

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:
January 31, 2025

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

Arcadis Project No.:
30251157

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SUBJECT

ResAP-Interim Response Activity Plan ZVI Injections
Quarterly Update Letter

TO

Ms. Jeanne Schlaufman, EGLE

DATE

January 31, 2025

OUR REF

30251157

COPIES TO

Mr. Todd Walton, Ford
Ms. Colleen Liddell, Ford
Mr. Chuck Pinter, Ford

NAME

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, dated 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 November 20th, 2024, during the fourth quarter 2024 (4Q 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**

Ms. Jeanne Schlaufman
Michigan Department of Environment, Great Lakes, and Energy
January 31, 2025

1. Vinyl chloride was detected at concentrations exceeding Part 201 Non-residential Generic Cleanup Criteria at monitoring well MW-235, 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 4Q 2024.

During 4Q 2024, the vinyl chloride concentration at all monitoring wells from the 4Q 2024 ZVI groundwater sampling event were below the performance objective of 2.0 µg/L, with the exception of MW-235 (5.3 µg/L). This concentration is below both the September 2023 baseline result of 11 ug/L and historic high of 12 ug/L identified in November 2023.

Proposed Schedule

Future performance monitoring will be completed in accordance with the ResAP IRA. The first quarter 2025 performance monitoring event is scheduled to be completed in February 2025. The next quarterly update letter will summarize the results of the first quarter 2025 sampling event and will be submitted by April 31, 2025.

Enclosures:

Table 1 – ZVI Performance Monitoring Groundwater Analytical Data

Figure 1 – Site Location Map

Figure 2 – Site Layout

Attachment 1 – Groundwater Sampling Logs

Table

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



Location:	Unit	Michigan Non-Residential Drinking Water Criteria	MW-35						MW-43						MW-52							
Date:			8/15/2023	11/14/2023	3/7/2024	5/21/2024	8/9/2024	11/20/2024	8/15/2023	11/14/2023	3/7/2024	5/21/2024	8/9/2024	11/20/2024	8/15/2023	11/14/2023	3/7/2024	5/21/2024	8/9/2024	11/20/2024	8/15/2023	11/14/2023
Semi-volatile Organic Compounds (SVOCs)																						
1,4-Dioxane	µg/L	350	3.4	4.0	3.0	4.5 B	3.3	3.7	2.5	3.4	2.5	4.7 B	4.2	3.3	1.8 J	2.6	2.7	3.3 B	2.8	2.7	< 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	< 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	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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	< 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	< 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	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.52 J
Vinyl chloride	µg/L	2.0	1.6	1.5	2.2	0.90 J	0.82 J	0.88 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.5	1.5	0.90 J	1.2 J	1.4	1.4	< 1.0	< 1.0



Location:	Unit	Michigan Non-Residential Drinking Water Criteria	MW-211S				MW-212S						MW-213S						MW-234	
Date:			3/7/2024	5/21/2024	8/9/2024	11/20/2024	8/15/2023	11/14/2023	3/7/2024	5/21/2024	8/9/2024	11/20/2024	8/15/2023	11/14/2023	3/7/2024	5/21/2024	8/9/2024	11/20/2024	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	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0
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	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	µg/L	70	< 1.0	< 1.0	< 1.0	< 1.0	2.6	2.8	1.9	0.89 J	2.0	2.6	0.58 J	1.0	< 1.0	< 1.0	< 1.0	0.61 J	< 1.0	< 1.0
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	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	µg/L	100	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.53 J	< 1.0	< 1.0	< 1.0	< 1.0	< 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	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	µg/L	2.0	< 1.0	< 1.0	< 1.0	< 1.0	0.82 J	1.0	0.84 J	< 1.0	0.77J	< 1.0	0.48 J	1.1	0.73 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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



Location:	Unit	Michigan Non-Residential Drinking Water Criteria	MW-234				MW-235					
Date:			3/7/2024	5/21/2024	8/9/2024	11/20/2024	9/18/2023	11/14/2023	3/7/2024	5/21/2024	8/9/2024	11/20/2024
Semi-volatile Organic Compounds (SVOCs)												
1,4-Dioxane	µg/L	350	<2.0	1.0 J B	<2.0	<2.0	< 2.0	0.89 J	<2.0	1.1 J B	<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
cis-1,2-Dichloroethene	µg/L	70	< 1.0	< 1.0	< 1.0	< 1.0	1.6	2.0	2.3	2.5	2.3	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
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
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
Vinyl chloride	µg/L	2.0	< 1.0	< 1.0	0.46 J	0.48 J	11	12	8.7	4.5	6.1	5.3



Location:		MW-35						MW-43						MW-52					
Date:	Unit	8/15/2023	11/14/2023	3/7/2024	5/21/2024	8/9/2024	11/20/2024	8/15/2023	11/14/2023	3/7/2024	5/21/2024	8/9/2024	11/20/2024	8/15/2023	11/14/2023	3/7/2024	5/21/2024	8/9/2024	11/20/2024
Low Flow Sampling Parameters																			
Dissolved Oxygen	mg/L	0.15	3.30	0.10	0.05	0.19	0.34	1.19	0.10	1.57	0.21	0.07	0.30	0.00	0.26	0.98	0.24	0.16	0.26
ORP	mV	-243.9	-168.3	93	85.2	-120.8	-212.6	-152.7	-142.4	-106.9	-185.0	-205.2	-154.0	-132.1	-120.7	-75.4	103.3	-199.2	-121.1
pH	s.u.	7.73	7.61	7.72	7.65	7.71	7.9	7.62	7.74	7.69	7.65	7.71	7.61	7.22	7.27	7.27	7.18	7.21	7.16
Temperature	°C	16.7	14.0	12.9	15.6	18.9	15.7	17.0	16.1	11.2	17.6	18.5	16.7	16.5	16.1	11.2	20.0	18.2	16.3
Specific Conductivity	mS/cm	4.74	2.95	5.3	8.75	4.01	2.46	9.62	7.52	7.61	7.10	5.92	6.74	7.00	6.14	6.65	0.05	7.29	7.34
Turbidity	NTU	11.28	8.93	24.3	27.90	3.33	1.25	8.30	21.30	42.70	3.08	0.02	8.52	4.06	3.23	63.60	34.00	1.01	0.02



Location:		MW-211S						MW-212S						MW-213S					
Date:	Unit	8/15/2023	11/14/2023	3/7/2024	5/21/2024	8/9/2024	11/20/2024	8/15/2023	11/14/2023	3/7/2024	5/21/2024	8/9/2024	11/20/2024	8/15/2023	11/14/2023	3/7/2024	5/21/2024	8/9/2024	11/20/2024
Low Flow Sampling Parameters																			
Dissolved Oxygen	mg/L	0.14	0.25	0.28	1.24	0.11	0.26	1.48	0.16	0.54	1.23	0.09	0.22	0.18	0.36	0.21	0.64	0.14	0.18
ORP	mV	31.3	64.8	185.7	-43.7	-102.4	87.0	-2.2	-167.3	90.5	-29.4	-85.2	-34.3	-20.7	-201.0	79.8	39.4	-98.5	-51.5
pH	s.u.	7.40	7.34	7.38	7.36	7.30	7.16	7.19	7.12	7.27	7.13	7.15	7.15	7.12	7.11	7.23	7.11	7.27	7.15
Temperature	°C	19.4	16.2	9.6	23.7	21.5	17.0	19.4	15.8	10.9	21.0	21.4	17.0	20.4	17.6	11.9	21.5	23.2	16.2
Specific Conductivity	mS/cm	7.29	5.56	7.08	8.78	4.4	6.57	7.48	8.32	7.06	6.93	7.69	7.07	7.76	7.05	8.06	8.89	6.82	5.99
Turbidity	NTU	2.28	2.99	1.74	9.20	5.17	3.51	0.02	1.67	2.19	28.60	0.02	2.07	0.40	3.86	1.65	27.10	2.71	1.67

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



Location:		MW-234						MW-235					
Date:	Unit	9/18/2023	11/14/2023	3/7/2024	5/21/2024	8/9/2024	11/20/2024	9/18/2023	11/14/2023	3/7/2024	5/21/2024	8/9/2024	11/20/2024
Low Flow Sampling Parameters													
Dissolved Oxygen	mg/L	0.06	0.06	2.22	1.13	0.01	0.02	0.14	5.00	5.80	0.05	0.09	0.17
ORP	mV	-255.2	-323.3	-274.3	-277.3	-405.4	-100.4	-61.9	-119.6	-63.1	-89.1	-177.9	-260.5
pH	s.u.	10.04	10.03	10.01	9.93	9.76	9.97	7.10	7.16	7.11	7.14	7.22	7.57
Temperature	°C	18.7	17.2	11.3	16.5	20.1	15.8	17.6	17.2	12	16.0	18.6	16.4
Specific Conductivity	mS/cm	8.09	8.12	10.52	7.08	6.95	6.2	7.86	7.32	12.11	8.90	8.10	7.29
Turbidity	NTU	5.21	2.30	0.55	0.02	0.02	4.23	1.22	62.10	103.00	0.02	1.74	3.51

See Notes on Last Page.

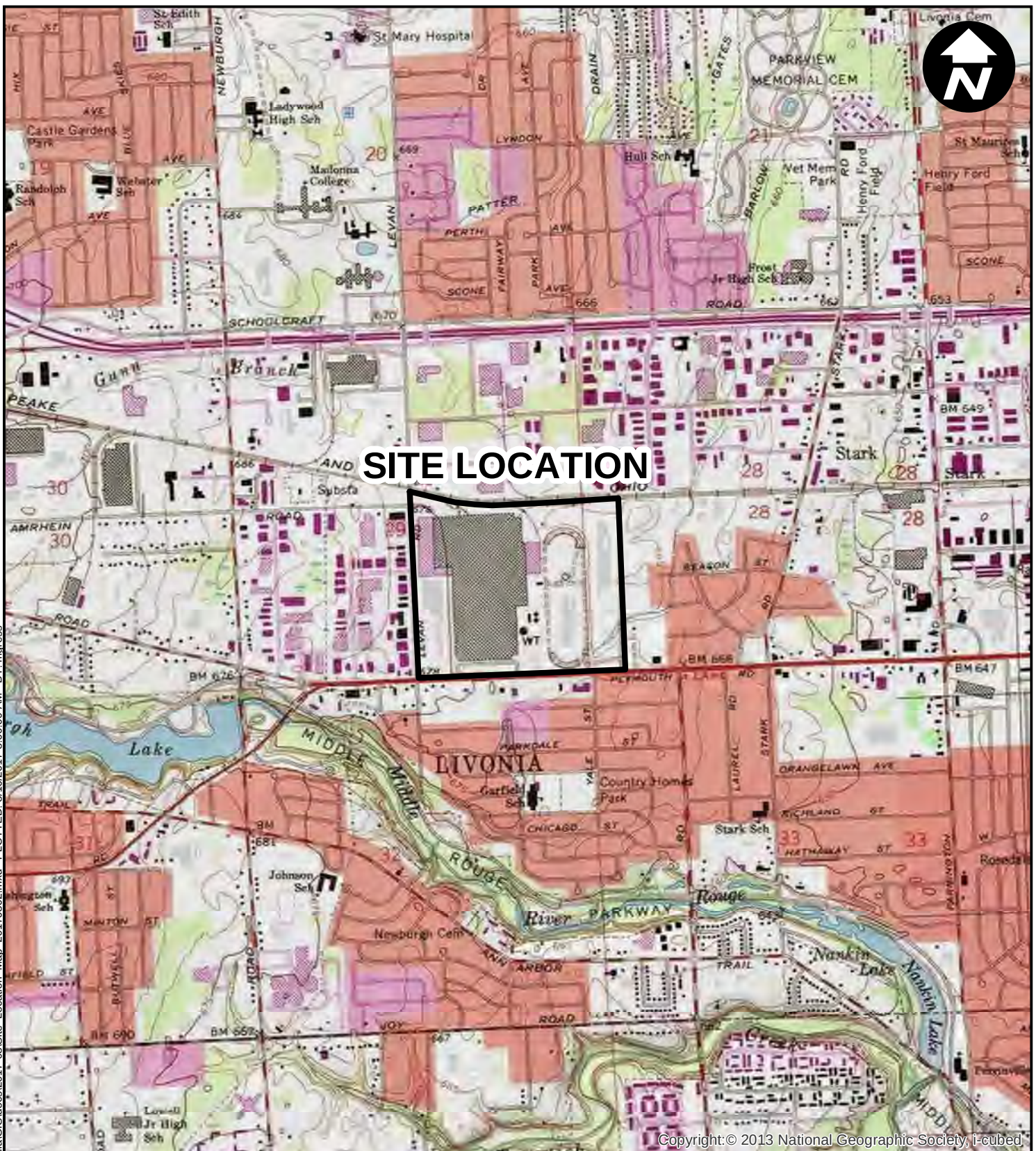
Notes:
Results are compared to EGLE Part 201 Generic Cleanup Criteria, October 2023.
Bold Result denotes exceedance of EGLE Non-Residential Drinking Water Criteria.
< Denotes not detected above reporting limit.

Abbreviations:
°C degrees Celsius
µg/L micrograms per liter
Bold Compound was found in the blank and sample
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



0 2,000 4,000
 SCALE IN FEET

SOURCE:
 USGS 7.5 MINUTE TOPOGRAPHIC MAP
 NORTHVILLE AND WAYNE QUADRANGLES

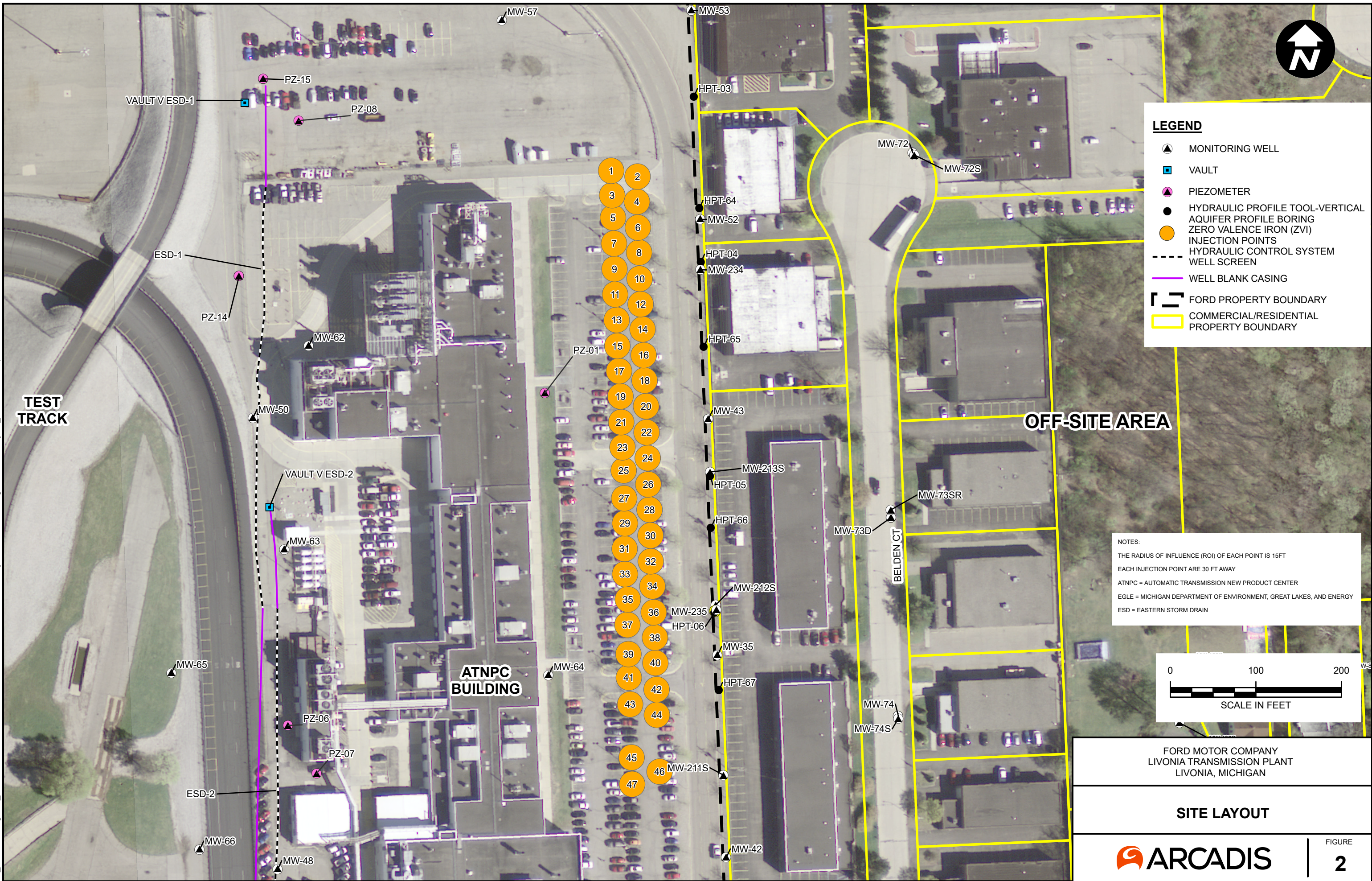
FORD MOTOR COMPANY
 LIVONIA TRANSMISSION PLANT
 LIVONIA, MICHIGAN

SITE LOCATION MAP



FIGURE
1

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\Nov\Brighton_M\Ford\Livonia\GIS\docs\GEC2024\Arc Pro\Ford LTP- ZVI Injection Locations\Figure 2 - Site Layout_LTP RevDRA.aprx PLOTTED: 1/31/2024 10:05 AM BY: sb01179



Attachment 1

Groundwater Sampling Logs

Prepared By: Maryam Hanani[illegible]



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No.	30206169.401.01	Well ID	MW-35		Date	11-20-2024	
Project Name/Location	Ford LTP		Weather				44.1 degrees F and Fog/Mist. The wind is blowing W/SW at 4.7 mph.
Measuring Pt. Description	Top of Casing	Screen Setting (ft-bmp)	19.5-24.5	Casing Diameter (in.)	2	Well Material	PVC
Static Water Level (ft-bmp)	9.05	Total Depth (ft-bmp)	24.11	Water Column (ft.)	15.06	Gallons in Well	2.45
		Pump Intake (ft-bmp)	22.00	Purge Method	Low-Flow	Sample Method	Grab
		Well Volumes Purged	0.79	Replicate/Code No.	DUP-04	Sampled by	Maryam Hanani
Sample Time:	Label	09:30	Volume Purged	1.94 gallons			
	Purge Start	08:25					
	Purge End	09:35					

MH

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
08:28	0	140	9.43	0.00	7.75	2.44	2.20	1.09	15.5	137.9	Clear	No Odor
08:33	5	120	9.54	0.18	7.85	2.43	4.98	0.69	15.6	64.8	Clear	No Odor
08:38	5	120	9.68	0.34	7.88	2.43	4.93	0.60	16.1	8.4	Clear	Faint Odor
08:43	5	120	9.72	0.50	7.89	2.44	3.70	0.43	16.0	-40.6	Clear	No Odor
08:48	5	120	9.71	0.66	7.90	2.46	3.65	0.49	16.1	-66.7	Clear	No Odor
08:53	5	120	9.72	0.82	7.90	2.49	4.02	0.38	16.0	-92.6	Clear	No Odor
08:58	5	120	9.74	0.98	7.90	2.47	3.81	0.35	16.0	-115.6	Clear	No Odor
09:03	5	120	9.72	1.14	7.90	2.50	2.75	0.35	16.0	-132.2	Clear	No Odor
09:08	5	120	9.74	1.30	7.90	2.46	2.53	0.33	16.0	-152.8	Clear	No Odor
09:13	5	120	9.73	1.46	7.90	2.47	3.32	0.30	16.0	-169.9	Clear	No Odor
09:18	5	120	9.73	1.62	7.90	2.46	2.12	0.30	15.9	-186.8	Clear	No Odor
09:23	5	120	9.73	1.78	7.90	2.49	3.53	0.31	15.8	-199.5	Clear	No Odor
09:28	5	120	9.73	1.94	7.90	2.46	1.25	0.34	15.7	-212.6	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	6	HCL
1,4-dioxane	40 mL Glass	6	HCL

Comments Missing 1 bolt

Well Casing Volumes					
Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	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:			



Prepared By: Jeremy Myers

[illegible]

* Turbidity ≤ 50 NTU and $\pm 10\%$ or within 1 NTU of a previous reading when ≤ 10 NTU

Comments	none
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Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	6" = 1.47

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



Prepared By: Jeremy Myers

[illegible]



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No.	30206169.401.01	Well ID	MW-52		Date	11-20-2024		
Project Name/Location	Ford LTP		Weather		50.0 degrees F and Fog/Mist. The wind is blowing S at 5.8 mph.			
Measuring Pt. Description	Top of Casing	Screen Setting (ft-bmp)	15.0-20.0	Casing Diameter (in.)	2	Well Material	PVC	
Static Water Level (ft-bmp)	9.10	Total Depth (ft-bmp)	19.76	Water Column (ft.)	10.66	Gallons in Well	1.73	
		Pump Intake (ft-bmp)	17.50	Purge Method	Low-Flow	Sample Method	Grab	
		Well Volumes Purged	0.45					
Sample Time:	Label	12:15	Volume Purged	0.78 gallons	Replicate/Code No.	--	Sampled by	Jeremy Myers
	Purge Start	11:41						
	Purge End	12:20						

[Signature]

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
11:43	0	100	9.12	0.00	7.17	6.89	0.02	0.80	16.3	-109.6	Clear	No Odor
11:48	5	100	9.12	0.13	7.17	7.09	0.02	0.64	16.3	-117.8	Clear	No Odor
11:53	5	100	9.12	0.26	7.16	7.18	0.02	0.43	16.4	-119.4	Clear	No Odor
11:58	5	100	9.12	0.39	7.16	7.22	0.02	0.39	16.3	-120.5	Clear	No Odor
12:03	5	100	9.12	0.52	7.16	7.24	0.02	0.36	16.4	-120.9	Clear	No Odor
12:08	5	100	9.12	0.65	7.16	7.29	0.02	0.32	16.4	-121.2	Clear	No Odor
12:13	5	100	9.12	0.78	7.16	7.34	0.02	0.26	16.3	-121.1	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					
Gallons/Foot	1" = 0.04 1.25" = 0.06	1.5" = 0.09 2" = 0.16	2.5" = 0.26 3" = 0.37	3.5" = 0.50 4" = 0.65	6" = 1.47

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
Well Completion:			



Prepared By: Nolan Schendel

[illegible]



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No.	30206169.401.01		Well ID	MW-211S		Date	11-20-2024	
Project Name/Location	Ford LTP		Weather	44.1 degrees F and Fog/Mist. The wind is blowing W/SW at 4.7 mph.				
Measuring Pt. Description	Top of Casing	Screen Setting (ft-bmp)	4.0-12.0	Casing Diameter (in.)	2	Well Material	PVC	
Static Water Level (ft-bmp)	9.30	Total Depth (ft-bmp)	11.82	Water Column (ft.)	2.52	Gallons in Well	0.41	
		Pump Intake (ft-bmp)	10.80	Purge Method	Low-Flow	Sample Method	Grab	
		Well Volumes Purged	5.07	Replicate/Code No.	--	Sampled by	Nolan Schendel	
Sample Time:	Label	09:47	Volume Purged	2.08 gallons				
	Purge Start	09:02						
	Purge End	09:51						

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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
09:04	0	200	9.33	0.00	7.12	6.22	47.70	2.48	15.8	116.5	Clear	No Odor
09:09	5	200	9.33	0.26	7.12	6.22	44.20	0.94	16.4	109.4	Clear	No Odor
09:14	5	200	9.33	0.52	7.12	6.30	44.20	0.61	16.9	103.8	Small Orange Particulates	No Odor
09:19	5	200	9.33	0.78	7.14	6.42	20.40	0.56	17.0	98.6	Clear	No Odor
09:24	5	200	9.33	1.04	7.15	6.50	13.10	1.00	17.0	95.3	Clear	No Odor
09:29	5	200	9.33	1.30	7.15	6.54	6.59	0.44	16.9	92.1	Clear	No Odor
09:34	5	200	9.33	1.56	7.16	6.56	4.12	0.28	17.0	88.9	Clear	No Odor
09:39	5	200	9.33	1.82	7.16	6.57	4.02	0.30	16.9	88.2	Clear	No Odor
09:44	5	200	9.33	2.08	7.16	6.57	3.51	0.26	17.0	87.0	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					
Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information	On-site: East	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:			



Prepared By: Kent Kasper

Date	Time	Description of Activities
11-20-2024	10:12	Arrive onsite
11-20-2024	10:16	Record static depth to water
11-20-2024	10:23	Begin purging well
11-20-2024	11:10	Collect sample MW-212S_112024
11-20-2024	11:14	End purge and turn off pump, begin decon of equipment
11-20-2024	11:19	Offsite
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SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No.	30206169.401.01	Well ID	MW-212S		Date	11-20-2024	
Project Name/Location	Ford LTP		Weather		46.9 degrees F and Fog/Mist. The wind is blowing at 3.4 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)	8.90	Total Depth (ft-bmp)	11.14	Water Column (ft.)	2.24	Gallons in Well	0.36
		Pump Intake (ft-bmp)	10.40	Purge Method	Low-Flow	Sample Method	Grab
		Well Volumes Purged	2.89	Replicate/Code No.	--	Sampled by	Kent Kasper
Sample Time:	Label	11:10	Volume Purged	1.04 gallons			
	Purge Start	10:23					
	Purge End	11:14					

[Signature]

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
10:25	0	100	8.93	0.00	7.12	7.43	33.10	1.02	16.6	-28.7	Clear	No Odor
10:30	5	100	8.93	0.13	7.07	7.33	22.70	0.47	16.8	-30.7	Clear	No Odor
10:35	5	100	8.93	0.26	7.08	7.24	14.50	0.35	16.4	-34.6	Clear	No Odor
10:40	5	100	8.93	0.39	7.08	7.21	11.10	0.33	16.1	-35.8	Clear	No Odor
10:45	5	100	8.94	0.52	7.10	7.15	6.89	0.27	16.4	-35.9	Clear	No Odor
10:50	5	100	8.94	0.65	7.12	7.12	5.04	0.26	16.5	-36.6	Clear	No Odor
10:55	5	100	8.94	0.78	7.13	7.11	3.19	0.23	16.5	-35.2	Clear	No Odor
11:00	5	100	8.94	0.91	7.14	7.08	2.62	0.23	17.0	-34.7	Clear	No Odor
11:05	5	100	8.94	1.04	7.15	7.07	2.07	0.22	17.0	-34.3	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	3	HCL
1,4-dioxane	40 mL Glass	3	HCL

Comments: none

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

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
Well Completion:			



Prepared By: Kent Kasper

[illegible]



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No.	30206169.401.01		Well ID	MW-213S		Date	11-20-2024	
Project Name/Location	Ford LTP		Weather	50.0 degrees F and Fog/Mist. The wind is blowing S at 5.8 mph.				
Measuring Pt. Description	Top of Casing	Screen Setting (ft-bmp)	6.0-11.0	Casing Diameter (in.)	2	Well Material	PVC	
Static Water Level (ft-bmp)	8.66	Total Depth (ft-bmp)	10.81	Water Column (ft.)	2.15	Gallons in Well	0.35	
		Pump Intake (ft-bmp)	10.16	Purge Method	Low-Flow	Sample Method	Grab	
		Well Volumes Purged	2.23	Replicate/Code No.	--			
Sample Time:	Label	12:15	Volume Purged	0.78 gallons		Sampled by	Kent Kasper	
	Purge Start	11:34						
	Purge End	12:18						

[Signature]

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
11:40	0	100	8.70	0.00	7.08	5.99	10.40	0.33	16.8	-40.0	Clear	No Odor
11:45	5	100	8.70	0.13	7.10	5.91	8.10	0.41	15.9	-43.6	Clear	No Odor
11:50	5	100	8.70	0.26	7.11	5.95	6.20	0.30	16.3	-45.5	Clear	No Odor
11:55	5	100	8.70	0.39	7.12	5.98	4.16	0.25	15.7	-47.7	Clear	No Odor
12:00	5	100	8.70	0.52	7.12	5.99	2.96	0.24	16.1	-48.8	Clear	No Odor
12:05	5	100	8.70	0.65	7.14	6.00	1.81	0.20	16.2	-50.3	Clear	No Odor
12:10	5	100	8.70	0.78	7.15	5.99	1.67	0.18	16.2	-51.5	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					
Gallons/Foot	1" = 0.04 1.25" = 0.06	1.5" = 0.09 2" = 0.16	2.5" = 0.26 3" = 0.37	3.5" = 0.50 4" = 0.65	6" = 1.47

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
Well Completion:			



Prepared By: Kent Kasper

[illegible]



SHALLOW LOW-FLOW GROUNDWATER SAMPLING FORM

Page 1 of 1

Project No.	30206169.401.01	Well ID	MW-234	Date	11-20-2024			
Project Name/Location	Ford LTP		44.1 degrees F and Fog/Mist. The wind is blowing W/SW at 4.7 mph.					
Measuring Pt. Description	Top of Casing	Screen Setting (ft-bmp)	12.0-17.0	Casing Diameter (in.)	2	Well Material	PVC	
Static Water Level (ft-bmp)	8.50	Total Depth (ft-bmp)	15.78	Water Column (ft.)	7.28	Gallons in Well	1.18	
		Pump Intake (ft-bmp)	14.50	Purge Method	Low-Flow	Sample Method	Grab	
		Well Volumes Purged	1.10					
Sample Time:	Label	09:45	Volume Purged	1.30 gallons	Replicate/Code No.	--	Sampled by	Kent Kasper
	Purge Start	08:48						
	Purge End	09:51						

[Signature]

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
08:50	0	100	8.53	0.00	7.20	7.70	7.97	0.66	16.7	-50.2	Clear	No Odor
08:55	5	100	8.52	0.13	7.27	7.74	5.29	0.48	16.7	-76.6	Clear	No Odor
09:00	5	100	8.52	0.26	7.32	7.73	5.22	0.33	16.6	-87.9	Clear	No Odor
09:05	5	100	8.52	0.39	7.39	7.72	4.28	0.25	16.7	-94.7	Clear	No Odor
09:10	5	100	8.52	0.52	7.66	7.55	3.26	0.20	16.5	-131.2	Black, Clear	No Odor
09:15	5	100	8.53	0.65	9.34	7.01	3.79	0.03	16.2	-116.4	Black, Clear	No Odor
09:20	5	100	8.53	0.78	9.62	6.51	4.18	0.03	16.1	-107.6	Black, Clear	No Odor
09:25	5	100	8.53	0.91	9.82	6.32	4.06	0.02	16.2	-104.6	Black, Clear	No Odor
09:30	5	100	8.53	1.04	9.91	6.20	4.18	0.05	16.0	-102.5	Black, Clear	No Odor
09:35	5	100	8.53	1.17	9.94	6.21	3.99	0.02	15.8	-101.4	Clear	No Odor
09:40	5	100	8.53	1.30	9.97	6.20	4.23	0.02	15.8	-100.4	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					
Gallons/Foot	1" = 0.04 1.25" = 0.06	1.5" = 0.09 2" = 0.16	2.5" = 0.26 3" = 0.37	3.5" = 0.50 4" = 0.65	6" = 1.47

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
Well Completion:			



Prepared By: Maryam Hanani

[illegible]

Project No.	30206169.401.01	Well ID	MW-235				Date	11-20-2024
Project Name/Location	Ford LTP		50.0 degrees F and Haze. The wind is blowing W at 10.3 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)	8.88	Total Depth (ft-bmp)	17.80	Water Column (ft.)	8.92	Gallons in Well	1.45	
		Pump Intake (ft-bmp)	16.50	Purge Method	Low-Flow	Sample Method	Grab	
		Well Volumes Purged	0.71					
		Volume Purged	1.03 gallons	Replicate/Code No.				
Sample Time:	12:35				--	Sampled by	Maryam Hanani	
Purge Start	11:53							
Purge End	12:38							

[illegible]

* Turbidity < 50 NTU and $\pm 10\%$ or 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
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Well Casing Volumes

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

Well Information

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