

Memo

**SUBJECT**

Utility Corridor Assessment—
Response to EGLE Letter Dated June 8, 2023 -
Request for Alternate Vapor Samplers
36200 Plymouth Road, Livonia, Wayne County
Consent Decree No 2:1712372-GAD-RSW (CJ)
Site ID No.: 82002970

TO

Mike Neller, EGLE
Jeanne Schlaufman, EGLE

DATE

August 17, 2023

OUR REF

30144174

COPIES TO

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

NAME

Kris Hinskey—Arcadis of Michigan, LLC

On behalf of Ford Motor Company (Ford), Arcadis of Michigan, LLC (Arcadis) has prepared this memorandum (memo) for the Livonia Transmission Plant site (the site). This memo provides a response to the June 8, 2023 letter from the Michigan Department of Environment, Great Lakes, and Energy (EGLE; EGLE 2023b) and serves as a request to change the current EGLE-approved utility corridor sampling program.

Response to EGLE Comment in June 8, 2023 EGLE Letter

This section details the response to a comment in the June 8, 2023 letter from EGLE (EGLE 2023b). The text below in *italics* is quoted from that letter and is followed by a response that provides context and clarifications for future response activities that are proposed to be performed by Ford.

Identify and propose alternate approaches and demonstrations for the investigation of vapor in the sanitary sewer and connections.

Response: Arcadis (Ford) has identified and is proposing to use passive samplers instead of stainless steel canisters as an alternate approach for the utility corridor assessment in the sanitary sewer located in Plymouth Road, Stark Road, Farmington Road, and Hathaway Avenue. Passive samplers are adsorbent samplers that passively collect volatile organic compounds in sewer gas over a length of time from hours to weeks, instead of in seconds as with sampling canisters, reducing uncertainty in the analytical data from temporal variability. This memo provides the following information:

- Passive sampling guidance summary and advantages for using the passive sampling method;
- Passive vapor sampling procedure and methodology; and
- Proposed scope of work and schedule for completing the passive sampling.

Passive Sampling Guidance Summary and Advantages

In the absence of EGLE guidance related to the evaluation of the vapor intrusion (VI) pathway via utility corridors, the utility corridor evaluation conducted to date offsite has been completed using the Guidance for Documenting the Investigation of Human-made Preferential Pathways Including Utility Corridors (Wisconsin Guidance; Wisconsin Department of Natural Resources [Wisconsin DNR] 2021). The Wisconsin Guidance is the most current and only official guidance document available for investigating the VI pathway via human-made preferential pathways including utility corridors. The Wisconsin Guidance incorporates all the research and

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development that has been completed to date with regard to sewers (both storm and sanitary). This research was executed largely by the United States Environmental Protection Agency (USEPA) and Department of Defense under the Environmental Security Technology Certification Program (ESTCP). The USEPA, including Regions 4, 5, and 7, has recommended the use of the Wisconsin Guidance when evaluating the VI pathway via human-made preferential pathways including utility corridors. The Wisconsin guidance is a compilation of sewer research and development work completed to date under USEPA and ESTCP, including McHugh and Beckley (2018), which is frequently referenced by many agencies for sewer projects.

The Wisconsin Guidance (Wisconsin DNR 2021) acknowledges that “*Both passive samplers and evacuated canisters may be used to collect [vapor] samples*” to evaluate sewer vapor concentrations, but that “*sewer vapor concentrations are quite variable over time*”. EGLE also acknowledged in their April 4, 2023 letter (EGLE 2023a) that “*The available sewer data indicates that the data is likely highly variable*”. The Wisconsin Guidance also acknowledges that the use of passive samplers “*can reduce some of the variability by collecting the sample over a number of days*” as compared to collecting grab samples over several seconds using canisters.

This is the primary advantage of using passive samplers instead of canisters to evaluate concentrations of vapor in the sanitary sewers offsite. The passive samplers would be deployed in offsite sanitary sewer manhole locations for 7 days to develop an average sewer vapor concentration. Deploying the passive samplers for 7 days would also ensure that detection limits in the analytical data are below the site-specific volatilization to indoor air criteria provided by EGLE on September 11, 2020. Ford and Arcadis anticipate that deploying the passive samplers for several days in the sanitary sewer manholes will reduce variability in the analytical results. A time-weighted average approach will provide more representative sewer vapor concentrations compared to sewer vapor concentrations from canister sampling.

Additionally, based on the interim response activities completed and comprehensive analytical data collected as part of the utility corridor evaluation (Arcadis 2022), the presence of trichloroethene in vapor downstream of the site is unlikely to be attributable to Ford, indicating the presence of an alternative source(s) unrelated to the site. Multiple properties that used or currently use underground storage tanks downstream of the site have yet to be environmentally assessed and have the potential to be contributing to, or may have contributed to, the site-related constituents of concern (COCs) (1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, tetrachloroethene, trichloroethene, vinyl chloride, and 1,4-dioxane) that have been identified in vapor in the sanitary sewer system. In addition, unregulated discharges of consumer products containing site-related COCs are suspected from the commercial and residential area downgradient of the site. Therefore, the potential exists for multiple sources of COCs in the sanitary system, and the presence of these potential sources is supported by the extensive data set that has been collected since 2020. The Wisconsin Guidance (Wisconsin DNR 2021) acknowledges that passive samplers can be used as an assessment method to differentiate vapor sources within the sanitary sewer.

Therefore, Ford and Arcadis request the use of passive samplers as an alternative sampling approach to canister sampling because of the variability of vapor concentrations within the sanitary sewers as well as the potential for offsite parties contributing to the vapor sources within the sanitary sewers, which passive sampling can assist in determining.

Passive Sampling Methodology and Procedure

Passive sorbent samplers can be packed with various adsorbents depending on which compounds are of concern. The proposed passive sorbent tube sampler (Beacon ChloroSorber™) consists of a 6-millimeter-outer-diameter

stainless steel tube packed with two pairs of proprietary hydrophobic carbonaceous adsorbents that are National Environmental Laboratory Accreditation Program (NELAP) accredited and accredited for TO-17 and are effective to target a broad range of organic compounds, even in high moisture conditions. The stainless steel tubes are shipped to the project site with Swagelok® storage caps on both ends of the tubes.

In order for the passive sampler to collect air, the storage cap is removed from the sampling end of the tube and replaced with a diffusion cap that allows air to passively enter the tube. Potential site-related COCs that are present will adsorb onto the sorbent bed following the principles of diffusion.

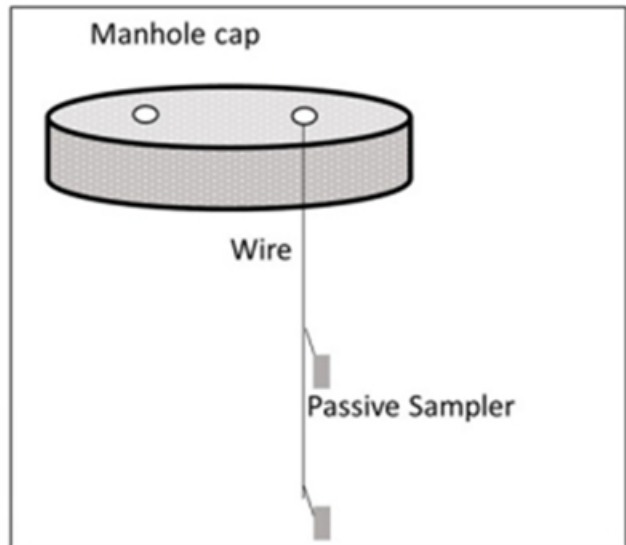
The passive samplers will be deployed in the sanitary sewers at manhole locations using a wire attached to the sampler. The top of the wire will be lowered down into the manhole and hooked to a rung on the access ladder inside each manhole so that each sampler will be suspended in the manhole. Two passive samplers will be deployed and suspended in each manhole to account for sanitary sewer liquid flow fluctuation. The lower of the two samplers will be installed approximately 1 foot above the bottom of the sewer or top of liquid, if present. The second sampler will be installed approximately 3 feet above the lower sampler in case the lower sampler is inundated. The passive samplers will remain in the manholes for a period of 7 days to achieve detection limits that are below the site-specific volatilization to indoor air criteria. Following the 7-day sampling period, the samplers will be retrieved and sent to Beacon Environmental laboratory (Forest Hill, Maryland) for analysis of site-related COCs via USEPA Method TO-17, generating time-weighted average concentrations. The lowest sampler not affected by sewer liquid flow will be analyzed. During the vapor sampling event, one field duplicate will be collected.

Exhibit 1 and **Exhibit 2** provide visuals of the potential passive sampler as well as the set up in the sanitary sewer manhole.

Exhibit 1—Passive Sampler with Media



Exhibit 2—Typical Passive Sampler Setup



Passive Sampling Scope of Work and Schedule

Passive samplers will be deployed in the sanitary sewer manhole locations located on Plymouth Road, Stark Road, Hathaway Avenue, and Farmington Road (**Figure 1** and **Figure 2**) in accordance with the June 8, 2023 EGLE letter (EGLE 2023b).

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Passive samplers are proposed to be used (instead of canisters) for all vapor sampling events moving forward for both current sanitary sewer sampling locations as well the potential delineation locations outlined in the June 8, 2023 EGLE letter. The weekly sampling for sanitary sewer manhole locations located along Hathaway Avenue and Farmington Road requested in the June 8, 2023 EGLE letter is proposed to be discontinued. A second passive sampling event will be conducted the week following retrieval to confirm the results from the initial passive sampling event. Ford and Arcadis will prepare data figures showing results from the initial sampling event and provide them to EGLE for review following data validation and quality assurance/quality control.

Ford requests that EGLE provide written confirmation stating if the above proposed use of passive samplers as an alternate approach for the investigation of vapor in the sanitary sewer offsite and proposed sampling schedule are acceptable. Ford continues to work diligently and collaboratively with EGLE to address the response activities outlined in the June 8, 2023 letter (EGLE 2023b) and is committed to completing the activities outlined in this memo.

References:

Arcadis. 2022. Utility Corridor Evaluation Report. Livonia Transmission Plant. October 28.

EGLEa. 2023. Letter from P. Owens (EGLE) to T. Walton (Ford). re: Statement of Position—with regards to the Violation Notice and Demand for Stipulated Penalties. April 3.

EGLEb. 2023. Letter from M. Neller (EGLE) to T. Walton (Ford). re: Utility Corridor Evaluation Report—Disapproval, and Status of Ongoing Dispute. June 8.

Wisconsin Department of Natural Resources. 2021. Guidance for Documenting the Investigation of Human-made Preferential Pathways Including Utility Corridors. Remediation and Redevelopment Program. June.

McHugh, T., Beckley, L., 2018. Final Report: Sewers and Utility Tunnels as Preferential Pathways for Volatile Organic Compound Migration into Buildings: Risk Factors and Investigation Protocol, ESTCP Project ER-201505.

Enclosures:

Figure 1—Sanitary Sewer Sample Locations—Stark Road and Hathaway Avenue

Figure 2—Sanitary Sewer Sample Locations—Hathaway Avenue and Farmington Road



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.

LEGEND

SURVEY POINTS

● SANITARY MANHOLE AND SAMPLING LOCATION

— SANITARY SEWER LINE

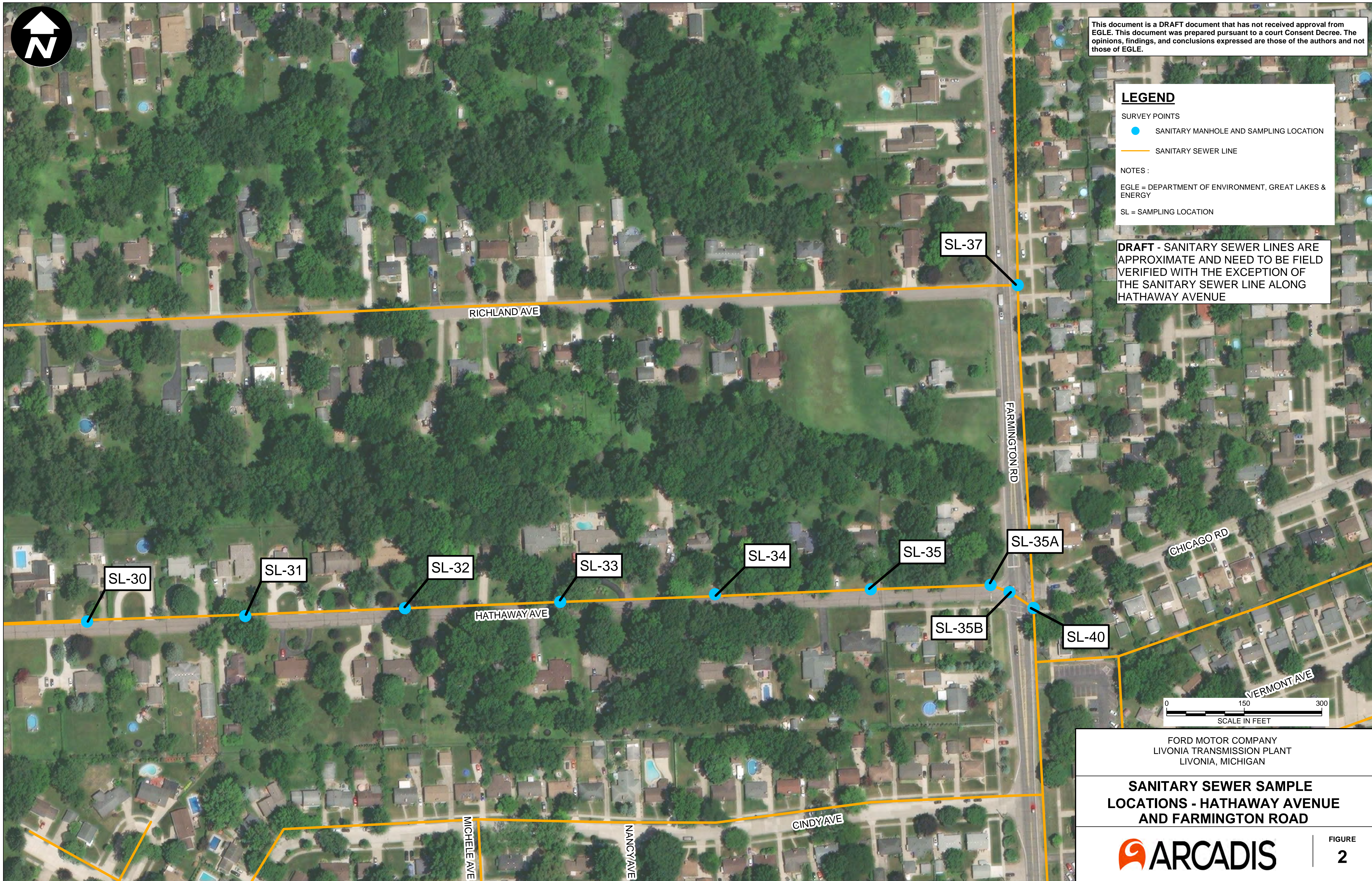
NOTES :

EGLE = DEPARTMENT OF ENVIRONMENT, GREAT LAKES & ENERGY

SL = SAMPLING LOCATION

DRAFT - SANITARY SEWER LINES ARE APPROXIMATE AND NEED TO BE FIELD VERIFIED WITH THE EXCEPTION OF THE SANITARY SEWER LINE ALONG HATHAWAY AVENUE

CITY: Novi, DIV: ENV, DE: MG, PIC: R, ELLIS, PM: K, HINSKEY, PROJECT NUMBER: 30080642, COORDINATE SYSTEM: NAD 1983, StatePlane Michigan South FIPS 2113, Feet Intl, T: ENV\Novi\Brighton_MitFord\U\venia\GIS\Info\GEC\2023\Utility_Corridor\Figure2_UTILITY_Corridor_Sampling_Locations_Comprehensive.mxd PLOTTED: 8/8/2023 6:55:53 PM BY: sb01179



FORD MOTOR COMPANY
LIVONIA TRANSMISSION PLANT
LIVONIA, MICHIGAN

**SANITARY SEWER SAMPLE
LOCATIONS - HATHAWAY AVENUE
AND FARMINGTON ROAD**



FIGURE
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