TRANSMITTAL LETTER

ARCADIS

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From:
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Copies:

Date:
December 30, 2022

Subject:
Livonia Transmission Plant Utility Corridor Assessment – Monthly Update for the ResAP IRA Activities

Arcadis Project No.:
30146655

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MEMO

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From:

Kris Hinskey

Date:

December 30, 2022

Arcadis Project No.:

30146655

Subject:
Utility Corridor Assessment – Monthly Update for the ResAP IRA Activities
36200 Plymouth Road, Livonia, Wayne County, Michigan
Consent Decree No 2:1712372-GAD-RSW (CD)
Site ID No.: 82002970

On behalf of Ford Motor Company (Ford), Arcadis of Michigan, LLC (Arcadis) has prepared this memorandum (memo) for the Livonia Transmission Plant (LTP) site (the site). This memo is intended to update the Michigan Department of Environment, Great Lakes, and Energy (EGLE) with the most recent field activities related to the Response Activity Plan for Interim Response Activities (ResAP IRA) submitted to EGLE on May 31, 2022 (approved by EGLE June 23, 2022) and serve as the submittal for the month of December 2022. During the December 15, 2022 meeting with EGLE, Ford, and Arcadis, EGLE requested that the monthly RESP IRA update memo only contain activities related to the sanitary sewer vapor extraction (SSVE) system and will no longer document updates related to onsite sanitary sewer rehabilitation or the SSVE system influent and effluent sample results.

Utility Corridor Response Activity Plan for Interim Response Activities - Update

On-site Response Activities

Sanitary Sewer Vapor Extraction System Operation and Compliance Sampling

The sanitary sewer vapor extraction (SSVE) system continues to run at a flowrate of approximately 900 cubic feet per minute (cfm). Location of the SSVE system is provided in **Figure 1**. Compliance sampling continues to be completed monthly in accordance with the sampling frequency described in the ResAP IRA.

On December 13th, 2022, the SSVE unit was shut down by Arcadis for 2.9 hours to exchange the two SSVE media vessels with two new media vessels. The lead vessel was loaded with vapor phase granular activated carbon and the second vessel contained a zeolite impregnated with potassium permanganate. After the vessel exchange, the SSVE system was turned on to approximately 900 cfm. .

Following restart of the SSVE system, compliance samples were collected on December 15, 2022, and analytical results identified a site-specific vapor to indoor air criteria (SSVIAC) exceedance for vinyl chloride at compliance sampling location SAMH-1231 of 4.6 micrograms per cubic meter (µg/m3).Although there was an exceedance at compliance sample location SMAH-1231 analytical results for compliance sample location SL-2, which is downstream of SAMH-1231, was below the SSVIAC. Vapor grab sampling results to date for the SSVE compliance locations are included in **Table 1**. The next vapor sampling event of the compliance locations will be completed the week of January 9, 2023.

Overall, a significant decrease in analytical vapor concentrations at the compliance locations continues to be observed following the installation and operation of the SSVE system at the primary extraction location as detailed in **Exhibit 1** below.

Exhibit 1: Vapor Concentrations at Compliance Locations following On-Site SSVE System Installation

Structure	Pre-SSVE Installation (Baseline) Concentration (µg/m³) May 25, 2022	Compliance Sample Results (µg/m³) December 15, 2022
SAMH-1231	1,200 (VC)/29 (TCE)	4.6 (VC)/<1.0 (TCE)
SL-2	58 (VC)/2.8 (TCE)	<0.46 (VC)/<0.72 (TCE)

Notes:
µg/m³ = micrograms per cubic meter
TCE = trichloroethene
VC = vinyl chloride

< = Denotes not detected above method detection limit

In closing, information provided in this memo satisfies EGLE's request in the June 23, 2022, letter. Ford is commited to completing the activities outlined in the RespAP IRA and monthly field activities and data associated with the SSVE system will continue to be provided to EGLE in the subsequent memos.

Enc.

Table 1. FROG Screening and Co-located Grab Sampling Results
Figure 1. Utility Corridor Response Activities

Table 1

FROG Screening and Co-located Grab Sampling Results

Table 1
FROG Screening and Co-located Grab Sampling Results
Ford Livonia Transmission Plant
36200 Plymouth Road
Livonia, Michigan

Location:	EGLE Residential SSVIAC 24-hour exposure	SAMH-1244		SAMH-1231B		SAMH-1231		SAMH-1231		SAMH-1231		SAMH-1231		SAMH-1231		SAMH-1231		SAMH-1231	
Sample Name:		SSVE-MH-1244_052522		SSVE-MH-1231B_071422		SSVE-MH-1231_052522		SSVE-MH-1231_052622		SSVE-MH-1231_053122		SSVE-MH-1231_060822		SSVE-MH-1231_061022		SSVE-MH-1231_061522		SSVE-MH-1231_062322	
Sample Date:		5/25/2022		7/14/2022		5/25/2022		5/26/2022		5/31/2022		6/8/2022		6/10/2022		6/15/2022		6/23/2022	
Sample Time:		10:26		8:37		10:58		14:51		12:24		14:47		12:22		12:21		11:07	
Sample Type:		FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa*	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa
Volatile Organic Compounds (VOCs)																			
1,1-Dichloroethylene	210	NM	<0.60	NM	<0.60	NM	**9.3**	NM	<0.60	NM	<0.60	NM	<5.4	NM	<0.60	NM	<0.60	NM	<0.60
1,4-Dioxane	5.1	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<5.8	NM	<0.60	NM	<0.60	NM	<0.60
cis-1,2-Dichloroethylene	8.3	0.0	2.2	**241.16 J**	**1.0**	**292.63**	**870**	**75.93**	**1.1**	**57.49**	**2.2**	0.0	<5.5	0.0	<0.58	**37.17**	**7.6**	0.0	8.0
Tetrachloroethylene	41	0.0	<1.0	0.0	<1.0	0.0	3.2	0.0	<1.0	0.0	<1.0	**6.12 J**	<8.7	**7.28 J**	<1.0	**26.83 J**	<1.0	**9.41 J**	<1.0
trans-1,2-Dichloroethylene	83	0.0	<0.62	0.0	<0.62	0.0	14	0.0	<0.62	0.0	<0.62	0.0	<4.7	0.0	<0.62	0.0	<0.62	0.0	<0.62
Trichloroethylene	2.0	0.0	<0.72	**18.34 J**	<0.72	**12.94**	**29**	0.0	<0.72	0.0	<0.72	0.0	<9.4	0.0	<0.72	0.0	<0.72	0.0	<0.72
Vinyl chloride	1.6	NM	3.5	NM	<0.46	NM	1,200	NM	0.87	NM	1.8	NM	<6.7	NM	<0.46	NM	<0.46	NM	7.7

See Notes on last page

Table 1
FROG Screening and Co-located Grab Sampling Results
Ford Livonia Transmission Plant
36200 Plymouth Road
Livonia, Michigan

Location:	EGLE Residential SSVIAC 24-hour exposure	SAMH-1231		SAMH-1231		SAMH-1231		SAMH-1231		SAMH-1231		SAMH-1231		SAMH-1231		SAMH-1231		SAMH-1231	
Sample Name:		SSVE-MH-1231_063022		SSVE-MH-1231_070722		SSVE-MH-1231_071422		SSVE-MH-1231_071822		SSVE-MH-1231_072722		SSVE-MH-1231_080422		SSVE-MH-1231_081122		SSVE-MH-1231_081822		SSVE-MH-1231_082522	
Sample Date:		6/30/2022		7/7/2022		7/14/2022		7/18/2022		7/27/2022		8/4/2022		8/11/2022		8/18/2022		8/25/2022	
Sample Time:		9:34		9:43		8:08		11:21		11:01		10:48		10:16		13:36		10:21	
Sample Type:		FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa
Volatile Organic Compounds (VOCs)																			
1,1-Dichloroethylene	210	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.6	NM	<0.6	NM	<0.6	NM	<0.6	NM	<0.6
1,4-Dioxane	5.1	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.6	NM	<0.6	NM	<0.6	NM	<0.6	NM	<0.6
cis-1,2-Dichloroethylene	8.3	**71.54**	<0.58	0.0	<0.58	**179.88**	<0.58	0.0	<0.58	0.0	87 J	0.0	3.1	0.0	<0.58	0.0	<0.58	**127.87**	<0.58
Tetrachloroethylene	41	0.0	<1.0	0.0	<1.0	0.0	<1.0	0.0	<1.0	0.0	<1.0	0.0	1.1 J	0.0	<1.0	0.0	<1.0	0.0	<1.0
trans-1,2-Dichloroethylene	83	0.0	<0.62	0.0	<0.62	0.0	<0.62	0.0	<0.62	**58.43 J**	**1.3**	0.0	<0.62	**218.41 J**	<0.62	0.0	<0.62	0.0	<0.62
Trichloroethylene	2.0	0.0	<0.72	0.0	<0.72	0.0	<0.72	0.0	<0.72	0.0	2.1	0.0	<0.72	0.0	<0.72	0.0	<0.72	**29.45 J**	<0.72
Vinyl chloride	1.6	NM	<0.46	NM	<0.46	NM	<0.46	NM	<0.46	NM	41	NM	3.3	NM	<0.46	NM	<0.46	NM	<0.46

See Notes on last page

Table 1
FROG Screening and Co-located Grab Sampling Results
Ford Livonia Transmission Plant
36200 Plymouth Road
Livonia, Michigan

Location:	EGLE Residential SSVIAC 24-hour exposure	SAMH-1231		SAMH-1231		SAMH-1231	SAMH-1231	SAMH-1231	SAMH-1231	SL-2		SL-2		SL-2	
Sample Name:		SSVE-MH-1231_090122		SSVE-MH-1231_090822		SSVE-MH-1231_100322	SSVE-MH-1231_110422	SSVE-MH-1231_111522	SSVE-MH-1231_121522	SSVE-SL-2_052522		SSVE-SL-2_052622		SSVE-SL-2_053122	
Sample Date:		9/1/2022		9/8/2022		10/3/2022	11/4/2022	11/15/2022	12/15/2022	5/25/2022		5/26/2022		5/31/2022	
Sample Time:		12:21		11:51		12:46	13:03	9:40	11:41	11:34		15:36		11:38	
Sample Type:		FROG-5000	Summa	FROG-5000	Summa	Summa	Summa	Summa	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa
Volatile Organic Compounds (VOCs)															
1,1-Dichloroethylene	210	NM	<0.6	NM	<0.6	<0.6	<0.6	<0.60	<0.60	NM	<0.60	NM	<0.60	NM	<0.60
1,4-Dioxane	5.1	NM	<0.6	NM	<0.6	<0.6	<0.6	<0.60	<0.60	NM	<0.60	NM	<0.60	NM	<0.60
cis-1,2-Dichloroethylene	8.3	**761.34**	<0.58	NM	<0.58	<0.58	7.1	1.5	11	**114.66**	**57**	**72.7**	<0.58	**325.89**	**6.3**
Tetrachloroethylene	41	0	<1.0	0.0	<1.0	<1.0	<1.0	<1.0	<1.0	0	**14**	0.0	<1.0	0.0	1.2 J
trans-1,2-Dichloroethylene	83	0	<0.62	**131.35**	<0.62	<0.62	<0.62	<0.62	<0.62	0	<0.62	0.0	<0.62	0.0	<0.62
Trichloroethylene	2.0	0	<0.72	0.0	<0.72	<0.72	<0.72	<0.72	1.0 J	**38.33**	**2.8**	0.0	<0.72	0.0	<0.72
Vinyl chloride	1.6	NM	<0.46	NM	<0.46	<0.46	3.6	<0.46	4.6	NM	**58**	NM	<0.46	NM	6.5

See Notes on last page

Table 1
FROG Screening and Co-located Grab Sampling Results
Ford Livonia Transmission Plant
36200 Plymouth Road
Livonia, Michigan

Location:	EGLE Residential SSVIAC 24-hour exposure	SL-2		SL-2		SL-2		SL-2		SL-2		SL-2		SL-2		SL-2		SL-2	
Sample Name:		SSVE-SL-2_060822		SSVE-SL-2_061022		SSVE-SL-2_061522		SSVE-SL-2_062322		SSVE-SL-2_063022		SSVE-SL-2_070722		SSVE-SL-2_071422		SSVE-SL-2_071822		SSVE-SL-2_072722	
Sample Date:		6/8/2022		6/10/2022		6/15/2022		6/23/2022		6/30/2022		7/7/2022		7/14/2022		7/18/2022		7/27/2022	
Sample Time:		15:35		14:15		13:22		10:36		9:04		9:14		12:54		10:21		11:37	
Sample Type:		FROG-5000	Summa*	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa
Volatile Organic Compounds (VOCs)																			
1,1-Dichloroethylene	210	NM	<5.7	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60
1,4-Dioxane	5.1	NM	<6.0	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60
cis-1,2-Dichloroethylene	8.3	0.0	19	0.0	<0.58	0.0	<0.58	0.0	0.63 J	**129.12**	<0.58	**112.53**	<0.58	**178.46 J**	<0.58	0.0	2.6	0.0	<0.58
Tetrachloroethylene	41	**5.73 J**	<9.1	0.0	<1.0	0.0	<1.0	0.0	<1.0	0.0	<1.0	0.0	<1.0	0.0	<1.0	0.0	1.2 J	0.0	<1.0
trans-1,2-Dichloroethylene	83	0.0	<4.9	0.0	<0.62	0.0	<0.62	0.0	<0.62	0.0	<0.62	0.0	<0.62	0.0	<0.62	0.0	1.7	**1,195.43 J**	<0.62
Trichloroethylene	2.0	0.0	<9.7	0.0	<0.72	0.0	<0.72	0.0	<0.72	0.0	<0.72	0.0	<0.72	0.0	<0.72	0.0	0.80 J	0.0	<0.72
Vinyl chloride	1.6	NM	<7.0	NM	<0.46	NM	<0.46	NM	<0.46	NM	<0.46	NM	<0.46	NM	<0.46	NM	0.59	NM	<0.46

See Notes on last page

Table 1
FROG Screening and Co-located Grab Sampling Results
Ford Livonia Transmission Plant
36200 Plymouth Road
Livonia, Michigan

Location:	EGLE Residential SSVIAC 24-hour exposure	SL-2		SL-2		SL-2		SL-2		SL-2		SL-2		SL-2	SL-2	SL-2	SL-2
Sample Name:		SSVE-SL-2_080422		SSVE-SL-2_081122		SSVE-SL-2_081822		SSVE-SL-2_082522		SSVE-SL-2_090122		SSVE-SL-2_090822		SSVE-SL-2_100322	SSVE-SL-2_110422	SSVE-SL-2_111522	SSVE-SL-2_121522
Sample Date:		8/4/2022		8/11/2022		8/18/2022		8/25/2022		9/1/2022		9/8/2022		10/3/2022	11/4/2022	11/15/2022	12/15/2022
Sample Time:		12:44		10:53		14:04		14:11		13:36		10:08		13:01	13:13	9:52	11:32
Sample Type:		FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	FROG-5000	Summa	Summa	Summa	Summa	Summa
Volatile Organic Compounds (VOCs)																	
1,1-Dichloroethylene	210	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	<0.60	<0.60	<0.60	<0.60
1,4-Dioxane	5.1	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	NM	<0.60	<0.60	<0.60	<0.60	<0.60
cis-1,2-Dichloroethylene	8.3	0.0	<0.58	0.0	<0.58	0.0	<0.58	**101.5**	<0.58	0.0	<0.58	**1815.19**	<0.58	0.67 J	<0.58	<0.58	<0.58
Tetrachloroethylene	41	0.0	<1.0	0.0	<1.0	0.0	<1.0	0.0	<1.0	0.0	<1.0	0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethylene	83	0.0	<0.62	**85.18 J**	<0.62	0.0	<0.62	0.0	<0.62	0.0	<0.62	**2114.56**	<0.62	<0.62	<0.62	<0.62	<0.62
Trichloroethylene	2.0	0.0	<0.72	0.0	<0.72	0.0	<0.72	0.0	<0.72	0.0	<0.72	0.00	<0.72	<0.72	<0.72	<0.72	<0.72
Vinyl chloride	1.6	NM	<0.46	NM	<0.46	NM	<0.46	NM	<0.46	NM	<0.46	NM	<0.46	<0.46	<0.46	<0.46	<0.46

See Notes on last page

Table 1
FROG Screening and Co-located Grab Sampling Results
Ford Livonia Transmission Plant
36200 Plymouth Road
Livonia, Michigan

Notes:

All results reported in µg/m^3.

	Result exceeds the EGLE site-specific volatilization to indoor air criteria (SSVIAC) to evaluate vapor migration in preferential pathways developed for residential 24-hour exposure.
Bold	Detected above method detection limit and detected by the FROG-5000.
<	Denotes not detected above method detection limit.
*	Method detection limits were elevated for this sample

Sample Type

FROG-5000	Indicates results are from FROG-5000™ screening real time result.
Summa	Indicates results are from lab analyzed summa canister.

Abbreviations:

µg/m^3	micrograms per cubic meter
EGLE	Michigan Department of Environment, Great Lakes, and Energy
J	estimated result
MH	manhole
NM	not measured
SAMH	sanitary manhole
SSVE	sanitary sewer vapor extraction system
SL	sample location
INF/INFF	Influent
EFF	Effluent

Analytical Methods (Summa Canister):

United States Environmental Protection Agency (USEPA) Method TO-15

This document is a DRAFT document that has not received approval from EGLE. This document was prepared pursuant to a court Consent Decree. The opinions, findings, and conclusions expressed are those of the authors and not those of EGLE.

Figure 1

Sanitary Sewer Vapor Extraction System and Compliance Locations

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MMERCE STREET

LEVAN ROAD

BELDEN COURT

BEACON

WDC

WESTERN DIVERSION CHAMBER

Permanent Sanitary Sewer Vapor Extraction System Location

SAMH-1231

EASTERN DIVERSION CHAMBER

EDC

SL-2

LEGEND

- SANITARY MANHOLE
- FLOW DIRECTION
- SANITARY SEWER LINE
- FORD PROPERTY BOUNDARY

NOTES:

SAMH = SANITARY MANHOLE

SL = SAMPLING LOCATION

EGLE = MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

0 300 600

SCALE IN FEET

FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

SANITARY SEWER VAPOR EXTRACTION SYSTEM AND COMPLIANCE LOCATIONS

ARCADIS

FIGURE 1