

TRANSMITTAL LETTER



To:
Jeanne Schlaufman
Michigan Department of
Environment, Great Lakes &
Energy
27700 Donald Court
Warren, MI 48092

From:
Kris Hinskey

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Copies:

Date:
May 2 2024

Subject:
ResAp-Interim Response
Activity Plan ZVI Injections
Quarterly Update Letter

Arcadis Project No.:
30206169

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SUBJECT

ResAP-Interim Response Activity Plan ZVI Injections
Quarterly Update Letter

TO

Ms. Jeanne Schlaufman, EGLE

DATE

May 2, 2024

OUR REF

30206169

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Mr. Todd Walton, Ford
Mr. Chuck Pinter, Ford

Kris Hinskey – Arcadis of Michigan, LLC

On behalf of Ford Motor Company (Ford), this letter has been prepared by Arcadis of Michigan, LLC (Arcadis) for the Livonia Transmission Plant (LTP) site (the site), located on **Figure 1**. This letter complies with the following Response Activity Plan (ResAP) and EGLE approval letter:

- ResAP for Interim Response Activities – Property Boundary Zero Valent Iron, date June 30, 2023
- *Notice of Conditional Approval of Response Activity Pan – Interim Response Activities for Zero Valent Iron Injections at the Ford – Livonia Transmission Plant*, dated July 20, 2023

The performance groundwater sampling outlined below was completed in accordance with the approved ResAP for Interim Response Activities (IRA).

Performance Groundwater Sampling

Quarterly zero valent iron (ZVI) performance groundwater sampling was completed on March 7th, 2024, during the first quarter 2024 (1Q 2024) on-site and off-site groundwater sampling event. Groundwater samples were collected from monitoring wells MW-35, MW-43, MW-52, MW-211S, MW-212S, MW-213S, MW-234 and MW-235 (collectively referred to as the ZVI performance monitoring network; **Figure 2**)

Each monitoring well was sampled using a peristaltic pump and low-flow sampling techniques in accordance with the project Quality Assurance Project Plan. Groundwater samples were collected into laboratory-supplied bottles and were submitted on ice to Eurofins Laboratories (Eurofins) in Barberton, Ohio for laboratory analysis. All samples were analyzed for the seven constituents of concern (COCs) for the Site: 1,1-dichloroethene (DCE), cis-1,2-DCE, trans-1,2-DCE, tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride (VC) via United States Environmental Protection Agency (USEPA) Method 8260D and 1,4-dioxane via USEPA Method 8260D-Selected Ion Monitoring (SIM).

Groundwater analytical results and low-flow sampling parameters are provided in **Table 1**, with the data compared to Michigan Part 201 Non-Residential Generic Cleanup Criteria (EGLE 2023). Monitoring data collected from the ZVI performance monitoring well network during the third quarter 2023 groundwater sampling event were used for the baseline data included in **Table 1**. Low-flow groundwater sampling logs are included in **Attachment 1**. Vinyl chloride was detected at concentrations exceeding Part 201 Non-residential Generic Cleanup Criteria at

Ms. Jeanne Schlaufman
Michigan Department of Environment, Great Lakes, and Energy
May 2, 2024

monitoring wells MW-235 and MW-35, which is consistent with previous sampling events. All other site-specific compounds (1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, and 1,4-dioxane) either were not detected at concentrations above the reporting limits or were detected at concentrations below Part 201 Non-Residential Generic Cleanup Criteria for 1Q 2024.

During the 1Q2024, vinyl chloride concentrations at monitoring wells MW-52 (0.90J µg/L) and MW-235 (8.7 µg/L) were the lowest historically observed. All other monitoring well concentrations from first quarter 2024 performance groundwater monitoring event were below the objective of 1.0 µg/L vinyl chloride, with the exception of MW-35.

Proposed Schedule

Future performance monitoring will be completed in accordance with the ResAP IRA. The second quarter 2024 performance monitoring event is scheduled to be completed in May 2024. The next quarterly update letter will summarize the results of the second quarter 2024 sampling event and will be submitted by July 31st, 2024.

Enclosures:

Table 1 – ZVI Performance Monitoring Groundwater Analytical Data

Figure 1 – Site Location Map

Figure 2 – Site Layout

Attachment 1 – Groundwater Sampling Logs

Table

Location:	Unit	Michigan Non-Residential Drinking Water Criteria	MW-35			MW-43			MW-52			MW-211S			MW-212S		
			8/15/2023	11/14/2023	3/7/2024	8/15/2023	11/14/2023	3/7/2024	8/15/2023	11/14/2023	3/7/2024	8/15/2023	11/14/2023	3/7/2024	8/15/2023	11/14/2023	3/7/2024
Semi-volatile Organic Compounds (SVOCs)																	
1,4-Dioxane	µg/L	350	3.4	4.0	3.0	2.5	3.4	2.5	1.8 J	2.6	2.7	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Volatile Organic Compounds (VOCs)																	
1,1-Dichloroethene	µg/L	7.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	µg/L	70	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.6	2.8	1.9
Tetrachloroethene	µg/L	5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	µg/L	100	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.53 J	< 1.0
Trichloroethene	µg/L	5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.52 J	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	µg/L	2.0	1.6	1.5	2.2	< 1.0	< 1.0	< 1.0	1.5	1.5	0.90 J	< 1.0	< 1.0	< 1.0	0.82 J	1.0	0.84 J

Location:	Unit	Michigan Non-Residential Drinking Water Criteria	MW-213S			MW-234			MW-235	
			8/15/2023	11/14/2023	3/7/2024	9/18/2023	11/14/2023	3/7/2024	9/18/2023	11/14/2023
Semi-volatile Organic Compounds (SVOCs)										
1,4-Dioxane	µg/L	350	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	<2.0	< 2.0	0.89 J
Volatile Organic Compounds (VOCs)										
1,1-Dichloroethene	µg/L	7.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	µg/L	70	0.58 J	1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.6	2.0
Tetrachloroethene	µg/L	5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	µg/L	100	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/L	5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	µg/L	2.0	0.48 J	1.1	0.73 J	< 1.0	< 1.0	< 1.0	11	12

Location:		MW-35			MW-43			MW-52			MW-211S			MW-212S		
Date:	Unit	8/15/2023	11/14/2023	3/7/2024	8/15/2023	11/14/2023	3/7/2024	8/15/2023	11/14/2023	3/7/2024	8/15/2023	11/14/2023	3/7/2024	8/15/2023	11/14/2023	3/7/2024
Low Flow Sampling Parameters																
Dissolved Oxygen	mg/L	0.15	3.30	0.10	1.19	0.10	1.57	0.00	0.26	0.98	0.14	0.25	0.28	1.48	0.16	0.54
ORP	mV	-243.9	-168.3	93	-152.7	-142.4	-106.9	-132.1	-120.7	-75.4	31.3	64.8	185.7	-2.2	-167.3	90.5
pH	s.u.	7.73	7.61	7.72	7.62	7.74	7.69	7.22	7.27	7.27	7.40	7.34	7.38	7.19	7.12	7.27
Temperature	°C	16.7	14.0	12.9	17.0	16.1	11.2	16.5	16.1	11.2	19.4	16.2	9.6	19.4	15.8	10.9
Specific Conductivity	mS/cm	4.74	2.95	5.3	9.62	7.52	7.61	7.00	6.14	6.65	7.29	5.56	7.08	7.48	8.32	7.06
Turbidity	NTU	11.28	8.93	24.3	8.30	21.30	42.70	4.06	3.23	63.60	2.28	2.99	1.74	0.02	1.67	2.19

Table 1
 ZVI Performance Monitoring Groundwater Analytical Data
 Ford Livonia Transmission Plant
 36200 Plymouth Road
 Livonia, Michigan



Location:		MW-213S			MW-234			MW-235	
Date:	Unit	8/15/2023	11/14/2023	3/7/2024	9/18/2023	11/14/2023	3/7/2024	9/18/2023	11/14/2023
Low Flow Sampling Parameters									
Dissolved Oxygen	mg/L	0.18	0.36	0.21	0.06	0.06	2.22	0.14	5.00
ORP	mV	-20.7	-201.0	79.8	-255.2	-323.3	-274.3	-61.9	-119.6
pH	s.u.	7.12	7.11	7.23	10.04	10.03	10.01	7.10	7.16
Temperature	°C	20.4	17.6	11.9	18.7	17.2	11.3	17.6	17.2
Specific Conductivity	mS/cm	7.76	7.05	8.06	8.09	8.12	10.52	7.86	7.32
Turbidity	NTU	0.40	3.86	1.65	5.21	2.30	0.55	1.22	62.10

See Notes on Last Page.

Notes:

Results are compared to EGLE Part 201 Generic Cleanup Criteria, October 2023.

Bold Result denotes exceedance of EGLE Non-Residential Drinking Water Criteria.

< Denotes not detected above reporting limit.

Abbreviations:

°C degrees Celsius
µg/L micrograms per liter
EGLE Michigan Department of Environment, Great Lakes, and Energy
J estimated result
mg/L milligrams per liter
MW monitoring well
mS/cm millisiemens per centimeter
mV millivolts
NTU nephelometric turbidity units
s.u. standard units

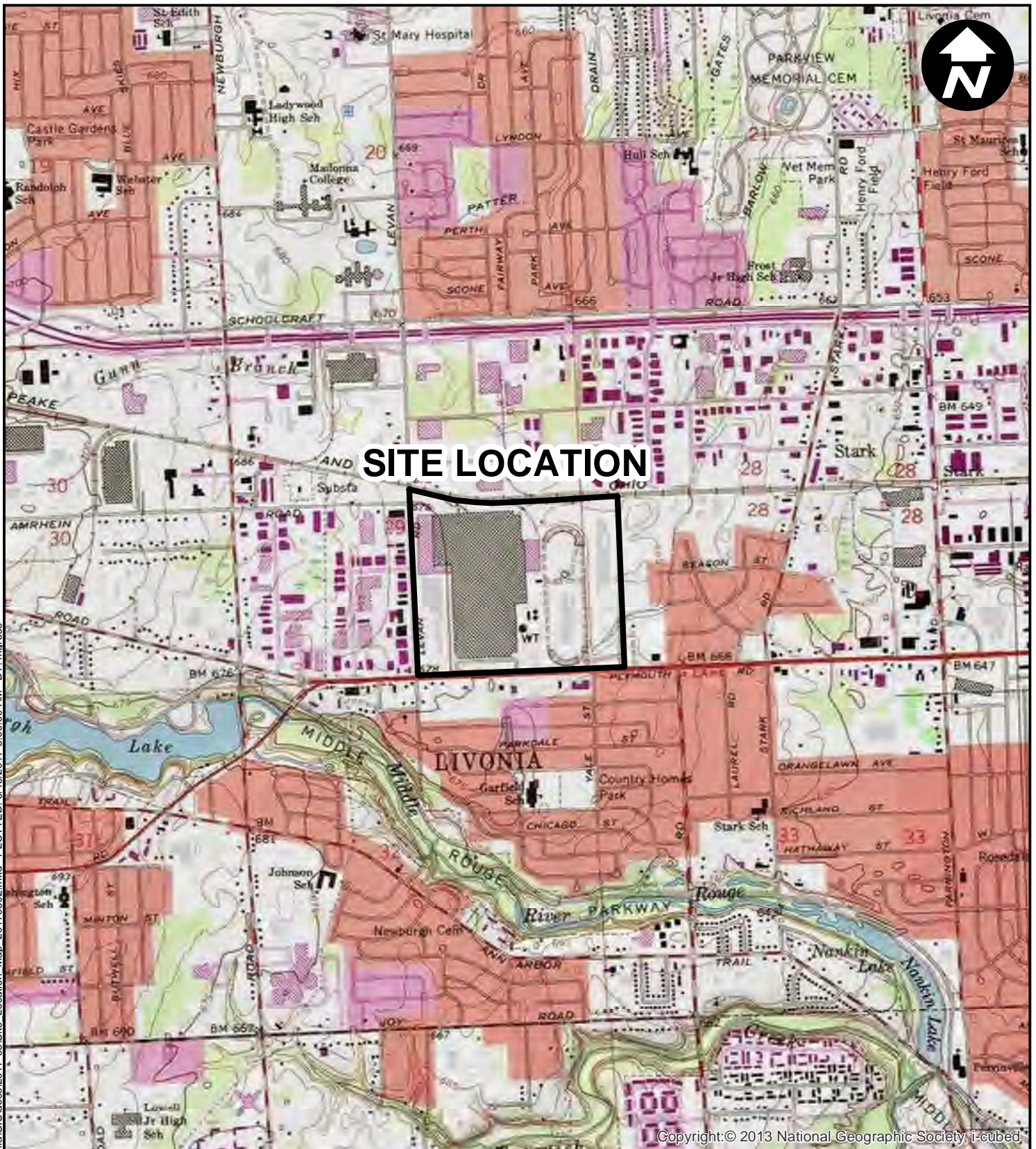
Analytical Methods:

8260D for Volatile Organic Compounds (VOCs)

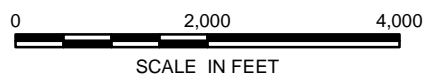
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Figures

CITY: Novi DIV: ENV DB: MG PROJECT NUMBER: M1001322.0001 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
Z: GISProjects\ENVA\Novi\Brighton_MLFordLivonia\GIS\docs\2017-08\Site_Location_Map_20170802.mxd PLOTTED: 8/16/2017 8:00:00 AM BY: mgatress



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FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

SITE LOCATION MAP

SOURCE:
USGS 7.5 MINUTE TOPOGRAPHIC MAP
NORTHVILLE AND WAYNE QUADRANGLES



FIGURE
1

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CITY: Novi DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY PROJECT NUMBER: 30080642 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet T: \\ENV\Novi\Brighton_Min\FordLivonia_Proj2023\Ford_Livonia\MI_Report\Ford_Report.aprx PLOTTED: 5/2/2024 4:05 PM BY: AKENS

TEST TRACK

ATNPC BUILDING

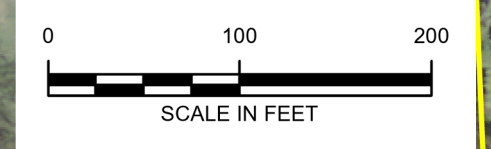
OFF-SITE AREA

BELDEN CT

LEGEND

- MONITORING WELL
- VAULT
- ZERO VALENCE IRON (ZVI) INJECTION POINTS
- LOCATION OF CROSS SECTION A-A
- HYDRAULIC CONTROL SYSTEM WELL SCREEN
- WELL BLANK CASING
- FORD PROPERTY BOUNDARY
- COMMERCIAL/RESIDENTIAL PROPERTY BOUNDARY

NOTES:
 THE RADIUS OF INFLUENCE (ROI) OF EACH POINT IS 15FT
 EACH INJECTION POINT ARE 30 FT AWAY
 ATNPC = AUTOMATIC TRANSMISSION NEW PRODUCT CENTER
 EGLE = MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
 ESD = EASTERN STORM DRAIN



FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

SITE LAYOUT



FIGURE
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MW-52

MW-234

MW-43

MW-213S

MW-212S

MW-235

MW-35

MW-211S

VAULT V-ESD-1

VAULT V-ESD-2

Attachment A

Groundwater Sampling Logs



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30167538.401.01 Well ID Ford LTP MW-52 Date 03-07-2024
 Project Name/Location 41.0 degrees F and Cloudy. The wind is blowing ENE at 8.1 mph.
 Measuring Pt. Description 15.0-20.0 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 7.81 Total Depth (ft-bmp) 19.77 Water Column (ft.) 11.96 Gallons in Well 1.94
17.50 Pump Intake (ft-bmp) Low-Flow Purge Method Grab
 Well Volumes Purged 1.05 Sample Method
 Volume Purged 2.04 gallons Replicate/Code No. -- Sampled by Alaina Pitera
 Label 11:10
 Purge Start 10:04
 Purge End 11:12

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [± 0.3]	Total Gallons Purged	pH [± 0.1]	Cond. (mS/cm) [± 3%]	Turbidity (NTU) [± 10%*]	DO (mg/L) [± 10%]	Temp. (°C) [± 3%]	Redox (mV) [± 10mV]	Appearance	
											Color	Odor
10:05	0	130	7.81	0.00	7.43	6.24	191.00	2.52	11.0	-35.4	Cloudy, Small Brown Particulates	No Odor
10:10	5	130	7.81	0.17	7.30	6.32	172.00	1.99	10.9	-32.3	Cloudy, Small Brown Particulates	No Odor
10:15	5	130	7.81	0.34	7.25	6.38	162.00	0.97	10.8	-54.1	Cloudy, Small Brown Particulates	No Odor
10:20	5	130	7.81	0.51	7.25	6.39	164.00	0.91	10.8	-54.7	Cloudy, Small Brown Particulates	No Odor
10:25	5	130	7.81	0.68	7.25	6.43	131.00	0.66	10.6	-60.8	Cloudy, Small Brown Particulates	No Odor
10:30	5	130	7.81	0.85	7.26	6.43	123.00	0.63	10.7	-61.3	Cloudy, Small Brown Particulates	No Odor
10:35	5	130	7.81	1.02	7.24	6.46	126.00	0.67	10.9	-62.6	Cloudy, Small Brown Particulates	No Odor
10:40	5	130	7.81	1.19	7.24	6.49	124.00	0.66	10.8	-62.7	Cloudy, Small Brown Particulates	No Odor
10:45	5	130	7.81	1.36	7.24	6.51	115.00	0.67	10.8	-63.1	Cloudy, Small Brown Particulates	No Odor
10:50	5	130	7.81	1.53	7.24	6.59	113.00	0.66	10.9	-63.9	Cloudy, Small Brown Particulates	No Odor
10:55	5	130	7.81	1.70	7.27	6.64	79.50	0.86	10.9	-74.2	Clear, Small Brown Particulates	No Odor
11:00	5	130	7.81	1.87	7.27	6.64	67.80	0.96	11.1	-73.7	Clear, Small Brown Particulates	No Odor
11:05	5	130	7.81	2.04	7.27	6.65	63.60	0.98	11.2	-75.4	Clear, Small Brown Particulates	No Odor
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* Turbidity < 50 NTU and ±10% for within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC	40 mL Glass	3	HCL
1,4-dioxane	40 mL Glass	3	HCL

Comments none


Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information	Onsite, NE	Well Locked at Arrival:	n/a
Well Location:	Good	Well Locked at Departure:	n/a
Condition of Well:	Flush mount	Lock Functioning:	n/a



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Project No.: 30167538.401.01 Page: 1 of 1
 Site Location: Ford LTP Onsite, E
 Prepared By: Rebecca Costigan

Date	Time	Description of Activities
03-07-2024	09:00	Arrive onsite
03-07-2024	09:06	Record static depth to water
03-07-2024	09:11	Begin purging well
03-07-2024	10:17	Collect sample MW-211S_030724
03-07-2024	10:21	End purge and turn off pump, begin decon of equipment
03-07-2024	10:30	Offsite
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SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30167538.401.01 Well ID Ford LTP MW-2115 Date 03-07-2024
 Project Name/Location 41.0 degrees F and Cloudy. The wind is blowing ENE at 9.2 mph.
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 7.0-12.0 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 8.22 Total Depth (ft-bmp) 11.85 Water Column (ft.) 3.63 Gallons in Well 0.59
9.72 Pump Intake (ft-bmp) Low-Flow Purge Method Grab
 Well Volumes Purged 3.73
 Volume Purged 2.20 gallons Replicate/Code No. -- Sampled by Rebecca Costigan
 Sample Time: Label 10:17
 Purge Start 09:11
 Purge End 10:21

Rebecca Costigan

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [± 0.3]	Total Gallons Purged	pH [± 0.1]	Cond. (mS/cm) [± 3%]	Turbidity (NTU) [± 10%*]	DO (mg/L) [± 10%]	Temp. (°C) [± 3%]	Redox (mV) [± 10mV]	Appearance	
											Color	Odor
09:14	0	150	8.26	0.00	7.35	6.35	10.50	1.31	9.5	248.8	Small Orange Particulates	No Odor
09:19	5	150	8.26	0.20	7.31	6.36	17.70	0.91	9.5	237.1	Small Orange Particulates	No Odor
09:24	5	150	8.26	0.40	7.30	6.39	10.80	0.70	9.5	220.0	Clear	No Odor
09:29	5	150	8.26	0.60	7.31	6.41	7.64	0.78	9.6	210.2	Clear	No Odor
09:34	5	150	8.26	0.80	7.32	6.44	6.48	0.57	9.4	201.3	Clear	No Odor
09:39	5	150	8.26	1.00	7.33	6.45	5.12	0.45	9.4	194.5	Clear	No Odor
09:44	5	150	8.26	1.20	7.35	6.47	3.16	0.41	9.3	188.6	Clear	No Odor
09:49	5	150	8.26	1.40	7.37	6.58	1.82	0.33	9.4	186.7	Clear	No Odor
09:54	5	150	8.26	1.60	7.37	6.75	1.50	0.34	9.5	186.4	Clear	No Odor
09:59	5	150	8.26	1.80	7.37	6.91	2.30	0.32	9.5	186.2	Clear	No Odor
10:04	5	150	8.26	2.00	7.37	7.02	1.42	0.29	9.6	186.0	Clear	No Odor
10:09	5	150	8.26	2.20	7.38	7.08	1.74	0.28	9.6	185.7	Clear	No Odor
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* Turbidity < 50 NTU and ±10% for within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC	40 mL Glass	3	HCL
1,4-dioxane	40 mL Glass	3	HCL

Comments none

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information	Onsite, E	Well Locked at Arrival:	n/a
Well Location:	Good	Well Locked at Departure:	n/a
Condition of Well:	Flush mount	Lock Functioning:	n/a



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30167538.401.01 Well ID Ford LTP MW-2125 Date 03-07-2024
 Project Name/Location Weather 42.1 degrees F and Cloudy. The wind is blowing E/NE at 8.1 mph.
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 6.5-11.5 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 7.76 Total Depth (ft-bmp) 11.13 Water Column (ft.) 3.37 Gallons in Well 0.55
 Pump Intake (ft-bmp) 9.26 Purge Method Low-Flow Sample Method Grab
 Well Volumes Purged 4.36
 Volume Purged 2.40 gallons Replicate/Code No. -- Sampled by Rebecca Costigan
 Sample Time: Label 11:56
 Purge Start 10:45
 Purge End 12:00

Rebecca Costigan

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [± 0.3]	Total Gallons Purged	pH [± 0.1]	Cond. (mS/cm) [± 3%]	Turbidity (NTU) [± 10%*]	DO (mg/L) [± 10%]	Temp. (°C) [± 3%]	Redox (mV) [± 10mV]	Appearance	
											Color	Odor
10:48	0	150	7.78	0.00	7.42	5.02	163.00	3.18	10.0	224.3	Yellow	No Odor
10:53	5	150	7.78	0.20	7.24	7.18	57.20	1.90	10.2	198.7	Small Orange Particulates	No Odor
10:58	5	150	7.78	0.40	7.23	7.51	26.50	1.02	10.4	179.1	Clear	No Odor
11:03	5	150	7.78	0.60	7.24	7.41	14.40	1.15	10.4	159.2	Clear	No Odor
11:08	5	150	7.78	0.80	7.24	7.37	10.50	0.64	10.4	140.7	Clear	No Odor
11:13	5	150	7.78	1.00	7.25	7.29	6.16	0.57	10.6	129.4	Clear	No Odor
11:18	5	150	7.78	1.20	7.26	7.22	4.66	0.57	10.4	121.7	Clear	No Odor
11:23	5	150	7.78	1.40	7.26	7.17	4.85	0.55	10.6	114.0	Clear	No Odor
11:28	5	150	7.78	1.60	7.27	7.12	3.15	0.58	10.6	108.1	Clear	No Odor
11:33	5	150	7.78	1.80	7.26	7.14	2.47	0.50	10.7	102.7	Clear	No Odor
11:38	5	150	7.78	2.00	7.27	7.06	3.11	0.48	10.7	97.2	Clear	No Odor
11:43	5	150	7.78	2.20	7.27	7.09	2.30	0.54	10.8	94.1	Clear	No Odor
11:48	5	150	7.78	2.40	7.27	7.06	2.19	0.54	10.9	90.5	Clear	No Odor
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* Turbidity < 50 NTU and ±10% for within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC	40 mL Glass	3	HCL
1,4-dioxane	40 mL Glass	3	HCL

Comments none

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information	Onsite, E	Well Locked at Arrival:	n/a
Well Location:	Missing bolts	Well Locked at Departure:	n/a
Condition of Well:	Flush mount	Lock Functioning:	n/a
Well Completion:			



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

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Project No.	30167538.401.01	Well ID	MW-234	Date	03-07-2024
Project Name/Location	Ford LTP		Weather	42.1 degrees F and Cloudy. The wind is blowing E at 8.1 mph.	
Measuring Pt. Description	Top of Casing	Screen Setting (ft-bmp)	12.0-17.0	Casing Diameter (in.)	2
Static Water Level (ft-bmp)	7.25	Total Depth (ft-bmp)	15.73	Water Column (ft.)	8.48
		Pump Intake (ft-bmp)	14.50	Purge Method	Low-Flow
		Well Volumes Purged	1.74	Well Material	PVC
		Volume Purged	2.40 gallons	Gallons in Well	1.38
Sample Time:	Label	10:27	Replicate/Code No.	MW-234-MS_030724, MW-234-MSD_030724	Sampled by
	Purge Start	09:21			Nolan Schendel
	Purge End	10:38			

NS

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [± 0.3]	Total Gallons Purged	pH [± 0.1]	Cond. (mS/cm) [± 3%]	Turbidity (NTU) [± 10%*]	DO (mg/L) [± 10%]	Temp. (°C) [± 3%]	Redox (mV) [± 10mV]	Appearance	
											Color	Odor
09:24	0	150	7.34	0.00	8.00	14.49	51.00	4.92	11.2	-73.7	Small Black Particulates	No Odor
09:29	5	150	7.34	0.20	8.46	13.85	43.20	2.77	11.0	-139.5	Clear	No Odor
09:34	5	150	7.34	0.40	9.06	12.73	26.10	2.29	11.1	-178.9	Small Black Particulates	No Odor
09:39	5	150	7.34	0.60	9.11	12.42	17.90	2.24	11.0	-211.1	Small Black Particulates	Faint Odor
09:44	5	150	7.34	0.80	9.54	11.66	20.80	2.18	11.1	-219.8	Clear, Small Black Particulates	Faint Odor
09:49	5	150	7.34	1.00	9.81	11.08	9.80	2.17	11.1	-231.5	Clear	No Odor
09:54	5	150	7.34	1.20	9.84	10.76	10.90	2.23	11.2	-243.6	Clear	No Odor
09:59	5	150	7.34	1.40	9.80	10.97	4.22	2.76	11.2	-245.2	Clear	No Odor
10:04	5	150	7.34	1.60	9.90	10.96	4.12	2.99	11.2	-242.3	Clear	No Odor
10:09	5	150	7.34	1.80	9.91	10.71	2.32	2.99	11.2	-256.0	Clear	No Odor
10:14	5	150	7.34	2.00	9.95	10.70	1.49	2.00	11.2	-261.0	Clear	No Odor
10:19	5	150	7.34	2.20	10.00	10.58	0.83	2.75	11.2	-267.2	Clear	No Odor
10:24	5	150	7.34	2.40	10.01	10.52	0.55	2.22	11.3	-274.3	Clear	No Odor
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* Turbidity < 50 NTU and ±10% for within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC	40 mL Glass	9	HCL
1,4-dioxane	40 mL Glass		HCL

Comments: none

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information	On-site, E	Well Locked at Arrival:	n/a
Well Location:	Good	Well Locked at Departure:	n/a
Condition of Well:	Flush mount	Lock Functioning:	n/a



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No. 30167538.401.01 Well ID MW-235 Date 03-07-2024
 Project Name/Location Ford LTP Weather 42.1 degrees F and Cloudy. The wind is blowing ENE at 8.1 mph.
 Measuring Pt. Description Top of Casing Screen Setting (ft-bmp) 14.0-19.0 Casing Diameter (in.) 2 Well Material PVC
 Static Water Level (ft-bmp) 7.67 Total Depth (ft-bmp) 17.76 Water Column (ft.) 10.09 Gallons in Well 1.64
 Pump Intake (ft-bmp) 16.50 Purge Method Low-Flow Sample Method Grab
 Well Volumes Purged 1.74
 Sample Time: Label 12:47 Volume Purged 2.85 gallons Replicate/Code No. -- Sampled by Nolan Schendel
 Purge Start 11:14
 Purge End 12:54

NS

Time	Minutes Elapsed between Readings	Flow Rate (mL/min) [100-300 mL/min]	Depth to Water (ft) [± 0.3]	Total Gallons Purged	pH [± 0.1]	Cond. (mS/cm) [± 3%]	Turbidity (NTU) [± 10%*]	DO (mg/L) [± 10%]	Temp. (°C) [± 3%]	Redox (mV) [± 10mV]	Appearance	
											Color	Odor
11:24	0	150	7.72	0.00	7.13	12.04	423.00	8.27	11.3	-8.2	Cloudy, Orange, Small Orange Particulates	No Odor
11:29	5	150	7.70	0.20	7.10	12.14	428.00	8.23	11.4	-21.4	Cloudy, Orange, Small Orange Particulates	No Odor
11:34	5	150	7.72	0.40	7.09	12.20	345.00	7.94	11.4	-48.7	Cloudy, Orange, Small Orange Particulates	No Odor
11:39	5	150	7.71	0.60	7.10	12.22	265.00	7.83	11.4	-54.6	Cloudy	No Odor
11:44	5	150	7.71	0.80	7.10	12.20	245.00	7.70	11.6	-56.8	Cloudy	No Odor
11:49	5	150	7.71	1.00	7.10	12.22	223.00	7.69	11.6	-58.7	Cloudy	No Odor
11:54	5	150	7.71	1.20	7.10	12.24	200.00	7.34	11.6	-60.3	Clear	No Odor
11:59	5	150	7.71	1.40	7.10	12.27	163.00	7.18	11.4	-60.7	Cloudy	No Odor
12:04	5	150	7.71	1.60	7.10	12.23	160.00	6.93	11.5	-61.1	Clear	No Odor
12:09	5	150	7.71	1.80	7.11	12.23	146.00	6.77	11.6	-61.5	Small Orange Particulates	No Odor
12:14	5	150	7.71	2.00	7.11	12.16	132.00	6.56	11.7	-62.3	Small Orange Particulates	No Odor
12:19	5	100	7.71	2.20	7.11	12.17	126.00	6.51	11.8	-62.0	Clear	No Odor
12:24	5	100	7.70	2.33	7.11	12.23	121.00	7.51	11.4	-62.1	Clear	No Odor
12:29	5	100	7.70	2.46	7.11	12.26	111.00	6.49	11.1	-64.4	Clear	No Odor
12:34	5	100	7.70	2.59	7.11	12.12	103.00	6.13	11.5	-62.9	Clear	No Odor
12:39	5	100	7.70	2.72	7.12	12.19	104.00	5.73	11.8	-62.8	Small White Particulates	No Odor
12:44	5	100	7.70	2.85	7.11	12.11	103.00	5.80	12.0	-63.1	Small Orange Particulates	No Odor
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* Turbidity < 50 NTU and ±10% for within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, PCE, TCE, VC	40 mL Glass	3	HCL
1,4-dioxane	40 mL Glass	3	HCL

Comments none

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information	On-site, E	Well Locked at Arrival:	n/a
Well Location:	Good	Well Locked at Departure:	n/a
Condition of Well:	Flush mount	Lock Functioning:	n/a
Well Completion:			