

29th and Grove Environmental Site Answers to Common Questions

Overview

Where is the site?

The site is located along the northern part of a Union Pacific Railroad (UP) railyard south of the K-96 Highway, between Highway I-135 and N. Grove Street. Investigation work conducted over the years has shown the contamination has travelled through the subsurface to from the UP railyard to Murdock Avenue.

What is the concern?

Chemicals, including Trichloroethylene (TCE), a solvent commonly used for metal degreasing, have contaminated the soil and groundwater at the UP railyard and a contaminated plume of groundwater which extends approximately 2.9 miles south from the UP railyard to Murdoch Avenue.

Who is responsible for the contamination?

Union Pacific Railroad.

When was the contamination first noticed?

In 1994, during preparations for the improvement of the 21st Street area between I-135 and Grove Street.

How is the Kansas Department of Health and Environment (KDHE) involved?

In 1998, KDHE identified the source of the contamination as the UP railyard and subsequently obtained legal agreements with UP for them to investigate the contamination and evaluate cleanup options. KDHE conducts oversight of UP's work on the project.

Who else is involved?

Union Pacific Railroad and their consultant, Arcadis U.S. Inc.

Who pays for the actions taken at the site?

Union Pacific Railroad.

Will it cost me anything? What about my tax dollars?

Residents and local businesses will not be asked to pay for the cleanup. No tax dollars will be used for the cleanup conducted by UP for the 29th and Grove site.

What actions has KDHE taken?

KDHE obtained legal agreements with UP to investigate the contamination and evaluate cleanup options. KDHE conducts oversight of UP's investigation and remediation activities. UP and their consultant has conducted the following investigation activities, evaluation of cleanup options and interim measures as follows:

- **1999 – Preliminary Investigation** – UP's investigation of soil and groundwater at the rail yard confirmed a source of contamination was present.
- **2002-2006 – Remedial Investigation** – This work was done to determine the nature and extent of contamination and was completed in 2006.
- **2004-2010 – Interim Remedial Measure** – Accelerated Remediation Technology Wells installed and operated at the UP railyard to clean up contaminated groundwater.
- **2008 – 1st Feasibility Study** – UP's consultant at the time, Foth Infrastructure & Environment, conducted an evaluation of possible cleanup options.
- **2009 Interim Remedial Measure** – Six groundwater extraction wells along Murdock Avenue, south of Murdock Park, were installed and began operation. The groundwater extraction system was installed to prevent the contaminated groundwater plume from continuing to spread in the subsurface. The contaminated groundwater is treated by air stripping and granular activated carbon technologies and the clean, treated water is discharged to Chisholm Creek.
- **2010-Present – Additional Interim Remedial Measures**
 - Soil excavation (2010 and 2011)
 - In-Situ Chemical Oxidation (2010 and 2011)
 - In-Situ Bioremediation (2018 to present)
- **2020 – 2nd Feasibility Study** – UP's current consultant, Arcadis U.S. Inc., conducted an evaluation of possible remedial alternatives.
- **2022 – Draft Corrective Action Decision** - KDHE accepted public comments on the proposed cleanup alternatives.
- **2023 – Final Corrective Action Decision** – KDHE finalized the Corrective Action Decision on February 2, 2023. The Final Corrective Action Decision identifies the remedy selected for cleanup of the contamination.

What effects do these actions have?

Interim measures conducted at the source area where the release of TCE occurred are beneficial because they remove some of the mass of the TCE from the subsurface, which will shorten the time to achieve cleanup goals for the overall site. The Murdock Avenue hydraulic containment system is beneficial because it removes contaminated groundwater from the subsurface and prevents the plume from spreading to areas further to the south. When the new remedial systems are being constructed, residents may see drilling rigs or excavation equipment, but these activities will be temporary.

Why do these actions take so long?

The directed groundwater recirculation remedy is a pump-and-treat type of cleanup technology. It works by extracting the contaminated groundwater from the aquifer materials (subsurface layers of sand and gravel) via water wells and injecting clean, treated water back into the aquifer. This action results in flushing or rinsing the contamination from the sand and gravel aquifer. Multiple rinses of the aquifer materials with clean water are needed to remove all of the contamination. The concept is similar to rinsing the soap out of a sponge in your kitchen sink.

What is the purpose of the Draft Corrective Action Decision?

The draft summarized information from the key site documents, including the Remedial Investigation Report and Feasibility Study, describes the alternatives for cleanup, identified the preferred alternative for cleanup of the contamination and provided an opportunity for public comment on the preferred remedy.

What is the purpose of the Final Corrective Action Decision?

The Final Decision summarized information from the key site documents, including Remedial Investigation Report and Feasibility Study, provided a response to the comments received during the public comment period, and identifies the remedy selected for cleanup of the contamination.

When will the clean-up be finished?

It will take ten years or longer to achieve cleanup goals for the aquifer. During the operation of the remedial systems, UP and their consultant will monitor the progress of the cleanup effort by periodically collecting samples of groundwater for analysis. The data collected will help to evaluate when cleanup goals have been achieved.

Health

What is TCE?

TCE is a colorless, volatile liquid. Liquid TCE evaporates quickly into the air. It is non-flammable and has a sweet odor. TCE is carcinogenic to humans by all routes of exposure and poses a potential human health hazard for noncancer toxicity to the central nervous system, kidney, liver, immune system, male reproductive system, and the developing embryo/fetus. The two major uses of TCE are as a solvent to remove grease from metal parts and as a chemical that is used to make other chemicals. TCE can also be found in some household products such as spot carpet cleaners, paint removers and shoe polish.

How can people be exposed to TCE?

Exposure to contaminants can occur when a person breathes (inhalation), eats or drinks (ingestion), or touches (dermal) the chemicals. Whether or not the contaminants cause harm will depend on a number of factors:

- How much of the chemicals a person was exposed to (dose).
- How long they were exposed (duration).
- How they were exposed (inhalation, ingestion or dermal).

How does TCE enter and leave the body?

TCE can enter the body through contaminated air, water, food or soil. Most of what you breathe in will go into your bloodstream and into other organs. Most of what you ingest will move to your stomach and then into your blood. Once in your blood, your liver changes much of the TCE into other chemicals. When the body absorbs more TCE than it can break down quickly, some of the TCE can be stored in body fat for a brief period. However, once absorption ceases, TCE and its breakdown products quickly leave the fat. You will quickly breathe out much of the TCE that reaches your bloodstream; most of the TCE breakdown products leave your body in the urine within a day.

How can TCE affect my health?

There is strong evidence that TCE can cause kidney cancer in people and some evidence that it causes liver cancer and malignant lymphoma (a blood cancer). There is also some evidence of an association between TCE exposure and non-Hodgkin's lymphoma in humans. TCE is considered a human carcinogen by the US Department of Health and Human Services, the International Agency for Research on Cancer and the US Environmental Protection Agency.

TCE is expected to affect children in the same manner as adults. It is not known whether children are more vulnerable than adults to the effects of TCE. Some human studies indicate that TCE may cause miscarriages, congenital heart defects, central nervous system defects and small birth weight. However, these people were exposed to other chemicals as well.

A lifetime of exposure to TCE resulted in increased liver cancer in mice and increased kidney cancer in rats at relatively high exposure levels. There is some evidence for TCE-induced testicular cancer and leukemia in rats and lymphomas and lung tumors in mice. In some animal studies, exposure to TCE during development may have caused effects such as decreased body weight, increased incidences of heart defects, functional or structural changes in the developing nervous system, and effects on the immune system.

What should I do if I think I have been exposed to TCE? You can discuss this with your primary care doctor. Can I be tested for TCE exposure?

TCE and its breakdown products (metabolites) can be measured in blood and urine. However, these tests are not common and not offered in most doctor's offices or hospitals. It is also important to understand that the detection of TCE or its metabolites cannot predict the kind of health effects that might develop from that exposure. Since TCE and its breakdown products (metabolites) leave the body rapidly, the tests need to be conducted within days after exposure.

Did KDHE do a health study?

Yes, a health study was completed by KDHE in April 2023 and published to the KDHE website. Additionally, a separate document has been created to provide answers to commonly asked questions about the study itself.
Environment

What is remediation?

Remediation is the use of technologies to remove contamination from the environment.

What is vapor intrusion?

Vapor intrusion is the movement of chemical vapors from contaminated soil and groundwater into nearby buildings. Vapors enter buildings primarily through openings such as cracks and seams in the foundation or basement walls, gaps around utility lines, and sump pits. Once inside the home or workplace, inhaled chemical vapors may pose health risks for occupants.

What is vapor intrusion mitigation?

Vapor intrusion mitigation removes or decreases the amount of vapor that enters a home. The most common type of mitigation systems involves connecting a blower (an electric fan) to a suction pit underneath the building foundation, which vents vapors from below the foundation to outside air. These types of systems are commonly used for radon gas problems.

Where was/is the TCE contamination found?

TCE was found in the soil and groundwater where the spill occurred at the UP railyard. TCE is also found in groundwater in the area between the UP railyard and Murdock Avenue. The depth to groundwater throughout the plume. ranges from 14 to 25 feet below ground surface.

Are there other sources of contamination in this area?

Yes. The former Johns' Sludge Pond site is located to the northwest of the UP railyard where the spill of TCE occurred. The contaminants of concern for Johns' Sludge Pond are metals and polychlorinated biphenyls (PCBs). There are also six former drycleaners located within or near the 29th and Grove Site Study Area. The primary contaminant for the drycleaner sites is called Tetrachloroethene (PCE).

Will the remediation cause any negative effects?

During construction of the remedial systems, residents may see drilling rigs and construction equipment in the areas where extraction and injection wells are being drilled or areas where underground piping is being installed. These construction activities will be temporary. No other negative effects are expected to occur from the remediation efforts.

How long will soil and groundwater be contaminated?

Cleanup of the groundwater in the area south of Chisholm Creek may take 10 years or longer to achieve cleanup goals. Due to the presence of contaminated soil under the railroad tracks, remediation of the contamination at the spill site may need to be operated longer to control and remove contamination in that area.

Personal Property

Is the air inside my house safe to breathe?

Based on the indoor air testing conducted at the Site already, the information KDHE has indicates only very low concentration of contaminants were found in some of the buildings tested. Concentrations detected did not exceed KDHE's indoor air standard for a residential setting. UP will be conducting additional vapor intrusion evaluation to update the information on this exposure pathway.

Can I use groundwater? On my lawn? Or pool? With sprinklers?

- Lawns and garden wells – Using groundwater from wells for watering your lawn and gardens does not present a significant health risk. TCE is a volatile compound, and it will evaporate quickly from the water into the air in an outdoor setting. The TCE breaks down quickly in the outdoor air.
- Pools – It is not recommended that you use groundwater from a water well for a swimming pool because of prolonged dermal contact with the water. It is also not recommended that you allow people to play in groundwater supplied lawn sprinkler systems.

Can the groundwater contaminate my trees or garden?

TCE does not significantly build up in plants. It evaporates quickly from water into the air, meaning that gardens or trees watered with groundwater should not be contaminated.

Is it safe to eat the plants from my garden that was watered by ground water?

TCE does not build up significantly in plants. It evaporates quickly from water into the air, so vegetables watered with well water containing TCE should be safe to eat.

Is my water safe to drink and bathe in?

The City of Wichita public water supply comes from a well field located to the northwest of Wichita and Cheney Reservoir. The City public water supply is safe for drinking and bathing. If you do not have City water and instead use a private well as your primary water supply, please contact KDHE to determine if the well is located in a contaminated area and whether the well water should be tested.

How deep is the groundwater under my house?

The depth to groundwater in the residential areas generally ranges from 14 to 25 feet below ground surface.

Is it safe to stay in my home during the remediation?

Yes. It is safe to stay in your home during remediation. Residents may notice well drilling or construction activities at a limited number of locations in the City during installation of the remedial systems, but the construction activities will be temporary.

The City of Wichita

What actions has the City taken?

The City participated by providing information from their databases on City water connections to determine whether private wells were being used as a drinking water supply. A City Ordinance also prevents installation of new drinking water wells in the contaminated area.

Are the soils at playgrounds, or homes in the neighborhoods contaminated?

No. The shallow soils in the neighborhood are not affected by the contamination. Soil was only contaminated at the UP spill site.

How do I know if I am on City supplied water?

You can check any bills you receive from the City of Wichita to determine if you are paying for City water or contact the City of Wichita water department to verify you have a connection to the City water supply. Apartment complexes will have the City water supply so the apartment complex manager would be able to answer that question.

Is the plumbing coming into my house safe?

The plumbing entering your house would not be affected by the contamination because the pipes are present well above the depths that the contaminated groundwater is located in the subsurface. Groundwater at the site is encountered at depths ranging from 14 to 25 feet below ground surface.

What can I expect to see as the project moves forward?

During construction of the remedy residents may see drilling rigs and construction equipment in the areas where extraction and injection wells are being drilled or areas where underground piping is being installed. These construction activities will be temporary. After the remedial systems have been built and begin operation, residents may occasionally see workers conducting maintenance on the remedial systems or sampling groundwater monitoring wells.

Will this contamination affect my property value?

KDHE cannot offer advice on real estate values.

K-96 Lake & Other Bodies of Water

Has the Lake been tested?

Due to citizen's concerns about contamination in Cruiser Lake, also known as the K-96 Lake, KDHE collected samples of water and sediment from the lake on December 7, 2022. The water and sediment samples from the lake were tested for volatile organic compounds to determine whether the lake was impacted by the TCE spill that occurred on the UP rail yard. The test results indicate water and sediment samples from the lake did not contain TCE; therefore, the lake has not been impacted by the TCE spill.

A copy of the TCE - Cruiser Lake Preliminary Assessment Report, Wichita, Kansas, dated January 2023, is available on the KDHE webpage [kdhe.ks.gov/1938](https://www.kdhe.ks.gov/1938) and a print copy can be found at the Angelou Northeast Branch of the Wichita Library at 3051 E. 21st Street, in Wichita.

Is there contamination in the K-96 Lake?

It is known that polychlorinated biphenyls (PCBs) are present in the fish in the lake. However, this is a different type of chemical than the spill that occurred at the UP railyard. TCE is the primary chemical of concern for the 29th and Grove Site.

Is the contamination in K-96 Lake due to the TCE spill? If not, where is it from?

Contamination in the lake is not due to the TCE spill at the railyard. Data from the soil and groundwater samples collected from the area where the TCE spill occurred at the railyard indicates the liquid chemical soaked into the ground under the railroad tracks and flowed to the south from the railroad tracks. The groundwater samples collected from locations between the lake and the railroad tracks do not indicate the TCE contaminated groundwater is present north of the railroad tracks.

PCBs are known to be present in some fish at the K-96 Lake. PCB contamination has been found at the nearby Johns' Sludge Pond site. From 1951 to 1970, the Super Refined Oil Company recycled waste oil and disposed of about 7,000 cubic yards of oily sludge in Johns' Sludge Pond. These activities contaminated groundwater with lead and PCBs. Following cleanup, maintenance activities and monitoring are ongoing. The City of Wichita Department of Environmental Health is conducting the monitoring program for the Johns' Sludge Pond Site.

Can I eat fish out of the K-96 Lake?

Due to the presence of PCBs in some fish in the lake, KDHE recommends restricting consumption of bottom-feeding fish (buffaloes, carps, sturgeons and suckers) and catfishes to one serving per month. For more information on fish consumption advisories, please visit kdhe.ks.gov/1268.

Is the contamination in other open bodies of water that are nearby?

Low concentrations of TCE were found in Chisholm Creek south of where the Heartland Preparedness Center is located. However, the concentrations in the creek water do not exceed the surface water quality standards for aquatic life or food procurement. The low concentrations of TCE detected in the creek water do not pose a health risk for wading in the creek.

Definitions of Key Terms

Aquifer – An underground layer of rock, sand, or gravel capable of storing water within cracks and pore spaces or between grains. The water contained in the aquifer is called groundwater.

Confidence Interval and Statistically Significant – In the Health Study report, we provide the estimated rates and the corresponding 95% confidence interval. The 95% confidence interval is the range of values that you can be 95% confident contains the true rate. When comparing the rate of one area to another, we look to see if the confidence intervals overlap. If the confidence intervals do not overlap, the rates are said to be statistically significantly different. If the confidence intervals do overlap, the rates are said to be similar.

Contamination – Pollution of soil, groundwater, surface water, sediment, or air from the release of a chemical into the environment.

Feasibility Study – An evaluation of cleanup alternatives for the contamination.

Rate – Quantity, amount, or degree of something measured per unit of something else. For example, in the Health Study report, we present the rate of cancer as the number of cases per 100,000 population.

Remedial Investigation – Sampling and analysis of environmental media to identify the nature and extent of contamination and to identify whether people are exposed to contamination.

Remediation – Use of technologies to remove or clean up contamination from the environment.

Risk Assessment – An evaluation for the health risks for exposure to contaminants. Human health risk assessments and ecological risk assessments are conducted.

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