

# MEMO

To:  
Paul Owens, District Supervisor  
MDEQ SE Michigan District Office  
27700 Donald Court  
Warren, Michigan 48092-2793

[owensp@michigan.gov](mailto:owensp@michigan.gov)

Copies:  
Brandon Alger – MDEQ  
Gerald Tiernan - MDEQ  
Todd Walton – Ford Motor Company  
Chuck Pinter – Ford Motor Company  
Rob Ellis - Arcadis  
Joe Quinnan - Arcadis

Arcadis of Michigan, LLC  
28550 Cabot Drive  
Suite 500  
Novi  
Michigan 48377  
Tel 248 994 2240  
Fax 248 994 2241

From:  
Kris Hinskey

Date:  
December 12, 2017

Arcadis Project No.:  
MI001322.0001

Subject:  
Livonia Transmission Plant  
Response to Michigan Department of Environmental Quality Comments  
Consent Decree Reporting - Conceptual Site Model  
36200 Plymouth Road, Livonia, Wayne County, Michigan  
MDEQ Site ID No. 82002970

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On behalf of Ford Motor Company (Ford), this response to comments has been prepared by Arcadis of Michigan LLC for the Livonia Transmission Plant (LTP) site (the site). The Michigan Department of Environmental Quality (MDEQ) approved the initial LTP conceptual site model (CSM) report on November 13, 2017. As part of the approval, the MDEQ included several comments outlining expectations for future response activities. This memo provides a brief summary of the MDEQ comments followed by Ford's response to comment. A more detailed response will be provided in the Response Activities Plan (RespAP) for Remedial Investigation (RI).

***Comment #1:*** *Continue with investigation of groundwater impacts including the extent of groundwater plume beneath the primary plant structure, potential vapor impacts to the eastern plant structure, out-buildings shown to be potentially impacted by groundwater sampling, off-site boundaries where groundwater in perimeter wells is above screening levels, and other Area of Concern (AOC) locations where data is shown to have not delineated groundwater to concentrations outlined in the Consent Decree (CD).*

**Response:**

Acknowledged. Additional groundwater delineation activities are outlined as part of the forthcoming RespAP. Most of the groundwater impacts that migrated to the east have been well characterized and delineated. The exceptions are areas to the northeast of the LTP wastewater pretreatment facility, where trichloroethene (TCE) has not been delineated to the north of the site boundary, off site at the northeast corner of the property boundary, where low levels of vinyl chloride (VC) have not been delineated, and in two additional areas of VC impacts east of the site and north of Rosati Drive.

**Comment #2:** *All future sampling must use appropriate methods for Method Detection Limits (MDL) at or below provided screening levels, unless Ford is to provide, and MDEQ to approve, an alternative site-specific screening level at which point this would be the new MDL.*

**Response:**

Acknowledged. Note that a separate RespAP requesting a Target Detection Limit (TDL) change for TCE and VC in residential groundwater was submitted to MDEQ on November 21, 2017. Upon approval from the MDEQ, the new TDL for TCE and VC would be 1.0 microgram per liter (µg/L), which is consistent with the published 2016 MDEQ Remediation and Redevelopment Division TDL.

**Comment #3:** *Investigate and document potential utility corridors which may have become preferential pathways. Provide insight to how these corridors have been, or will be, investigated. Pay special attention to sediment outfall, migration along preferential pathways created by the sewer line, and other impacts from the former cracked storm drain at the southeastern portion of the property.*

**Response:**

Acknowledged. Actions to address potential migration of impacts in utility corridors will be outlined in the RespAP. Response activities will focus on the following:

- Additional evaluation of the eastern storm sewer, western storm sewer, and sanitary sewer systems. Sediment samples will be collected from the on-site eastern and western diversion chambers to determine if constituents of concern (COCs) are present. Current monitoring wells will also be evaluated to determine if the well screens are constructed at similar depths as the adjacent sewers.

**Comment #4:** *Conclusions made about on-site VI do use multiple lines of evidence, but the MDEQ does not agree that the lines of evidence are sufficient in making the determination, made by Ford, that "VI is likely not occurring."*

- *Indoor air sampling is highly variable and even sampling "multiple times" only provides multiple isolated snapshots.*
- *A lack of a pressure gradient does not indicate VI is not occurring. To use pressure as a line of evidence, the gradient would need to be negative beneath the slab, assuring airflow from the pressurized building, to the depressurized sub- slab area.*
- *The Johnson & Ettinger Model does not allow for a slab to be used as a reliable remedial activity, more information about the epoxy coating and any QA done for this would be required. An epoxy coating not designed or tested for vapor mitigation should not be assumed to be of any use.*

**Response:**

Acknowledged. As indicated in the CSM and in MDEQ Comment 5, a sub-slab depressurization system is currently being installed inside the LTP to pre-emptively mitigate locations identified in the CSM that warranted an interim mitigation response.

**Comment #5:** *Proceed with design and implementation of on-site sub-slab depressurization system for on-site remedial activities; begin investigation for appropriate off-site remedial activities where it can be shown that a completed pathway may exist.*

**Response:**

Acknowledged. The proposed work will focus on the on-site and off-site actions indicated below.

*On-site:*

As indicated in the CSM, a sub-slab depressurization system is currently being installed inside the LTP.

*Off-Site:*

As requested, additional work will be completed off site to further evaluate the potential for vapor intrusion.

**Comment #6:** *Determine if and where the "clean water lens" is consistently reliable. From the CSM and based on discussions with Ford, it is clear that a significant part of the response is to rely upon the existence and reliability of this proposed clean water lens. This needs to be proven and well documented.*

- Establish how top and bottom of lens is defined.
- Incorporate into future editions of the Conceptual Site model (CSM) how we know this is stable or unstable. What is the minimum thickness in each area it is relied upon?
- What is the source of this water? What is the long-term behavior of the water? Is this to be relied upon in perpetuity?
- Design appropriate response activities around this greater understanding of the "clean water lens".
- If Ford is to continue to rely upon this lens to protect residents from potential Vapor Intrusion, the MDEQ expects this lens to be defined and established as stable, reliable, and protective of any potential risk to receptors.

**Response:**

The clean water lens is one piece of the CSM that helps explain the lack of off-site vapor impacts and is was not proposed as part of a future remedy at this time. To date, three rounds of soil vapor samples have been collected from off site soil vapor monitoring point locations. The data from these sampling events are consistent, showing a lack of volatile organic compounds (VOCs) in soil vapor. Follow-up sampling of nested monitoring wells also continues to demonstrate the presence of the clean water lens. As part of the RespAP, results from additional groundwater sampling and soil vapor sampling will document the presence or variability of the lens.

**Comment #7:** *Further investigate vapor intrusion pathway with continued soil-gas samples, including appropriate off-site, sub-slab, soil-gas samples to investigate composition and behavior of soil-gas beneath residential homes, and find where completed exposure pathways exist. Measure and report atmospheric barometric pressure on days of soil-gas or sub- slab sampling.*

- *Off-site, sub-slab samples are going to be highly-recommended, for a determination of how soil vapor behaves beneath the structures. This won't be required for each home as appropriate selection may be extrapolated to structures better protected by the proposed clean water lens, if established, or horizontal exclusion zone (100' from screening level).*

**Response:**

The vapor intrusion pathway will be further investigated as proposed in the Detailed Vapor Intrusion Assessment and Mitigation Plan and RI. Barometric pressure has been recorded during all vapor intrusion sampling events to date and will continue to be recorded.

**Comment #8:** *Demonstrate that the off-site, near-slab, soil-gas samples are representative of soil-vapor which is in contact with the groundwater, and not ambient air being pulled from above. Clearly document how this is demonstrated.*

**Response:**

To ensure no breakthrough of ambient air during sub-slab soil vapor and exterior soil vapor sampling, a number of steps have been taken. No evidence of ambient air breakthrough has been observed during these sampling events. Steps taken are presented below:

LTP sub-slab soil vapor locations:

- Permanent vapor pins were installed.
- A water dam test was conducted at each location.

Off-site soil vapor locations:

- The screened interval length was reduced to 1 inch inside a 3-inch sand pack to allow for a thicker bentonite seal above each point.
- Each point was allowed to equilibrate at least 24 hours before sampling.
- A helium tracer gas test was conducted at each sample location to verify integrity of installation; no helium was noted in purged air.
- Samples with a low flow rate (i.e., 1-liter canisters collected over a 20-minute period) were employed to provide minimal vacuum influence on the formation.

**Comment #9:** *Summarize necessary source information to better define which sources are most problematic and estimate, to the best of your knowledge, the amount of product released at these problematic sources. If possible, include a date or range of dates when this product was released.*

**Response:**

The volumes and timings of specific VOC releases are unknown. The light non-aqueous phase liquid (LNAPL) time of release is unknown, but likely occurred gradually over a period of time. The volume of LNAPL can be estimated using the 3D model.

The forthcoming RespAP includes additional source area evaluation, including both a desktop component to identify potential sources and an initial phase of borings to better characterize potential sources outlined as part of the CSM (i.e., PS-1 through PS-6).

The spatial distribution of VOCs in groundwater, combined with relative flux analysis, indicated that PS-1 is the most significant source of VOC impacts to groundwater. Other sources (PS-2 through P-5) show orders of magnitude less impact and flux, and have been primarily identified via soil gas screening.

**Comment #10:** *Include areal and cross-sectional delineation of DNAPL in future CSM.*

**Response:**

Acknowledged. Additional data collected from source areas will be presented on cross-sections as appropriate to best represent the CSM.

**Comment #11:** *Proceed with using the working CSM and associated updates to conduct and prepare Response Activity Plan which includes a diagram or flow chart for each potentially impacted off-site structure (within lateral inclusion zone), based on its construction and any associated contamination. Include discussion on which cases would result in which response activity if all completed pathways cannot be ruled out.*

**Response:**

Each off-site property has been evaluated and presented in tabular format within the CSM (Table 13 and Figure 44). Multiple lines of evidence will be considered for each property and discussed with MDEQ. A more detailed scope will be developed once home inspections are completed and additional information from the homes has been evaluated.