitoring and Sampling

- Stellantis also collected air canister samples periodically in 2021.
- These samples measured several chemicals used at the Stellantis Mack Plant.
  - Acetone, ethyl acetate, xylenes, methyl ethyl ketone, and toluene
- All chemicals detected in these samples were measured below their health risk comparison values.

Chemical	Result (ppb)	Comparison Value (ppb)	
Acetone	2.68-63.7	8,000	ATSDR Acute MRL
Benzene	ND-0.24	3	ATSDR Chronic MRL
Chloromethane	ND-0.58	45	EGLE/MDHHS RIASL
Dichlorodifluoromethane	ND-0.44	20.38	EPA Subchronic p-RfC
Ethyl acetate	ND-1.36	887	EGLE Annual ITSL
m-&p-xylene	ND-0.44	23	RMEG, total xylenes
Methyl ethyl ketone	ND-0.5	1700	ATSDR Acute MRL
n-Hexane	ND-21.2	200	ATSDR RMEG
Propylene	ND-0.22	1747	OEHHA Chronic REL
Toluene	ND-1.37	1400	EGLE/MDHHS RIASL
Trichlorofluoromethane	ND-0.22	23	EGLE Annual ITSL

Bold = used at Stellantis Mack Plant
ND = non-detect

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Michigan Department of Health & Human Services

Data Review: EGLE Detroit Air Quality Study

- EGLE conducted an air quality study in Southeast Michigan from May-June 2021
- EGLE used drones carrying mobile chemical monitors to 'map' levels of VOCs near several industrial plants, including the Stellantis Mack Plant.
- No chemicals were measured at levels above their health risk comparison values. However, several VOCs were measured at higher levels near the Stellantis Mack Plant.
  - Three of these chemicals, ethylbenzene, toluene, and xylenes, are used at the Stellantis Mack Plant
- EGLE is considering further drone analysis and air sampling near the plant in the future.

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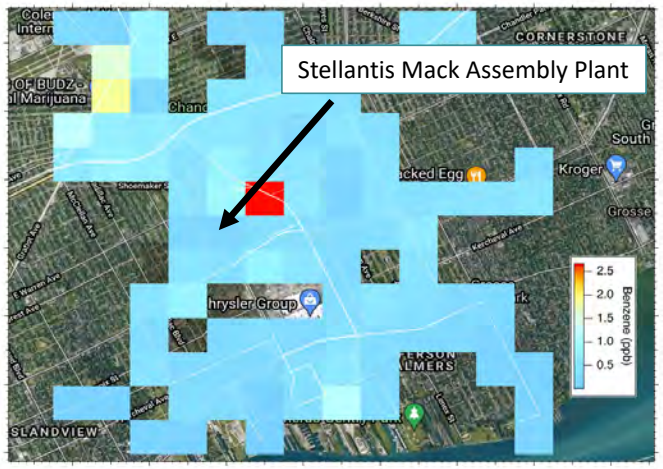
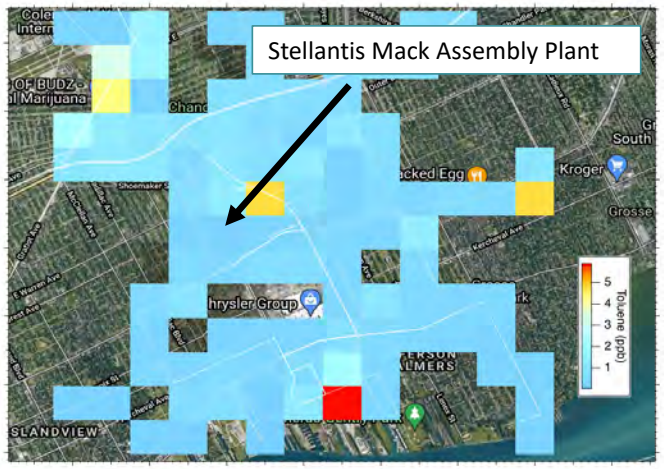
Data Review: EGLE Detroit Air Quality Study

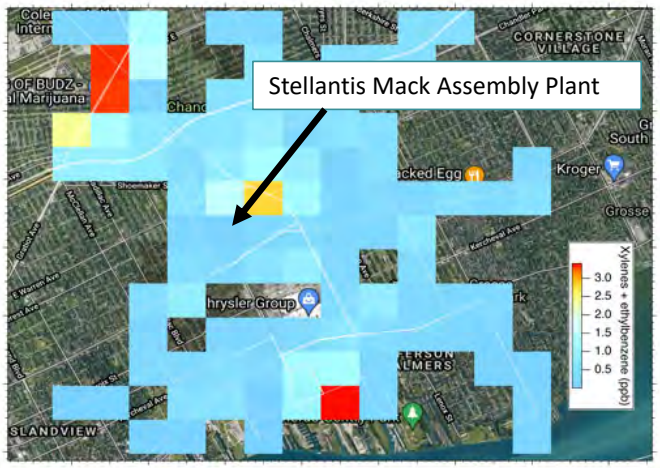
Benzene



Toluene



Xylenes + ethylbenzene



- Levels of benzene, toluene, and xylenes were elevated near the Stellantis Mack Plant compared to surrounding areas
  - Toluene, xylenes, and ethylbenzene are used at the Stellantis Mack Plant.

Additional maps of other pollutants are included at the end of these slides.

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Michigan Department of Health & Human Services

Data Review: MDHHS Monitoring and Sampling, November 22

- MDHHS conducted air monitoring of hydrogen sulfide and total VOCs in the community on November 22, 2021.
- Hydrogen sulfide levels were up to 3 ppb and total VOC levels ranged from 101-200 ppb.
  - Consistent with background levels of total VOCs in urban areas.
- Hydrogen sulfide and all chemicals detected from air samples were below their health risk comparison values.

Chemical	Result (ppb)	Comparison Value (ppb)	
Acetone	ND-1.1	8,000	ATSDR Acute MRL
Chloromethane	0.5-0.51	45	EGLE/MDHHS RIASL
Isopropyl alcohol	ND-1.9	81.5	EPA Indoor RSL
Hydrogen sulfide	ND-3	20	ATSDR Intermediate MRL

Bold = used at Stellantis Mack Plant
ND = non-detect

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Data Review: EPA Monitoring and Sampling

- As previously mentioned, EPA sampled the community surrounding the Stellantis facilities on November 16 and 17, 2021 using their GMAP mobile monitor.
- The GMAP vehicle monitors for the air pollutants hydrogen sulfide, methane, benzene, toluene, and xylene.
- No air pollutants were measured above reportable limits.

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Data Review: MDHHS Monitoring and Sampling, December 8 and 17

- MDHHS conducted extended air sampling on December 8 and 17, 2021.
  - In total, nearly 75 air samples were collected and analyzed over the two days of sampling.
- Acetone, toluene, and xylenes are known to be used at the Stellantis Mack Plant.
- All detected chemicals were below their health risk comparison values.

Chemical	Results (ppb) 12/8	12/17	Comparison Value (ppb)	
Acetone	ND-110	*	8000	Acute MRL
Acetonitrile	ND	ND-1.67	35	EPA RfC
Benzene	ND	ND-0.29	3	Chronic MRL
Chloromethane	ND-0.48	ND-0.53	45	RIASL
Dichlorodifluoromethane	ND-0.40	ND-1.5	20.38	EPA Subchronic p-RfC
Ethanol	ND-5.5	ND-11	10000	RIASL
Isopropyl alcohol	ND-3.4	ND	81.5	EPA PPRTV
m & p-Xylene	ND-0.25	ND-0.55	23	RMEG, total xylenes
Toluene	ND-0.29	ND-0.61	1400	RIASL

Bold = used at Stellantis Mack Plant
ND = non-detect
*Acetone was measured from some samples on December 17, but these samples were considered unreliable.

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Data Review: Odor Thresholds

Findings:

- No chemical levels exceeded any known odor thresholds.

Limitations:

- Some chemicals do not have odor thresholds.
- Some people who are particularly sensitive to odors may be able to detect odors below known thresholds.
- Methods used in air sampling can only measure certain chemicals.
- Sampling and monitoring are not fully representative of ambient air.
  - Sampling is ‘snapshot’ in time – odors may have been missed.

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Conclusions

- Around 20 unique chemicals were detected from samples in the community near the Stellantis Mack Plant.
  - 8 chemicals detected from community samples are known to be used at the Stellantis Mack Plant.
- All detected chemicals were below health risk comparison values.
- We have not identified any short-term or long-term health risks based on the available sampling data from the community near Stellantis.
- However, our data is limited and represents a ‘snapshot’ in time.
  - Chemical levels may vary daily and seasonally.

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Conclusions

- We have not identified the chemicals or substances responsible for the odors reported by residents who live near Stellantis.
  - None of the chemicals detected in air sampling were at levels above known odor thresholds at the time of sampling.
- However, odor nuisances in the community near Stellantis could still exist.
- Foul odors worsen quality of life and can cause symptoms like headaches, nausea, and respiratory irritation.

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Next Steps

- Review any future sampling results for health risks and to determine whether more samples should be collected.
- Continue evaluating odor complaint reports to inform future actions.
- Create a web page for Stellantis, where we will post full data reports and our evaluations.
- Complete a Health Consultation to share with the public, which will discuss our actions, data review, conclusions, and recommendations in greater detail.

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Additional resources

- To report an odor nuisance, contact the EGLE Detroit District Office: (313) 456-4700
- EGLE Webpage on Stellantis Facilities
- CDC Environmental Odor Search
- ATSDR Environmental Odors Frequently Asked Questions
- ATSDR Environmental Odors Fact Sheet

MDHHS
Michigan Department of Health & Human Services

Thank you!

Please do not hesitate to contact me with any questions or concerns.

Brandon Reid, Toxicologist

Division of Environmental Health

Email address: reidb1@michigan.gov

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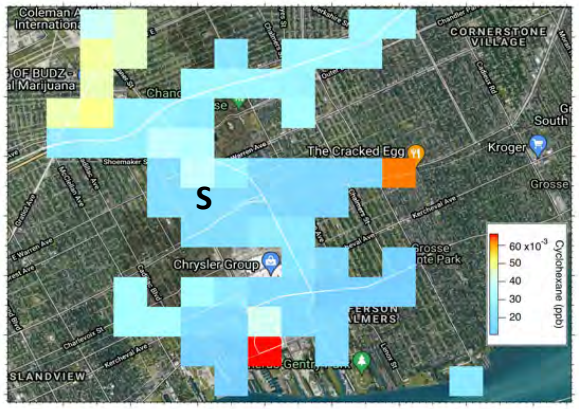
Michigan Department of Health & Human Services

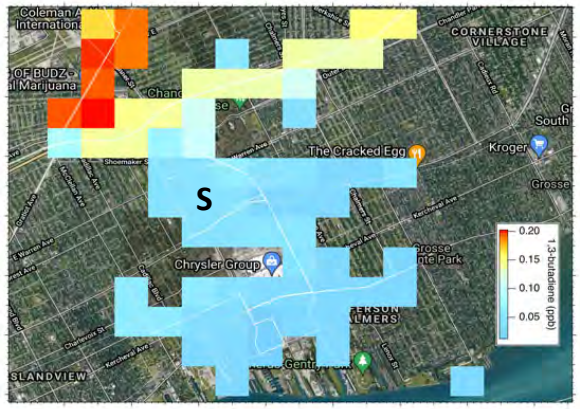
EGLE Detroit Air Quality Study: Additional Maps

n-Hexane

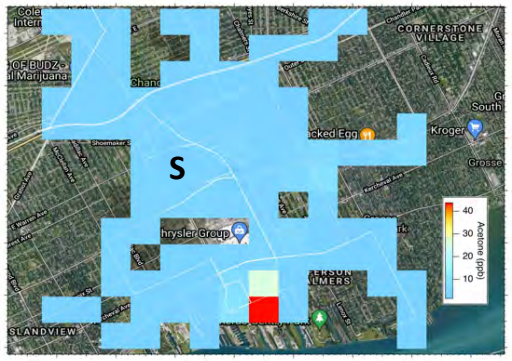
Cyclohexane



1,3-Butadiene

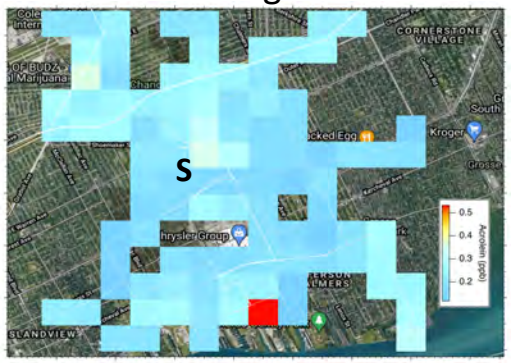


Acetone



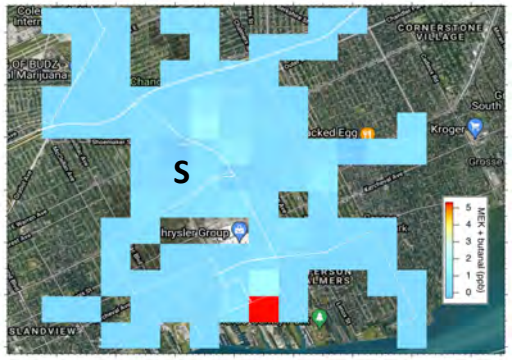
Acrolein

'irritating' odor



Methyl ethyl ketone + butanal

"Mild, minty" "pungent, aldehyde"



The 'S' shows the approximate location of the Stellantis Mack Assembly Plant.

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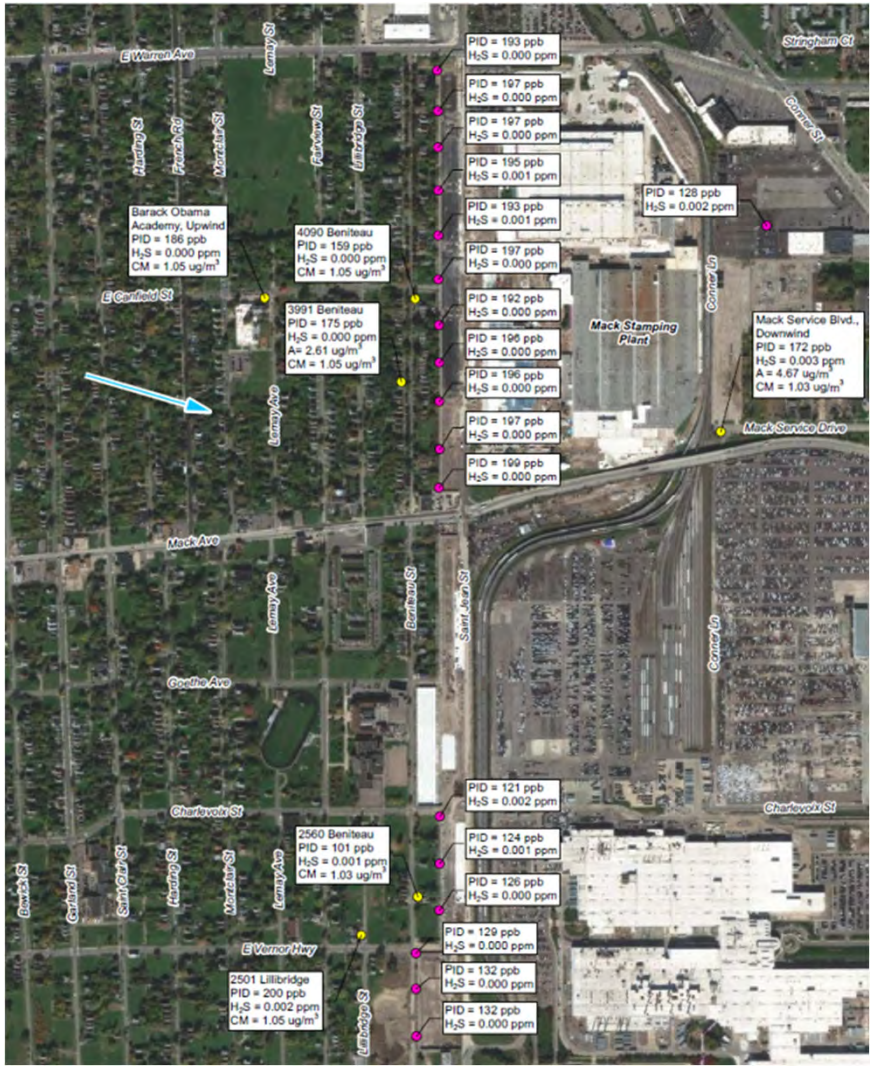

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EPA TO-15 Analytes

VOC (Alternative Name)[a]	Empirical Formula	CAS[b] Number
Propene (propylene)	C_3H_6	115-07-1
Dichlorodifluoromethane (Freon 12)	CCl_2F_2	75-71-8
Chloromethane (methyl chloride)	CH_3Cl	74-87-3
Chloroethene (vinyl chloride)	C_2H_3Cl	75-01-4
1,3-Butadiene (butadiene)	C_4H_6	106-99-0
1,2-Dichlorotetrafluoroethane (Freon 114)	$C_2Cl_2F_4$	76-14-2
Bromomethane (methyl bromide)	CH_3Br	74-83-9
Ethylene oxide	C_2H_4O	75-21-8
Chloroethane (ethyl chloride)	C_2H_5Cl	75-00-3
Trichlorofluoromethane (Freon 11)	$CFCl_3$	75-69-4
1,1-Dichloroethene (vinylidene chloride)	$C_2H_2Cl_2$	75-35-4

EPA TO-15 is the method used to analyze all air canister samples taken in this study. This is the list of all chemicals that can be detected by TO-15.

Method TO-15 Guide

Dichloromethane (methylene chloride)	CH_2Cl_2	75-09-2
Carbon disulfide (methanedithione)	CS_2	75-15-0
1,1,2-Trichlorotrifluoroethane (Freon 113)	$C_2Cl_3F_3$	76-13-1
2-Propenal (acrolein)	C_3H_4O	107-02-8
2-Methoxy-2-methylpropane (methyl *tert*-butyl ether, MTBE)	$C_5H_{12}O$	1634-04-4
2-Chloro-1,3-butadiene (chloroprene)	C_4H_5Cl	126-99-8
1,1-Dichloroethane (ethylidene chloride)	$C_2H_4Cl_2$	75-34-3
cis-1,2-Dichloroethene (*cis*-1,2-dichloroethylene)	$C_2H_2Cl_2$	156-59-2
trans-1,2-Dichloroethene (*trans*-1,2-dichloroethylene)	$C_2H_2Cl_2$	156-60-5
2-Propanone (acetone)	C_3H_6O	67-64-1
Trichloromethane (chloroform)	$CHCl_3$	67-66-3
Tetrahydrofuran (oxolane)	C_4H_8O	109-99-9
Hexane	C_6H_{14}	110-54-3
Isopropyl ether (diisopropyl ether)	$C_6H_{14}O$	108-20-3
1,1,1-Trichloroethane (methyl chloroform)	$C_2H_3Cl_3$	71-55-6
2-Ethoxy-2-methylpropane (ethyl *tert*-butyl ether, ETBE)	$C_6H_{14}O$	637-92-3
Methanol (methyl alcohol)	CH_4O	67-56-1
Carbon tetrachloride (tetrachloromethane)	CCl_4	56-23-5
Ethenyl acetate (vinyl acetate)	$C_4H_6O_2$	108-05-4
2-Propenenitrile (acrylonitrile)	C_3H_3N	107-13-1
2-Butanone (methyl ethyl ketone, MEK)	C_4H_8O	78-93-3
Cyclohexane	C_6H_{12}	110-82-7
Benzene	C_6H_6	71-43-2
Acetonitrile (cyanomethane)	C_2H_3N	75-05-8
Ethyl acetate	$C_4H_8O_2$	141-78-6
2-Methoxy-2-methylbutane (*tert*-amyl methyl ether)	$C_6H_{14}O$	994-05-8
1,2-Dichloroethane (ethylene dichloride)	$C_2H_4Cl_2$	107-06-2
1,1,2-Trichloroethene (trichloroethylene)	C_2HCl_3	79-01-6
Bromodichloromethane	$CHBrCl_2$	75-27-4
Ethanol (ethyl alcohol)	C_2H_6O	64-17-5
1,2-Dichloropropane (propylene dichloride)	$C_3H_6Cl_2$	78-87-5
Heptane	C_7H_{16}	142-82-5
2-Propanol (isopropanol)	C_3H_8O	67-63-0
2-Methyl-2-propanol (*tert*-butyl alcohol, TBA)	$C_4H_{10}O$	75-65-0
1,4-Dioxane (*p*-dioxane)	$C_4H_8O_2$	123-91-1
Methyl methacrylate (methyl 2-methylprop-2-enoate)	$C_5H_8O_2$	80-62-6
trans-1,3-Dichloropropene (*trans*-1,3-dichloropropylene)	$C_3H_4Cl_2$	10061-02-6
cis-1,3-Dichloropropene (*cis*-1,3-dichloropropylene)	$C_3H_4Cl_2$	10061-01-5
Toluene (methylbenzene)	C_7H_8	108-88-3
1,1,2-Trichloroethane	$C_2H_3Cl_3$	79-00-5

4-Methyl-2-pentanone (methyl isobutyl ketone, MIBK)	$C_6H_{12}O$	108-10-1
1,1,1,2-Tetrachloroethane	$C_2H_2Cl_4$	630-20-6
Tetrachloroethene (perchloroethylene)	C_2Cl_4	127-18-4
1,2-Dibromoethane (ethylene dibromide)	$C_2H_4Br_2$	106-93-4
Chlorobenzene	C_6H_5Cl	108-90-7
m-Xylene (1,3-xylene)	C_8H_{10}	108-38-3
p-Xylene (1,4-xylene)	C_8H_{10}	106-42-3
Isopropylbenzene (cumene)	C_9H_{12}	98-82-8
Ethylbenzene	C_8H_{10}	100-41-4
o-Xylene (1,2-xylene)	C_8H_{10}	95-47-6
Dibromochloromethane (chlorodibromomethane)	$CHBr_2Cl$	124-48-1
Styrene (vinylbenzene)	C_8H_8	100-42-5
1,1,2,2-Tetrachloroethane (tetrachloroethane)	$C_2H_2Cl_4$	79-34-5
Tribromomethane (bromoform)	$CHBr_3$	75-25-2
2-Chlorotoluene (1-chloro-2-methylbenzene)	C_7H_7Cl	95-49-8
4-Ethyltoluene (1-ethyl-4-methylbenzene)	C_9H_{12}	622-96-8
n-Propylbenzene	C_9H_{12}	103-65-1
sec-Butylbenzene (2-phenylbutane)	$C_{10}H_{14}$	135-98-8
tert-Butylbenzene	$C_{10}H_{14}$	98-06-6
m-Dichlorobenzene (1,3-dichlorobenzene)	$C_6H_4Cl_2$	541-73-1
Hexachlorobutadiene (hexachloro-1,3-butadiene)	C_4Cl_6	87-68-3
2-Hexanone (methyl butyl ketone, MBK)	$C_6H_{12}O$	591-78-6
2-Isopropyltoluene (*o*-cymene)	$C_{10}H_{14}$	527-84-4
1,2,4-Trimethylbenzene (pseudocumene)	C_9H_{12}	95-63-6
1,3,5-Trimethylbenzene (mesitylene)	C_9H_{12}	108-67-8
n-Butylbenzene	$C_{10}H_{14}$	104-51-8
Chloromethylbenzene (benzyl chloride)	C_7H_7Cl	100-44-7
o-Dichlorobenzene (1,2-dichlorobenzene)	$C_6H_4Cl_2$	95-50-1
p-Dichlorobenzene (1,4-dichlorobenzene)	$C_6H_4Cl_2$	106-46-7
1,2,4-Trichlorobenzene	$C_6H_3Cl_3$	120-82-1
Naphthalene (naphthene)	$C_{10}H_8$	91-20-3

Additional chemicals analyzed during MDHHS extended sampling

Method: EPA TO-17
Matrix: Air

Compound	CAS Number
4-Bromofluorobenzene	460-00-4
Propene	115-07-1
Dichlorodifluoromethane	75-71-8
Methyl chloride	74-87-3
Freon 114	76-14-2
Vinyl chloride	75-01-4
1,3-Butadiene	106-99-0
Bromomethane	74-83-9
Ethyl chloride	75-00-3
Ethanol	64-17-5
Isopropyl alcohol	67-63-0
Freon 11	75-69-4
Freon 113	76-13-1
1,1-Dichloroethene	75-35-4
Acetone	67-64-1
Carbon disulfide	75-15-0
Methylene chloride	75-09-2
trans-1,2-Dichloroethene	156-60-5
Methyl t-butyl ether	1634-04-4
Vinyl acetate	108-05-4
Methyl ethyl ketone	78-93-3
cis-1,2-Dichloroethene	156-59-2
1,1-Dichloroethane	75-34-3
Ethyl acetate	141-78-6
n-Hexane	110-54-3
Chloroform	67-66-3
Tetrahydrofuran	109-99-9
1,2-Dichloroethane	107-06-2
1,1,1-Trichloroethane	71-55-6
Carbon tetrachloride	56-23-5
Benzene	71-43-2
Cyclohexane	110-82-7
Trichloroethene	79-01-6
1,2-Dichloropropane	78-87-5
Bromodichloromethane	75-27-4
Heptane	142-82-5
cis-1,3-Dichloropropene	10061-01-5
Methyl isobutyl ketone	108-10-1

Method: EPA TO-17
Matrix: Air

Compound	CAS Number
trans-1,3-Dichloropropene	10061-02-6
1,1,2-Trichloroethane	79-00-5
Toluene	108-88-3
2-Hexanone	591-78-6
Tetrachloroethene	127-18-4
Dibromochloromethane	124-48-1
1,2-Dibromoethane	106-93-4
Chlorobenzene	108-90-7
Ethyl benzene	100-41-4
m,p-Xylene	179601-23-1
o-Xylene	95-47-6
Styrene	100-42-5
Bromoform	75-25-2
1,1,2,2-Tetrachloroethane	79-34-5
4-Ethyl toluene	622-96-8
1,3,5-Trimethylbenzene	108-67-8
1,2,4-Trimethylbenzene	95-63-6
1,3-Dichlorobenzene	541-73-1
1,4-Dichlorobenzene	106-46-7
Benzyl chloride	100-44-7
1,2-Dichlorobenzene	95-50-1
1,2,4-Trichlorobenzene	120-82-1
Hexachloro-1,3-butadiene	87-68-3

Additional chemicals analyzed during MDHHS extended sampling

n-Amyl acetate
1-Butyl acetate
Isobutyl acetate
Ethyl acrylate
2-Ethoxyethyl acetate
Methyl isoamyl acetate
n-Butyl acetate
n-Propyl acetate
sec-Butyl acetate
Isoamyl acetate
Ethyl acrylate
Naphthas
2-Methoxyethanol
2-Ethoxyethanol
2-Butoxyethanol

Acetaldehyde
Acrolein
Butyraldehyde
Crotonaldehyde
Formaldehyde
Furfural
Heptanal
Hexanal
Isobutyraldehyde
Isovaleraldehyde
Propionaldehyde
Valeraldehyde
Propylene glycol monomethyl ether
Dipropylene glycol monomethyl ether
Propylene glycol monomethyl ether acetate

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