EGLE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

FAQ

Groundwater Contamination Plume Investigation

Ford Livonia Transmission Plant, Livonia Michigan

Frequently Asked Questions (FAQ)

Contents

Groundwater

1. What is a groundwater contamination plume?

The horizontal and vertical areas where chemical contamination is located in groundwater is known as a groundwater contamination plume. Groundwater contamination plumes are the result of chemicals released onto the ground, or under the ground and then move into groundwater. The contamination associated with the plume originating from the Livonia Transmission Plant (Plant) is migrating to the east.

2. How long has the groundwater contamination plume been in my neighborhood?

The Plant groundwater contamination plume was caused by releases of chemicals known as chlorinated compounds. The releases of these chemicals into soils and groundwater likely occurred prior to the 1990's and possibly as far back as the 1950's. In late 2015, Ford Motor Company (Ford) notified the Michigan Department of Environmental Quality (DEQ), now known as the Department of Environment, Great Lakes, and Energy (EGLE), that testing indicated that a vinyl chloride plume in groundwater was present off site. Ford's investigation of this plume shows that it extends into the Alden Village subdivision due east of the Plant.

3. Is my water safe to drink?

Yes. The City of Livonia, including the Plant and the Alden Village subdivision are on a municipal water system that receives its water from the Great Lakes Water Authority in Detroit.

4. What is being done to halt the groundwater contamination plume?

In March 2017, Ford began operating a hydraulic control structure (HCS), also known as a "pump and treat" system. The HCS intercepts the contaminated groundwater leaving the Plant property by continuously pumping groundwater and sending it to an on-site treatment system. This reduces additional contamination from migrating off-site onto adjacent properties. It is anticipated that the hydraulic control structure will operate long-term. In July 2023, Ford installed a permeable reactive barrier (PRB) using zero valent iron (ZVI) in-situ injections along the northeastern property boundary to intercept any groundwater contamination.

5. Is groundwater contamination still migrating and will other properties be impacted?

Groundwater flowing off-site at concentrations exceeding criteria are observed at several wells, with the majority of wells observed with concentrations not detected or detected below criteria. Ford created a zone of groundwater treatment (i.e., Permeable Reactive Barrier using zero valent iron in-situ injections) downgradient of the HCS and just west of Belden Ct to reduce the level of contamination migrating off-site. This treatment method works passively "in-situ" as groundwater migrates to the east. Investigation work has focused on the Alden Village subdivision east of the property boundary to date. Ford is continuing to monitor groundwater to evaluate performance of the on-site treatment. The extent of impacted groundwater has been fully identified, and it is not expected that other properties will be impacted.

Vapor Intrusion and Mitigation

6. What is *vapor intrusion,* why is it a concern, and how is it investigated?

Vapor intrusion sometimes occurs where chemicals were spilled, leaked, or dumped and not cleaned up. For example, properties such as gas stations, dry cleaners, or businesses operating metal parts degreasers use chemicals like gasoline or solvents that can cause vapor intrusion. If these chemicals get into the ground, they can move through the soil and dissolve into groundwater. Although the chemicals are often released as liquid, they easily evaporate, becoming a vapor under the ground that you often cannot see or smell. At some point, the vapors may come in contact with buildings – usually around basements or floors. These vapors may get into buildings through openings such as cracks, or other openings around pipes and sumps. This is a concern because people may breathe in these harmful vapors without knowing. The vapors, also known as soil gas, are assessed with soil gas wells or vapor pins that allow the vapors to be sampled and analyzed in a lab.

Vapor intrusion is addressed in the available informational pamphlet titled: "What is vapor intrusion and how is it investigated" by EGLE and the Michigan Department of Human Health and Services (DHHS).

7. Why is vapor intrusion from this groundwater plume a concern?

One of the primary chemicals present in the Plant groundwater contamination plume is vinyl chloride. Vinyl chloride can volatilize from the groundwater as soil gas and present a vapor intrusion risk. Recent evaluation by peer reviewed toxicologists at the federal and state level have determined that health risks from vinyl chloride are possible at very low concentrations.

8. Where is the area of vinyl chloride vapor intrusion concern and how is it being addressed?

The area of vapor intrusion concern is the Plant property and the areas where the contaminated groundwater plume has migrated, which includes properties along Belden Court, Rosati Avenue, and the Alden Village subdivision. Vapor intrusion evaluations focus on the contaminated groundwater plume and a 100' distance from the outer edge of the plume. Ford continues to evaluate groundwater monitoring data. Vapor intrusion mitigation measures have been implemented at 31 properties. No additional properties have been identified as needing vapor intrusion mitigation at this time.

9. How was the vapor intrusion study done?

Groundwater is very shallow in the area, so sampling soil gas was not possible in every location. In those areas, shallow groundwater monitoring wells with well screens intersecting the groundwater table were needed to assess vapor intrusion. The groundwater in these wells was then sampled and concentrations are compared to numbers developed by toxicologists to see if this shallow groundwater may generate vapors that may pose an unacceptable risk. When building construction and groundwater depth allows, vapors under structures were evaluated by installing vapor "pins" in the floor of the lowest level of a structure. Indoor air samples are typically collected when vapor pins are sampled. Prior to sampling, a household chemical survey was performed and products containing chemicals found in the groundwater contamination plume were requested to be

removed. Additional sampling events occurred in the areas of concern to account for seasonal soil gas and vapor intrusion variability.

For more information on how EGLE studies vapor intrusion, please visit EGLE's vapor intrusion website at Michigan.gov/VaporIntrusion. The website contains an informational video that provides a general overview of how EGLE studies vapor intrusion.

10. How was risk due to vapor intrusion in my home determined?

Groundwater, soil gas and indoor air sample results were evaluated to determine if vapor intrusion from the subsurface is occurring. Chemicals in the different media were evaluated to determine if they originated from the sub-surface or from a household source. DHHS and EGLE toxicologists have developed groundwater, soil, soil gas, and indoor air screening levels to evaluate indoor air quality and potential health risks from vapor intrusion. The DHHS consults with Wayne County Health Department and advises what steps, if any, should be taken if exceedances are detected in the indoor air.

11. Will Ford need to continue to access my property?

Ford has installed groundwater monitoring wells outside of structures and vapor pins within structures (homes and businesses) to collect soil gas samples. Ford is required by the Consent Decree it entered with the State to obtain access, collect the necessary data, and evaluate the potential risk. Groundwater will continue to be evaluated at existing monitoring wells and soil gas samples will be collected and evaluated as necessary. At this time, it is unlikely that access to additional properties will be requested.

12. What would be done if vapor intrusion posed a risk to occupants of my home or businesses?

Ford is required by the Consent Decree to implement remedial actions to mitigate risk if vapor intrusion poses a risk to occupants of a structure. A common method of addressing vapor intrusion risk is the use of a sub- slab depressurization system (similar to a radon mitigation system). If shallow groundwater prevents installation of this system, a special coating can be applied to floors (and walls of basements) to prevent vapor intrusion. Ford performed any required remedial actions in consultation with EGLE and the homeowner.

13. How do vapor mitigation systems work and how are they tested for effectiveness?

Sub-slab depressurization systems, (similar to radon systems) work by creating a vacuum under the slab or basement of a structure and discharges the vapors outdoors at the roof line of the structure. It is important that sumps, floor drains, cracks and other floor penetrations are properly sealed. The sub-slab depressurization systems are tested during and after installation by checking vacuum pressures through additional vapor pins installed for this purpose. After the sub-slab depressurization system operates for at least 3 days, an indoor air sample is collected from the home to demonstrate the sub-slab depressurization system is working properly.

Investigation and Interim Response Summary

14. Why did Ford install additional wells?

Previous groundwater wells installed by Ford were deeper and not as accurate in assessing for vapor intrusion as wells screened at the top of the water table. Ford had installed soil gas wells previously but, due to the shallow groundwater table, the results from the soil gas wells were not reliable. Shallow groundwater wells were needed to assess vapor intrusion, so EGLE required Ford to install additional shallow groundwater wells beginning in October 2018. These shallow wells were installed within right-of-ways and adjacent to residences where access was received.

15. Why did EGLE require Ford to install mitigation systems?

Some groundwater samples from the shallow groundwater wells detected vinyl chloride above site-specific criteria for vapor intrusion. The Consent Decree allows EGLE to require Ford to delineate the groundwater plume for vinyl chloride and mitigate all structures within the plume and the 100' distance from the outer edge of the plume (lateral inclusion zone) within 45 days of obtaining data showing a vapor intrusion risk may be present.

16. I live within the subdivision, why was a mitigation system not installed at my house?

Only parts of the Alden Village neighborhood where the groundwater plume contamination was above site- specific criteria, and within the 100' lateral inclusion zone, were required to be mitigated. Mitigation is only required when the criteria for vapor intrusion are exceeded. If future data shows additional areas above site-specific criteria, Ford will be required to conduct mitigation for those areas as well.

17. My house has a mitigation system. What does this mean and for how long will it run?

A mitigation system prevents sub-slab vapors from entering a structure. Ford is required to operate and maintain the mitigation systems unless and until it can be shown that a vapor intrusion risk is no longer present. The timeframe for how long these systems will need to be operated is unknown. Ford is monitoring installed mitigation systems on a quarterly basis and providing the monitoring data to EGLE.

18. What additional work was and will continue to be done?

Ford continued to monitor shallow groundwater monitoring wells adjacent to residences to further define the groundwater plume. Where additional exceedances of criteria were detected, Ford installed mitigation systems at those properties. Data collected is shared with homeowners timely, and DHHS, Wayne County Public Health, and EGLE are available to help you understand what the data means. Additional groundwater, soil gas, and indoor air sampling will be performed, and inspections and maintenance of the mitigation systems will be required of Ford. The Consent Decree also requires Ford to address source areas on the Plant property and conduct remedial actions for the source areas.

General Questions

19. Is EGLE verifying the quality of Ford's work?

Data submitted by Ford is reviewed by EGLE staff and put through strict quality control measures. If EGLE identifies any issues with data quality, Ford will be required to correct them.

In response to citizens request, EGLE collected "split samples" (samples collected at the same time as Ford's) of groundwater from shallow monitor wells. The wells were selected at random and samples were analyzed at the State of Michigan environmental laboratory. To date results from EGLE groundwater samples and Ford groundwater samples are acceptably comparable.

Ford hired an outside contractor, Arcadis, to collect soil, groundwater, soil gas, and indoor air samples, and all lab analysis is done at an independent, certified third-party lab. EGLE and DHHS review the data as an additional quality control to assure it can be used for its intended purpose.

20. What process is Ford required to follow for the investigation and mitigation work?

A Consent Decree was entered between EGLE, the Department of Attorney General, and Ford in July 2017. This Consent Decree requires specific actions from Ford under a specified timeline and under EGLE oversight and includes stipulated penalties if Ford does not comply with the Consent Decree.

21. Who will answer my health-related questions if I believe that I have been exposed to vinyl chloride vapors?

For health-related questions, contact the DHHS Hotline at 800-648-6942, the Wayne County Department of Health, Environmental Health Section at 734-727-7400, or talk to your doctor.

22. How is the progress of this investigation being communicated?

EGLE has a web page at Michigan.gov/LivoniaVI, which includes a Fact Sheet and link to the EGLE Vapor Intrusion website that features useful resources. Additionally, Ford is required to keep a public website (FordLivoniaBostonBeaconProject.com) to update residents and the general public about the results of their investigation. This website is not maintained or reviewed by EGLE.

Contact Information

To reach an EGLE representative, please contact the Environmental Assistance Center at 800-662-9278 or at EGLE-RRD-FORD-LIVONIA@Michigan.gov.