Date: February 26, 2021

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Mr. Brandon Alger
Warren District Office Remediation and Redevelopment Division
Michigan Department of Energy, Great Lakes and Environment
2770 Donald Court
Warren, Michigan 48092

Our Ref: 30050315
Subject: Ford Livonia Transmission Plant 2021 Off-Site Vertical Aquifer Profile Investigation Work Plan

Dear Mr. Alger:

Arcadis of Michigan LLC (Arcadis), on behalf of Ford Motor Company (Ford) has prepared this Letter for the Livonia Transmission Plant (LTP) property (the site) located at 36200 Plymouth Road in Livonia, Michigan. This workplan is in compliance with a Consent Decree (CD) filed by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) on July 27, 2017 (No: 2:1712372-GAD-RSW).

On September 25, 2020, EGLE contacted Ford via email requesting the installation of shallow monitoring wells to monitor the groundwater table.

On November 18, 2020, EGLE contacted Ford via email and requested that Ford investigate proposed locations 1 through 8 using vertical aquifer profiling (VAP) prior to potentially installing permanent monitoring wells. Locations 9 and 10 would only be investigated pending the groundwater analytical results from locations 1 and 2. The locations of the VAP borings/monitoring wells 1 through 8 are included in **Figure 1**.

The investigative borings requested by EGLE are located south of Plymouth Road and east of Stark Road and were part of the Groundwater Modeling Summary provided by Weston Solutions dated May 2020. The new proposed VAP boring/monitoring well locations are shown on **Figure 1** (i.e., locations 1A through 8A). The locations were slightly moved to accommodate ease of installation and sampling. As requested by EGLE, a VAP investigation will be completed to the south and east to collect additional data to further evaluate the conceptual site model.

PROPOSED SCOPE OF WORK

Ford proposes to install VAP borings in the City of Livonia street Right-of-Ways at locations generally consistent with locations 1A, 2A, 3A, 4A, 5A, 6A, 7A, and 8A. Location 3A was not modified from the original location. The original location was already positioned at an intersection. Ford requests that locations 9 and 10 not be installed unless the analytical results from locations 1A and 2A suggest they are necessary. The locations for proposed VAP borings are included on **Figure 1**.

At each location, the following will be completed:

- Continuous soil cores will be obtained from the ground surface to the basal clay unit using direct push drilling rig (DPT) equipped with dual-tube tooling. Arcadis will log and describe the soils in accordance with the Arcadis Soil Description Technical Guidance Instruction. Boring logs will be generated based on the field descriptions.
- Groundwater sampling will be completed using a screen point sampling device approximately 4 feet in length. Groundwater samples will be collected bottom up, starting with the deepest interval and finish with the shallowest interval.
- Up to three (3) VAP groundwater samples will be collected at each boring location. Sampling intervals will be bias to more permeable intervals identified on the soil boring log and spaced nominally every 5 feet (e.g., 5-9, 14-18, 23-27).
- Following completion, the boring will be allowed to naturally collapse with any remaining void space backfilled with bentonite pellets. The surface at each boring will be finished with material similar to the surrounding surface (soil, asphalt, concrete, etc.).
- Samples will be analyzed for the 7 constituents of concern (tetrachloroethene [PCE], trichloroethene [TCE], 1,1-dichloroethene [1,1-DCE], cis-1,2-dichloroethene [cis-1,2-DCE], trans-1,2-dichloroethene [trans-1,2-DCE], vinyl chloride [VC], and 1,4-dioxane [1,4-D]) via USEPA Method 8260 and 8260 SIM. All samples will be collected in accordance with the approved Quality Assurance Project Plan (QAPP).

Monitoring Well Installation

Once the VAP investigation data has been reviewed with EGLE, Arcadis will oversee the installation of shallow monitoring wells at each location (1A through 8A). The monitoring well screens will be installed to bisect the water table. At each location, the following will be completed:

- Continuous soil cores will be obtained from the ground surface to the target well depth. Arcadis will log and describe the soils in accordance with the Arcadis Soil Description Technical Guidance Instruction.
- Boring logs will be generated based on the field descriptions. Monitoring wells will be installed and constructed with a 5-foot stainless-steel wire-wrapped 0.010-slot screens and 2-inch PVC riser.
- An appropriate sand pack will be placed around the screen interval to a depth of 1 foot above the well screen followed by 1 to 2 feet of choker sand and then bentonite grout to grade.
- Monitoring wells will be developed using a submersible pump and surge block until the development water from each well is visibly clear, sediment-free, and has a turbidity meter reading less than 50 Nephelometric Turbidity Units (NTU). Monitoring wells will be developed no less than 24 hours following installation.

Groundwater Sampling

Following the monitoring well installation and development, all monitoring well locations will be sampled and analyzed for the 7 constituents of concern (tetrachloroethene [PCE], trichloroethene [TCE], 1,1-dichloroethene [1,1-DCE], cis-1,2-dichloroethene [cis-1,2-DCE], trans-1,2-dichloroethene [trans-1,2-DCE], vinyl chloride [VC], and 1,4-dioxane [1,4-D]) via USEPA Method 8260 and 8260 SIM. All samples will be collected in accordance with the Quality Assurance Project Plan (QAPP) and will include the following:

- Groundwater sampling activities will be completed using standard low-flow sampling procedures. Each well will be purged for a minimum of 30 minutes and a maximum of 60 minutes.

- A multi-sensor meter will be used to monitor the groundwater conditions while purging. The parameters monitored will include dissolved oxygen (DO), specific conductance, temperature, pH, and oxygen reduction potential (ORP).
- A turbidity meter will be used to monitor turbidity in the groundwater during purging activities. Purging will continue until the turbidity is below 10 NTU.
- The well is considered stabilized and ready for sample collection when turbidity values remain within 10% (or within 1 NTU if the turbidity reading is less than 10 NTU), the specific conductance and temperature values remain within 3%, ORP readings remain within ± 10 mV, DO values remain within 10%, and pH remains within 0.1 unit for three consecutive readings collected at 5-minute intervals.
- If the field indicator parameters do not stabilize within 1 hour of the start of purging, but the groundwater turbidity is below the goal of 10 NTU and the values for all other parameters are within 10%, the well will be sampled.
- In the event the groundwater level does not stabilize during purging, or if the well is effectively dewatered, the monitoring well will be allowed to recover until sufficient groundwater is available and a groundwater sample will be collected.
- The shallow monitoring wells will be sampled for four quarters and the results will be provided in the quarterly progress reports.

Schedule

The off-site VAP investigation is anticipated to start following EGLE's written approval of this work plan.

Closing

If you have any questions or concerns, please do not hesitate to contact me by email at Kristoffer.Hinskey@arcadis.com or by phone at 248-994-2240.

Sincerely,
Arcadis of Michigan, LLC

Kristoffer Hinskey
Certified Project Manager II

Email: Kristoffer.Hinskey@arcadis.com
Direct Line: 248-994-2240

CC. File

Enclosures: Figure 1 Proposed Monitoring Well Locations

Figure 1

Proposed Monitoring Well Locations

CITY: Novi DIV: ENV DB: MG PIC: R. ELLIS PM: K. HINSKEY PROJECT NUMBER: 30050315 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet
T:_ENV\Novi\Brighton_MI\Ford\Livonia\GIS\docs\GEC\2021\Figure 1 - Proposed MW Location_Plymouth Road.mxd PLOTTED: 2/26/2021 7:18:05 PM BY: mai00749

SITE

1 1A 2 2A 3 3A 4 4A 5 5A 6 6A 7 7A 8 8A 9 10

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

LEGEND

- ARCADIS WELL RECOMMENDATION
- WESTON WELL RECOMMENDATION
- FORD PROPERTY BOUNDARY

0 800 1,600
SCALE IN FEET

FORD LIVONIA TRANSMISSION PLANT

PROPOSED MONITORING WELL LOCATIONS

ARCADIS

FIGURE 1