

VAPOR INTRUSION

Frequently Asked Questions

ROLE OF THE REGULATORY AGENCY

What is the role of the Santa Ana Regional Water Quality Control Board?

The Santa Ana Regional Water Quality Control Board (Regional Board) is a state regulatory agency under the umbrella of the California Environmental Protection Agency (CalEPA). The Regional Board makes critical water quality decisions for the region, including setting water quality standards, issuing permits (waste discharge requirements), determining compliance with those requirements, and taking appropriate enforcement actions. In the case of the Former Ford Aeronutronics Facility (Site), the Regional Board oversees the Responsible Party that caused the contamination, Ford Motor Company (Ford), to ensure that Ford conducts the appropriate assessment and remediation of the Site.

TERMINOLOGY

What is vapor intrusion?

Vapor intrusion is the movement of *vapor*-forming chemicals (e.g., radon, volatile organic compounds, or semi-volatile organic compounds), from an underground source such as contaminated soil and/or groundwater, into the indoor air of an overlying building. An example of vapor intrusion is the seepage of radon gas into homes in the Midwest and on the east coast as well as some locations in California.

What are VOCs?

Volatile Organic Compounds (VOCs) are chemicals that are contained in products commonly used in industry as well as in the home. Products containing VOCs include paints, paint strippers, cleaning supplies, and markers. VOCs are also found in car exhaust, cigarette smoke, air fresheners and other scented materials, dry cleaned clothes, gardening chemicals, and fuel.

What is TCE?

Trichloroethylene (referred to as trichloroethene or TCE) is a VOC that is used as a solvent for degreasing metal parts during the manufacture of a variety of products. It can be found in consumer products, including some wood finishes, adhesives, paint removers, and stain removers. Due to its widespread use, very low levels of TCE are common in the air of homes and businesses and in outdoor air in urban areas.

What is PCE?

Tetrachloroethylene (referred to as tetrachloroethene or PCE) is a VOC that is commonly used in dry cleaning and metal degreasing. It is also used to make other chemicals and can be found in some consumer products. Similar to TCE, PCE is also volatile, highly stable, and nonflammable at room temperature.

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What are environmental screening levels?

Environmental screening levels (ESLs) are screening levels for chemicals found at sites with contaminated soil and groundwater that are designed to be protective of human health (adults and children). The ESLs protect against the harmful effects of constant, long-term exposures. These assumptions are generally conservative, for example, since most people leave the house for part of the day. The Regional Board uses the ESLs as guidance to evaluate potential environmental concerns to ensure that necessary action can be taken in a timely manner to protect individuals from harmful effects of contaminants.

What are TCE action levels?

The TCE action levels signal when steps should be taken to quickly reduce TCE exposure because of the possible short-term effects to unborn children. In 2014, the U.S. Environmental Protection Agency (U.S. EPA) sent out a memo regarding short-term exposure to TCE which established action levels, accelerated and urgent, for indoor air concentrations and response recommendations if concentrations exceeded those action levels. Indoor air concentration of TCE at or above the “accelerated action level” should have actions taken within a few weeks to reduce TCE levels. Indoor air concentration of TCE at or above the “urgent action level” should have actions taken within a few days to reduce TCE levels.

HEALTH CONCERNS

How can I be exposed to contaminants from the Site?

Contaminants at the Site include TCE and PCE. The contaminants are in the sub-surface soils and/or groundwater. TCE and PCE evaporate quickly in the open air. However, people living or working above the contamination may be exposed to the contamination through vapor intrusion. TCE and PCE in indoor air could potentially affect your health, especially if you are pregnant and live in an area where further evaluation is necessary.

VOCs are also common in urban environments and can be found in many household and commercial items unrelated to the Site, including car exhaust, cigarette smoke, air fresheners and other scented materials, gardening chemicals, certain cleaning products, new furniture, new carpeting, and building construction materials. TCE and PCE can also be found on dry cleaned clothes and in some adhesives.

“Risk” refers to the likelihood of experiencing an adverse health effect from exposure to a chemical. A person’s potential health risk from TCE and PCE is affected by factors such as:

- Level of chemical concentration indoors;
- Amount of time spent indoors; and
- Individual-specific factors (e.g., age, weight, sensitivity, etc.).

The indoor air ESLs for VOCs, which include PCE and TCE, are set at a concentration where there is an increased cancer risk of 1 in 1,000,000. To put that cancer risk in perspective, a person has a 1 in 10,000 chance of being struck by lightning. If you are exposed to concentrations above the ESLs for TCE or PCE, it does not necessarily mean that you will get sick. To date, there have been no reports of residents with health problems related to TCE or PCE Site contamination.

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Are there any potential health risks specific to pregnant women?

TCE has the potential to cause heart malformations in an unborn baby. Women who are of child-bearing age should avoid exposure to TCE. However, even if you have been exposed to levels of TCE over the Urgent Action levels, it does not mean your baby will necessarily experience health problems. Chemicals affect people in different ways. The effects from exposure to chemicals depend on number of factors, such as how long a person is exposed, compromised immune systems, and age. If you are pregnant and have been exposed to indoor air concentrations of TCE above the U.S. EPA established Urgent Action Level of 6 micrograms per cubic meter, please inform your doctor of the exposure.

If you are pregnant and your indoor air has not been sampled in your home and you live within an area requiring indoor air sampling, please notify Ford or the Regional Board and your home will be prioritized for sampling.

Are there any potential health risks to people other than pregnant women?

The only known low level short-term risk is currently exposure to TCE in the first trimester of pregnancy which may increase the risk of heart malformations in the baby.

Long-term exposure to TCE may lead to damage to the liver, kidneys, or central nervous system, and cancer. For PCE, long-term exposure can cause color vision loss, changes in mood, memory, attention and reaction time, and possibly cancer and birth defects. The ESLs for TCE and PCE are set below the levels at which non-cancer toxic effects are thought to occur.

Is the soil safe for gardening and for my children and pets play in?

Yes. Based on the data collected to date, the only known way people living in the area might be exposed to VOCs associated with historic Site use is through vapor intrusion to indoor air from sub-surface soil gas. There is no data to suggest that there is any issue with significant uptake of volatile compounds in vegetables. Additionally, these chemicals are not a concern outdoors, as the compounds naturally dissipate once they reach the open air.

Will residents be tested for exposure?

No. VOCs are common in urban environments and are found in background (outside) air as well as within the homes. TCE is difficult to measure in a human body because it is eliminated within 16 hours and if levels of TCE are identified there is no way to identify the source. If you are concerned that VOC exposure has caused an illness, please see your doctor to discuss this issue. The Regional Board is overseeing the indoor air investigation to determine if there are any exceedances of the ESLs. These ESLs are protective of human health and used as guidance to ensure that if actions need to be taken, they are taken at the appropriate time.

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What is being done to protect my health and that of my family?

The Regional Board is overseeing the subsurface sampling and indoor air monitoring carried out by Ford, and directing Ford to undertake appropriate remediation when necessary. The Regional Board has directed Ford to request access to over 300 residential and commercial properties to conduct subsurface sampling and indoor air testing. Additionally, indoor air sampling of buildings where soil gas results exceeded the accelerated screening level for TCE, have been prioritized as established in the decision flow chart in Ford's 2018 Work Plan. It is important to note that VOCs, which include TCE and PCE, are common in urban environments and can be found in many household and commercial items unrelated to the Site, including car exhaust, cigarette smoke, air fresheners and other scented materials, dry cleaned clothes, gardening chemicals, certain cleaning products and building construction materials. Because of the multiple sources for VOCs, the only way to know if VOCs from the subsurface are entering your home is to conduct both subsurface sampling and indoor air testing.

If VOCs, which include PCE and TCE, are found above the ESLs in indoor air and confirmed by subsurface sampling that it is from vapor intrusion, there are actions the Regional Board can direct Ford to perform to quickly and safely address the situation such as sealing cracks in the foundation, installing mobile air purifiers, adjusting the heating/ventilation system, and in some cases installing a mitigation system to vent vapors from beneath the home.

Can there be other sources of VOCs in our homes?

VOC's are found in a variety of everyday items, including household cleaners, adhesives, varnishes and some building materials. Most people are not affected by short-term exposure to the low levels of VOCs, which include PCE and TCE, typically found in homes and businesses from everyday products. If there are higher levels of these chemicals people may feel tired, dizzy, nauseous, or have a headache. People also may feel irritation in their eyes, nose, and throat. Sensitive populations, such as women of child bearing age, people with asthma, or people with a compromised immune system, may be more susceptible to experience effects from short-term exposure.

Is my tap water safe to drink?

Yes. Your tap water is provided by the City of Newport Beach, and it meets state and federal standards for quality. There is no contact between the drinking water system and groundwater beneath the Site, which is found approximately 5 to 60 feet below the ground surface. The City of Newport Beach conducts its own water quality testing and the results can be viewed online at:

<https://www.newportbeachca.gov/government/departments/utilities/water-services/water-quality>

RESULTS QUESTIONS

What do the preliminary sampling results show?

While the investigation is ongoing, some homes show sampling results that exceed the ESLs. These homes are being resampled to confirm the results and actions are being taken in accordance with the approved work plan.

1,2-DCA was detected in my home above the long-term screening level, what is going to be done about this?

1,2-DCA is being detected in nearly all homes sampled but it has not been detected in subsurface samples which suggests it is from a source within the home and not from vapor intrusion related to the Site. The Regional Board is not requiring Ford to address exceedances for chemicals found in the home that are not associated with vapor intrusion or otherwise connected to Site contamination.

Many common household items have the potential to off-gas chemicals. The most common current use for 1,2-DCA is in the production of polyvinyl chloride (PVC). Holiday ornaments, lamp bases, and incense have also been identified consumer products that are potential sources of 1,2-DCA. It was historically used as a solvent for metal degreasing, and textile and PVC cleaning.

GENERAL QUESTIONS

The Site was remediated over 20 years ago, why is the investigation happening now?

The ESLs and guidance have changed over the last few years; the U.S. EPA issued a memo regarding short-term action levels for TCE in 2014 and the ESLs were updated in 2016. In 2017, the Regional Board requested that Ford prepare a report called a conceptual site model (CSM). The CSM looks at all Site history and analytical data collected to date and compares them with the most current guidance and ESLs. The CSM identified that soil gas data collected 10 years ago and current groundwater concentrations when compared to the current guidance and ESLs required further evaluation.

What are the impacts on property values?

The Regional Board does not specialize in real estate and cannot opine on this topic. The Regional Board's priority is the protection of human health and the environment. It is furthering this priority by focusing on overseeing the evaluation of individual homes and commercial buildings based on the soil gas results, the collection of indoor air samples, and addressing potential vapor intrusion by means of mitigation and/or remediation.

How long will the investigation take?

The investigation is ongoing and is expected to take several months. The Regional Board has directed Ford to seek access agreements for soil gas and indoor air sampling. The duration of the investigation will be impacted by the length of time it takes to obtain access agreements for sampling.

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What are the next steps?

As results become available, additional soil gas probes and/or indoor air testing of additional homes may be necessary. If vapor intrusion is occurring, interim mitigation measures, such as air purifiers will be offered. Long-term mitigation measures and/or remediation measures will be evaluated once this phase of the investigation is further along. Project updates will be shared with the community via:

- GeoTracker: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=SL188023848
- Lyris List: https://www.waterboards.ca.gov/resources/email_subscriptions/reg8_subscribe.html,
and
- Community Meetings.

What are some precautions I can take in the meantime?

You can keep your windows open or run your heating or air conditioning system until your home can be evaluated. Increasing the air circulation of your indoor air will help to dissipate potential VOCs in your home. For more precautionary measures, the California EPA Air Resources Board has an indoor air quality guideline that discusses chlorinated chemicals in the home and includes tips for reducing your exposure. This guideline can be found at:

<https://www.arb.ca.gov/research/indoor/clguide.pdf>