Reilly Tar & Chemical Superfund Site

EPA

COMMUNITY INVOLVEMENT PLAN

St. Louis Park, Minnesota

2016

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Louisiana Oaks Park sign.

Section 1: Introduction

This section describes the purpose of this CIP and presents EPA's community outreach objectives.

WHAT IS A CIP?

A **Community Involvement Plan**, or **CIP**, is a "living" document that will evolve as activities at the site continue and input is received from the community. The CIP identifies the community's issues, needs, and concerns, as well as specific activities, outreach products, and programs EPA will use to address the community's concerns. It is a flexible guide for EPA's communications with community residents, businesses, and organizations.

The U.S. Environmental Protection Agency prepared this Community Involvement Plan to inform, engage and support the **community** affected by the Reilly Tar & Chemical **Superfund** site located in St. Louis Park, Minn. Our community involvement effort is committed to promoting effective and meaningful communication between the **public** and the Agency. We always want to make sure the community's current concerns and information needs are taken into account. When the public is involved it results in a better outcome for everyone.

In 1983, the Minnesota Pollution Control Agency developed a Community Relations Plan, the previous term for a Community Involvement Plan. That plan noted that primary concerns expressed by those interviewed included health concerns, particularly with regard to their concern about the potential for contaminated drinking water; concern about potential exposure to contaminated soil; concern about seepage of **contamination** into basements of homes near the site; and concern about the potential for contamination of area surface water. This CIP was prepared by EPA primarily to support current and future activities related to the Agency's **Five-Year Reviews** of the Reilly Tar & Chemical site **cleanup**. We used several information sources to develop this plan, including research, discussions with community members, information gathered at meetings and community interviews. We conducted interviews with residents and local officials interested in the site activities and cleanup efforts from Feb. 2-5, 2016. We spoke with 32 people in order to develop this plan – 25 currently live, work or own a business in St. Louis Park. The other seven were former residents of St. Louis Park.

This CIP describes EPA's plan for addressing concerns and keeping residents informed and involved in activities at the site. We will use this document as a guide to involve and communicate with residents, businesses and the local governments in St. Louis Park.

The Reilly Tar & Chemical site is now home to, among other things, a recreational park with athletic fields,walking paths, recreation center, pond, playground, and parking lot.

(*Words in **bold** are defined in Appendix A.*)

If you are interested in submitting comments or have questions or suggestions concerning this CIP, please contact:

Heriberto León
Community Involvement Coordinator
EPA Region 5
312-886-6163
leon.heriberto@epa.gov

The role of the **CIC** is to make sure the community is meaningfully engaged in site activities.

Community Engagement is Essential to the Success of Superfund

Ongoing input and involvement by the community is essential to our efforts to provide effective **community engagement**. We have learned that its decision-making ability is enhanced by actively seeking input and information from the community. Community members need to be involved in all phases of the cleanup, including the five-year review phase, so that the site remains protective of people and the environment.

Residents, business owners and local government officials may be able to provide valuable information about a site and the effectiveness of a cleanup. Information can help identify any problems associated with the cleanup, where contamination might still remain and how people may still be exposed to the contamination.

Local residents and officials of the city of St. Louis Park gave valuable information to the EPA about their community. They told us about past activities at the site and explained their concerns including concerns about city drinking water; the need for communication; vapor contamination; on-site contamination; cancer and other potential health problems associated with past and potential current exposure to site contamination; and gardening. These and other concerns are explained in the Community Concerns and Questions section.

Objectives of EPA's community outreach program:

- Assist the public in understanding Superfund and the Five-Year Review process, and the community's role in that process.
- Give the public accessible, accurate, timely and understandable information.
- Ensure adequate time and opportunity for the public to give informed and meaningful input and for that input to be considered.
- Reflect community concerns, questions and information needs.
- Respect and fully consider public input.

EPA Community Involvement Coordinator Heriberto León engages the community in a discussion about the site cleanup.

This site is in the final stage of cleanup process, which involves review of the remedy every five years. This is called the Five-Year Review process. Therefore, the majority of the community input opportunities will center around providing comments on the Five-Year Reviews. However, we are committed to helping the community understand the cleanup that was done and providing information as needed by producing fact sheets, holding informational meetings, making information available on the Web, etc. While conducting the community interviews to develop this plan, we were able to learn the scope of the questions people had about the site. EPA has developed a partnership with MPCA, MDH and the City of St. Louis Park to address community questions and concerns. See Pages 40-47 of this CIP for a Q&A section covering most of the questions asked by area residents.

Brief Site Overview

The 80-acre Reilly Tar & Chemical Corp., St. Louis Park Plant site is located near the intersection of Louisiana Avenue and U.S. Highway 7 in the city of St. Louis Park, in Hennepin County, Minnesota. (*See map below.*) From 1917 to 1972, Republic Creosoting Co., owned by Reilly Industries, operated a coal tar distillation and wood treatment facility at the site. The facility discharged thousands of gallons per week of wastewater in several ditches that flowed to an adjacent wetland. The wastes generated at the site were mostly **polycyclic aromatic hydrocarbons**, or **PAHs**, which contaminated soil at the site, the wetland, and **groundwater** beneath the site. Six drinking water wells in St. Louis Park, and one in the city of Hopkins, were closed due to contamination.

The boundaries of the Reilly Tar & Chemical site.

In 1972, the site was sold to the city of St. Louis Park. From 1978 to 1981, seven municipal wells were closed due to contamination. The Reilly Tar site was added to EPA's **National Priorities List,** in 1983, making it eligible for investigation and cleanup under the Superfund program. Cleanup involved several different actions to eliminate exposure to **contaminants** in the soil and groundwater.

In 1984, EPA issued a cleanup decision for construction of a drinking water treatment plant for two St. Louis Park wells. The plant was constructed in 1985. In 1986, EPA selected a remedy for most of the remainder of the site. The wetland was filled and covered with clean fill in 1986. The city began pumping two wells to control more highly-contaminated groundwater near the source in 1987. In subsequent years, the city began pumping additional wells further from the source to control the spread of the groundwater contamination. A treatment plant for St. Louis Park drinking water well SLP4 was added in 1992. It is estimated that approximately 47,000 people use the groundwater from **aquifers** near the site, which are now treated to meet all required health standards.

In 2002 the city redeveloped the site into Louisiana Oaks Park. Portions of the northern end of the site have been developed as a residential complex.
The remedy left contaminated soil in place at the site, covered by clean soil. Periodically, the city conducts work at the site that requires digging. Plans for the work, including safe handling of any contaminated soils that are found and air monitoring to protect workers and nearby residents, are required for approval by EPA and MPCA. More information about the site can be found on Pages 25-30.

What is an aquifer?

An aquifer is a geological formation capable of yielding a significant amount of water to a drinking water well or spring. There are several aquifers underneath the Reilly Tar site – the Glacial Drift, Platteville, St. Peter, Prairie du Chien/ Jordan, Ironton/Galesville and Mt. Simon/Hinkley aquifers.

Partnership Agencies

The Environmental Protection Agency's mission is to protect human health and the environment. The EPA administers the Superfund Program. Superfund was established in 1980 by an act of Congress, giving EPA the funds and authority to clean up polluted sites. This law requires reviews of sites where the cleanup is completed but some hazardous material remains on site. Five-Year Reviews ensure that cleanup remains effective and protects human health and the environment.

EPA CIC Heriberto León (left) talks with a resident at an open house in Nov. 2015.

Crague Biglow, MPCA Supervisor (right), explains groundwater issues to a resident at an open house in Nov. 2015.

Minnesota Pollution Control Agency

The Minnesota Pollution Control Agency monitors environmental quality, offers technical and financial assistance, and enforces environmental regulations. MPCA administers the state Superfund Program by managing contaminated sites to reduce risks to human health and the environment and evaluating site conditions to allow continued use or reuse of the property. The EPA and MPCA jointly are the lead environmental regulatory agencies for the implementation and oversight of response actions at the site.

The Minnesota Department of Health's mission is to protect, maintain and improve the health of all Minnesotans. MDH is responsible for safeguarding the quality of drinking water and enforcing the federal **Safe Drinking Water Act**, or **SDWA** in Minnesota. MDH also conducts public health activities related to contaminant releases.

David Jones, Research Scientist with MDH (right), listens to health concerns of a resident at an open house in Nov. 2015.

Jay Hall, Utilities Superintendent for the city of St. Louis Park (left), listens to a resident at an open house in Nov. 2015.

The City of St. Louis Park bought the site from Reilly Industries in 1972. At the time, the state of Minnesota was suing Reilly Industries over pollution discharge issues. The City of St. Louis Park describes the site history, city involvement and ownership, cleanup and monitoring, redevelopment, and current projects on its website: www.stlouispark.org.

EPA CIC Heriberto León (front left) and EPA Remedial Project Manager Nabil Fayoumi (front right) answer questions at an open house in Nov. 2015.

Section 2: Community Involvement Goals and Activities

This section highlights EPA's goals, activities and timeline for conducting site-specific activities to keep residents and local officials informed and involved.

When establishing the objectives for a site-specific **community involvement** program, we consider several factors, including federal requirements and EPA policy that assess the nature and extent of known or perceived site contaminants and known community concerns and requests.

To be effective, our community involvement program is designed to meet the community's need to know, give information in a timely manner and accommodate the community's interests and its willingness to participate. We must also share information in language the public can understand.

To meet the needs of the community and to respond to information obtained during community interviews and meetings and to meet federal requirements, we have established the following objectives for our community involvement efforts:

- Engage, collaborate and coordinate with city of St. Louis Park officials and community leaders.
- Involve, collaborate and coordinate with MPCA and MDH.
- Monitor citizen interest in the site and respond accordingly.
- Keep the community well informed of ongoing and planned site activities.
- Explain technical site activities and findings in an understandable format for residents.
- Provide opportunities to comment on the Five-Year Reviews.
- Modify planned activities, where warranted, based on community input.
- Update EPA's websites regularly and provide useful information on it for the community.
- Update city of St. Louis Park officials on a periodic basis even if no activities are occurring at the site.
- Hold **public meeting**s, when necessary, within the community to give all residents an opportunity to attend.

EPA has or will put in place the activities described below to meaningfully and actively engage the community in activities related to the Reilly Tar & Chemical Superfund site. The following plan is intended as opportunities for communication between the community and EPA and to address key concerns and questions raised during the community interviews and meetings conducted in February 2016.

Specific Community Involvement Activities

To address community concerns and questions described in the Community Concerns section, EPA has conducted (or will conduct) the activities described below. Through these activities, it is our goal to inform, involve and engage the community in activities associated with the Reilly Tar site. As the needs of the community changes, we will modify the community involvement strategies to address them.

• Maintain point of contact

Heriberto León is the community involvement coordinator, or CIC, for the site and is the primary liaison between EPA and the city of St. Louis Park community. Mr. León serves as the point of contact for community members and fields general questions about the site. For technical site issues, Mr. León coordinates with EPA's **remedial project manager**, or **RPM,** for the site, Nabil Fayoumi.

We will include current contact information for the project staff on all written and electronic information and will notify the community of any contact information changes.

• Establish a toll-free number for residents to ask questions and receive information

Mr. León (ext. 66163) and Mr. Nabil Fayoumi (ext. 66840) are located in the Chicago office and can be reached using the toll-free number listed in the box at left. Ask for them by name or use the telephone extensions listed above. Residents can call this number as questions or concerns arise instead of waiting for a public meeting or to receive written information. We will provide this toll-free number periodically in local newspaper advertisements and include the toll-free number in all fact sheets and all of our other communications with the public.

EPA has designated the following people as primary site contacts for local residents:

Heriberto León
Community Involvement Coordinator
312-886-6163
leon.heriberto@epa.gov

Nabil Fayoumi
Remedial Project Manager
312-886-6840
fayoumi.nabil@epa.gov

They can also be reached weekdays toll-free at 800-621-8431 from 8:30 a.m. to 4:30 p.m.

• Maintain communication with local officials, agencies and community residents

We interviewed local officials from the city of St. Louis Park and the state of Minnesota. They indicated that they would like to be contacted with updated site information on a periodic basis so that they can update their constituents. We will continue to maintain communication with the local officials throughout the remainder of the cleanup process.

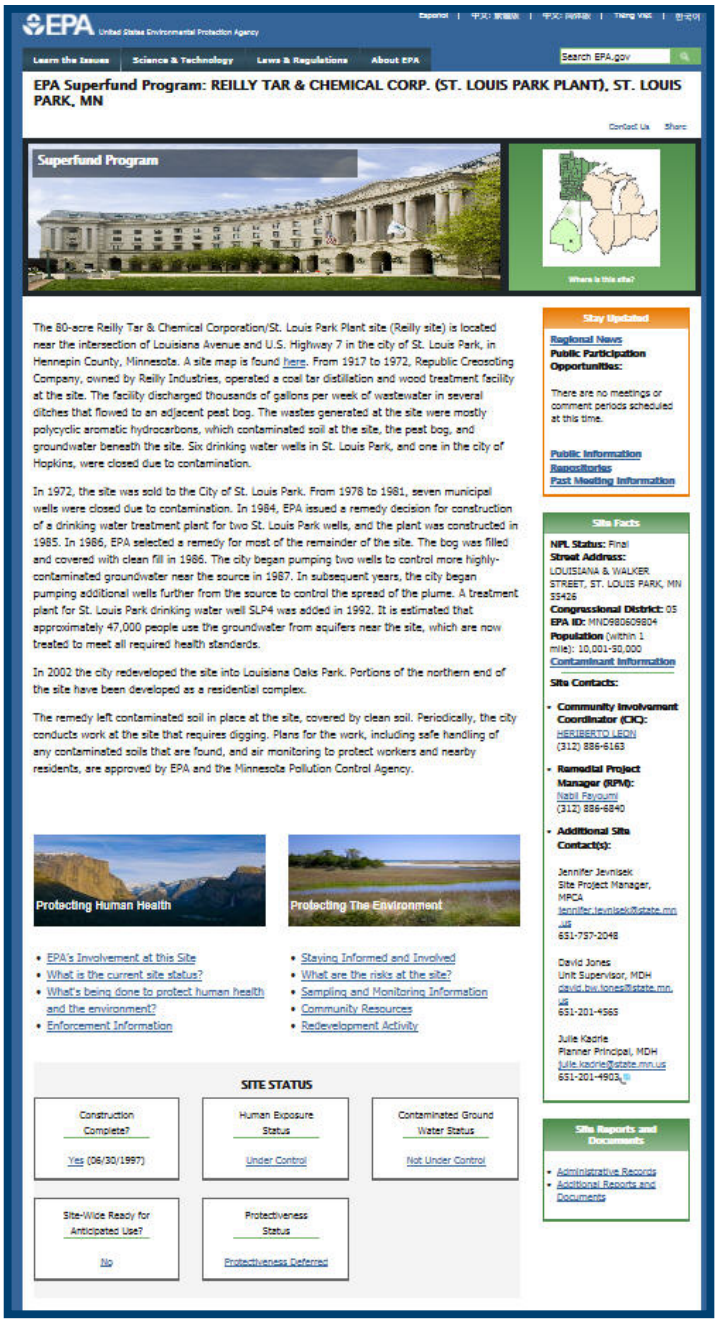
• Share site information on the Internet

We will provide information on site activities and past communications for the site on the EPA website. The website will be updated as events occur.

www.epa.gov/superfund/reilly-tar

• Update and maintain the site mailing list

We have established a mailing list of local residents, organizations, businesses and officials for the site. This list will be used for mailing fact sheets, site updates, invitations to public meetings and events and other site-related information mailed to the community. We



The home page of EPA's Reilly Tar & Chemical site website.

will update the list regularly to reflect address changes and changes in elected officials and to add new people interested in site activities.

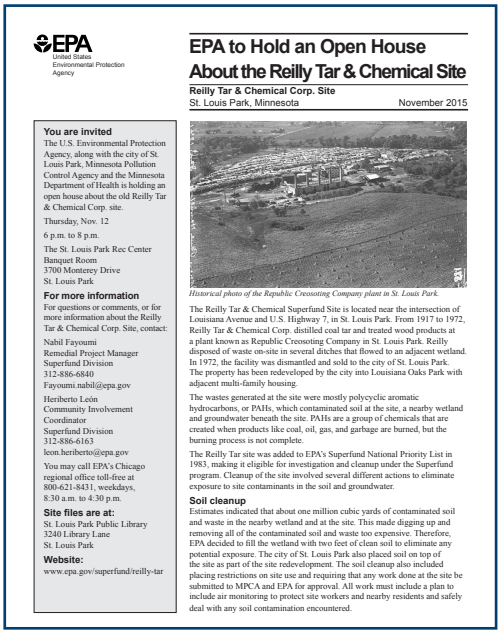
EPA uses the site mailing list to distribute written information such as fact sheets and meeting notifications. This is a way to ensure that those that do not have access to the Internet or other information sources still have a way to receive information directly about the site and are notified about important meetings. The mailing lists are for EPA use only and are not shared with outside entities. If a community member is interested in being placed on the mailing list they can contact Heriberto León.

• Prepare and distribute fact sheets and site updates

We will prepare and distribute fact sheets, letters and site updates to those on the site mailing and e-mail lists summarizing current information about the site and describing upcoming activities. These documents are written in non-technical language and are typically done to coincide with important site activities.

We use these types of documents to give the community detailed information in a relatively quick, simple and easy-to-understand manner. In addition to being shared with individuals on the site mailing list, we also place the fact sheets and site updates in the **information repository** and post them on EPA's website:

www.epa.gov/superfund/reilly-tar


EPA United States Environmental Protection Agency

EPA to Hold an Open House About the Reilly Tar & Chemical Site

Reilly Tar & Chemical Corp. Site
St. Louis Park, Minnesota November 2015

You are invited
The U.S. Environmental Protection Agency, along with the city of St. Louis Park, Minnesota Pollution Control Agency and the Minnesota Department of Health is holding an open house about the old Reilly Tar & Chemical Corp. site.
Thursday, Nov. 12
6 p.m. to 8 p.m.
The St. Louis Park Rec Center Banquet Room
3700 Monterey Drive
St. Louis Park

For more information
For questions or comments, or for more information about the Reilly Tar & Chemical Corp. Site, contact:
Nabil Fayoumi
Remedial Project Manager
Superfund Division
312-886-6840
Fayoumi.nabil@epa.gov
Heriberto León
Community Involvement Coordinator
Superfund Division
312-886-6163
leon.heriberto@epa.gov
You may call EPA's Chicago regional office toll-free at 800-621-8431, weekdays, 8:30 a.m. to 4:30 p.m.

Site files are at:
St. Louis Park Public Library
3240 Library Lane
St. Louis Park

Website:
www.epa.gov/superfund/reilly-tar

Historical photo of the Republic Creosoting Company plant in St. Louis Park.

The Reilly Tar & Chemical Superfund Site is located near the intersection of Louisiana Avenue and U.S. Highway 7, in St. Louis Park. From 1917 to 1972, Reilly Tar & Chemical Corp. distilled coal tar and treated wood products at a plant known as Republic Creosoting Company in St. Louis Park. Reilly disposed of waste on-site in several ditches that flowed to an adjacent wetland. In 1972, the facility was dismantled and sold to the city of St. Louis Park. The property has been redeveloped by the city into Louisiana Oaks Park with adjacent multi-family housing.

The wastes generated at the site were mostly polycyclic aromatic hydrocarbons, or PAHs, which contaminated soil at the site, a nearby wetland and groundwater beneath the site. PAHs are a group of chemicals that are created when products like coal, oil, gas, and garbage are burned, but the burning process is not complete.

The Reilly Tar site was added to EPA's Superfund National Priority List in 1983, making it eligible for investigation and cleanup under the Superfund program. Cleanup of the site involved several different actions to eliminate exposure to site contaminants in the soil and groundwater.

Soil cleanup
Estimates indicated that about one million cubic yards of contaminated soil and waste in the nearby wetland and at the site. This made digging up and removing all of the contaminated soil and waste too expensive. Therefore, EPA decided to fill the wetland with two feet of clean soil to eliminate any potential exposure. The city of St. Louis Park also placed soil on top of the site as part of the site redevelopment. The soil cleanup also included placing restrictions on site use and requiring that any work done at the site be submitted to MPCA and EPA for approval. All work must include a plan to include air monitoring to protect site workers and nearby residents and safely deal with any soil contamination encountered.

The fact sheet above was mailed out in Nov. 2015.

• Establish and maintain a site-specific information repository

We have set up a local information repository for the site at the following location:

St. Louis Park Library
3240 Library Lane
Minneapolis, MN 55426-4102

The repository is a reference collection of site information available to the public for reading, printing or photocopying. Documents include fact sheets, technical reports, the CIP, general Superfund information and other documents. EPA adds new documents about the sites as the documents become available. Information repositories give residents local access to site information in forms that can be easily read and photocopied for future use. An online information repository is also available on the site's web page www.epa.gov/superfund/reilly-tar for the community to access information electronically.

St. Louis Park Library.

• Establish and maintain the administrative record

A copy of the **Administrative Record** for the site can be found at the library listed above and at the EPA Region 5 Superfund Record Center in Chicago (*see Appendix B*). We will update the Administrative Record as necessary. The Administrative Record gives residents a paper trail of all documents EPA relied on, or considered, to reach decisions about the site cleanup.

• Conduct public meetings, hearings and information sessions

A public meeting is an opportunity for EPA to present specific information and a proposed course of action. EPA staff is available to share information and answer questions. A public meeting is not a formal **public hearing** where testimony is received. Instead, it might be a meeting to exchange information or comments. In addition, we may hold an informal open-house style meeting, called an availability session, where residents can meet EPA experts one-on-one to discuss the activities at or associated with the site. Either type of meeting allows community members an opportunity to express their concerns and ask questions of the Agency, state or local government officials. We typically schedule a meeting when there are technical milestones or the community has expressed an interest in having a meeting.

A public hearing is a formal meeting where we hear the public's views and concerns about an EPA action or proposal. There are specific regulations about when the Agency is required to consider such comments when evaluating its actions. Public hearings are recorded by a professional transcriber and become part of the administrative record. The comments are also posted on the Web.

EPA will consider conducting additional meetings at different times and different locations throughout the community to give all residents an opportunity to attend as needed.

- **Participate in locally-sponsored events**

  On occasions, the city, local agencies or community groups will put on events where the EPA can participate to provide site information and respond to residents' concerns and questions. The EPA considers invitations and offers to speak to community groups based on the event's capacity to reach meaningfully the members of the public.

- **Write and distribute news releases and public notices**

  We will prepare and release announcements to the local newspaper such as the Sun Sailor to share information about events such as significant site investigation findings, completion of major milestones, and other important site-related information. We will also share this information with the city of St. Louis Park and others for additional dissemination. News releases allow us to reach large audiences quickly. We will also post the news releases on the website, www.epa.gov/superfund/reilly-tar.

- **Evaluate community involvement and outreach efforts and make adjustments as warranted**

  This CIP was designed to consider site- and community-specific factors as well as to comply with federal requirements. Community concerns, the objectives of the community involvement program for the site and specific activities to address these concerns were based to a large extent on information obtained during interviews with local residents and city and state officials. We recognize that changes in areas such as community perceptions, information needs and population demographics can occur over time and that such changes may require a revised approach to conducting community involvement activities. For this reason as well as to determine whether the activities in this plan are achieving their intended objectives, we will conduct periodic reviews to evaluate if additional activities are needed or if changes to current methods of starting up the activities outlined in this plan are necessary. As the needs of the community changes, we will modify the community involvement strategies to address them in a CIP revision.

The following page presents the status of the activities above.

Status of Community Involvement Activities

Community involvement activities	Status
Maintain point of contact	Heriberto León 312-886-6163 leon.heriberto@epa.gov
Establish a toll-free number	800-621-8431, Ext. 66163
Conduct community interviews and develop Community Involvement Plan	Community Involvement Plan 2016
Maintain communication with local officials, agencies and community residents	Ongoing
Share site information on the Internet	www.epa.gov/superfund/reilly-tar Update as needed
Update and maintain site mailing list	Completed - update as needed
Prepare and distribute fact sheets and site updates	Prepare as needed
Establish and maintain a site-specific information repository	St. Louis Park Public Library 3240 Library Lane, St. Louis Park Update as needed
Establish and maintain the administrative record	St. Louis Park Public Library 3240 Library Lane, St. Louis Park Update as needed
Conduct public meetings and information sessions	As requested by the community
Write and distribute news releases and public notices	Ongoing
Evaluate community involvement and outreach efforts and make adjustments as warranted	Ongoing

Section 3: The Community

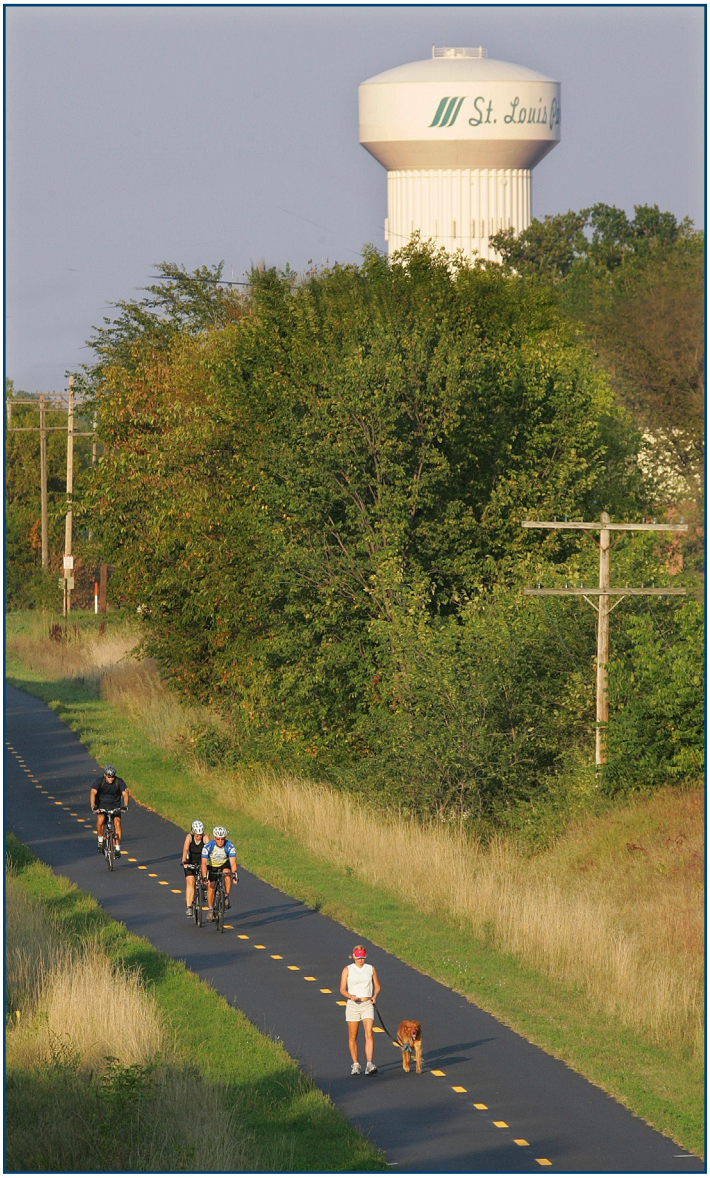
This section describes the composition of the city of St. Louis Park and the history of community involvement with the site.

Community Profile

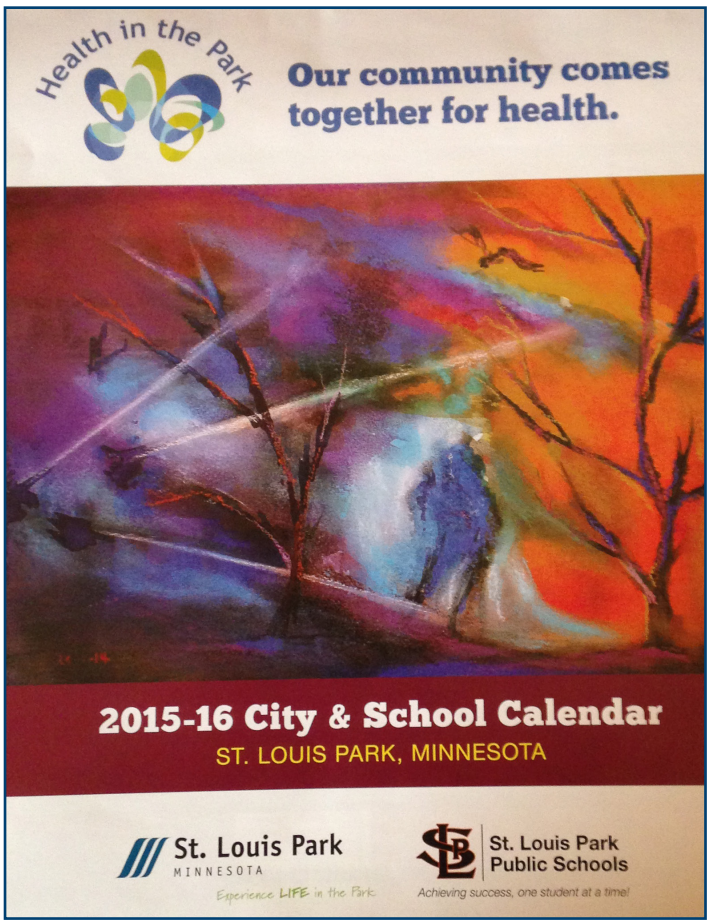
St. Louis Park

St. Louis Park is an inner ring suburb of Minneapolis. Most of the land in the city has been developed and it is a thriving community. The city has a wide variety of amenities for residents including 24 miles of walking or biking trails; 61 neighborhood parks; a recreation center that includes and outdoor water park, two indoor ice arenas, and meeting facilities; over 26 places of worship for a diverse religious community; extensive city services; a wide variety of shops and restaurants; and businesses that employ thousands of people. St. Louis Park's close proximity to the city of Minneapolis also remains a tremendous advantage for residents.

The E&G Statue located in the Excelsior and Grand shopping district, is an example of the public art on display throughout St. Louis Park.



Residents enjoying one of several walking/biking trails in St. Louis Park.



The health of the community is a priority to the leadership of St. Louis Park as highlighted in the St. Louis Park School calendar.

St. Louis Park's outdoor water park.

Another beautiful walking trail.

Governmental structure

St. Louis Park has a Council/Manager form of government. Residents elect a city council of seven members including the Mayor, two at-large members and four council members who represent city wards. The council is responsible for creating city policy and is elected to four-year terms. The council hires a city manager, who along with his staff, runs the day-to-day operations of the city. St. Louis Park is a home rule charter city, which means that the city has adopted a charter, similar to a constitution. The charter allows the city to make any regulations as long as they do not conflict with state laws.

EPA CICs Heriberto León and Monica Onyszko meet with St. Louis Park officials at the St. Louis Park City Hall.

Demographics

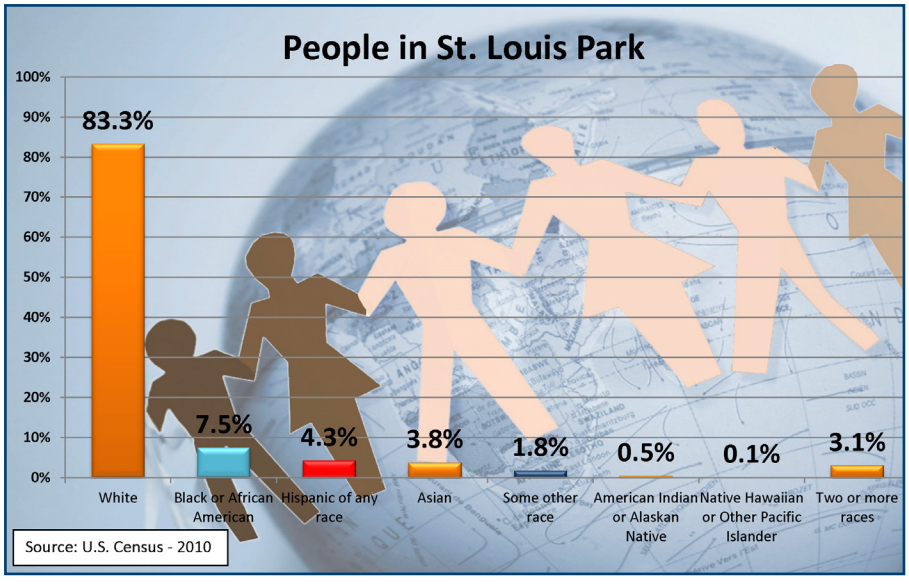
According to the 2010 Census, the population of the city of St. Louis Park is 45,250 people with a median age of 35.4. The racial make-up is predominantly white with 83.3 percent of the population, followed by 7.5 percent African American, 4.3 percent Hispanic or Latino of any race, 3.8 percent Asian, 1.8 percent identifying themselves as "some other race", .5 percent American Indian or Alaskan Native, .1 percent Native Hawaiian or Other Pacific Islander, and 3.1 percent that are of two or more races.

There are 23,285 total housing units in St. Louis Park, 93.4 percent of which are occupied. Of the occupied units, 60.7 percent are owner-occupied. There are 21,743 total households, 48.1 percent of which are family households with 22.2 percent of those with children under the age of 18 years. According to the U.S. Census, a household is defined as two or more related people, by birth, marriage or adoption, in a house.

According to the 2010-2014 American Community Survey Estimate, about 95.2 percent of St. Louis Park residents have a high school education or equivalent and about 54.5 percent of St. Louis Park residents have attained a bachelor's degree or higher. The median household income was estimated as $65,151.

According to the 2010-2014 American Community Survey, approximately 8.4 percent of the population of St. Louis Park lives below the poverty level.

The language spoken in St. Louis Park is predominantly English with 87.8 percent of the population speaking only English. Approximately 12.2 percent of the population speak a language other than English, of those, 4.7 percent speak Spanish or Spanish Creole, 3.7 percent speak "other Indo-European" languages, 1.9 speak Asian and Pacific Island languages, and 1.9 percent speak "other" languages.



Oak Hill neighborhood

The Oak Hill neighborhood, in which the Reilly Tar & Chemical site is located, is made up of about half residential development and half park land with a very small commercial area. The parks include Oak Hill Park, Louisiana Oaks Park, Oregon Park and Walker Field. (*See neighborhood map below.*) It is important to note that the Reilly Tar site is only a part of Louisiana Oaks Park. According to the city of St. Louis Park website, the population of the neighborhood in 2002 was 2,498.

Park shelter building in Louisiana Oaks Park.

Map of the Oak Hill Park neighborhood.

Source: http://www.stlouispark.org/webfiles/file/maps/neighborhood_city_map.pdf

Playground in Louisiana Oaks Park.

St. Louis Park history

The city of St. Louis Park was first incorporated as a village on Nov. 19, 1886. There are several stories about how the village got its name. Most of the stories center on the fact that the Minneapolis and St. Louis Railroad runs through the town and the name is somehow linked to the name of the railroad. St. Louis Park primarily began as a planned community developed by T.B. Walker. He, along with other wealthy industrialists bought 1,700 acres of land west of Minneapolis for industrial, commercial and residential development. The industry was initially primarily agriculture-related and included companies such as the Minnesota Beet Sugar Manufacturing Co.; Minneapolis Esterly Harvester Co.; Martin Manufacturing, maker of a grain grinder; Rodgers Hydraulic, Inc., which made tractor parts; and several grocers to name a few. Some of the earliest businesses failed during a depression in 1893, but others took over. When Minneapolis Esterly, which at its height of success employed over 600 people, closed, its property was purchased by Minnesota Beet Sugar, which changed its name to Minnesota Sugar Co.

Unfortunately, in 1905, Minnesota Sugar was destroyed by fire and moved as a result. The land was later occupied by Republic Creosoting Co., which is no longer present, and is now the southeastern portion of the Reilly Tar & Chemical Superfund site. St. Louis Park is also home to the Peavey-Haglin Experimental Concrete Grain Elevator, which was the first concrete grain elevator. Although people were skeptical of the new idea, it proved successful and became a standard for the industry. The structure, although no longer used for grain storage, still stands and is on the Department of Interior's list of Historic Places.

Peavey-Haglin Experimental Concrete Grain Elevator.

According to the U.S. Census, the population of St. Louis Park grew steadily from 499 in 1890 to 43,310 in 1960, doubling virtually every decade. There was a building boom in St. Louis Park in the 1930s, spurred on by the National Housing Act of 1934, which provided federal-secured mortgages to the ordinary individual. Then, as today, the appeal of St. Louis Park was its proximity to a major city while still maintaining the advantages of a small town. In 1939 alone, 1,941 homes were built. St. Louis Park experienced another growth spurt and housing boom after World War II through the mid-1950s. In 1954, the village attained the status of a city. As space became limited in the city, developers began building apartment buildings and by the end of 1964, there were 3,440 apartments in St. Louis Park. The growth began to slow in the 1960s and even declined in the 1970s. Since that time, the population has remained fairly steady.

Source: http://slphistory.org/

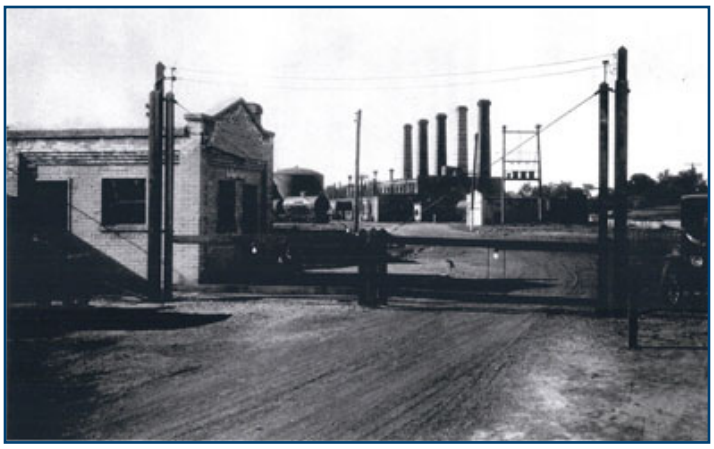
Minnesota Beet Sugar Manufacturing Co.

History of the Republic Creosoting Co.

Republic Creosoting Co. began its operation in St. Louis Park in 1917. The plant both refined coal tar to produce byproducts and treated wood with **creosote**. The products produced at the plant included pitch for roofing materials; carbon coke, which is a clean burning fuel; and creosote, which is used to treat wood to prevent rotting. Wood, primarily railroad ties, was treated in a plant on the property. The wood would come in on trains, which would be unloaded by hand.

According to the St. Louis Park Historical Society, an article in the St. Paul Dispatch (a St. Paul newspaper from 1868 – 1985), "reported that the company supplied 75 percent of the bridge piling used in construction of Minnesota highway bridges, railroad ties for four national railways, and would furnish pilings for the 1964 New York World's Fair." In 1929, after the closing of another company in St. Louis Park called Monitor Drill Works, the Republic Creosoting became the largest employer of working men in the St. Louis Park. This was very important during the depression. People were grateful for the work even though the pay was low. Nonetheless, according to St. Louis Park Historical Society, an autobiography of a former worker at the plant, Ben Brown, recounted how difficult the work was explaining that it was extremely hot and they had little protection from the heat. Ben is also quoted as saying that "starting time was 7:30 A.M. and if you punched in at 7:31 you lost the first half hour of pay." The Historical Society's website also describes the dangerous nature of the plant – for example, that there was a large explosion in 1921 and several other large fires over the years at the plant. Regardless, workers were loyal and many worked there for decades.

Source: http://slphistory.org/



Republic Creosoting Co. gate.

Workers unloading railroad ties.

Workers at Republic Creosoting Co. were loyal.

Hennepin County

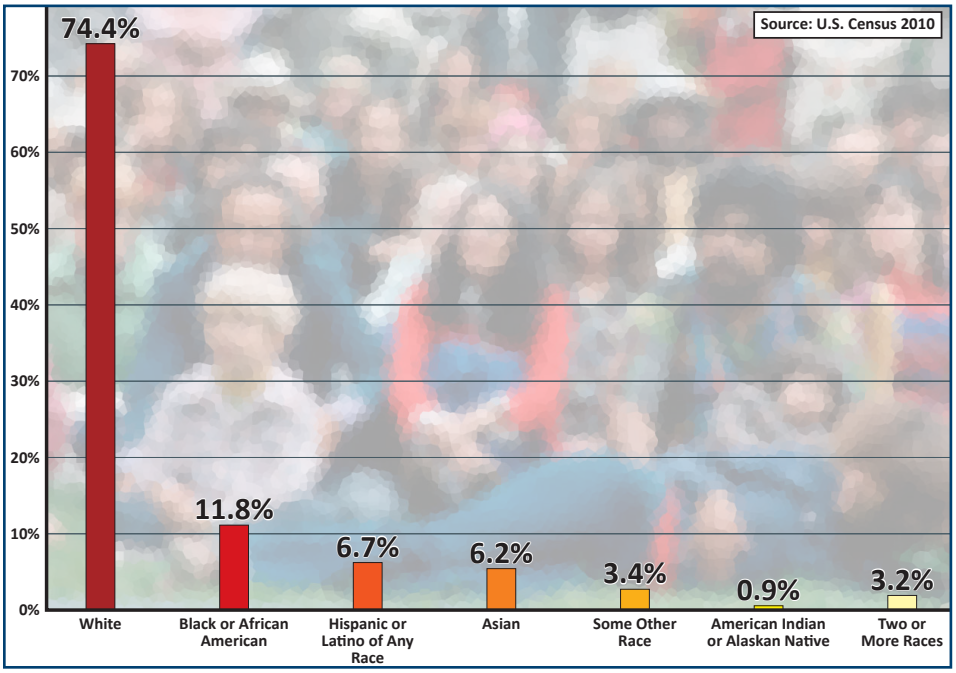
St. Louis Park is located in Hennepin County. By population, Hennepin County is the largest county in Minnesota. It is located in the southeastern portion of the state along the Mississippi River. The county is comprised of the city of Minneapolis and its suburbs surrounded by farmland and small towns.

Governmental structure

The Hennepin County government consists of a seven-member Board of County Commissioners. The commissioners meet weekly at regularly-scheduled meetings, generally on Tuesdays to discuss county business. The commissioners hire a county administrator who implements the board's policies.

Demographics

According to the 2010 Census, the population of Hennepin County is 1,152,425 people with a median age of 35.9. The racial make-up is predominantly white with 74.4 of the population, followed by 11.8 percent African American, 6.2 percent Asian, 3.4 percent identifying themselves as "some other race", 6.7 percent Hispanic of any race, .9 percent American Indian or Alaskan Native, and 3.2 percent that are of two or more races.



There are 514,913 total housing units in Hennepin County, 94.2 percent of which are occupied. Of the occupied units, 63.2 percent are owner-occupied. There are 475,913 total households, 57.3 percent of which are family households with 49.4 percent of those with children under the age of 18 years.

According to the 2010-14 American Community Survey Estimate, about 92.7 percent have a high school education or equivalent and about 46.4 percent have attained a bachelor's degree or higher. The median household income was estimated as $65,033. According to the 2010-2014 American Community Survey, approximately 12.9 percent of the population of Hennepin County lives below the poverty level.

The language spoken in Hennepin County is predominantly English with 83 percent of the population speaking only English. Approximately 17 percent of the population speak a language other than English, of those, 5.7 percent speak Spanish or Spanish Creole, 4.6 percent speak Asian and Pacific Island languages, 3.4 percent speak "other" languages, and 3.2 percent speak "other Indo-European" languages.

Hennepin County history

The earliest people in Hennepin County were members of several Native American tribes specifically the Dakota, Sioux, Ojibwe and Chippewa. They settled the area as far back as 6000 B.C. In 1680, a Roman Catholic missionary named Father Louis Hennepin explored the area and ultimately became the namesake for the county. After the federal government bought the Louisiana territory, it also bought land along the Mississippi River from a group of Dakota people to build a fort and trading post. This fort was called Fort Snelling. The fort was built in 1820 at the junction of the Mississippi and Minnesota Rivers, in the heart of what is now Minneapolis-St. Paul. The rivers provided for the development of the first industry in the area – saw mills, and then later to the development of flour mills.

Hennepin County was established in 1852. It was originally planned to be called Snelling County, but was named

Hennepin County, after Father Hennepin, instead. Minneapolis was declared the county seat in 1854. The availability of cheap farmland and industrial jobs drew German, Irish, Norwegian and Swedish immigrants to the area. By the late 1860s, the population had grown to over 12,000, and farms and lumber mills provided the goods needed. With the improvements in milling flour as well as the arrival of the railroad, flour mills flourished in Minneapolis including the familiar names of Washburn, Pillsbury, Bell, Dunwoody and Crosby. Minneapolis became known as "Mill City". It was considered the flour-milling capital of the world and was one of the largest lumber producers. By 1890, the population of Minneapolis was 165,000. While the city of Minneapolis was growing, most of Hennepin County remained farmland. Farmers grew mainly wheat, corn, vegetables and apples. Agriculture continued to be a major component in the area economy through the 1940s, but by 1950, the amount of farmland declined due to the development of the suburbs. The development continued to grow rapidly throughout the second half of the 20th century and up to today. After the Vietnam War, Hennepin County saw an increase in refugees from Southeast Asia move into the area, changing the ethnic makeup. This type of immigration of individuals searching for a better life continues today and continues to enrich the ethnic diversity of the county.

Source: http://slphistory.org/

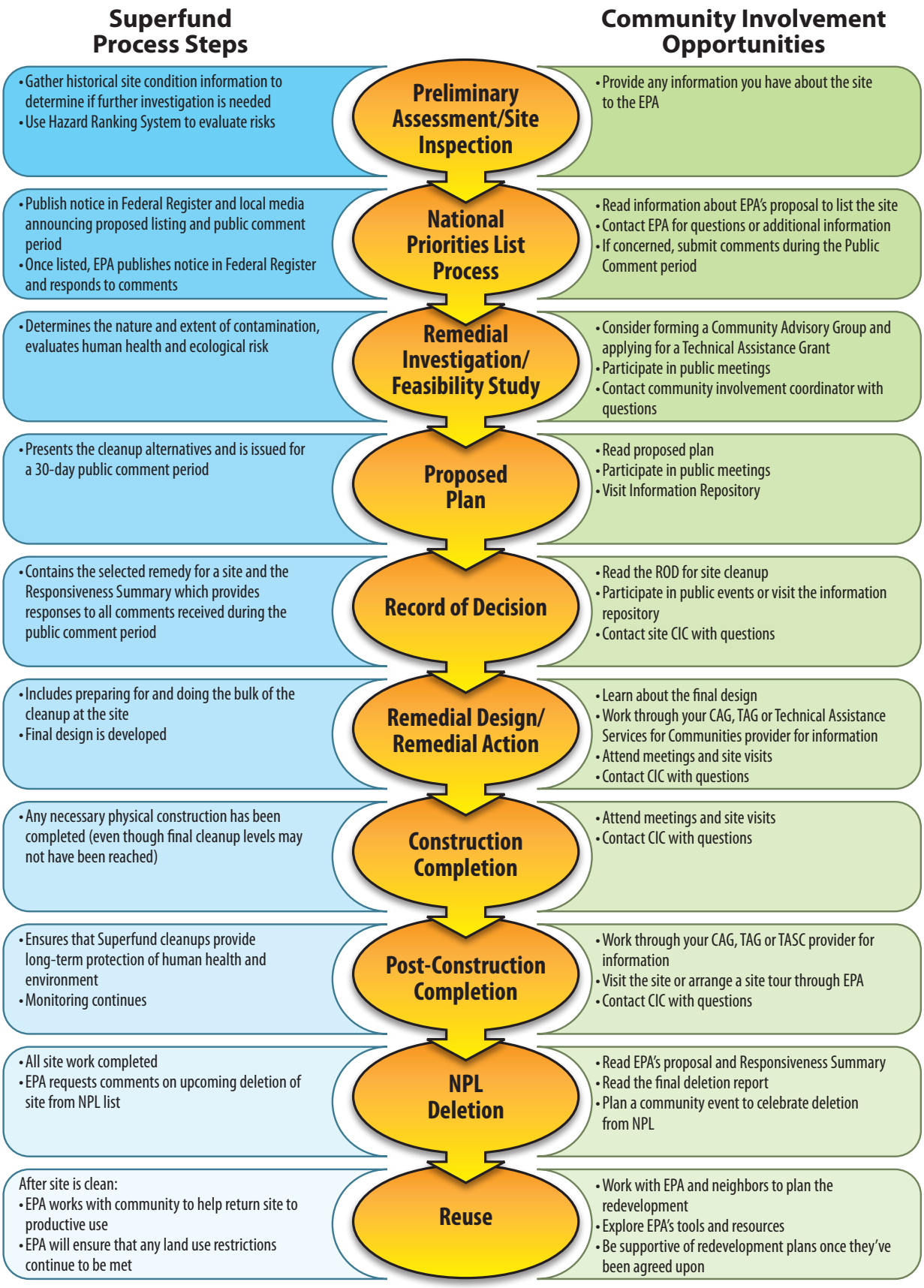
Community Involvement Efforts

The graphic on the opposite page shows the types of community involvement activities EPA organizes at a site and how they follow along with the investigation and cleanup process. In this case EPA's state partner, MPCA handled some of the tasks. The following is a list of past community involvement activities at the site:

- **Feb. 15, 1982** – MPCA held a public meeting to explain the beginning of the development of a feasibility study to examine ways to clean up the drinking water.
- **1983** – MPCA developed a Community Relations Plan to outline its strategy for keeping the community informed. This plan was approved by EPA.
- **May 16, 1983** - MPCA held a public meeting to explain the results of a feasibility study and explain the options that were considered to clean up the drinking water. Two fact sheets were prepared and distributed at the meeting. Questions and comments were taken at the public meeting and thereafter through telephone calls from concerned residents and news reporters.
- **1983** – A citizen's advisory committee was formed. The committee met monthly to provide regular communication between MPCA and the local community. There is no record of when the group disbanded.
- Other efforts to inform the community included:
    - The publication of the feasibility study results and the progress of the citizen's advisory committee in the city of St. Louis Park bi-monthly newsletter, which was sent to every resident of St. Louis Park.
    - Placing the documents in the St. Louis Park Library.
    - Announcing the availability of the documents on the city's bulletin board on the local cable station.
- **April 11, 1986** – A press conference was held in St. Louis Park to explain the legal and technical aspects of the **Consent Decree** for the **Remedial Action Plan** for the site.

- **April 17, 1986** – A public meeting was held in St. Louis Park to explain the legal and technical aspects of the Consent Decree for the Remedial Action Plan for the site.
- **April 1986** – The city of St. Louis Park prepared a fact sheet explaining the agreement between the city and the Reilly Tar & Chemical Corp.
- **April 1986** – MPCA prepared a fact sheet explaining the cleanup of the area groundwater.
- **April 1986** – MPCA prepared a fact sheet explaining the restoration of St. Louis Park wells to service.
- **April 1986** – MPCA prepared a fact sheet briefly explaining the Reilly Tar & Chemical site.
- **Dec. 1, 1987** – MPCA held a public meeting to explain the proposed pumping of St. Louis Park municipal well number 4.
- **Sept. 22, 1988** – MPCA held a public hearing on the proposed pumping of St. Louis Park municipal well number 4.
- **April 1990** – MPCA prepared and distributed a fact sheet summarizing the **Proposed Plan** for cleanup of the St. Peter Aquifer.
- **May 2, 1990** - MPCA prepared a press release announcing the availability of the Proposed Plan and the **public comment period** on the Proposed Plan for cleanup of the St. Peter Aquifer.
- **May 4, 1990** – MPCA prepared and published an advertisement in the *Star Tribune* newspaper announcing the availability of the Proposed Plan and the public comment period on the Proposed Plan for cleanup of the St. Peter Aquifer.
- **May 1990** – The documents supporting the proposed cleanup plan for the St. Peter Aquifer were placed in the site information repository at the St. Louis Park Library.
- **May 7 –June 8, 1990** – MPCA held a public comment period on the Proposed Plan for the cleanup of the St. Peter Aquifer.
- **May 16, 1990** – MPCA held a public meeting to explain the proposed cleanup plan for the St. Peter Aquifer. The meeting was held at the St. Louis Park Council Chambers.
- **Aug. 1992** - MPCA prepared and mailed out a fact sheet summarizing the Proposed Plan for the cleanup of the northern area of the Drift Aquifer.
- **Aug. 26, 1992** - MPCA prepared a press release announcing the availability of the Proposed Plan and the public comment period on the Proposed Plan for cleanup of the northern area of the Drift Aquifer.
- **Aug. 29, 1992** - MPCA prepared and published an advertisement in the *Star Tribune* newspaper announcing the availability of the Proposed Plan and the public comment period on the Proposed Plan for cleanup of the northern area of the Drift Aquifer.
- **Aug. 1992** - The documents supporting the proposed cleanup plan for the northern area of the Drift Aquifer were placed in the site information repository at the St. Louis Park Library.
- **Aug. 29 – Sept. 28, 1992** - MPCA held a public comment period on the Proposed Plan for the cleanup of the northern area of the Drift Aquifer.
- **Sept. 9, 1992** - MPCA held a public meeting to explain the proposed cleanup plan for the northern area of the Drift Aquifer. The meeting was held at the St. Louis Park Council Chambers.
- **Jan. 1993** – MPCA prepared and distributed a fact sheet explaining EPA's testing of a technology called Bioventing.
- **May 1995** – MPCA prepared and mailed out a fact sheet summarizing the Proposed Plan for the cleanup of the northern area of the Platteville Aquifer.
- **May 9, 1995** – MPCA prepared a press release announcing the availability of the Proposed Plan and the public comment period on the Proposed Plan for cleanup of the northern area of the Platteville Aquifer.
- **May 9, 1995** - MPCA prepared and published an advertisement in the *Star Tribune* newspaper announcing the availability of the Proposed Plan and the public comment period on the Proposed Plan for cleanup of the northern area of the Platteville Aquifer.

- **May 1995** - The documents supporting the proposed cleanup plan for the St. Peter Aquifer were placed in the site information repository at the St. Louis Park Library.
- **May 23, 1995** – MPCA held a public meeting to explain the Proposed Plan for the cleanup of the northern area of the Platteville Aquifer.
- **May 10 – June 9, 1995** - MPCA held a public comment period on the Proposed Plan for the cleanup of the northern area of the Platteville Aquifer.
- **May 23, 1995** - MPCA held a public meeting to explain the proposed cleanup plan for the northern area of the Platteville Aquifer. The meeting was held at the St. Louis Park Council Chambers.
- **Sept. 1995** – EPA prepared a fact sheet explaining an initiative by the Agency to evaluate using bioremediation to address contaminated soil at the site.
- **March 1996** – EPA issued the first Five-Year Review report of the site.
- **Sept. 2001** – EPA issued the second Five-Year Review report of the site.
- **April 13, 2006** - MPCA published a notice in the *Sun Sailor* newspaper announcing the third Five-Year Review of the site cleanup. EPA accepted public comments on the review until July 1, 2006. No comments were received.
- **Aug. 2007** – EPA prepared a fact sheet explaining how the site was successfully reused and developed into a community park.
- **Nov. 4, 2010** – MPCA placed a notice in the *Sun Sailor* newspaper announcing the fourth Five-Year Review of the site cleanup. No comments were received.
- **Feb. 2011** – EPA prepared a fact sheet explaining the beginning of a **vapor intrusion** investigation at the site.
- **Feb. 2011** – EPA prepared a fact sheet explaining the screening levels being used to compare with the vapor intrusion sampling results gathered.
- **March 2011** – EPA held two informal question and answer sessions about the indoor air investigation and the Reilly Tar & Chemical site at the St. Louis Park Public Library
- **June 27, 2011** - EPA issued the fourth Five-Year Review report of the site.
- **Nov. 2011** - EPA prepared another fact sheet explaining the screening levels being used to compare with the vapor intrusion sampling results gathered.
- **July 7, 2014** – EPA issued an amendment to the fourth Five-Year Review report of the site.
- **Nov. 2015** – EPA prepared a fact sheet announcing an open house and to explain the history of activities at the site. This fact sheet was mailed to local public officials and residents living near the site.
- **Nov. 12, 2015** – EPA held an open house to explain the history of activities at the site.
- **Dec. 3, 2015** – EPA issued a notice of the fifth Five-Year Review for the site.
- **Jan. 2016** – EPA prepared a postcard inviting residents and officials to set up a community interview. The postcard was mailed to local officials and residents living near the site.
- **Feb. 2-4, 2016 –** EPA conducted community interviews with area residents, local officials and community leaders. The results of the interviews were used in the development of this CIP.
- **Feb. 16, 2016** – EPA conducted phone interviews with residents who were unable to meet in person.
- **June 21, 2016** – Fifth Five-Year Review was signed.
- The EPA website is updated regularly.

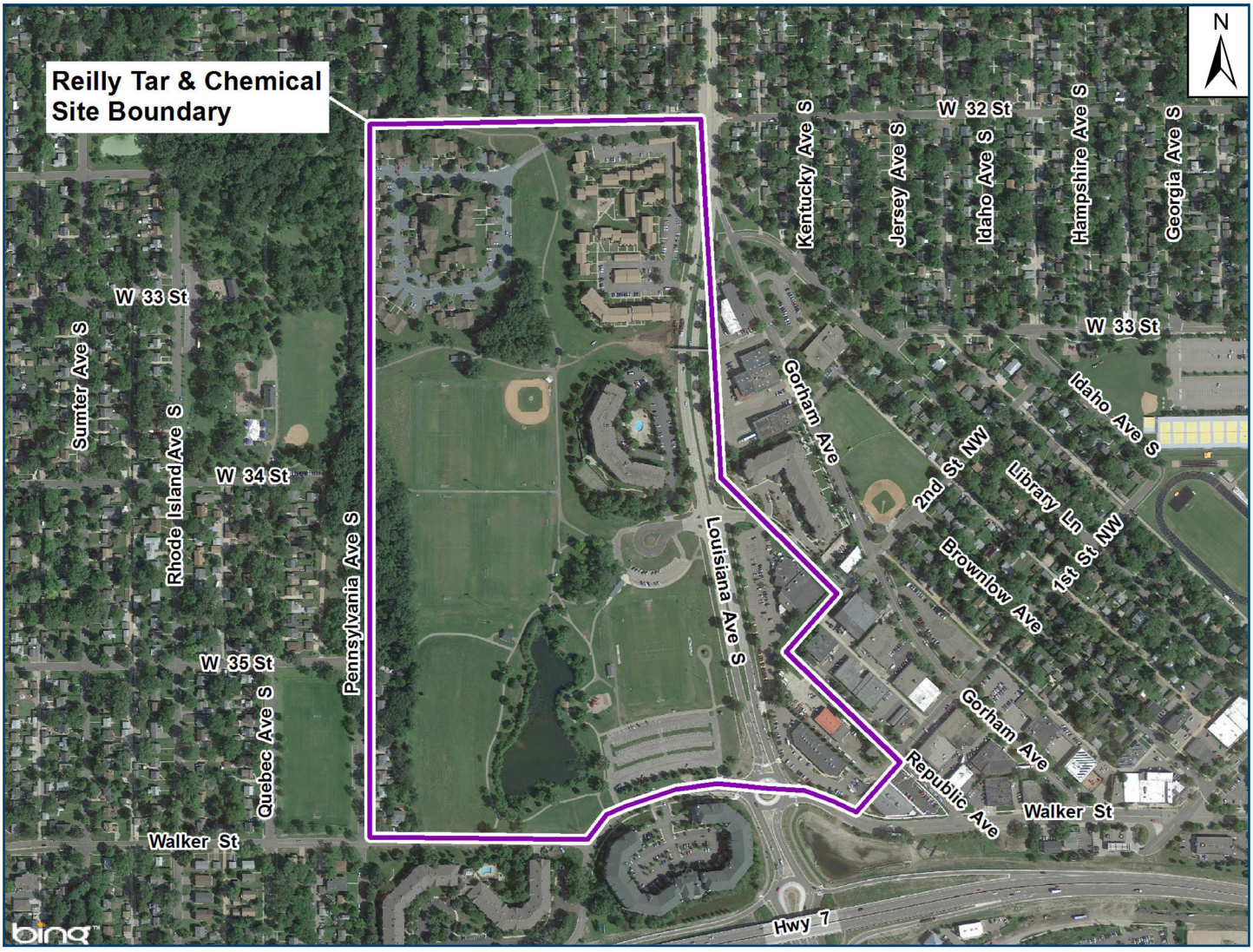

Superfund Process Steps
Community Involvement Opportunities
Preliminary Assessment/Site Inspection
• Gather historical site condition information to determine if further investigation is needed
• Use Hazard Ranking System to evaluate risks
• Provide any information you have about the site to the EPA
National Priorities List Process
• Publish notice in Federal Register and local media announcing proposed listing and public comment period
• Once listed, EPA publishes notice in Federal Register and responds to comments
• Read information about EPA's proposal to list the site
• Contact EPA for questions or additional information
• If concerned, submit comments during the Public Comment period
Remedial Investigation/ Feasibility Study
• Determines the nature and extent of contamination, evaluates human health and ecological risk
• Consider forming a Community Advisory Group and applying for a Technical Assistance Grant
• Participate in public meetings
• Contact community involvement coordinator with questions
Proposed Plan
• Presents the cleanup alternatives and is issued for a 30-day public comment period
• Read proposed plan
• Participate in public meetings
• Visit Information Repository
Record of Decision
• Contains the selected remedy for a site and the Responsiveness Summary which provides responses to all comments received during the public comment period
• Read the ROD for site cleanup
• Participate in public events or visit the information repository
• Contact site CIC with questions
Remedial Design/ Remedial Action
• Includes preparing for and doing the bulk of the cleanup at the site
• Final design is developed
• Learn about the final design
• Work through your CAG, TAG or Technical Assistance Services for Communities provider for information
• Attend meetings and site visits
• Contact CIC with questions
Construction Completion
• Any necessary physical construction has been completed (even though final cleanup levels may not have been reached)
• Attend meetings and site visits
• Contact CIC with questions
Post-Construction Completion
• Ensures that Superfund cleanups provide long-term protection of human health and environment
• Monitoring continues
• Work through your CAG, TAG or TASC provider for information
• Visit the site or arrange a site tour through EPA
• Contact CIC with questions
NPL Deletion
• All site work completed
• EPA requests comments on upcoming deletion of site from NPL list
• Read EPA's proposal and Responsiveness Summary
• Read the final deletion report
• Plan a community event to celebrate deletion from NPL
Reuse
After site is clean:
• EPA works with community to help return site to productive use
• EPA will ensure that any land use restrictions continue to be met
• Work with EPA and neighbors to plan the redevelopment
• Explore EPA's tools and resources
• Be supportive of redevelopment plans once they've been agreed upon

Section 4: The Site

This section presents a description and history of activities at the sites.

Reilly Tar & Chemical Site

Site location map



The boundaries of the Reilly Tar & Chemical site.

Site history

Between 1917 and 1972, Reilly operated a coal tar distillation and wood treatment plant, known as the Republic Creosote Co., on 80 acres of land in the city (*see Site location map on Page 25*). Wastewater containing creosote and coal tar from plant operations was discharged to a ditch that drained to a swamp south of the site.

Additional releases of creosote and coal tar resulted from drippings and spills onto the soil at the site. These releases led to extensive soil, surface water, and groundwater contamination, not only at the site, but also in areas downstream and downgradient (south and east) of the site. The major contaminants of coal tar are PAHs.

Due to extensive residential development in the area around the site in the 1940s and into the 1950s, complaints about shallow well contamination and odor (i.e., air quality) problems became common. As a result of the continuing problems with air emissions, soil and surface water contamination, the city and MPCA filed suit against Reilly in 1970. In 1972, the city purchased the site from Reilly, and the plant was dismantled and removed. The city dropped its lawsuit against Reilly as a condition of the sale. The MPCA's suit was eventually dismissed as a part of a comprehensive settlement in 1986.

In the mid-1970s, Louisiana Avenue was constructed through the site and some multi-family housing units were constructed on the northern half of the site. In 1978, the MDH began a study to analyze water from municipal wells in the city and nearby communities for trace concentrations of PAHs. The city uses groundwater from the St. Peter, Prairie du Chien-Jordan, and Mt. Simon-Hinckley Aquifers as sources of drinking water. Nearby communities, such as Hopkins and Edina, rely primarily on the Prairie du Chien-Jordan Aquifer for their drinking water. During the period from 1978 to 1981, the study revealed unexpectedly high concentrations of PAHs in six city wells and one well in the city of Hopkins. As the PAH contamination in these municipal wells was discovered, the wells were closed.

In 1978, after results of an MDH study indicated that extensive ground water contamination had occurred, MPCA amended its complaint in the lawsuit with Reilly to include claims for groundwater contamination. In 1980, EPA and MPCA brought legal actions in federal court against Reilly under the imminent hazard provision of the **Resource Conservation and Recovery Act**, or **RCRA**. After the enactment of **Comprehensive Environmental Response, Compensation and Liability Act**, or **CERCLA**, and the **Minnesota Environmental Response and Liability Act**, or **MERLA**, the complaints were amended to include claims under those laws. Both agencies also took administrative actions against Reilly in the early 1980s pursuant to the applicable federal and state Superfund acts. Both the lawsuits and the administrative actions by the agencies sought to compel Reilly to undertake necessary cleanup actions. In 1984, EPA issued a cleanup decision for construction of a drinking water treatment plant for two St. Louis Park wells. The plant was constructed in 1985. All the agencies' claims were resolved in a comprehensive settlement with Reilly approved by the federal court in September 1986. The work to be performed under the settlement is covered in the Consent Decree and Remedial Action Plan. St. Louis Park, Hopkins, and landowners of the former Reilly property were also parties to the settlement.

See the Reilly Tar & Chemical Corp. (St. Louis Park) Timeline of site activities on the following pages.

Reilly Tar & Chemical Corp. (St. Louis Park) Timeline (1917-1985)

1917
Republic Creosoting Co. begins refining coal tar and treating wood with creasote at the site. Up to 6,000 gallons/week of wastewater was discharged to wetland south of the site. [*Republic bought coal tar from gas plants throughout Minnesota, and it was refined on the site. It was a subsidiary of Reilly Industries, which is now Vertellus Specialties (Vertellus).*]

1932
First St. Louis Park municipal well drilled and abandoned due to taste and odors.

1940s
Oil/water separator installed, but effluent discharge to wetland continued. Contamination found in private wells near the site.

1960s – 1970s
The city of St. Louis Park and the state plug over a dozen wells that were conduits for pollution to groundwater. Soil contamination found to depths of 45 feet.

1970
The MPCA files a lawsuit against Reilly Tar & Chemical Corp. (Reilly Tar) for air and surface water pollution.

1972
Republic Creosoting dismantled and land sold to the city of St. Louis Park.

1973
Stormwater collection system built at the site, including lined pond. [Pond still exists. Water drains eventually to Minnehaha Creek, monitored by the city of St. Louis Park .]

1978 - 81
The cities of St. Louis Park and Hopkins close seven drinking water wells (SLP4, 5, 7, 9, 10, 15, and H3) in the Prairie du Chien/Jordan aquifer that were contaminated with PAHs.

1979
28 wells plugged or reconstructed to prevent spread of contamination.

1980
EPA and the cities of St. Louis Park and Hopkins join the lawsuit against Reilly Tar.

1983
EPA puts the site on the National Priorities List.

1984
EPA issues cleanup decision requiring construction of a treatment plant at wells SLP 10 & 15.

1985
Reilly Tar constructs drinking water treatment plant for the city of St. Louis Park to treat water pumped from wells SLP 10 & 15.

Reilly Tar & Chemical Corp. (St. Louis Park) Timeline (1986-1996)

1986
Reilly Tar signs multi-party Consent Decree with EPA, the state, and the cities. [The city of St. Louis Park agrees to share responsibility for implementation, with initial funding by Reilly Tar.]

1986
EPA issues a site-wide cleanup decision with actions to protect drinking water and to control the sources of contamination. Tarry waste was removed from well W23, and then it was turned into a source control well in the Prairie du Chien/Jordan aquifer. Two source control wells were built - W420 in the Glacial Drift aquifer and W421 in the Platteville aquifer.

1986
The city of St. Louis Park completes filling of contaminated wetland south of site with 2-3 feet clean fill (between Walker and Lake St.).

1987
The city of St. Louis Park began pumping two additional wells (well W105 in the Ironton/Galesville aquifer to remove contaminated groundwater near the source and well W422 in the Glacial Drift aquifer to help control groundwater flow). [Well W105 in the Ironton/Galesville aquifer operated until 1991 and well W422 until 2000. EPA approved conversion of both to monitoring wells.]

1990s
Redevelopment of nearby off-site properties was managed under MPCA's Voluntary Investigation and Cleanup program. MPCA approves Remedial Action Plans for safe handling and disposal of contaminated soil encountered.

1990
EPA and MPCA issue cleanup decision for the St. Peter aquifer. [Required pumping of well W410 to intercept and contain contaminated groundwater.]

1991
MPCA and EPA establish contaminated material safety requirements for the city of St. Louis Park construction of highway interchange south of the site. [Interchange is Hwy 7/Louisiana Ave.]

1991
Methodist Hospital stops pumping high volumes from its well, prompting EPA and MPCA concern for potential movement of groundwater contamination.

1991
The city of St. Louis Park adds treatment for PAHs to drinking water well SLP4.

1992
EPA and MPCA issue a cleanup decision for the northern area of the Glacial Drift aquifer. [Requires continued pumping of well W422 and at least one additional well, to intercept groundwater.]

1995
One additional well constructed and began pumping in northern area of the Glacial Drift aquifer. [This was well W439, which continues in operation today, with discharge to the sanitary sewer.]

1995
EPA and MPCA issue cleanup decision for northern area of the Platteville aquifer. [Requires construction of a new pumping well. The cleanup was modified in 1997 to allow use of well W434 for this purpose. This well operated until 2006 when EPA approved shutdown.]

1995
EPA and MPCA request the city of St. Louis Park re-evaluate gradient control for the Prairie du Chien/Jordan aquifer to protect drinking water wells.

1996
MPCA conducts 1st Five-Year Review with EPA oversight. Recommends continued operation and maintenance of treatment systems and groundwater flow modeling and that EPA and MPCA continue to monitor development at the site. [It also made some other more specific recommendations.]

Reilly Tar & Chemical Corp. (St. Louis Park) Timeline (2000-2014)

2000
EPA and MPCA approve the city of St. Louis Park's feasibility study and plans for additional monitoring and contingency actions for pumping of SLP6 for gradient control in the Prairie du Chien/Jordan aquifer.

2001
Apartment complex constructed south of the site following a Remedial Action Plan approved by MPCA. 8,000 cubic yards soil excavated and treated.

2001
MPCA conducts 2nd Five-Year Review with EPA oversight. Concludes that drinking water is properly treated. Inspection finds exposed debris on the site but no tar substances. Notes the city of St. Louis Park plans for addition of clean fill and new drainage. Recommends continued pumping and monitoring of groundwater, and groundwater modeling to evaluate gradient control.

2002
The city of St. Louis Park constructs soccer field, light towers and other improvements to the park at the site, following plans approved by MPCA and EPA. Includes placement of more than two feet of clean fill.

2004
"Block 7" property office building constructed following EPA and MPCA approval of construction plan. Passive gas venting system required and installed to minimize potential for vapor intrusion, confirmed by air monitoring.

2004
The city of St. Louis Park constructs Louisiana Avenue traffic improvement projects following EPA and MPCA approved protocols for management of contaminated soils.

2005
PAHs in the city of Edina well E13 temporarily exceed advisory level but continue to meet drinking water criteria.

2006
MPCA conducts 3rd Five-Year Review with oversight by EPA. Concludes that most Reilly-affected groundwater is being contained by required pumping, but recommends evaluation of increased pumping to protect the city of Edina wells. Also recommended additional investigation of vapor intrusion.

2008
MPCA conducts soil vapor study. Results indicate further sampling needed. EPA and MPCA approve the city of St. Louis Park's plans to expand water level monitoring to better evaluate groundwater flow.

2009-10
The city of St. Louis Park and Vertellus (Reilly Tar) decline to conduct vapor study and EPA begins preparations.

2011
MPCA conducts 4th Five-Year Review with oversight of EPA. Protectiveness of the remedy is deferred pending completion of vapor intrusion investigation.

2011-14
EPA samples sub-slab, indoor, and outdoor air at and near the site over several seasons for PAHs, VOCs and SVOCs and concludes that this pathway does not present a health risk.

2013
EPA and MPCA direct the city of St. Louis Park and/or Vertellus (Reilly Tar) to modify the gradient control system in the Prairie du Chien/Jordan aquifer. The city of St. Louis Park submits a plan for three new monitoring wells and revised gradient control plan.

2014
Monitoring initiated in three new Prairie du Chien/Jordan wells. EPA documents the results of the vapor intrusion investigation in a Five-Year Review Addendum. EPA also initiates updated groundwater modeling to evaluate gradient control.

Groundwater cleanup

Cleanup of the groundwater was done on a focus area or aquifer basis. EPA studied aquifers individually, and made cleanup decisions on each from 1984 through 1995 (*see table below*).

Reilly Tar & Chemical Corp. (St. Louis Park) Cleanup Activities

Year cleanup decision made	Cleanup or focus area	Actions taken	Current status
1984	Drinking water	• Building a drinking water treatment plant for two city drinking water wells (SLP10 & SLP15).	• The treatment plant was built in 1985 and continues to operate today. It is maintained by the city of St. Louis Park. The water is treated and used for drinking water.
1986	Drinking water	• Monitoring, pumping, and treating water in the Prairie du Chien/Jordan aquifer until drinking water quality for PAHs is reached throughout the area. • Monitoring, pumping and treating water in the Ironton/Galesville aquifer, to protect the underlying Mt. Simon/Hinkley drinking water aquifer from PAH contamination. • Monitoring of the Mt. Simon/Hinkley aquifer, and contingency treatment if it becomes contaminated with PAHs.	• The city of St. Louis Park pumps a city well (SLP4) in the Prairie du Chien aquifer. According to the cleanup decision, the water could be discharged to surface water or treated and used for drinking water. A treatment plant was built in 1992 and since that time the water has been used for drinking water. • The city of St. Louis Park pumped contaminated water from a source control well (W105) in the Ironton/Galesville aquifer from 1987 through 1991. The water was treated and discharged to the sanitary sewer. EPA and MPCA approved discontinuing pumping of this well because it met the cleanup goals. • The city of St. Louis Park continues to monitor the Mt. Simon/Hinkley aquifer.
1986	Source area groundwater and liquid waste	• Monitoring, pumping and treating contaminated water and liquid waste in the Glacial Drift aquifer and in source control well W23 in the Prairie du Chien/Jordan aquifer.	• The city of St. Louis Park operates two source control wells (W420 & W421) to control groundwater in the source area. The water from both wells is treated and discharged to Minnehaha Creek.
1990	Source area groundwater	• Monitoring, pumping and treating contaminated water from source control well W410 to intercept and contain contaminated groundwater in the St. Peter aquifer.	• The city of St. Louis Park built and began pumping and treating contaminated water from a source control well (W410) in 1991. The well currently discharges the water to the sanitary sewer.
1992	Source area groundwater	• Monitoring, pumping and treating contaminated groundwater from source control well W422, and at least one additional well, to intercept and contain contaminated groundwater in the northern area of the Glacial Drift aquifer.	• The city of St. Louis Park built and began operating source control well W422 in 1987. The water is discharged to the sanitary sewer. An additional source control well (W439) was built and began operating in 1995. Pumping at well W422 was discontinued in 2000 when EPA and MPCA approved its shutdown. The city of St. Louis Park continues to pump well W439. The water is discharged to the sanitary sewer.
1995	Source area groundwater	• Monitoring, pumping and treating contaminated groundwater from source control well W434 in the northern area of the Platteville aquifer.	• Well W434 operated until 2006, when EPA and MPCA approved its shutdown.

Soil remedy

There were about one million cubic yards of contaminated soil and waste in the nearby wetland and the Reilly site. EPA filled the wetland with clean soil to eliminate any potential exposure. The city of St. Louis Park also placed soil on top of the site as part of redevelopment. Any work that involves digging in contaminated areas must be approved by the MPCA and EPA. Work plans must include safe handling of any waste or contaminated soil found, and air monitoring to protect site workers and nearby residents if waste or contaminated soil is encountered.

Groundwater monitoring

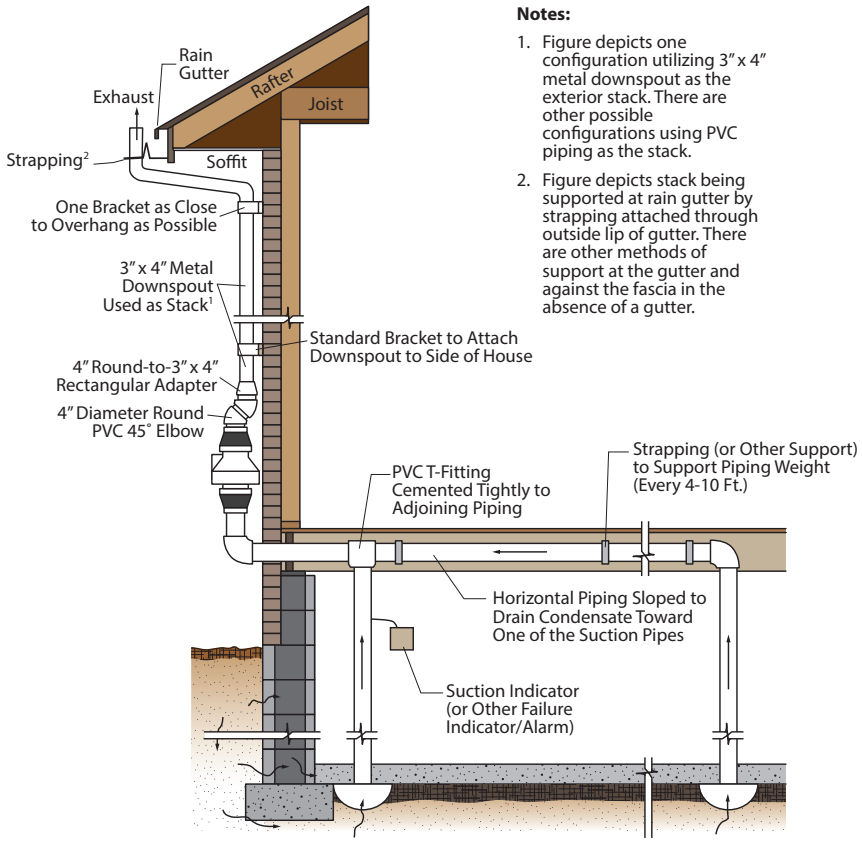
The city of St. Louis Park regularly takes water quality samples from a large network of groundwater monitoring wells. EPA, MPCA and MDH oversee the city's groundwater monitoring and ensure that the treatment remains effective.

Drinking water treatment plant.

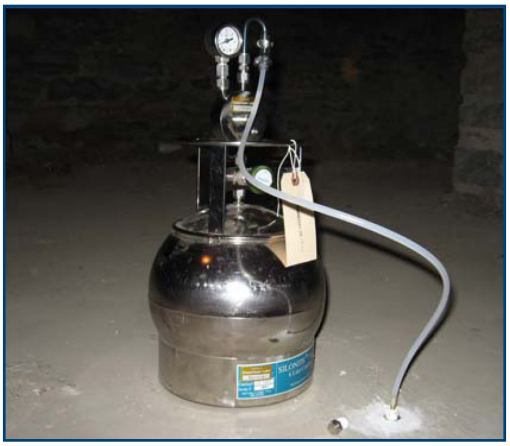
A city contractor takes a sample from an area drinking water well.

Vapor intrusion study

Between 2011 and 2014 EPA conducted an extensive study into possible vapor intrusion from site contamination on properties on and near the site. Vapor intrusion occurs when chemicals, such as **volatile organic compounds**, or **VOCs**, in groundwater give off gases that can seep into buildings through foundation cracks and holes, causing unsafe indoor air pollution. EPA and its contractors took samples from indoor air, **soil gas** beneath the basements and foundations, and background soil gas samples off-site. This sampling showed no danger to people from vapor intrusion. Any contamination detected in indoor air was below or within EPA's acceptable ranges.



A diagram of a vapor removal system.



In this example of "sub-slab" sampling, tubing is run from underneath a basement floor to a "Summa" canister to test for hazardous vapors trapped in the soil.

A vapor removal system on a home.

Section 5: Community Concerns and Questions

This section summarizes what community members are concerned about, the questions they asked and what they told EPA.

What We Heard

This section focuses on the concerns and issues that EPA heard from community members about the site.

To learn about concerns, questions and informational needs related to the Reilly Tar & Chemical Superfund site, we conducted interviews with 32 residents, local officials and other interested community members in February 2016. Postcards were mailed to residents near the site announcing the interviews and asking them to schedule an interview to talk with EPA about their concerns. Other interviews were scheduled by direct phone calls. Pages 31-37 explain the concerns and comments expressed.

Note to the reader:

This summary is intended to faithfully record and reflect the issues and concerns expressed to the EPA by residents, officials, and others on the days of the community interviews. By necessity, this is a collection of opinions, thoughts and feelings. Therefore, please be cautioned that the statements contained in this section may or may not be factual and the opinions and concerns expressed are those of individual interviewees alone.

Comments and Concerns

Drinking water

The biggest concern raised during the community interviews was about ensuring that the city's drinking water is and remains safe. Residents expressed concern about the safety of their drinking water. Several people asked if the water was safe. Others asked how they could be assured the water was safe. One person talked about the situation in Flint, Mich., saying that it was her understanding that EPA did not do what it was supposed to do with respect to the situation in Flint. She went on to say, "It shakes your confidence." One woman said that she had dark stains in her toilet and wondered if that could indicate that the water was contaminated. Another said there were times when her water would taste terrible and wondered if that could be an indication of contaminated water. Still another said that rink and bathroom water at a city park has smelled terrible and again questioned if that was from the contamination. One woman specifically said she does not trust the water. Another said her family does not drink the water saying, "We are not comfortable with it." Another said she and her family drank the water before the cleanup, so that was a concern for her. A few people asked if there was something else they could do in their own home to protect themselves. One couple said they knew the city was making efforts to remove what it could, but asked if there was more they could do, especially because they had young children who could be affected by contamination at lower levels. They asked if they should get a home filtration system. A few of the people said that they did not understand the reports the city sends them about the drinking water. A couple asked if the city reports include information on the site-related chemicals and questioned how EPA determines what is considered safe. One woman asked how often the drinking water was tested and what chemicals were being taken out

"It is important that residents know that the drinking water in St. Louis Park is safe."

City official

of the drinking water. One interviewee said that it was her understanding that the city wanted to remove 15 chemicals from the list of chemicals they should test for. She said she wanted to know which chemicals they wanted to remove and said that she thought residents should be allowed to comment on the removal of those chemicals. School officials said one parent had called the school asking what the school was doing about the water. These officials explained to EPA that the district filters the schools' water with carbon above and beyond what the city already does. They said they direct all questions to the city. One man EPA talked to said he was concerned about the groundwater contamination expanding and asked if something was being done to keep that from happening.

City officials said their main concern was ensuring and maintaining the safety of the city's drinking water.

Several people pointed out that groundwater contamination and the potential for drinking water contamination affects everyone in the city, not just those living near the Reilly Tar site.

Lack of communication

About a dozen people interviewed expressed frustration regarding the lack of communication associated with the site. According to one, in 1960s, you couldn't help but be aware of the site, but by the 1980s it was leveled. Therefore, people who moved in after the 1980s do not know about it. One interviewee said she had moved to St. Louis Park eight years ago and was never told about the Reilly site, so she would never have known about it. She said she would like to see the information sent to every home. She said she thinks many people today had no idea it was there. Another said he did not know about the contamination before he moved to St. Louis Park and even then, not until it was in the news in the fall of 2015. Another interviewee said she thought some information about the site should be put in the *Sun Sailor*. Several people stated that the city, state and federal officials all need to be more forthcoming with information regarding the on-site soil cover and the ongoing groundwater sampling and drinking water sampling. They said that officials had made statements they could not back up and it causes distrust when officials say something that is not true. One said it seems to be a confidence issue. Several local community leaders told EPA it was also important to make sure all voices are heard in such a diverse community.

With regard to the source of the contamination – "It is confusing, because it is all one thing to us."

Local resident

A city official EPA spoke with said that the city wanted to make sure the lines of communication are now open. He said, admittedly, the city had been dealing with the site for over 30 years and that they would forget that new people who move in do not know about it. He went on to say that the city was now aware and that it plans to do a better job of communicating. The city said it only received calls from a handful of citizens in the fall 2015 when work at the site prompted news stories. The city estimated 6-12 people had called that were worried about their water.

Several interviewees said they would like to set up regular meetings with EPA, MPCA, MDH, etc. to discuss various site-related topics such as the basics about the site; how to understand drinking water reports; VOCs; garden issues, etc. One said, "The more meetings you have, the more at ease people will be."

Vapor contamination

Ten interviewees expressed concern about vapor contamination in St. Louis Park. They said they understood that some of the vapor contamination was not related to the Reilly Tar site, but they said it was all the same to them. Several people asked if there was something more they could do to protect themselves. One said she was especially worried about the poorer population in the low income housing on the site. This individual said she had talked to one resident in that particular low income housing unit that said she could smell odors. A couple of people questioned how the vapor contamination might impact public buildings, schools and businesses near the site. They pointed out

that there were some schools close to the site. One person living in a residential building near the site asked EPA if she should be concerned about her indoor air quality. The manager of another residential building near the Reilly Tar site asked if his tenants were safe. One person interviewed said she would be concerned about the vapors if she lived in the area. Two people told EPA they had heard there was an instance where one home in St. Louis Park **benzene** vapors were found at levels one thousand times the safe limit and that a baby in a home two doors down had died. They said they found that very concerning *One interviewee questioned if the vapor intrusion was from the Reilly site or if it was from something else. When EPA explained that there was another site that had different sources of contamination, she questioned what instigated that investigation, what sampling had been done and what the current status was.

Several people EPA spoke with asked if people could request that their homes be tested for vapors.

MPCA has discovered that the reading these two people referred to in the interviews was for another chemical called* **tetrachloroethylene, *or* **PCE**, *which is unrelated to the Reilly Tar site. MPCA has met with these community members to discuss that finding.*

Cancer

Seven people EPA interviewed expressed concern about cancer rates in St. Louis Park. Several explained that they thought there was a "cancer cluster" in St. Louis Park. One man said several people he knew had rare forms of cancer, but did not specify which types. Another said he and a friend that lived in neighborhood used to play on the site with and that now that friend has stage four throat cancer. He said that the kids in the area "totally played in the creosote". One woman who said she grew up in St. Louis Park said her mom had cancer three times and that her brother has lung cancer. She wondered if there was a database on cancer cases in the area. She also asked if the chemicals from the Reilly site are known to cause cancer and if so, what types of cancers are associated with those chemicals. Another woman EPA talked to said that, after living at one of the residential buildings onsite, she was diagnosed with Hodgkin lymphoma. She said she met with EPA because she thought we should know in case other people from the complex she lived in had also gotten sick. Another interviewee told us about a dog she had while growing up in the neighborhood, which would wander the site, died of cancer.

What is a cancer cluster? *(The following information is taken verbatim from the Centers for Disease Control's website. The web address is listed at the end.)*

A cancer cluster is defined as a greater-than-expected number of cancer cases that occurs within a group of people in a geographic area over a period of time.

To be a cancer cluster, a group of cancer cases must meet the following criteria. Until all of these parameters are met, the group of cancer cases is often referred to as a suspected cancer cluster.

A greater than expected number is when the observed number of cases is higher than one would typically observe in a similar setting (in a group with similar population, age, race, or gender). This may involve comparison with rates for comparable groups of people over a much larger geographic area – e.g., an entire state.

All of the cases must involve the same type of cancer, or types of cancer scientifically proven to have the same cause.

The population in which the cancers are occurring is carefully defined by factors such as race/ethnicity, age, and gender, for purposes of calculating cancer rates.

Both the number of cancer cases included in the cluster and calculation of the expected number of cases can depend on how we define the geographic area where the cluster occurred. The boundaries must be defined carefully. It is possible to "create" or "obscure" a cluster by selection of a specific area.

The number of cases included in the cluster – and calculation of the expected number of cases – will depend on how we define the time period over which the cases occurred.

Source: http://www.cdc.gov/nceh/clusters/

EPA Community Involvement Coordinator Heriberto León, left, MDH Research Scientist David Jones, middle, conduct a community interview with a resident.

On-site contamination

Seven people EPA spoke with said they were concerned about potential exposure to contamination on the site. One said she was worried about the soil on the site because it was just covered and not removed. All seven questioned how much clean soil was actually placed on the site. One said there were spots on the site where only a foot of clean soil was put on top. She said that when the city was working on the sidewalks in the park and dug them up, the contamination was exposed. She said the contamination was not very deep. She went on to say that there was very little soil cover around the edges of the site. All seven of the interviewees who expressed concern about on-site contamination also said that the amount of soil that was put on the site is not clear because there is no documentation. One questioned where all of the bills were for the soil that was purchased, suggesting that would be some sort of documentation. Several said that they wanted the facts that can be proven regarding the amount of soil cover on the site, not hearsay. They said there needed to be a better job getting the documentation regarding the soil cover. One asked if EPA was going to sample the soil throughout the site to confirm how deep the cover is. This individual went on to say he did not think there was a lot of EPA supervision of the cleanup and that there were things that were supposed to be done that weren't. Two people said they were especially concerned about people living in the low-income housing on the site. A couple of people said they heard there were tanks buried on the site. They both questioned if there were tanks on the site and if so, what was in them? One person asked if there was a concern for areas outside the site boundaries. Another asked what the actual concern about the contamination was. She asked how the contamination could hurt someone. Still another said that her favorite thing about growing up in St. Louis Park was playing in the park, but now questioned if it was safe. She went on to say that people are very trusting of the city, but maybe they shouldn't be. Finally one interviewee suggested that plants be used to help with cleaning up the contamination.

On-site garden

Several people EPA met with expressed concern about a vegetable garden on the site. They said they were concerned about the possibility that the vegetables could be contaminated by the site contamination. They said they worried because the vegetables were given to people and wanted to be sure they were not contaminated. They said they worried about the possibility of the roots of the vegetables growing down into the contamination and absorbing it. One woman said that she did not think the city had done its due diligence to prove that the vegetables in the garden are safe. A couple said that the information they had been given about the safety was "anecdotal" and not based on science. They said they wanted to know exactly how the gardens were built, if a barrier had been put down and scientific information about the effectiveness of the barrier if one was used. A few specifically asked if the beds could be raised so that the roots could not reach the contamination. One said that the beds are raised, but that she would actually like to see them elevated above the ground to be certain not to touch the contamination. She also questioned if vapors from the site could contaminated the vegetables. One woman said that, even if it is safe, the perception of potential contamination is a concern. One asked if the garden could be moved

"I love the garden, but just want to know it is safe."

Local resident

to another area. One said, "If you are going to have a garden on a Superfund site, make sure it is safe." One man said he understood there was no barrier used and that he wouldn't eat vegetables from the garden. One interviewee said she loved the garden, but just wanted to know it is safe.

Health problems

Several people interviewed talked about people from the area that also had health problems other than cancer. One said he had neurological disorders and that he had lived and had a business in St. Louis Park. He said he also knew of another person from the area that had Parkinson's disease. He went on to say that his mother, who had lived on France had renal failure. Another interviewee said that he had played in the creosote as a child and that he now has chronic bronchitis. He also stated that, since 1950, many people who grew up in the area have died or have had health problems. He said he worries about his daughter and grandmother who still live in the area. He did say that he thought the health effects are much less now than they were for the people who lived in the area in the 1940s and 1950s. He said he was concerned the health effects are way out of the norm for people who lived in the area back then. He said there is a lot of early onset Alzheimer's. He questioned what the health effects from exposure to creosote were.

Health study

Several people interviewed stated that they would like to see a full health study done at the site. One person specifically requested that the study include residents who used to live in St. Louis Park, not just those that currently live in the city.

Smell

When the city did work on the site in the fall of 2015, several residents complained about odors that they said they thought were coming from the Reilly Tar site. During community interviews EPA learned that a resident of one of the buildings on the site complained about the smell to their building management.

Cost

City officials that EPA interviewed stated that they wanted to do everything as efficient and as cost effective as possible while not compromising standards or quality. The city officials also explained they wanted to see the legal agreement they were working under be updated to include the scientific information that they have learned over the past 30 years of handling the site. They explained that it does not make sense for the city to be required to test for chemicals that are no longer considered a problem at the site, and perhaps they should test for other chemicals.

No concerns

Five people EPA interviewed said they did not have any concerns about the site. One said that she felt everything that could be done has been done.

Site-related names

A few people interviewed expressed frustration that a hill on the site is called Mount Reilly and a nearby street was named Republic Street. Republic Creosoting Co. was the name of the plant that operated at the site. These interviewees said that they are offended by the names and would like to see them changed.

Removal of trees

A manager of one of the on-site residential buildings said a few residents complained to her about the removal of some trees during the work the city did at the site in the fall of 2015.

Lack of disclosure

At the open house held in Nov. 2015, a couple residents complained that they were not told about the site when they purchased their property in St. Louis Park. One person interviewed also expressed frustration that the when he purchased a condominium on the site, it was not disclosed to him that the property was on a Superfund site. He said that, in addition to purchasing the condominium, he had invested a lot of money into renovating it before he was told about the Reilly Tar site. He said he wondered if there was a way the state or federal government could make sure the proximity of a property to a Superfund site could be listed on the deed

in case the seller is not forthcoming. He said he would have liked that information to weigh in on his decision. The management of one building near the site did show EPA the notice it has on their lease disclosing information about the site.

"A community is not just what is there, but what you put into it."

- Local resident

A former resident, middle, explains his concerns about the Reilly Tar site to EPA Community Involvement Coordinators Heriberto León, right, and Monica Onyszko, left.

The following concerns were also raised during the community interviews:

- **On-site work** - One interviewee that lived at an on-site property said he was concerned and frustrated about the possibility of needing work to be done on the property that also required digging into the contamination because it would cost a lot more money for the residents of the building.
- **Property values** - One person EPA talked to expressed concern about his property values. He said he was concerned that, now that people are aware of the site, the value of his property will plummet.
- **Composition of hill** - One person EPA talked with said that she understood that the hill at the site, referred to as Mount Reilly, was filled with left over construction debris. She wanted to know what was is in the hill.
- **EPA understanding of the site** - One person interviewed said that he did not think EPA had a full understanding of the site.
- **Signage** - One interviewee said that she would like to see signage installed at the site to explain the history of the contamination. She said that parents and other visitors should know the contamination is there so that they can make an informed decision about letting their kids play at the park. This interviewee said that she would not let her kids play on it.
- **Living streets** - One person interviewed said that she had approached the city about installing living streets in St. Louis Park, but was told the city could not install them because of the creosote contamination. She questioned if there was a way for it to be done. She asked if it could only not be done near the site or anywhere in the city. Living streets incorporate elements into the design of a street that use features like plants and creative landscaping to divert rain and reduce the amount of water getting into the storm water drains.
- **Cleanup analysis** - One interviewee asked EPA about a review of the cleanup method used at a Reilly Tar & Chemical site in Indianapolis, Ind. This individual questioned if a similar review could be done at the St. Louis Park site.

Means of communication recommended

- *Sun Sailor* newspaper.
- *Star Tribune* newspaper. However, one person said if it is in the Minneapolis news, it would really scare people.
- Minneapolis television stations
- Mailings
- Meetings
- Mayor's office newsletter (quarterly)
- St. Louis Park Facebook page
- St. Louis Park website
- St. Louis Park cable station
- Nextdoor.com
- Health in the Park Facebook page

Everyone we spoke with talked about how special the city is. When we asked them what was special about their community, people said:

Hockey days!

It is the best place on earth.

It is a close-knit community.

The schools stress excellence.

The community values education.

The community has an attitude toward children first.

It feels like a small town

It has a great location.

It is close to Minneapolis.

It is a nice inner-ring suburb.

People are beyond wonderful.

If you grew up here, you don't want to leave – it's a great place for kids to grow up.

The city is always finding ways to improve.

We as a city are very customer friendly – our residents expect good service and therefore we provide it. Sometimes it costs more, but people are willing to pay for it.

Our infrastructure far exceeds most.

It has been vital to our business for 50 years and we need to keep the city vital – we are not moving!

The city council is responsive.

I love the diversity of the community – both ethnic and religious.

The community is family-oriented

We've produced a lot of smart interesting people.

The community is very forward thinking.

We come together to solve problems.

We all know each other and are very connected. We call it our "tribe".

People are there for each other. I know all of my neighbors.

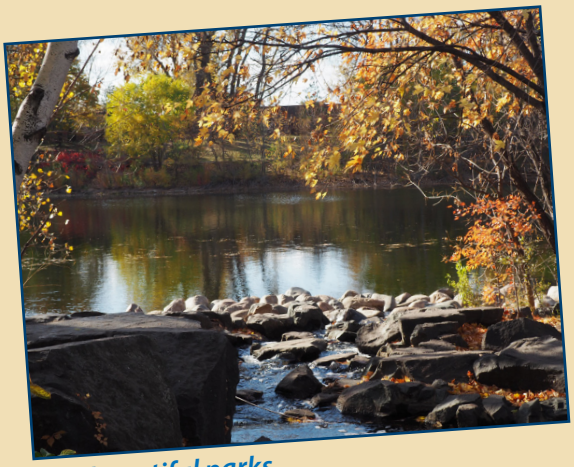
It is a great place to live and work.

We have very involved citizens.

It is safe.

It is a great community.

A lot of people are trying to make it a beautiful city.



The beautiful parks.

It is not transient – people who move to the city tend to stay.

People in St. Louis Park believe rising tide lifts all boats.

Questions interviewees asked EPA

During our community interviews, people asked us many questions about various issues associated with the site. This section lists those questions and our answers to them.

Drinking water questions

Is our drinking water safe? How does EPA determine what is safe? How does the city test the water? How often is the testing done? What does the city test for? Is the city reporting information on the site-related chemicals in its annual consumer confidence reports?

Yes,the city's drinking water is safe. The city's current water treatment system has been in place since 1997. The Safe Drinking Water Act, or SDWA, is the federal law that protects public drinking water supplies throughout the nation. Under the SDWA, EPA sets standards for drinking water quality and, with its partners, implements various technical and financial programs to ensure drinking water safety. MDH enforces these drinking water standards for public water supplies in Minnesota. For information on how EPA regulates and supports drinking water protection, see www.epa.gov/sdwa.

Drinking water is tested after it passes through the city's treatment systems. The city tests in compliance with the requirements set forth by the EPA, MPCA and MDH. The city conducts quarterly sampling and testing for a wide variety of cancer-causing and non-cancer-causing PAHs and VOCs as well as monthly sampling of fluoride. In addition, MDH requires the following samples from the city (sampling and testing frequency requirements may change based on MDH results and new rules and regulations):

- 50 monthly bacteria and total chlorine residual samples.
- Annual nitrate sample.
- 30 lead and copper samples once every three years.
- Quarterly fluoride sample.
- Two annual total Trihalomethane/Haloacetic Acids, or THM/HAA5, samples. Trihalomethane and Haloacetic Acids are by products of chlorination of water.
- One annual Radiochemical sample annually.
- Total Organic Carbon, or TOC, alkalinity and turbidity samples, however, none were required for 2016. TOC is the amount of carbon in water, which is an indirect indicator of water quality.
- Additional sampling is conducted by the MDH District Engineer based upon the compliance schedule, which is unique for each treatment plant. The District Engineer may also conduct sampling for investigative purposes, which is in addition to compliance sampling, and will be used to better evaluate certain aspects of water quality.

Drinking water treatment plant.

Information on Clean Water Act Analytical Methods can be found at www.epa.gov/cwa-methods.

The annual water **consumer confidence report**, or **CCR**, reports the results of treated drinking water monitoring under the SDWA. The CCR can be found on the city's website. Several VOCs (such as **vinyl chloride**, **cis-1,2 dichloroethylene**, or **DCE**, or **trichloroethylene**, or **TCE**) are detected at one of the city's treatment plants (#4) and concentrations are reported on the CCR. City, MDH, MPCA and EPA staff are working in partnership to develop

options for lowering these amounts of contaminants from treatment plant #4. PAHs are not in the CCR because the samples are not collected for compliance purposes, however, the levels are well below the federal drinking water standards.

What is being removed from the water? Is the city getting it all out?

The city is using various methods to reduce manganese, iron, radium, PAHs and VOCs in drinking water.

- Pressure filters at each of water treatment plant remove more than 90 percent of iron and manganese. While not required, removal of iron and manganese helps keep water tasting, smelling and looking fresh.
- The addition of Hydrous Manganese Oxide, or HMO, into the pressure filters to help reduce radium by about 60-80 percent. (Each treatment plant site is a little different.) This brings the radium levels down to less than half of the allowable limits set by EPA.
- The addition of air before the pressure filter to help with VOC removal at Water Treatment Plant 4. Additionally, the city is working with MDH and MPCA on interim plans to increase the air injection sites at the plant to further reduce the VOC levels within the water. The agencies are also discussing potential plans to increase the overall treatment effectiveness of the plant.
- The use of carbon filters, which are installed at two of the city's water treatment facilities for removing PAHs from the Reilly site. The carbon filters are capable of removing 95-99 percent of the PAHs in the water. The remaining PAHs are far below the allowable drinking water standards.

Additional information on groundwater and drinking water is found at:
www.epa.gov/ground-water-and-drinking-water.

How does the water distribution system work? Should I get a water filtration system for my home? What if I have small children?

The water distribution system works by first pulling the water from the Prairie du Chien/Jordan and Mt. Simon/Hinkley aquifers from multiple wells out of the ground using large pumps. The water is then pushed through multiple filtration/treatment plants. Before being pushed into the distribution system, the water is tested as described above. Once in the distribution system, it travels through successively smaller water main pipes until it reaches your property. At your property, it branches off into a service lateral for delivery to your home or business. Any excess water is distributed into the storage reservoirs / elevated storage tanks to maintain our city water pressure. Drinking water that meets national primary drinking water standards—like St. Louis Park's drinking water—is safe to drink. Although it is not necessary to use additional filtration methods in your home, several different filtration systems can be purchased at home improvement stores or water filtration/supply companies. Visit www.health.state.mn.us/divs/eh/water/factsheet/com/pousales.html for some valuable tips on choosing a system and avoiding deceptive sales practices. You can learn more about the facts of home water filtration systems, which can help you decide whether to invest in a system or not, at: www.epa.gov/ground-water-and-drinking-water/drinking-water-your-home.

Sometimes my water tastes terrible. Could that indicate a breach in the system?

Taste and/or odor concerns do not indicate a breach in the water treatment system. Rather, it is due to water sitting in the water mains too long during the winter low use periods and becoming stagnant. All cities flush their water mains in the spring in order to empty the mains of the stagnant water.

I have a dark brown ring from water in toilet. Could that be from the contamination?

Water stains in toilets are common and are not related to contamination. Naturally occurring "hard water" minerals in the groundwater and even household cleaning chemicals can lead to toilet bowl rings. The effect is not related to the Reilly site or any other contamination.

Melting ice from one of the rinks and a park bathroom had a terrible smell. Could that be site related?

Melting ice rinks often result in unpleasant smells due to the decaying vegetation underneath the ice. Unfortunately, park facilities typical receive much lower water usage than a residential home so water can sit in the lines for long periods of time and become stagnant. Although still safe to drink, stagnant water can result in taste and odor issues. When park maintenance staff receive odor complaints they will flush the lines so fresh water is more readily available.

Groundwater questions

Is the groundwater still contaminated? If so, is it being monitored? Are you able to keep the groundwater contamination from spreading?

Yes. There still is contamination in the groundwater. Groundwater is any water that is held underground in the soil, in pore space and in rock crevices. Groundwater monitoring is being conducted through the sampling off various types of wells including monitoring wells, irrigation wells, drinking water wells and temporary monitoring wells, commonly referred to as borings. Samples that are collected are tested for the presence of chemicals of interest. The sampling is tailored each year depending on previous results. The city is sampling water from a large network of groundwater monitoring wells in the Glacial Drift, Platteville, St. Peter, Praire du Chien/ Jordan and Mt. Simon/Hinkley aquifers. EPA's remedy for the site requires pumping to keep contaminated groundwater from spreading. The city pumps wells in the Glacial Drift, Platteville, St. Peter, and Prairie du Chien/Jordan aquifers to remove highly contaminated groundwater near the site and to control spreading. However, in the Prairie du Chien aquifer water flows through fractures and movement is very difficult to detect. It is likely that contaminants at concentrations below drinking water standards are escaping capture in some places. A map showing the groundwater monitoring wells can be found on EPA's website at www.epa.gov/superfund/reilly-tar. EPA is planning to continue oversight of groundwater treatment and capture, which is ongoing.

Disclosures, property restrictions and property value questions

Why wasn't I told about the contamination before I purchased my property? Isn't contamination supposed to be disclosed? What are the disclosure laws in St. Louis Park? Can EPA require disclosure of contamination be placed on a deed? Who is responsible for the extra cost for improvements to properties when digging into the contaminated soil is required? How will the contamination affect my property values?

A seller has an obligation to disclose the condition of the property being sold. The Minnesota Realtor's Association and the Minnesota State Bar Association residential purchase agreement templates include disclosure requirements, which require disclosure for certain environmental concerns. Refer to Minnesota's Home Seller's Handbook, available at www.ag.state.mn.us/Default.asp or a real estate agent or attorney for guidance. Also, the city of St. Louis Park has a Point of Sale program/inspection for residential structures. The inspection involves reviewing the structure and exterior of the property to ensure it complies with city ordinances (ie: property maintenance, zoning, etc.), but does not include any environmental assessments. For more information, see www.stlouispark.org/property-maintenance.html. Disclosures don't typically appear on the deed. Disclosures will be made in the purchase agreement or may be contained in another document that is recorded against the property. At any rate, MPCA and EPA have recommended that a control plan be developed to restrict certain activities, such as deep digging, without safeguards in some areas. EPA plans to initiate a review of soil sampling information to identify properties where these restrictions should be implemented. After the properties are identified, EPA will work with MPCA and property owners to get the appropriate notification or use restriction in place. Typically EPA and MPCA's preferred method for this type of notification is to put a clause in the deed listing restricted activities. With respect to improvement costs, EPA does not set responsibility for those costs. Refer to the state of Minnesota laws and/or local ordinances for guidance. Finally, property values can be affected by a number of environmental factors. EPA suggests that concerned homeowners consult a professional who can give a more accurate and current answer to property value questions and concerns. Based on past cleanups, EPA believes that a Superfund cleanup has an overall beneficial impact on the community, including rebounding property values.

Vapor intrusion testing

Should I be concerned about my indoor air quality? Are the people who live in our on-site residential building safe?

The 2013 vapor intrusion testing completed by EPA on and around the former Reilly Tar & Chemical property included the Somerset Oaks Apartments, Oak Park Village Apartments, The Park District Garage building and the residential properties located north of Walker Street along Pennsylvania Avenue. The testing did not identify

any vapor intrusion problems. The Louisiana Oaks and Newport apartment buildings, located south of Walker Street, were not included in the study because the buildings are served with underground parking beneath the residential structures. These underground parking garages have been equipped with air exchange systems for automobile exhaust. The air exchange systems would resolve any potential vapor issues if they did exist. EPA Emergency Response contractors also completed vapor intrusion testing for residential properties in 2008 in response to another site identified in the area called the St. Louis Park Vapor Intrusion site (*see Page 48 for an explanation of the two area sites*). Homes that had detections of VOCs greater than the screening levels were offered vapor removal systems installed with EPA oversight. For information about vapor intrusion, visit www.health.state.mn.us/divs/eh/hazardous/topics/vaporintrusion.html.

Are you still testing for vapors in indoor air? Can people request their homes be tested for vapor intrusion? How long will indoor air sampling be done?

Yes. The MPCA will still do testing for vapor intrusion if the property is located within an identified study area. (*See the interactive map* www.pca.state.mn.us/waste/st-louis-park-vapor-intrusion-site.) The first step in testing is to test the air below the basement floor of the structure. The information from the sub slab testing will be used to determine if additional testing is necessary indoors. There has not been a determination about how long vapor intrusion testing will continue.

I heard benzene was found at levels 1,000 times the acceptable limit at one home. Is that associated with the Reilly Tar site?

In 2006 MPCA contractors did collect soil vapor samples from the street right-of-ways located in the Elmwood, Lenox and Sorensen neighborhoods, samples were not collected from homes at that time. One sample collected near the intersection of Oxford and Colorado had PCE concentrations that exceeded 1,000 times the screening level. Benzene was also detected in samples. The highest concentrations of benzene measured were ten times the screening level. Benzene is a constituent of the Reilly Tar release.

Beware of deceptive water filter sales practices

Visit the Minnesota Department of Health website at www.health.state.mn.us/divs/eh/water/factsheet/com/pousales.html for some valuable tips on choosing a water filtration system and avoiding deceptive sales practices.

Health and health studies

What type of exposure is EPA concerned about at the site? Should people do anything different to protect themselves? Are the chemicals associated with the Reilly Tar & Chemical site cancer-causing? If so, do you know what types of cancers are attributable to the chemicals? What are the other types of health effects from creosote? Are there health concerns associated with whatever caused the smells when the city was doing work at the site in the summer/fall 2015?

EPA, MPCA and MDH are concerned primarily about ingestion of soil or dust that may occur if contaminated soils are exposed. Contamination at the Reilly Tar & Chemical site was covered with clean soil many years ago, so exposure to contaminants is unlikely. Therefore, it is unlikely that exposures to contamination from the Reilly Tar & Chemical site are currently causing or will in the future cause health problems. Tar odors, while relatively non-toxic during limited exposure, can warn of breaks or gaps in the coverage of contaminated soil. Vegetation, including grass, can act as a barrier to exposure and keep dust levels down. It is possible that the clean soil cover was damaged or degraded in some way since it was completed. If you think that there is exposed coal tar creosote at the Reilly Tar & Chemical site, please contact the city of St. Louis Park at 952-924-2562 or the MPCA at 651-757-2693 or 651-757-2181.

Chemicals associated with Reilly Tar & Chemical site are cancer-causing. They include contaminants such as creosote, VOCs—such as benzene, and PAHs. Exposure to PAHs at high enough levels have caused lung, kidney, bladder, and liver cancer, and non-Hodgkin's lymphoma in human occupational studies and also in laboratory animal studies. It is also possible that other contaminants at the site may cause these and other kinds of cancers. At any rate, the chemicals at the Reilly Tar site are common and most people are often exposed to very small amounts of them from many sources. Brief exposure to creosote is not expected to be harmful unless a large amount of the material is swallowed. Odors (air-borne chemicals) from creosote can irritate the respiratory tract, but the extent of any irritation would depend on the amount of chemicals a person is in contact with and

how sensitive the individual is to the chemicals. For more information about creosote, see the creosote fact sheet in Appendix E and the **Agency for Toxic Substances and Disease Registry**, or **ATSDR,** ToxFAQs for Creosote at www.atsdr.cdc.gov/toxfaqs/tf.asp?id=65&tid=18. Reported smells during the 2015 construction season in St. Louis Park were most likely caused by creosote. People react to odors differently from one another. Some people are more sensitive and experience symptoms at lower concentrations of the odor-causing chemical in air. In general, as the amount of a chemical in air increases, more people may smell them. Not all chemicals that people can smell are harmful. If a substance is present at a high enough concentration, the frequency of exposure is sufficiently high, and the duration of breathing it is lengthy, it can cause adverse health effects. If the right combination of those conditions do not exist, exposure to the odors is usually not harmful, although it may still be noticeable and even offensive. People who are very sensitive to environmental odors, may react to low concentrations of odorous substances. The length of exposure may be important whether a person is sensitive or not. For more information about environmental odors and health, visit the ATSDR Frequently Asked Questions webpage at www.atsdr.cdc.gov/odors/faqs.html.

Has an epidemiological/health study been done?

In 2015-2016, MDH prepared a report "Cancer Occurrence in St. Louis Park, 1993-2012" to assist with questions by community members about elevated cancer rates in this community in relation to the Reilly Tar Superfund site and/or the presence of chemical contaminants in public drinking water supplies. The report compares cancer incidence rates in St. Louis Park to rates in the seven-county metro area for the most recent 20-year period for which complete data were available from the Minnesota Cancer Surveillance System at the time the cancer data was analyzed. The report demonstrates that the overall cancer rate in St. Louis Park is virtually identical to the metro area rate. The report also determined that the few observed differences are common in any community-level analysis, especially when large numbers of comparisons are made, due to random variation and unstable rates for individual cancer types. This and other information related to earlier assessments of cancer rates in St Louis Park can be found on the MDH website at www.health.state.mn.us/divs/healthimprovement/data/reports/cancerstlouispark.html.

Do you maintain a database of cancers?

The Minnesota Cancer Surveillance System is Minnesota's statewide, population-based cancer registry. The MCSS systematically collects demographic, diagnostic and treatment information on all Minnesota residents with newly diagnosed cancers. For more information, see www.health.state.mn.us/divs/hpcd/cdee/mcss/.

Gardening

Are the vegetables from the Louisiana Oaks Park garden safe? Can the gardens be raised more or even elevated? Was the garden soil tested? What about the soil beneath the garden? Was a barrier put down? Can the contamination in the soil underneath the garden on the site affect the vegetables? Can the plants absorb the contaminants from the soil? Can the contaminated groundwater contaminate the plants? Can the vapors in the ground affect the vegetables? Can plants absorb contamination from the vapors? Could the garden be moved to another area?

The vegetables from the garden are as safe as those grown in any other residential raised bed garden site. The city has removed the previous garden beds and is creating a raised bed garden at the site. The new gardens will be built of cedar (not treated) planks and will be six inches off the ground with garden soil separated from existing park soil. The new raised bed is being completed in 2016. Soil that will be added to gardens is being tested at the University of Minnesota. A barrier isn't needed with the new gardens because garden soils and park soils won't be in contact, but one will be added to suppress weed growth. With the new raised bed garden design, the roots of the plants will not touch the park soil underneath the planter boxes, thus eliminating concerns about vegetable plants absorbing site contaminants from either the soil or the groundwater. Neither the city nor the agencies are aware of any vapor effects on garden plants or studies that discuss contaminant vapor absorption by plants.

The gardens could be moved, but it would largely defeat the purpose of offering the gardens. The city has large summer playground programs offered at the current site with lots of youth and many low-income, high-density residents (apartment dwellers) who don't get the experience of farming/growing their own food, so the city plans to keep the garden at its current site.

In any event, EPA and MPCA may recommend conducting soil sampling throughout the site.

Investigation / cleanup / soil cover

Exactly how much clean soil was put on top of the contamination throughout the site? Is there documentation of it? Are you re-evaluating the remedy? What is EPA planning to do at this site? Can you do more soil sampling throughout the site to confirm the depth of the cover? Can more clean soil be added in some areas? What protections are in place if someone digs into the soil on the site? Is more soil cleanup planned?

For information on how the city addressed the soil cleanup, see www.stlouispark.org/reilly-tar-chemical-corp.html. Information on capping and filling of the wetlands area of the sites can also be found in the Five-Year Review reports available at www.epa.gov/superfund/reilly-tar. As required for every Superfund site every five years, EPA is currently evaluating the protectiveness of the remedy at this site. If the MPCA and EPA determine that an area of the site is not protective while conducting the Five-Year Review, actions will be recommended and/or required. Some of the actions currently being recommended include evaluating the existing soil sampling results and conducting additional sampling if needed to identify all site-affected properties and implementing additional land use controls and clarifying procedures for excavation work in contaminated areas.

Reuse of Superfund sites is important to local communities and the EPA, and where it can be done safely, it is encouraged. Thus, when anyone conducts work at the site and it involves digging, EPA and MPCA require them to prepare a work plan and a health and safety plan to ensure that they have established procedures to safeguard workers and the public during that work. The agencies have oversight authority on such projects. When the city conducted work at the site in the summer and fall of 2015, the city submitted a plan, which was approved by EPA. A copy of the approved plan is available at: www.epa.gov/superfund/reilly-tar. There are currently no action plans for soil cleanup.

"Mount Reilly" located at the southwest corner of the site.

Is the land underneath the on-site housing developments contaminated? Are there underground tanks buried on the site? Was Mount Reilly created out of left over construction debris? Is that safe for our children to play on? Is there any concern for areas outside the site boundaries?

Any on-site properties, and adjacent off-site properties may contain contaminants below the surface. However, the most highly-contaminated areas are in the wetland area and the process areas of the site, located on the southern part of the property. The EPA is not aware of an underground tank at the site. Information about the mound area known as "Mount Reilly" is available at www.stlouispark.org/reilly-tar-chemical-corp.html. EPA is noting in its recent Five-Year Review that past soil sampling may have been insufficient to know whether any restrictions are needed for Mount Reilly. EPA and MPCA plan to determine what next steps may be necessary. There is concern for areas outside of the site boundaries. Specifically, contamination from the site was discharged into a wetland area located south of the site near what is now the Highway 7/Louisiana Avenue interchange. There is also contaminated soil adjacent to the south side of the site in other areas. Contamination in the wetland was covered with one foot of clean soil as part of the remedy for the site.

Can you use plants to clean up the contamination? What other options are there?

Phytoremediation uses plants to clean up contaminated environments and has not been considered for the Reilly Tar site. Bioremediation, on the other hand, is the use of microbes to clean up contaminated soil and groundwater. Bioremediation studies conducted by the University of Minnesota and EPA's National Risk Management Research Laboratory indicated that use of bioremediation would be ineffective at the site. The studies included evaluating the use of natural processes as well as the injection of oxygen to increase the degradation of the contamination. These studies determined that the use of bioremediation could present a potential risk to the community including exposure to VOCs emitted during the process. Therefore, EPA did not pursue the use of bioremediation. (More information on phytoremediation is available at: www.epa.gov/remedytech/phytoremediation-resource-guide. Information on bioremediation can be found at www.epa.gov/remedytech/citizens-guide-bioremediation.) If the agencies determine that an area of the site is not protective, actions will be recommended and/or required. EPA is committed to identifying the most effective and efficient means of addressing the thousands of **hazardous waste** sites in the United States. Therefore, EPA is working with industry to identify and encourage the further development and implementation of innovative treatment technologies. More information on technologies for cleaning up contaminated sites can be found at www.epa.gov/remedytech.

I heard the creosote and contaminated soil was removed from the land where Louisiana Oaks was built. Is that true? Why was it removed from there? Was contaminated soil removed from anywhere else on the site?

The EPA does not have information on soil management that is specific to the construction of Louisiana Oaks. What is known is that while Reilly Industries operated Republic Creosoting Co. soil throughout the site became contaminated from coal tar and creosote. This includes areas where condos and other structures now stand. As a matter of course, soil had to be managed in order to construct everything that is currently there: utility infrastructure, condos, townhouses, a restaurant and bowling alley, an office building and a recreational park with athletic fields, walking paths, recreation center, pond and playground. Contaminated soil management includes excavation, removal, backfilling and covering.

Communication

Can we have regular meetings to discuss specific topics in more detail? Can we form a Community Advisory Group? Are there any records showing what previous communications were sent out to residents?

EPA is committed to working with MPCA, MDH, the city of St. Louis Park and all interested parties to participate in community events that provide information on the Reilly Tar site. **Community Advisory Groups**, or **CAGs**, may be most beneficial at removal sites at the earliest stages of the Superfund cleanup process because the earlier a CAG is formed the more its members can participate in and impact site activities and cleanup decisions. Since the Reilly Tar site has completed most of its cleanup decisions, a CAG at this site would have limited impact. Nonetheless, MPCA and EPA remain open to any community ideas that can assist the agencies' work on environmental issues in St. Louis Park. More information on CAGs is available at www.epa.gov/superfund/community-advisory-groups. Information about previous communications with the community can be found in the various RODs, which can be found on EPA's website. A listing of this information can be found on Pages 20-22 of this CIP.

Why isn't there signage in the park explaining it used to be a Superfund site? We do not like that Republic Street is named after a company that caused so much contamination. Can we change the name?

The city is in the process of developing an informational sign that will describe the history of the site and the effort taken to convert it to a city park. The city has a process to change street names. Requests can be directed to our Community Development Department.

Schools and businesses around the site

I have a business near the site. Are my employees being contaminated? Is the water and the indoor air at the schools safe?

There is no exposure to Reilly Tar-related contaminated soil or groundwater for businesses near the site. Vapor intrusion testing related to the St. Louis Park Vapor Intrusion site—not the Reilly Tar site—was conducted by EPA in 2008. Additional testing is ongoing by MPCA, including testing associated with area businesses. (*See the interactive map* www.pca.state.mn.us/waste/st-louis-

park-vapor-intrusion-site.) The results of these tests were provided to the business owners whose properties were tested. Vapor intrusion concerns from the Reilly Tar site were addressed when homes and buildings on and around the former Reilly property were tested for vapor intrusion by the EPA in 2013. The conclusion of the testing did not find vapor intrusion problems associated with the PAH release or any other chemicals at former Reilly Tar & Chemical property.

The water in the schools is served by the municipal drinking water system and is tested by MDH. In 2007 vapor intrusion testing was completed by MPCA staff at the school properties including the St. Louis Park High school and the Central Community Center/Spanish Immersion School. No vapor intrusion problems were detected.

Development

We have been told that "living streets" cannot be installed in St. Louis Park because of the creosote. Is there some way we could safely install "living streets"?

City staff is currently working with the Environment and Sustainability Commission (Sustainable St. Louis Park) on a Living Streets policy. The city expects to have something ready for city council approval by the end of 2016.

Two Sites

During community interviews, people expressed confusion about the source of the contamination. There are two different "sites", or chemical releases, in the area as explained below.

Reilly Tar & Chemical site

Learn more at www.epa.gov/superfund/reilly-tar

The Reilly Tar & Chemical Plant that operated by Republic Creosoting Co from 1917 to 1972 and is the primary focus of this CIP. From 1917 until 1939, wastes containing coal tar and its distillation byproducts were discharged directly into a ditch that ran the length of the site. These wastes then flowed into a wetland on the southern portion of the site. An oil-water separator was installed in 1940, but Republic Creosoting Co. continued to discharge contaminated waste into the wetland for the duration of the company's operations at the site. The soil elsewhere on the site also became contaminated from coal tar and creosote that dripped from leaky pipes, various process materials that spilled during transport and creosote wood preserving chemicals that washed off freshly treated lumber. Historical records suggest there were more than a dozen wells on the site, with depths varying from 50 to more than 900 feet. Over time, creosote and waste materials likely seeped down several of these wells (either directly from the surface or through the aquifers one to the other) and contaminated the groundwater. The main contaminant associated with this site is creosote and more specifically, PAHs. PAHs are chemicals common in asphalt and wood preservatives like creosote that are used to treat railroad ties. They typically do not evaporate into the air as easily as other chemicals. Homes and buildings on and around the former Reilly property were also tested for vapor intrusion by the EPA in 2013. The conclusion of the testing did not find vapor intrusion problems associated with the PAH release or any other chemicals at former Reilly Tar & Chemical property. The city of St. Louis Park has more information about this site at: www.stlouispark.org/reilly-tar-chemical-corp.html.

St. Louis Park Vapor Intrusion site

Learn more at www.pca.state.mn.us/waste/st-louis-park-vapor-intrusion-site

The other "site" consists of a release of PCE. PCE is an industrial solvent used to degrease metals and it is also used in the dry cleaning business. PCE breaks down in the environment to form other compounds - TCE, cis DCE and vinyl chloride. These VOCs easily evaporate into the air. In 2004 MPCA began an investigation to identify the source of these chemicals that were detected in the Edina municipal drinking water. The investigations lead MPCA staff to the Elmwood, Lenox and Sorensen neighborhoods of St. Louis Park. Concentrations of PCE and TCE were high enough to concern MPCA staff about the potential for vapor intrusion into homes. Initial vapor samples collected in each of the neighborhoods indicated vapor intrusion was likely and the MPCA requested assistance from the EPA emergency response to test homes and deal with vapor intrusion if necessary. In early 2008 EPA emergency response contractors completed testing of homes located in St. Louis Park study area and installed vapor removal systems in approximately 40 homes. MPCA followed up with verification testing in 2014 and 2015. Additional work is currently being completed to identify the sources of the PCE release. MPCA staff has identified five different properties that have had a release of PCE chemicals in the area north of Walker Street and east of Louisiana. These properties are not associated with the Reilly Tar & Chemical plant and most of the businesses that had the release are no longer operating in St. Louis Park. During the course of this investigation the MPCA has been monitoring water quality in approximately 96 water supply wells, irrigation wells and monitoring wells. In addition to the wells, the MPCA have been collecting soil and groundwater samples from borings in the area. More information about EPA's role at this other site can be found at: www.epa.gov/mn/st-louis-park-vapor-intrusion-site.

Appendix A

Glossary – Initials -Acronyms

Administrative Record. The body of documents that forms the basis for the selection of a particular response at a site. For example, the Administrative Record for remedy selection includes all documents that were considered or relied upon to select the remedy through the **record of decision**.

Agency for Toxic Substances and Disease Registry. ATSDR is directed by congressional mandate to perform specific functions concerning the effect on public health of **hazardous substances** in the environment. These functions include public health assessments of waste sites, health consultations concerning specific hazardous substances, health surveillance and registries, response to emergency releases of hazardous substances, applied research in support of public health assessments, information development and dissemination, and education and training concerning hazardous substances.

ATSDR. See Agency for Toxic Substances and Disease Registry.

Aquifer. An aquifer is a geological formation that is capable of yielding a significant amount of water to a drinking water well or spring. When rain falls to the ground, the water does not stop moving, some seeps underground, into pores between sand, clay and rock formations called aquifers.

Benzene. Benzene. A colorless liquid with a sweet odor. It evaporates into the air very quickly and dissolves slightly in water. It is highly flammable and is formed from both natural processes and human activities. Benzene is widely used in the United States; it ranks in the top 20 chemicals for production volume. Some industries use benzene to make other chemicals which are used to make plastics, resins, nylon and other synthetic fibers. Benzene is also used to make some types of rubbers, lubricants, dyes, detergents, drugs and pesticides. Breathing very high levels of benzene can result in death, while high levels can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness. Eating or drinking foods containing high levels of benzene can cause vomiting, irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, and death. The major effect of benzene from long-term exposure is on the blood. Benzene causes harmful effects on the bone marrow and can cause a decrease in red blood cells leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection. Long-term exposure to high levels of benzene in the air can cause leukemia, particularly acute myelogenous leukemia, often referred to as AML. According to EPA, the Department of Health and Human Services and the International Agency for Research on Cancer, benzene is known to cause cancer in humans. More information on benzene can be found on the following website: www.atsdr.cdc.gov/toxfaqs/tfacts3.pdf.

CAG. See Community Advisory Group.

CCR. See Consumer Confidence Report.

CERCLA. See Comprehensive Environmental Response, Compensation and Liability Act.

CIC. See Community Involvement Coordinator.

CIP. See Community Involvement Plan.

cis DCE. See cis 1,2 Dichloroethylene.

cis-1,2 Dichloroethylene. Also called cis-1,2 dichloroethene, is a highly flammable, colorless liquid with a sharp, harsh odor. It is used to produce solvents and in chemical mixtures. It evaporates rapidly into air and can travel through soil or dissolve in water in the soil. It is possible that it can contaminate groundwater. You can smell very small amounts of cis-1,2 dichloroethylene in air. Breathing high levels can make you feel nauseous, drowsy, and tired; breathing very high levels can kill you. More information can be found on the following website: www.atsdr.cdc.gov/toxfaqs/tfacts87.pdf

Cleanup. Actions taken to deal with a release or threat of release of a hazardous substance that could affect humans and/or the environment. The term "cleanup" is sometimes used interchangeably with the terms "remedial action," "remediation," "removal action," "response action," or "corrective action."

Community. An interacting population of various types of individuals, or species, in a common location; a neighborhood or specific area where people live.

Community Advisory Group. A committee, task force, or board made up of citizens affected by a hazardous waste site. CAGs provide a public forum for community members to present and discuss their needs and concerns about the decision-making process at sites affecting them.

Community Engagement. The process of involving communities in all phases of the cleanup process. Communities are asked to provide input on how the cleanup will be conducted and how it may affect community plans and goals. See also Community Involvement.

Community Involvement. The term used by EPA to identify its process for engaging in dialogue and collaboration with communities affected by Superfund sites. EPA's community involvement approach is founded in the belief that people have a right to know what the Agency is doing in their community and to have a say in it. Its purpose is to give people the opportunity to become involved in the Agency's activities and to help shape the decisions that are made.

Community Involvement Coordinator. The EPA official whose lead responsibility is to involve and inform the public about the Superfund process and response actions in accordance with the interactive community involvement requirements set forth in the National Oil and Hazardous Substances Pollution Contingency Plan.

Community Involvement Plan. A plan that outlines specific community involvement activities that occur during the investigation and cleanup at the site. The CIP outlines how EPA will keep the public informed of work at the site and the ways in which residents can review and comment on decisions that may affect the final actions at the site. The document is available in the site's information repository maintained by EPA. The CIP may be modified as necessary to respond to changes in community concerns, information needs and activities.

Comprehensive Environmental Response, Compensation, and Liability Act. A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act. Commonly known as Superfund, CERCLA is intended to protect people's health and the environment by investigating and cleaning up abandoned or uncontrolled hazardous waste sites. Under the program, EPA can either:

- Pay for site cleanup when parties responsible for the contamination cannot be located or are unwilling or unable to do the work; or
- Take legal action to force parties responsible for site contamination to clean up the site or pay back the federal government for the cost of the cleanup.

Consent Decree. A legal agreement that formalizes an agreement between EPA and a party requiring that party to perform a cleanup.

Consumer Confidence Report. EPA requires community water systems to deliver annual drinking water quality reports to their customers. These reports enable Americans to make practical, knowledgeable decisions about their health and their environment. The annual drinking water report provides customers with water quality information from the previous calendar year; must be distributed to consumers by July 1st each year; and supplements public notification that water systems must provide to their customers upon discovering any violation of a contaminant standard.

Contaminants. Any physical, chemical, biological or radiological substance or matter that have an adverse effect on air, water or soil.

Contamination. Introduction into water, air and soil of microorganisms, chemicals, toxic substances, wastes or wastewater in a concentration that makes the medium unfit for its next intended use. Also applies to surfaces of objects, buildings and various household use products.

Creosote. Coal tar used as a wood preservative to prevent rot. More informationon creosote can be found on the following website: www.atsdr.cdc.gov/toxfaqs/tfacts85.pdf.

Five-Year Review. The Superfund laws require that cleanups that result in any hazardous substances, pollutants, or contaminants remaining at the site be subject to a five-year review.

Groundwater. Underground supplies of drinking water.

Hazardous Substance. Any material that poses a threat to human health and/or the environment. Typical hazardous substances are toxic, corrosive, ignitable, explosive or chemically reactive. Any substance designated by EPA to be reported if a designated quantity of the substance is spilled in the waters of the United States or is otherwise released into the environment.

Hazardous Waste. Byproducts that can pose a substantial or potential hazard to human health or the environment when improperly managed. Hazardous wastes usually possess at least one of four characteristics (ignitability, corrosivity, reactivity or toxicity) or appear on special EPA lists.

Information Repository. A file containing current information, technical reports and reference documents regarding a site. The information repository usually is located in a public building convenient for local residents such as a public school, town hall or library.

MERLA. See Minnesota Environmental Response and Liability Act.

Minnesota Environmental Response and Liability Act. Minnesota's state Superfund law.

National Priorities List. EPA's list of serious uncontrolled or abandoned hazardous waste sites identified for possible long-term cleanup under Superfund. The list is based primarily on the score a site receives from the Hazard Ranking System. EPA is required to update the National Priorities List at least once a year.

NPL. See National Priorities List.

PAHs. See Polycyclic aromatic hydrocarbons.

PCE. See tetrachloroethylene.

Polycyclic Aromatic Hydrocarbons. A group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat. PAHs are usually found as a mixture containing two or more of these compounds, such as soot. Some PAHs are manufactured. These pure PAHs usually exist as colorless, white, or pale yellow-green solids. PAHs are found in coal tar, crude oil, creosote, and roofing tar, but a few are used in medicines or to make dyes, plastics, and pesticides. Some PAHs are reasonably expected to be cancer causing. Some people who have breathed or touched mixtures of PAHs and other chemicals for long periods of time have developed cancer. More information on PAHs can be found on the following website: www.atsdr.cdc.gov/toxfaqs/tfacts69.pdf

Proposed Plan. A plan for a site cleanup that is available to the public for comment.

Public Comment Period. A formal opportunity for community members to review and contribute written comments on various EPA documents or actions.

Public Hearing. A public hearing is also a public meeting and may occur as part of a regular public meeting. But the main purpose of most public hearings is for the EPA to obtain public testimony or comment and not to address substantial matters. Formal public hearings usually involve the use of a court reporter to record a transcript of the testimony or comments. In the Superfund process, formal public hearings are required only for the proposed plan and Record of Decision amendments.

Public Meeting. A formal public forum that is open to the general public. It usually features a presentation by the CIC and the RPM about activities and plans for a site followed by a question-and answer session. EPA relies on such meetings to deliver information at large group gatherings, to receive feedback from the community and to foster interaction between a site team and residents near EPA projects.

Public. The community or people in general or a part or section of the community grouped because of a common interest or activity.

RCRA. See Resource Conservation and Recovery Act.

Record of Decision. A ROD is a legal, technical and public document that explains which cleanup alternative will be used at a Superfund NPL site. The ROD is based on information and technical analysis generated during the remedial investigation and feasibility study and consideration of public comments and community concerns.

Remedial Action Plan. A plan that outlines the cleanup actions to be done.

Remedial Project Manager. The EPA official who is the technical lead on a project.

Resource Conservation and Recovery Act. A federal law that regulates the management and disposal of hazardous materials and wastes that are currently being generated, treated, stored, disposed or distributed.

ROD. See Record of Decision.

RPM. See Remedial Project Manager.

SARA. See Superfund Amendments and Reauthorization Act.

Safe Drinking Water Act. The Safe Drinking Water Act is the federal law that protects public drinking water supplies throughout the nation. Under the SDWA, EPA sets standards for drinking water quality and with its partners implement various technical and financial programs to ensure drinking water safety.

SDWA. See Safe Drinking Water Act.

Soil Gas. Gas or vapors in the small spaces between particles of the earth and soil.

Superfund Amendments and Reauthorization Act. Modifications to the Comprehensive Environmental Response, Compensation and Liability Act, enacted on October 17, 1986.

Superfund. The program operated under the legislative authority of CERCLA that funds and carries out EPA solid waste emergency and long-term removal and remedial activities. These activities include establishing the National Priorities List, investigating sites for inclusion on the list, determining their priority and conducting and/or supervising cleanup and other remedial actions.

TCE. See Trichloroethylene.

Trichloroethylene. A chemical that is used as a solvent to remove oils and grease from metal products and is found in adhesives, paint removers, typewriter correction fluids and spot removers. TCE is colorless liquid with an odor similar to ether and is a manufactured substance which does not occur naturally in the environment. It minimally dissolves in water and can remain in groundwater for a long time. TCE evaporates from surface water and soil, although it evaporates less easily from soil. Exposure from TCE is most commonly through breathing air that has TCE vapors, drinking or showering in contaminated water, or direct contact with contaminated soil. Long-term exposure to this family of chemicals is suspected of causing cancer, as well as problems of the liver and weakening of the immune system. More information can be found on the following website: www.atsdr.cdc.gov/toxfaqs/tfacts19.pdf.

Tetrachloroethylene. A chemical that is widely used for dry cleaning of fabrics and for metal-degreasing. It is also used to make other chemicals and is used in some consumer products. Other names for it include perchloroethylene, or PERC, PCE, and tetrachloroethene. Much of the tetrachloroethylene that gets into water or soil evaporates into the air. High concentrations of tetrachloroethylene (particularly in closed, poorly ventilated areas) can cause dizziness, headache, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death. Irritation may result from repeated or extended skin contact with it. These symptoms occur almost entirely in work (or hobby) environments when people have been accidentally

exposed to high concentrations or have intentionally used tetrachloroethylene to get a "high." More information can be found on the following website: www.atsdr.cdc.gov/toxfaqs/tfacts18.pdf

Vapor Intrusion. Occurs when underground pollutants release chemical vapors that travel up through the soil and accumulate beneath building foundations. Air in the building becomes polluted when vapors enter through cracks or holes in foundations and crawl spaces.

Vinyl Chloride. Vinyl chloride is a colorless gas. It burns easily and is not stable at high temperatures. It has a mild, sweet odor and does not occur naturally. It can be formed when other substances such as trichloroethylene are broken down. Vinyl chloride is used to make a variety of plastic products including pipes, wire and cable coatings and packaging materials. It is also known as chloroethene, chloroethylene and ethylene monochloride. Breathing high levels of vinyl chloride for short periods of time can cause dizziness, sleepiness, unconsciousness, and at extremely high levels can cause death. Breathing vinyl chloride for long periods of time can result in liver damage, immune reactions, nerve damage and liver cancer. More information can be found on the following website: www.atsdr.cdc.gov/toxfaqs/tfacts20.pdf

VOCs. See Volatile Organic Compounds.

Volatile Organic Compounds. A type of organic compound that tends to change from a liquid to a gas at low temperatures when exposed to air. As a result of this tendency, VOCs disappear more rapidly from surface water than from ground water. Since ground water does not come into contact with air, VOCs are not easily released and can remain in ground water that is being used for drinking water, posing a threat to human health. Some VOCs are believed to cause cancer in humans.

Appendix B

Information Repository, Administrative Record, Websites and Public Meeting Locations

Local Information Repository

St. Louis Park Library

3240 Library Lane
St. Louis Park, MN 55426
612-543-6125

Official Information Repository

EPA Region 5 Superfund Record Center

Room 711, 7th Floor
Ralph Metcalfe Federal Building
77 W. Jackson Blvd.
Chicago, IL 60604
https://www.epa.gov/aboutepa/epa-region-5

EPA Site Web Page

www.epa.gov/superfund/reilly-tar

Possible Meeting Locations

City of St. Louis Park Recreation Center

3700 Monterey Dr.
St. Louis Park, MN 55416
952-924-2540

Capacity – 60 people (Gallery), 160 (Banquet Room)

St. Louis Park Library

3240 Library Lane
St. Louis Park, MN 55426
612-543-6125

Capacity – 40 people

Beth el Synagogue

5225 Barry St. W
St. Louis Park, MN 54416
952-873-7300, Ext. 7308

Jewish Community Center

4330 S. Cedar Lake Road
St. Louis Park, MN 54416
952-381-3444

Capacity: 25 (Board Room), 50-60 (Multi-purpose Rooms), 160 (Activity Center), 350 (Auditorium or Performance Theater), 450 Gymnasium)

Park Tavern

3401 Louisiana Ave. S
St. Louis Park, MN 54426
952-929-6810

Capacity: 45-150 people

Appendix C

List of Contacts (Information is current as of March 2016)

U.S. Environmental Protection Agency Officials

Nabil Fayoumi
Remedial Project Manager
Superfund Division, SR-6J
EPA
77 W. Jackson Blvd.
Chicago, IL 60604
312-886-6840 or 800-621-8431 x 66840
fayoumi.nabil@epa.gov

Heriberto León
Community Involvement Coordinator
Superfund Division SI-7J
EPA
77 W. Jackson Blvd.
Chicago, IL 60604
Phone: 312-886-6163 or 800-621-8431 x 66163
leon.heriberto@epa.gov

Federal Elected Officials

Al Franken
Senator
309 Hart Senate Office Building
Washington, DC 20510
202-224-5641
https://www.franken.senate.gov/?p=email_al

Saint Paul Office
60 East Plato Blvd.
Suite 220
Saint Paul, MN 55107
651-221-1016

Amy Klobuchar
Senator
302 Hart Senate Office Bldg.
Washington, DC 20510
202-224-3244
www.klobuchar.senate.gov/public/contact-amy

Minneapolis Office
1200 Washington Ave. South, Room 250
Minneapolis, MN 55415
612-727-5220

Keith Ellison
U.S. Representative
2263 Rayburn House Office Bldg.
Washington, DC 20515
202-225-4755
https://ellison.house.gov/contact/email-me

Minneapolis Office
2100 Plymouth Ave. N
Minneapolis, MN 55411
612-522-1212

State Elected Officials

Mark Dayton
Governor
116 Veterans Service Building
20 W 12th St.
St. Paul, MN 55155
651-201-3400

Tina Smith
Lt. Governor
116 Veterans Service Building
20 W 12th St.
St. Paul, MN 55155
651-201-3400

Ron Latz
State Senator
2109 Minnesota Senate Bldg.
Saint Paul, MN 55155
651-297-8065
https://www.senate.mn/members/index.php

Cheryl Youakim
State Representative
225 State Office Building
Saint Paul, MN 55155
651-296-9889
rep.cheryl.youakim@house.mn

Peggy Flanagan
State Representative
309 State Office Building
St. Paul, MN 55155
651-296-7026
rep.peggy.flanagan@house.mn

Minnesota Pollution Control Agency Officials

Jen Jevnisek
Environmental Specialist 4/Project Manager
Remediation Division
MPCA
520 Lafayette Rd. North
St. Paul, MN 55155
651-757-2181
jennifer.jevnisek@state.mn.us

David Scheer P.G.
Senior Hydrogeologist
Remediation Division
MPCA
520 Lafayette Road
St. Paul, MN 55155
651-757-2693
scheer.david@state.mn.us

Minnesota Department of Health Officials

David Jones
Research Scientist
Environmental Health Division
Division Services Section
625 Robert St. N
P.O. Box 64975
St. Paul, MN 55164
651-201-4565
david.bw.jones@health.state.mn.us

Hennepin County Officials

Marion Green
District 3 Commissioner
A2400 Government Center
300 South 6th St.
Minneapolis, MN 55487
612-348-7883
marion.greene@hennepin.us

City of St. Louis Park

Tom Harmening
City Manager
St. Louis Park City Hall
5005 Minnetonka Blvd.
St. Louis Park, MN 55416
952-924-2525
tharmening@stlouispark.org

City Council
The council meets once a week on Monday evening.

Jake Spano
Mayor
952-922-9114
mayorjakespano@gmail.com

Susan Sanger
Council Member, Ward 1
952-926-4192
suesanger@comcast.net

Anne Mavity
Council Member, Ward 2
952-913-1108
Anne@AnneMavity.org

Gregg Lindberg
Council Member, Ward 3
952-562-2899
glindberg@stlouispark.org

Tim Brausen
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952.303.3314
tpbrausen@gmail.com

Steve Hallfin
Council Member At-Large A
612.987.3282
hallfinslp@gmail.com

Thom Miller
Council Member At-Large B
952-920-9749
slp.thommiller@gmail.com

Cindy Walsh
Director of Operations and Recreation
952-924-2541
cwalsh@stlouispark.org

Mark Hanson
Operations Superintendent
952-924-2186
mhanson@stlouispark.org

Jay Hall
Utilities Superintendent
952-924-2557
jhall@stlouispark.org

Jacque Larson
Communications Manager
952-924-2632
jlarson@stlouispark.org

Joe Shamla
Senior Engineering Project Manager
952-924-2552
jshamla@stlouispark.org

Debra Heiser
Engineering Director
952-924-2551
dheiser@stlouispark.org

Kevin Locke
Community Development Director
952-924-2575
klocke@stlouispark.org

Steve Koering
Fire Chief
952-924-2171
skoering@stlouispark.org

John Luse
Police Chief
952-924-2618
jluse@stlouispark.org

Interested Parties

Twin West Chamber of Commerce
10700 Old County Road 15,
Suite 170
Plymouth, MN 55441
763-450-2220
www.twinwest.com

St. Louis Park Public Schools
District Office
6425 W. 33rd St.
St. Louis Park, MN 55426
952-928-6000
www.slpschools.org

Oak Hill Neighborhood Association
Breanna Freedman
Community Liaison
952-924-2184
bfreedman@stlouispark.org

Newspapers

Sun Sailor
Sun Newspapers
10917 Valley View Road
Eden Prairie, MN 55344
Free weekly community newspaper
St. Louis Park Community Editor: Seth Rowe
763-424-7382
seth.rowe@ecm-inc.com

Star Tribune
Star Tribune Media Company LLC
650 3rd Ave. South, Suite 1300
Minneapolis, MN 55488
612-673-4000
www.startribunecompany.com
Publishes daily

St. Louis Park Magazine
One Tiger Oak Plaza
900 South Third St.
Minneapolis, MN 55415
612-548-3180
http://slpmag.com/
Publishes monthly

Echo
The student news site of St. Louis Park High School
St. Louis Park Senior High School
6425 West 33rd St.
St. Louis Park, MN, 55426
http://slpecho.com
https://twitter.com/slpecho
https://www.facebook.com/slpecho

Radio

WCCO – News Radio 830
625 Second Ave. South
Minneapolis, MN 55402
612-333-9181
newstips@wccoradio.com

KNOW® 91.1 News
Minnesota Public Radio
480 Cedar St.
Saint Paul, MN 55101
651-290-1500
http://www.mpr.org/contact

Television

KARE 11, NBC
8811 Olson Memorial Hwy.
Minneapolis, MN 55427
763-546-1111
news@kare11.com

KSTP 5, ABC
3415 University Ave.
Saint Paul, MN 55114-2099
612-588-6397
http://kstp.com/aboutus/contact-5-eyewitness-news/213/

WCCO-TV 4, CBS
90 S. 11th St.
Minneapolis, MN 55403
612-339-4444
http://minnesota.cbslocal.com/station/wcco-tv/

KMSP 9, FOX
11358 Viking Drive
Eden Prairie, MN 55344
952-946-5767
www.fox9.com/

St. Louis Park Cable Channel
www.stlouispark.org/cable-tv-information.html
952-924-2500

Appendix D

Community Engagement and the Superfund Process

Superfund is an environmental cleanup program enabled by a federal law enacted in 1980 known as the Comprehensive Environmental Response, Compensation, and Liability Act. In 1986, another law, the **Superfund Amendments and Reauthorization Act**, or **SARA**, reauthorized CERCLA to continue Superfund cleanup activities. The CERCLA law gives EPA the authority to require those parties responsible for creating hazardous waste sites to clean up those sites or to reimburse the government if EPA cleans up the site. EPA compels responsible parties to clean up hazardous waste sites through administrative orders, consent decrees and other legal settlements. EPA is authorized to enforce the Superfund laws within Indian reservations, in all 50 states and in U.S. territories. Superfund site identification, monitoring and response activities are coordinated with state, tribal and territorial environmental protection or waste management agencies.

There are several steps involved in cleaning up a contaminated site. Once EPA has been made aware of a contaminated site from individual citizens, local, tribal or state agencies or others, EPA follows a step-by-step process (*see the Page 23 of this CIP*) to determine the best way to clean up the site and protect human health and the environment.

If the site poses an immediate threat to public health or the environment, EPA can intervene with an emergency response action. The goal of EPA's Emergency Response and Removal Program is to protect the public and the environment from immediate threats posed by the release or discharge of hazardous substances.

The Superfund program encourages active dialogue between communities affected by the release of hazardous substances and all of the agencies responsible for carrying out or overseeing cleanup actions. EPA considers community involvement to be an important part of the Superfund program and opportunities for community involvement occur throughout the process. At each step in the process, there are opportunities for various levels of community involvement (*see Page 23 of this CIP*).

Visit these EPA websites for more information on the Superfund process.

Superfund: *www.epa.gov/superfund*

Cleanup Process: *https://www.epa.gov/superfund/cleaning-superfund-sites*

Community Involvement: *https://www.epa.gov/superfund/superfund-community-involvement*

Appendix E

Fact Sheets

Site-related fact sheets and fact sheets on contaminants of concern and vapor intrusion

Site-related Fact Sheets:

City of St. Louis Park – Agreement between the City of St. Louis Park and the Reilly Tar & Chemical Corporation – April 1986

MPCA – Cleanup up Ground Water Under St. Louis Park – April 1986

MPCA – Restoring St. Louis Park Wells to Service - April 1986

MPCA – The Reilly Tar & Chemical Corp. Site, In Brief – April 1986

MPCA – Reilly Tar site, Drift Aquifer, Northern Area – Aug. 1992

EPA – Bioremediation Field Initiative Site Profile: Reilly Tar & Chemical Corporation Superfund Site – September 1995

EPA – Sites in Reuse Reilly Tar & Chemical Corp. Superfund Site – Aug. 2007

EPA – EPA to Investigate Vapor Intrusion Problem – February 2011

EPA – Screening Levels for Vapor Intrusion Contaminants of Concern – Feb. 2011

EPA – Screening Levels for Vapor Intrusion Contaminants of Concern – Nov. 2011

EPA – Recent Site Work Prompts EPA to Hold and Open House – Nov. 2015

Contaminant of Concern Fact Sheets:

Benzene

Creosote

1,2 Dichloroethylene

Polycyclic Aromatic Hydrocarbons

Tetrachloroethylene

Trichloroethylene

Vapor Intrusion

Vinyl Chloride

2

Fact Sheet

Agreement between the City of St. Louis Park and the Reilly Tar and Chemical Corporation

April 1986

Why did the City of St. Louis Park enter into an agreement with the Reilly Tar and Chemical Corporation?

After a plan identifying remedial measures to correct the groundwater contamination problem had been developed, St. Louis Park officials recognized that many of these measures would have a significant impact on the overall management of the City's water system. City officials became concerned that their management of the water system and accountability for ensuring an adequate supply of safe drinking water to its residents would be impaired by sharing responsibility for the water system with Reilly Tar and Chemical. For that reason, St. Louis Park has tentatively worked out an agreement with the Reilly Tar and Chemical Corporation which shares some of the tasks outlined in the Remedial Action Plan (RAP). Under the agreement, Reilly Tar and Chemical is basically responsible for funding and constructing all new water system facilities required under the RAP and St. Louis Park is responsible for performing the necessary operation and maintenance functions associated with these new facilities.

How have the remedial action measures been divided between Reilly Tar and Chemical and the City of St. Louis Park?

Reilly Tar and Chemical is responsible for constructing and funding new water facilities required under the RAP. Its responsibilities include construction of the granular activated carbon water treatment plant, source control wells, monitoring wells located outside of the city limits and gradient control wells. Reilly Tar and Chemical is also responsible for unforeseen contingent actions that may necessitate other remedial measures in the future through the establishment of a contingency fund.

St. Louis Park is responsible for operation and maintenance activities associated with the new water system facilities. In

addition, the City will conduct all monitoring activities within its corporate limits and develop a plan to investigate leaking wells that cross multiple aquifers. Much of the City's cost to perform these operation and maintenance tasks will be absorbed by the City work force.

Does St. Louis Park receive any payment from Reilly Tar and Chemical?

The agreement between St. Louis Park and the Reilly Tar and Chemical Corporation provides for the City to receive $1 million in four equal installments over the next three years. These funds will be placed into a contingency fund that St. Louis Park may use to implement contingent measures outlined in the RAP. After the contingency fund has been in existence for a period of time, St. Louis Park may use earnings from the fund for operation and management of the water system.

Fact Sheet

CLEANING UP GROUND WATER UNDER ST. LOUIS PARK

APRIL 1986

Like much of Minnesota, the St. Louis Park area is underlain by many layers of gravel, sand, clay or rock. Some of the beds yield enough water to wells drilled to their level to be considered to be water sources or aquifers. Other rock or clay beds are called "aquitards" or "confining beds" because water cannot pass through them easily. They tend to hold water in the aquifer below them under pressure and by their nature prevent infiltration between aquifers.

Aquifers in the area of the former Reilly Tar and Chemical Corp. site near State Highway 7 and Louisiana Avenue have become contaminated with coal-tar compounds from wastewater discharge, leaks and spills occurring while Reilly treated wood at the site. A potential settlement between Reilly and the many parties with an interest in the problem has been reached. This fact sheet outlines the activities which will be undertaken to remove contaminants from ground water near the site and to prevent further degradation of the aquifers.

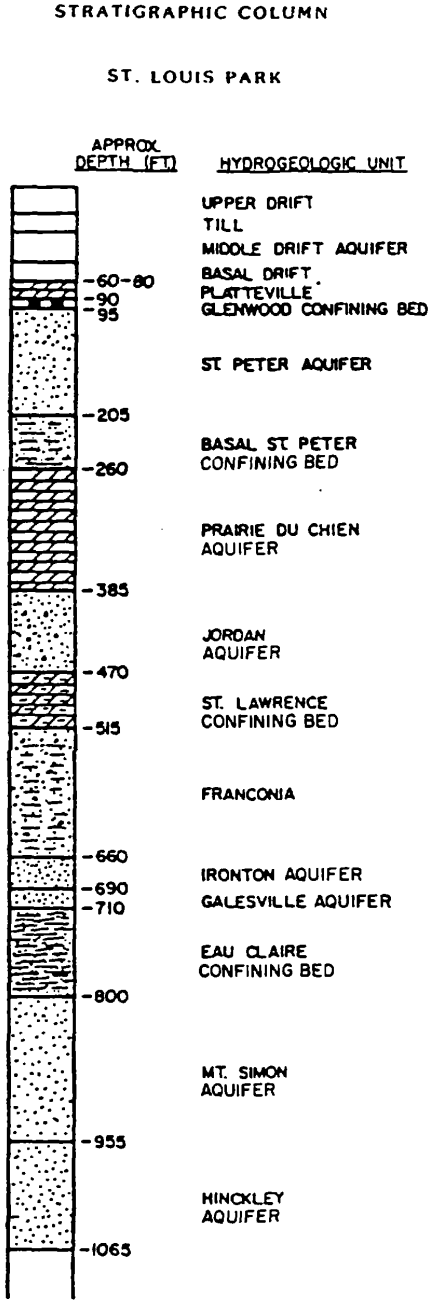
Three types of wells will be referred to in this fact sheet. The first is a monitoring well, a well which is used only to measure the water level underground or to get water samples for chemical analysis.

Another well to be used by Reilly is called a source control well. That is a well which is placed in the area of high contamination and is pumped constantly to remove contaminated water. It also creates a depression in the level of water in the aquifer around the well, reducing any flow away from the area and controlling the "source" of contaminated water.

The third well to be discussed is termed a gradient control well. "Gradient" in this sense refers to the movement of ground water, which is influenced by both the differences in water levels in the aquifer and by stresses from significant pumping wells. A gradient control well is designed and pumped in order to modify the movement of ground water so that contamination cannot spread. Because its purpose is to alter ground-water flow patterns rather than to directly remove contaminants, a gradient control well may be located where contaminant levels are very low.

The column on the following page is known as a "stratigraphic column," and it illustrates the geology underlying the St. Louis Park area. Five aquifers are indicated, the Drift-Platteville, the St. Peter, the Prairie du Chien-Jordan, the Ironton-Galesville and the Mt. Simon-Hinckley.

MINNESOTA POLLUTION CONTROL AGENCY



Drift-Platteville Aquifer

The uppermost aquifer is the Drift, and directly under it is the Platteville. As water moves with relative ease between them, they are considered in this fact sheet to be a single aquifer. The Drift-Platteville aquifer is open to contamination from the surface and is contaminated several thousand feet east of the site. A St. Louis Park municipal well one-half mile north of the site is drilled to the St. Peter, but it is also open to the Platteville. It has not shown any contamination.

Source Control: Under the terms of the settlement, Reilly will install two source control wells in the swamp south of the site. Each well will be pumped at 25 gallons per minute (gpm) to the sanitary sewer for proper treatment.

Gradient Control: Reilly will install a gradient control well west of a buried bedrock valley (between Highway 7 and the railroad at Dakota Avenue) to pump 50 gpm to the sanitary sewer. The company will also investigate the need for gradient control wells east of the site itself and install any additional wells that prove necessary.

Monitoring: Between 20 and 30 wells are to be routinely monitored to track the contamination and assess how well the remedial measures are working.

St. Peter Aquifer

Moving down the stratigraphic column, we next find the Glenwood confining bed, a layer of shale that serves as an aquitard Beneath it lies the St. Peter aquifer, which is known to be contaminated near the former site. One St. Louis Park well

(Well #3, between Idaho and New Jersey, south of 29th) draws water from this aquifer, but the general movement in the aquifer is to the southeast, and the well has not shown contamination.

An investigation is planned to determine what remedial measures, if any, must be taken.

Prairie du Chien-Jordan Aquifer

The next aquifer, the Prairie du Chien-Jordan, is separated from the St. Peter by the shale and siltstone of the Basal St. Peter confining bed. Actually two aquifers with no aquitard between them, the Prairie du Chien-Jordan is the aquifer used extensively by Metropolitan-Area suburban communities and industries for manufacturing and drinking water. It was the ground water source from which shut-down St. Louis Park and Hopkins wells drew their water.

The Prairie du Chien-Jordan has become contaminated, apparently by tar-like materials that were found deep in a well on the Reilly site and by water flowing from upper, contaminated aquifers down the shafts of old, poorly-constructed wells.

Several measures are planned in order to remove contaminants and protect now-clean areas of this very important aquifer.

Drinking water: St. Louis Park Wells #10 and #15, now shut down due to contamination, are to receive carbon filtration, which removes the contaminants so that the wells can be used again for a drinking-water supply. Their pumping will become a part of a gradient control system.

Source control: The on-site well that held the tar-like material is to be used to pump out heavily-contaminated water into the sanitary sewer for treatment.

Gradient control: St. Louis Park Well #4 (now shut down) is to be pumped to a yet-undetermined location.

Monitoring: One to three new monitoring wells are to be installed and periodically tested and 27 existing wells are to be tested routinely.

Ironton-Galesville Aquifer

Because of its depth and low yield, the Ironton-Galesville is not used as a water source in the St. Louis Park area. It is known to be contaminated, but the contaminated area is believed to be relatively small.

Source control: A well in this aquifer on the former Reilly site will be pumped to the sanitary sewer for treatment.

Monitoring: Monitoring will be performed on the source control well and the old Milwaukee Railroad well on the south side of the railroad tracks west of Wooddale Avenue.

Mt. Simon-Hinckley Aquifer

The Mt. Simon-Hinckley is increasingly used as a water-supply source in the St. Louis Park area, including four municipal wells in the city. The only possible source of significant contamination is the on-site well that was found plugged with tar, and no contamination of the aquifer has been documented.

Monitoring: The St. Louis Park municipal wells drawing from the Mt. Simon-Hinckley will be regularly monitored. A contingency fund is being established by Reilly for the city's use in case a municipal well must receive treatment for contamination in the future.

Other Actions

To prevent vertical migration of contaminants via improperly constructed wells, private and industrial wells that may be open to more than one aquifer will be investigated. If they are found to be contributing to the spread of the contamination, they will be closed. Where necessary, new water supplies will be provided for the users of the wells.

To learn more about near-surface contamination, soil borings will be performed along the route wastewater followed toward Minnehaha Creek before 1930. In addition, the bog area south of the site will be filled.

More Questions?

For more information, call the Minnesota Pollution Control Agency at (612) 296-7769.

MPCA

Minnesota Pollution Control Agency
1935 West County Road B2
Roseville, Minnesota 55113

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Fact Sheet

RESTORING ST. LOUIS PARK

WELLS TO SERVICE

APRIL 1986

What's the problem?

Polynuclear aromatic hydrocarbons (PAH) in coal-tar wastes have entered the Prairie du Chien-Jordan aquifer, an underground water source, from the former Reilly Tar and Chemical Corp. site in St. Louis Park. Some PAH are believed to have the potential to cause cancer if they are consumed over a long period of time, and the Minnesota Department of Health has established guidelines for the quantity of PAH in municipal drinking-water supplies.

One of the Hopkins and six of the St. Louis Park municipal wells have been shut down due to the contamination of the aquifer, 400 feet underground. The City of St. Louis Park completed a new, deeper well in 1983, and a summer water conservation program has also helped to ease the shortage.

However, those actions do not replace the volume of water from the six closed wells, and a source of clean water to add to the St. Louis Park supply must be found so that sufficient water is available, particularly in high-use months.

What's been done to find more water?

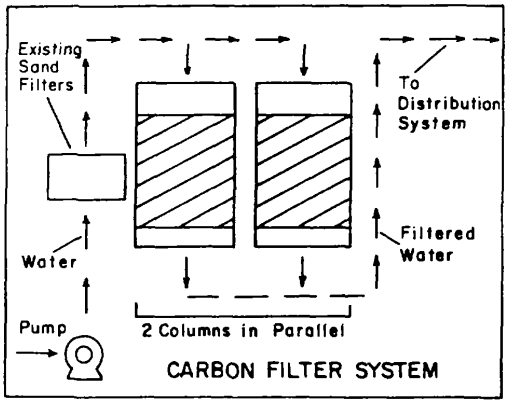
The Minnesota Pollution Control Agency (MPCA) investigated three possibilities, including connection to the Minneapolis water system, drilling more deep wells and treating water from an existing well to remove pollutants. To learn whether water treatment would work, the city and the MPCA conducted pilot projects to study the effectiveness of various treatment systems.

Filtration with granular activated carbon (GAC) proved to be effective at removing the chemicals throughout the testing period. The Minnesota Department of Health's guidelines for carcinogenic and noncarcinogenic PAH are 28 and 280 nanograms per liter of water. (A nanogram, one-billionth of a gram, is one part per trillion in a liter of water.) After the water was treated, no carcinogenic PAH were detectable, and the average total of noncarcinogenic PAH was 12 nanograms per liter. Carbon treatment was selected as the best method to assure enough safe water for St. Louis Park as a consequence of the study.

How does the system work?

GAC is manufactured from coal to make a porous carbon product with a very large surface to which the molecules of the contaminants are attracted and cling. The well water will pass slowly through columns containing GAC, and water leaving the system will be clean. Eventually the carbon will become "loaded" with the chemicals and no longer be effective, at which time it must be replaced with new carbon.

The system constructed for St. Louis Park consists of two columns in parallel (water runs through two columns simultaneously). Each column is 16 feet high and 10 feet in diameter, and each holds 10 tons of carbon. If experience indicates that the carbon requires frequent replacement under this system, two more columns will be added to the system so that all water will run through two columns in series before entering the distribution pipes. A building has been constructed to house the system.



CARBON FILTER SYSTEM

Reilly Tar and Chemical Corp. has paid the estimated $600,000 cost of the filtration system being constructed by Calgon-Carbon, Inc. On-going operation and maintenance will be handled by the City of St. Louis Park staff who are responsible for the city water system.

How can we be sure it is working?

The water from the wells will not be approved by state and federal officials for use by St. Louis Park residents until the system has been tested to be sure the process is successfully removing contaminants. Water leaving the system will be tested periodically, frequently at first. Eventually, experience will indicate the safe interval of time before the need for a carbon change, and the testing schedule will be modified. Used carbon will be removed and regenerated out of state for re-use. Only virgin (not regenerated) carbon will be used in this system.

Carbon filtration has been used several times by the MPCA to assure safe water in Minnesota communities where organic chemicals found their way into water-supply aquifers. Used in a municipal system, where it can be monitored and bacterial growth on the filters prevented, it is one of the best ways to remove contaminants.

Where is it built?

The treatment system is for use on St. Louis Park Wells No. 10 and 15, which are located north of Minnetonka Boulevard between Idaho and Jersey. When those wells are in use, St. Louis Park Wells No. 7 and 9 can be returned to occasional service to meet peak demand. Wells 7 and 9 are located south of Cedar Lake Road between Louisiana and Nevada Avenues. Although showing only slight contamination when last in service, they were shut down because it was believed that with 10 and 15 not pumping, they would draw the contamination north.

More questions?

For more information, call the MPCA at (612) 296-7769 or the City of St. Louis Park Department of Public Works at 924-2555.

MINNESOTA POLLUTION CONTROL AGENCY

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Fact Sheet

THE REILLY TAR &

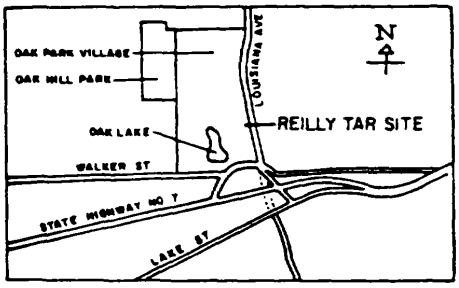
CHEMICAL CORP. SITE, IN BRIEF

APRIL 1986

How did it all begin?

Between 1918 and 1972, Republic Creosote, a subsidiary of Reilly Tar and Chemical Corp., operated a coal-tar distillation and wood-preserving plant on an 80-acre site in St. Louis Park. The former site is north of Highway 7 and west of Louisiana Avenue. Oak Park Village is located on the northern portion of the site.

Some wastewater from the distillation process and any spills or leaks were disposed of in a series of ditches emptying into the swampy area south of the site. Coal-tar compounds contaminated the soil on the site, and tar-like materials have been found deep in an on-site well.



As people learned more about hazardous chemicals, concern developed about possible water contamination from the Reilly operation. The Minnesota Department of Health examined the site and analyzed water from nearby wells in 1974, finding some wells contaminated with phenolic compounds. Soil borings revealed contamination at depths of approximately 45 feet below certain portions of the site.

In 1978, using a new technique, high-performance liquid chromatography, the Minnesota Department of Health was able to detect low levels of contamination in four of St. Louis Park's municipal wells (in the parts-per-trillion range). The four wells were shut down. Since then, two more St. Louis Park wells and one Hopkins municipal well have been taken out of operation due to contamination.

Are we drinking bad water now?

No. Those wells have not been operating since they were shut down. The municipal water in St. Louis Park and Hopkins is safe to drink, and it is tested frequently to be sure it stays that way.

The Minnesota Department of Health has rated Hopkins' and St. Louis Park's water systems, giving them each 97.5 out of a possible 98 points. The ratings, based on water quality and maintenance and operation of the systems, place the cities in the upper one to two percent of Minnesota water systems monitored by the Health Department.

How are the chemicals harmful?

The contaminants of concern are polynuclear aromatic hydrocarbons (PAHs). Because the molecules have more than one nucleus, or center, they are "poly-nuclear." "Aromatic" refers to their six-sided structure, and "hydrocarbons" means that the molecules are made of just hydrogen and carbon. Some "heterocyclic" compounds have also been found, in which nitrogen, oxygen or sulfur replace some of the carbon. The chemicals are widespread in the environment, being natural products of combustion, but many scientists believe they cause cancer in people, as they do in laboratory animals.

The amount of PAHs in the water of contaminated wells is very small and cannot be seen or tasted. Nor would you get sick at once if you drank the water. But because it is thought to be harmful to drink the water every day for a long period of time, the contaminated wells have been shut down.

If the water we're getting is okay, what's the problem?

The trouble is that although the water is safe to drink, in the summer there is not enough to go around -- for gardens, grass and people. And the source of the contamination is still there under the old Reilly site. The contamination can continue to spread to wells that are now clean if something is not done to prevent it.

What's been done?

In recent years, many studies have been completed, and in 1980, the U.S. Environmental Protection Agency (EPA) filed suit against Reilly for the groundwater contamination, and the city and MPCA joined the litigation. In 1983, the MPCA began a $1.9 million federal Superfund study of the problem. The studies, though time-consuming, were essential to be sure that clean-up measures are effective.

While Superfund work continued, negotiations with Reilly began in mid-1983, and in April 1986, all of the parties reached a tentative agreement on the terms of a settlement. Reilly agreed to several actions, including the following:

- Provide carbon filtration to purify water from two St. Louis Park wells to restore lost capacity to the city's water system;
- Investigate and control the spread of contamination in five ground-water aquifers in the area of the site;
- Investigate and, if necessary, close private and industrial wells that may be pathways for contaminants moving from shallow to deep ground water;
- Investigate near-surface contamination south of the former site and, if necessary, fill areas to minimize infiltration of precipitation;

In addition, Reilly will pay $1.72 million to the federal Superfund and $1 million to the Minnesota Superfund for investigative and legal costs. Reilly also will establish a $1 million fund for the city for future costs.

Questions?

Call the Minnesota Pollution Control Agency at (612) 296-7769 for more information.

MINNESOTA POLLUTION CONTROL AGENCY

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Minnesota Pollution Control Agency

Superfund Proposed Plan Fact Sheet for

Reilly Tar site

Drift Aquifer, Northern Area

August 1992

This fact sheet summarizes the U.S. Environmental Protection Agency's (EPA) and Minnesota Pollution Control Agency's (MPCA) joint proposed cleanup plan for the Drift Aquifer portion of the Reilly Tar and Chemical site. This recommendation follows a complete investigation of ground water contamination in the Drift Aquifer and a study of feasible cleanup options.

What is the history of the site?

Between 1918 and 1972, Republic Creosote, a subsidiary of Reilly Tar and Chemical Corp., operated a coal-tar distillation and wood-preserving plant on an 80-acre site in St. Louis Park. The former site is north of Highway 7 and west of Louisiana Avenue. Oak Park Village condominiums are located on the northern portion of the site.

During those years, wastewater from the distillation process was disposed of in a series of ditches emptying into what had been a swampy area south of the site. Spills and leaks also contaminated the surface soils, and tar-like materials were found deep in a water well on-site.

These activities contaminated the ground water in the area of the Reilly site with creosote and polynuclear aromatic hydrocarbons (PAHs). Contamination was detected in public water supplies as early as 1974. The site has been the object of a state and federal Superfund investigation and cleanup since the early 1980s. Although the immediate drinking-water problems have been resolved, ground water in the area is still contaminated.

In 1986, the former owners of the Reilly site, along with the City of St. Louis Park, signed a Consent Decree with the EPA and MPCA. Under this agreement, the parties responsible for the site are to continue investigating the extent of the problem and conduct necessary cleanup actions. The cleanup plan for a

THE MPCA WANTS YOUR OPINION

The MPCA is asking for public comments on this proposed plan between August 29 and September 28, 1992. The MPCA will present the plan at a public meeting on September 9th, at 7:00 p.m. Comments are welcome at the meeting, or by phone or mail during the above period. The meeting will be held at:

St. Louis Park City Hall
5005 Minnetonka Boulevard
New Brighton, Minnesota

For more information or to comment on the proposed plan, contact Ralph Pribble in the MPCA's Public Information Office, 296-7792.

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part of the site, the Northern Area of the Drift Aquifer, is now ready for public comment.

What is meant by the "Drift Aquifer" and the "Northern Area?"

The Reilly site is underlain by five separate aquifers (layers of earth and porous rock containing ground water). These aquifers are stacked atop one another, separated by various confining layers, going down hundreds of feet below the surface. Most of them are contaminated to varying degrees in the area of the site. Because the ground water in each aquifer "behaves" differently, they are being addressed separately. Each aquifer has or will have its own cleanup plan, and the plan for the Northern Area of the Drift aquifer is now ready for public comment.

The Drift aquifer lies between 90 and 100 feet below the surface. There are no wells in the area that use the Drift for drinking water. But the contamination in this aquifer needs to be addressed because it has the potential to spread to other drinking water supplies and/or aquifers. The proposed plan detailed below is specifically intended to limit the further spread of contamination in an area called the Northern Area of the Drift Aquifer. The Northern Area is bordered by West 32nd Street on the north, Alabama Avenue on the east, Highway 7 on the south, and Louisiana Avenue on the west.

What is the proposed plan for the Drift aquifer?

A pumpout well (designated as well W422) has been operating in the Drift aquifer since 1987 at the rate of 40 gallons per minute. This well acts to control the source of the contamination in the aquifer; that is, it limits the further spread of contaminated ground water. Water from this well is discharged directly to the sanitary sewer system. (The low levels of PAHs it contains are biodegradable in the Metropolitan Waste Control Commission's treatment plant, and the discharge is permitted by the MWCC). This well was specified in the Consent Decree. The decree also specified further study of the Northern Area. That study has been completed and a proposed cleanup plan now has been selected.

The study of the Northern Area concluded that W422 cannot be pumped at a rate sufficient to control ground water flow over the Northern Area. Therefore, the proposed plan for the Northern Area of the Drift is to continue using W422 for its intended purpose but to augment it with one or more additional pumping wells. One additional well will be installed at first; after its performance is observed, the need for further wells will be evaluated.

Why was this plan chosen?

Remedies in Superfund cleanups are evaluated against a number of criteria. The proposed plan was carefully considered in light of the following criteria:

1. This remedy provides overall protection of human health and the environment by limiting the further spread of contamination within the aquifer.

2. Applicable local requirements are complied with in that the water will meet state surface-water criteria when discharged from the MWCC's treatment plant.

3. The toxicity, volume, and mobility of the contaminants in the aquifer will be effectively reduced over time by the pump-out.

4. The remedy will provide for long-term effectiveness and permanence by ensuring that the pump-out will continue as long as necessary to prevent the further spread of contamination in the aquifer.

5. The construction and implementation of this remedy presents no worker or community exposure, nor any adverse environmental impacts.

6. The technology for this remedy is proven, cost-effective, reliable, and easy to maintain.

7. The final criteria are state and community acceptance. The MPCA prefers this remedy, and now the community has an opportunity to review and comment on the proposed remedy before it becomes final.

What's the next step?

The MPCA is holding a 30-day public comment period on this proposed plan, from August 29th through September 28th, 1992. The comment period includes a public meeting (see box on first page) at which the MPCA will discuss the proposed plan. Following the public comment period, the MPCA will finalize the cleanup alternatives for the site after considering the comments received. The MPCA's response to comments will be available for review at the St. Louis Park Public Library, along with the Record of Decision for the site, which documents the reasons for this cleanup plan.

For more information

The complete reports of the investigation and study of response alternatives for the Northern Area are available for review at the MPCA's St. Paul headquarters. In addition, the EPA maintains an Information Repository containing these documents at the St. Louis Public Library. The library is located at 3240 Library Lane in St. Louis Park, Minnesota.

Requests for information or comments on the proposed cleanup plan should be addressed to:

Ralph Pribble
MPCA Public Information Office
520 Lafayette Road
St. Paul, MN 55155
(612) 296-7792

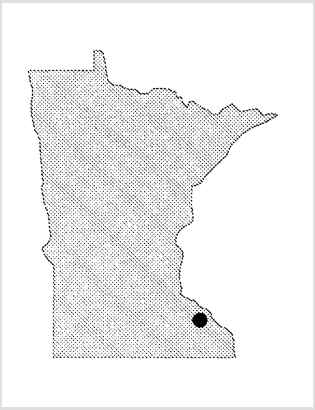
Comments should be phoned in or postmarked no later than September 28, 1992.

United States Environmental Protection Agency | Office of Research and Development Washington, DC 20460 | Office of Solid Waste and Emergency Response Washington, DC 20460

EPA/540/F-95/506H | September 1995

EPA

SITE FACTS



Location: St. Louis Park, Minnesota

Laboratories/Agencies: U.S. EPA National Risk Management and Research Laboratory (NRMRL), Superfund Innovative Technology Evaluation (SITE) Program, U.S. EPA Region 5, Minnesota Pollution Control Agency

Media and Contaminants: Polycyclic aromatic hydrocarbons (PAHs) in soil

Treatment: Bioventing

Date of Initiative Selection: October 1992

Objective: To evaluate the effectiveness of bioventing PAH-contaminated soil

Bioremediation Field Initiative Contacts: Paul McCauley and Richard Brenner, U.S. EPA NRMRL, 26 West Martin Luther King Drive, Cincinnati, OH 45268

Regional Contact: Daryl Owens, U.S. EPA Region 5, Waste Management Division, 77 West Jackson Boulevard, Chicago, IL 60604

Bioremediation Field Initiative Site Profile:

Reilly Tar and Chemical Corporation Superfund Site

Background

This Bioremediation Field Initiative project is under way in St. Louis Park, Minnesota, at the former site of Reilly Tar and Chemical Corporation's coal tar distillation and wood preserving plant. From 1917 to 1972, wastewater discharges and dumping from this plant contaminated about 80 acres of soil and the underlying ground water with wood preserving wastes. In 1978, the Minnesota Department of Health discovered significant concentrations of polycyclic aromatic hydrocarbons (PAHs) in six municipal drinking water wells neighboring the Reilly Tar plant. St. Louis Park currently is pumping and treating the contaminated ground water plume, but without an effort to control the source of PAHs, pumping and treating might be necessary for several hundred years.

This Initiative project is evaluating bioventing of PAH-contaminated soil through the U.S. EPA Superfund Innovative Technology Evaluation (SITE) Program and the U.S. EPA National Risk Management Research Laboratory's (NRMRL) Biosystems Program. Bioventing has proven effective at remediating lightweight petroleum distillates such as JP-4 jet fuel; this is the first evaluation of bioventing's effectiveness for remediation of larger molecular weight hydrocarbons.

Characterization

The SITE program conducted a preliminary site characterization, including soil sampling, soil gas monitoring, and in situ respiration testing, in August 1992. Soil sampling revealed PAH contamination in sandy vadose soil ranging from 3 to 10 ft below the surface. Soil gas monitoring and respiration tests indicated that the soil's aerobic microbial activity and air permeability are high enough for successful bioventing.

Field Evaluation

In November 1992, baseline soil sampling was conducted and a full-scale bioventing system installed on a 50-ft by 50-ft plot (see Figure 1). A control plot of equal size and contaminant levels also was established to gauge the effectiveness of the bioventing system. The system consists of one air injection well with screening 5 to 10 ft below ground level (see Figure 2), a 2.5-hp blower, a network of

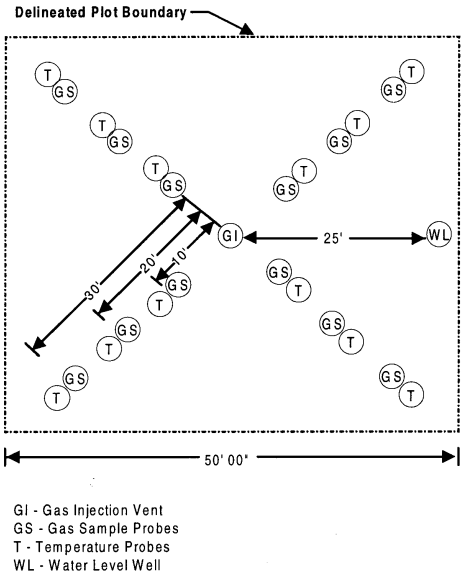


Figure 1. Layout of bioventing installation on experimental plot.

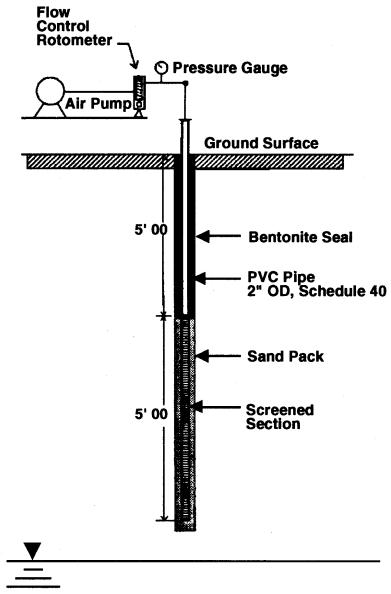


Figure 2. Schematic of air injection vent well.

54 soil gas sampling probes, and a system to monitor soil temperature and ground-water elevation. The blower and vent well deliver 100 ft^3 of air per hour to the contaminated soil.

Personnel from the City of St. Louis Park inspect the site for malfunctions every 2 weeks. In situ respiration tests are being conducted four times per year by NRMRL. At the completion of the project, final soil samples will be collected from the experimental and the control plots.

Status

Quarterly shut-down respiration tests over the first 2 years have ranged from below detection to 0.48 percent O_2/hr. The highest respiration rates were found in the western half of the treatment area where PAH contamination was also the heaviest. Current average measured respiration rates are consistent with a 14 percent reduction in PAH contamination per year. After 2 years bioventing, 70 soil borings were taken from a 25-ft x 25-ft section in the northwest corner of the test plot. PAH analysis of these soil borings was statistically inconclusive.

The demonstration project is expected to last 3 years, at which point it is estimated that soil core samples must show at least a 27 percent reduction in PAH levels to be statistically significant. If bioventing successfully biodegrades PAHs at this rate, complete bioremediation of the site would take 10 to 15 years if large-scale bioventing is undertaken. The results of this study will help determine whether bioventing can be considered at Superfund sites as a cost-effective treatment for remediating PAH-contaminated soils.

The Bioremediation Field Initiative was established in 1990 to expand the nation's field experience in bioremediation technologies. The Initiative's objectives are to more fully document the performance of full-scale applications of bioremediation; provide technical assistance to regional and state site managers; and provide information on treatability studies, design, and operation of bioremediation projects. The Initiative currently is performing field evaluations of bioremediation at eight other hazardous waste sites: Libby Ground Water Superfund site, Libby, MT; Park City Pipeline, Park City, KS; Bendix Corporation/Allied Automotive Superfund site, St. Joseph, MI; West KL Avenue Landfill Superfund site, Kalamazoo, MI; Eielson Air Force Base Superfund site, Fairbanks, AK; Hill Air Force Base Superfund site, Salt Lake City, UT; Escambia Wood Preserving Site, Brookhaven, MS; and Public Service Company, Denver, CO. To obtain profiles on these additional sites or to be added to the Initiative's mailing list, call 513-569-7562. For further information on the Bioremediation Field Initiative, contact Fran Kremer, Coordinator, Bioremediation Field Initiative, U.S. EPA, Office of Research and Development, 26 West Martin Luther King Drive, Cincinnati, OH 45268; or Michael Forlini, U.S. EPA, Technology Innovation Office, Office of Solid Waste and Emergency Response, 401 M Street, SW., Washington, DC 20460.

Sites in Reuse

Reilly Tar and Chemical Corp. Superfund Site

Louisiana Street and Walker Street, St. Louis Park, Minnesota 55426

From left to right: A soccer field and recreation center, both at the new park; a baseball field and walking path; a storm water pond.

Site size: 80 acres

Site Reuses: The site is now home to condominiums and townhouses, a restaurant and bowling alley, an office building, and a recreational park with athletic fields, walking paths, recreation center, pond, playground, and parking lot.

INTRODUCTION

According to Scott Anderson, Superintendent of Utilities for the City of St. Louis Park, Minnesota, "everyone who grew up in the City remembers the smell of creosote" from the Reilly Tar and Chemical Corporation. The same Superfund site that was responsible for the pervasive creosote smell has been redeveloped, and now features townhouses, a new office building, and a park, complete with recreational fields, a playground, and walking trails.

SITE HISTORY

From 1917 until 1972, Reilly Industries operated a coal tar distillation and wood preserving plant in St. Louis Park, known as the Republic Creosoting Company. From 1917 until 1939, wastes containing coal tar and its distillation byproducts were discharged into a ditch that ran the length of the site. These wastes then flowed into a peat bog on the southern portion of the site. A wastewater treatment facility was installed in 1940, but Republic Creosoting Company continued to discharge contaminated waste into the peat bog for the duration of the Company's operations at the site.

Coal tar and creosote dripping from leaky pipes, spilled process materials, and wood-treating chemicals washed off of treated lumber eventually resulted in contaminated soil on the site. Chemical contaminants may have also been released from a waste pond in the southeast portion of the site. There were more than a dozen wells on the site, with depths varying from 50 to more than 900 feet. Republic Creosoting Company dumped creosote and waste materials down several of these wells, eventually contaminating the ground water.The City of St. Louis Park purchased the site from Reilly Industries in 1972. At the time, the State of Minnesota was suing Reilly Industries over pollution discharge issues. The sales agreement included a "hold harmless" clause for soil and water impurities, indemnifying the City from liability. Creosote and creosote wastes had migrated directly into four underlying aquifers, contaminating the ground water with polynuclear aromatic hydrocarbons. The contaminants eventually spread to private wells and municipal ground water sources.

After acquiring the site in 1972, the City of St. Louis Park razed the Republic Creosoting Company buildings and constructed residential buildings on the northern end of the site over the next 8 to 10 years. A major north-south boulevard and storm water drainage improvements were also constructed. No redevelopment occurred on the site from 1984 until 2002, due to delays associated with a lack of a remediation plan for the site and the possibility that one

agency might require massive soil excavation and removal. Anderson said, "Fear of unknown remediation requirements coupled with an inability to stop generating data and start generating solutions were the biggest impediments to site redevelopment." Beginning in 1978, the State of Minnesota shut down more than a dozen wells in the vicinity of the site, and the City of St. Louis Park instituted a water conservation program due to daily shortages of clean, drinkable water. In 1979, 28 multi-aquifer wells were either reconstructed or abandoned to prevent the spread of contamination in the ground water. By this time, many citizens in the community had become extremely concerned about the quality of drinking water. Organized public protests over water quality were not uncommon.

THE CLEANUP PROCESS

In 1982, the U.S. Environmental Protection Agency (EPA) provided funds to the Minnesota Pollution Control Agency (MPCA) to clean out two contaminated wells. The site was listed on the National Priorities List in 1983. In 1984, a consent order was issued, requiring Reilly Tar, the potentially responsible party as owner and operator of the site, to construct a granular-activated carbon treatment plant for two existing contaminated municipal wells, restore drinking water, and contain the contaminant plume from contaminating other municipal wells.

After some delay, Reilly Industries came forward with a practical, cost-effective remediation plan that expedited the cleanup and reuse process. Reilly's plan led to settlement of the lawsuit over liability and a 1986 agreement between all parties for remediating the site. Under the settlement, the City agreed to share the responsibility for operating and maintaining the municipal water treatment plants and performing long term ground water monitoring. Construction of the required pump and treat wells was finished in 1997. It is estimated that as of 1996, 6.2 billion gallons of contaminated ground water had been pumped and treated. Redeveloping the formerly contaminated property was important to the city's growth as a Minneapolis suburb, primarily because St. Louis Park has little land available for new construction other than previously used property. Ultimately, a strong commitment to redevelopment and the local government's willingness to take risks by investing in a contaminated property were key factors to overcoming impediments to reuse.

A playground at the new park in St. Louis Park, MN.

A NEW RECREATIONAL PARK

In 2002, the City built a new commercial office building and recreational park, in addition to the residential housing that was built before the site was cleaned up. The community was able to preserve a significant portion of green space, in addition to limiting unnecessary commercial or residential development. Community members enjoy walking trails, athletic fields, a new recreation center, and a pond that provides wildlife habitats. A local high school soccer team plays its games on the new fields. The site is now a place where community members can gather to enjoy the amenities that the City worked so hard to create.

FOR MORE INFORMATION, PLEASE CONTACT:

EPA Region 5:
Nabil Fayoumi
Remedial Project Manager
77 West Jackson Blvd.
Chicago, IL 60604-3507
Phone: (312) 886-6840
Email: fayoumi.nabil@epa.gov
Site Summary: www.epa.gov/superfund/reilly-tar

EPA
United States
Environmental Protection
Agency

EPA to Investigate Vapor Intrusion Problem

Reilly Tar & Chemical Site
St. Louis Park, Minnesota February 2011

Availability sessions

EPA is holding informal availability sessions about the vapor intrusion testing near the Reilly Tar & Chemical site on Thursday, March 3, at the St. Louis Park Public Library, 3240 Library Lane. Please drop in between 2-4 p.m. or 6-8 p.m. to visit with an EPA representative.

For more information

For more information about the Reilly Tar & Chemical site, please contact:

Heriberto León
Community Involvement Coordinator
Superfund Division (SI-7J)
EPA Region 5
77 W. Jackson Blvd.
Chicago, IL 60604
800-621-8431, Ext. 66163,
weekdays, 8:30 a.m. – 4:30 p.m.
leon.heriberto@epa.gov

Michelle Kerr
Remedial Project Manager Superfund
Division (SRF-6J) EPA Region 5
77 W. Jackson Blvd.
Chicago, IL 60604
800-621-8431, Ext. 68961, weekdays,
8:30 a.m. - 4:30 p.m.
kerr.michelle@epa.gov

Project documents are available at the site information repository:

St. Louis Park Public Library 3240 Library Lane

or at:

www.epa.gov/region5/sites/reillytarmn/

http://www.epa.gov/R5Super/npl/minnesota/MND980609804.htm

U.S. Environmental Protection Agency and Minnesota Pollution Control Agency are trying to find out if vapors from contaminated underground water supplies in the vicinity of the Reilly Tar & Chemical Superfund site are causing indoor air pollution in nearby homes. This fact sheet provides an update on the proposed testing activities, gives a brief background on the site history and answers frequently asked questions about the testing.

In late February and early March, EPA will be contacting residents to seek permission to test the air below their basements, slabs or crawl spaces. This is called "sub-slab" sampling, which tests for gases that may be collecting beneath building foundations. At issue is an environmental problem called "vapor intrusion" that occurs when chemicals in the underground water give off potentially hazardous gases that can rise up through the soil and seep into buildings through foundation cracks and holes.

Sampling of residences where permission has been given will be conducted in late March or early April. EPA contractors will be visiting homes to install the sampling equipment during normal business hours.

Site background

The 80-acre Reilly Tar & Chemical site is bound to the north by West 32nd Street and to the south by Walker Street in St. Louis Park. The property extends east of Louisiana Avenue and about 1,200 feet west of Louisiana Avenue.

The Reilly Tar location was used for coal tar distillation and wood preserving from 1917 to 1972. The site was sold to St. Louis Park and converted to recreational and residential uses in 1972. Waste was disposed of on-site in several ditches that flowed to an adjacent wetland. The wastes generated by Reilly Tar were mostly polycyclic aromatic hydrocarbons (PAHs), which contaminated the soil and ground water beneath the site. About 43,000 people use the ground water from aquifers near the site, but the treated drinking water is safe from site pollution.

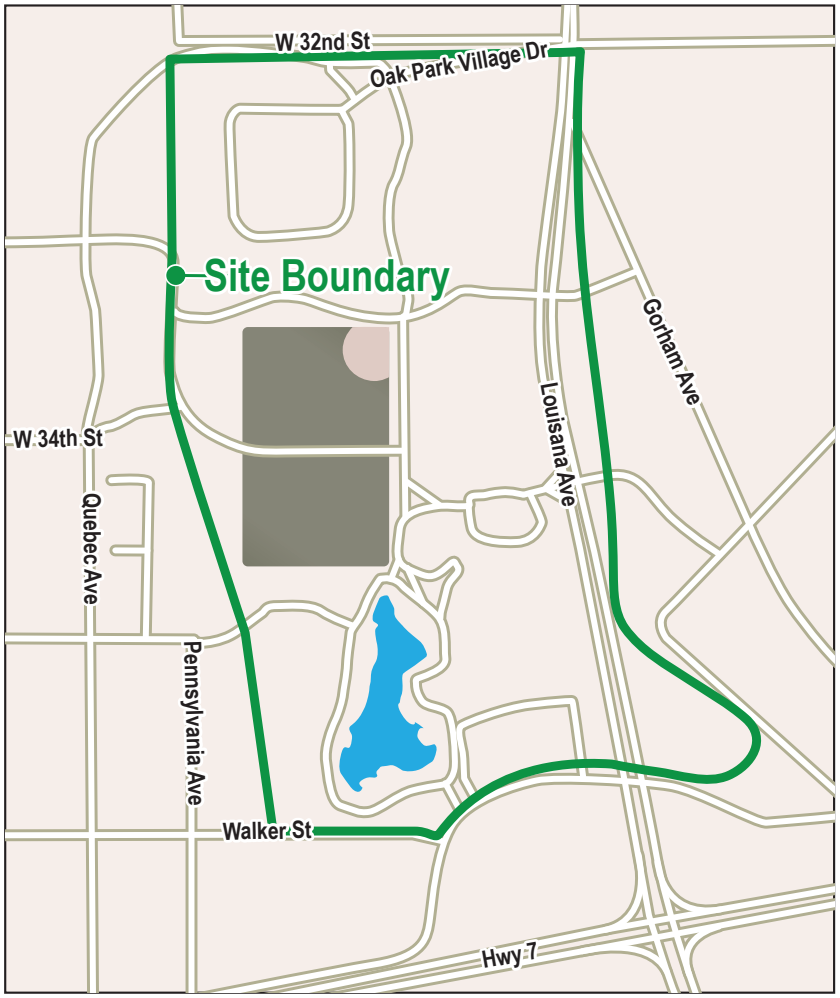
In 1982 EPA provided funds to the Minnesota Pollution Control Agency to clean two contaminated wells that had been used to dispose of site wastes. In 1984 EPA issued a legal order, and Reilly Tar & Chemical constructed a treatment system to clean two contaminated municipal wells, restore drinking water, and stop site wastes from contaminating additional wells. The company, EPA and MPCA subsequently signed a consent decree in September 1986. Additional pumping wells and treatment facilities were installed from the late 1980s to mid-1990s.

To monitor these cleanup activities, the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA known as the Superfund law) requires a five-year review process for contaminated sites such as Reilly Tar.

The purpose of this requirement is to make sure that sites that are cleaned up continue to protect human health and the environment. There have been three five-year reviews conducted by MPCA and EPA for the Reilly Tar site in 1996, 2001 and 2006.

The second five-year review in 2001 concluded that cleanup actions were protecting human health but recommended additional ground water monitoring and testing be performed to ensure long-term protection.

In September 2006, the third five-year review concluded the treatment system to clean the contaminated wells continues to provide safe drinking water and protect human health and the environment. However, ground water testing indicated the potential for contamination in the Prairie du Chien aquifer and possible vapor intrusion into buildings near the site.



Site Location

Recommendations of 2006 review

The following are some of the recommendations and follow-up actions from the 2006 five-year review:

- Evaluate the need for additional monitoring and pumping schemes of wells.
- Monitor the possible vertical flow of contamination between underground drinking water aquifers.
- Evaluate the potential for vapor intrusion into on-site buildings.
- Prepare site controls, such as signs, to restrict access and protect human health.
- Evaluate monitoring, well construction and compliance with Minnesota Department of Health well codes.

Frequently asked questions

Q Why are some households being asked to participate and others not?

A Properties have been identified for testing, because they are located on or near the Reilly Tar & Chemical Superfund site where EPA would like to test for possible PAH contamination. PAHs are chemicals that are formed during the incomplete burning of coal, oil, gas, garbage and other organic substances, and are found in coal tar, crude oil, creosote and roofing tar.

Q Is the drinking water safe?

A Yes, the city's drinking water is safe. Drinking water is drawn from deep aquifers that have been treated and tested.

Q Why is the sub-slab testing necessary?

A Testing is necessary to identify specific locations where contamination may be present so that cleanup activities can be planned, if necessary, to ensure the health of residents. For more information on the health effects of PAHs go to the Agency for Toxic Substances and Disease Registry information page at www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=25.

Q How will sampling be done?

A With the owner's permission, EPA will test the soil gas under properties to determine if any contamination is present. It will take about two weeks for workers to test all of the homes near the site. EPA contractors will drill a small hole in the basement or crawl space floor to collect a sub-slab sample. The hole will be filled or patched once the sampling has been completed. Collecting the samples for PAHs will take a few hours (partially automated). Collecting samples for another class of chemicals called volatile organic compounds (VOCs) will take 24 hours (automated). Sub-slab samples will be taken because they can be more accurate than indoor air samples, which can be compromised by the presence of common household products such as cleaners and paint. The sub-slab sample will be sent to a certified laboratory for analysis. If contamination is detected below the surface, EPA may conduct further sampling, or facilitate installation of cleanup systems.

Q Why are we concerned about PAH contamination?

A There is usually no detectable odor from low levels of PAHs. Breathing these low levels for long periods, however, may increase the risk of health problems. EPA wants to protect people's health by identifying and eliminating any harmful vapors in people's basements, even if the risks are very low.

Q If PAHs are detected under my property, what then?

A If the sample results indicate PAHs above safe levels, EPA will quickly work with the affected residents and owners to determine if further testing or mitigation is needed. EPA will facilitate a response to any immediate health threat using its emergency authority under federal law, if necessary.

Q Where can I learn more about vapor intrusion?

A If you would like more information, go to www.epa.gov/ada/gw/vapor.html.

Sub-slab sampling canister and probe.

A vapor removal system.

Question & Answer Sessions

EPA is holding informal question and answer sessions about the air quality testing and the Reilly Tar & Chemical site on:

Thursday, March 3
St. Louis Park Public Library
3240 Library Lane
2-4 p.m. or 6-8 p.m

AIR QUALITY SAMPLING UPDATE:
Reilly Tar & Chemical Corporation (St. Louis Park Plant)

United States
Environmental Protection
Agency
Region 5
Superfund Division (SI-7J)
77 W. Jackson Blvd.
Chicago, IL 60604-3590

RETURN SERVICE REQUESTED

FIRST CLASS

Screening Levels for Vapor Intrusion Contaminants of Concern

Reilly Tar and Chemical Co. Superfund Site

St. Louis Park, Minnesota February 2011

U.S. Environmental Protection Agency Region 5 is conducting a vapor intrusion investigation at the Reilly site that includes collecting samples. These sample results, along with other factors and information, are a critical part of assessing health risks from potential vapor intrusion in the area. In the chart below are screening levels EPA will use to help analyze the sample data.

EPA determines probability of a non-cancer detrimental health effect to occur by calculating a hazard index (HI). The HI is a ratio of a single substance exposure level during a specified time to a reference dose of the same substance derived from a similar exposure period. It is recommended the HI of an exposure to a chemical of concern be below or equal to 1. That is the level at which no adverse human health effects are expected to occur. For cancer risk, EPA recommends a screening level that would equate to a 1 in 1 million ($1x10^{-6}$) or greater risk of developing cancer from lifetime exposure to a contaminant. A 1 in 1 million chance means that for every 1 million people exposed, one extra cancer may occur beyond what would be expected from all other causes. A 1 in ten thousand risk is the upper limit of US EPA's acceptable range for lifetime cancer risk. Minnesota Pollution Control Agency (MPCA) has recommended Acute Vapor Intrusion Action Levels at which an immediate action would be recommended to protect residents.

The chart below defines Reilly Tar site-specific screening levels for indoor air and sub-slab soil gas to protect residents from non-cancer risks equating to a hazard index of 1, and a lifetime cancer risk of 1 in 1 million. The chart also details the MPCA Acute Vapor Intrusion Screening Level. A screening level based upon a 1 in 10,000 lifetime cancer risk was calculated for the few chemicals of concern that do not have an Acute Vapor Intrusion Screening Level. These screening levels are denoted by an asterisk.

Chemical of Concern	Residential Air Interior ug/m^3	Residential Air Subslab ug/m^3	MPCA Indoor Air Action Level ug/m^3
benzo(b)fluoranthene	2.2E-02	2.2E-01	2.2E+00*
benzo(j)fluoranthene	2.2E-02	2.2E-01	2.2E+00*
naphthalene	7.2E-02	7.2E-01	7.2E+00*
tetrachloroethene	4.1E-01	4.1E+00	2.0E+04
trichloroethene	1.2E+00	1.2E+01	2.0E+03
cis-1,2-dichloroethene	6.3E+01	6.3E+02	8.3E+02
trans-1,2-dichloroethene	6.3E+01	6.3E+02	8.3E+02
vinyl chloride	5.5E-01	5.5E+00	1.8E+05
benzene	3.1E-01	3.1E+00	1.0E+03
ethylbenzene	9.7E-01	9.7E+00	1.0E+04
toluene	5.2E+03	5.2E+04	3.7E+04
xylenes	1.0E+02	1.0E+03	4.3E+04

Sample results from residences near the Reilly site will be compared with screening levels and communicated to property owners and residents. If results are above screening levels, further testing or mitigation may be necessary, and this will be addressed on a case-by-case basis. If results are below screening levels, no further action may be necessary.

For more information visit www.epa.gov/oswer/vaporintrusion/ or www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm or http://www.epa.gov/region5/sites/reillytarmn/index.html. You can also contact EPA Remedial Project Manager Michelle Kerr at 800-621-8431, Ext. 68961, weekdays 8:30 a.m. – 4:30 p.m. or kerr.michelle@epa.gov.

Screening Levels for Vapor Intrusion Contaminants of Concern

Reilly Tar and Chemical Co. Superfund Site

St. Louis Park, Minnesota November 2011

U.S. Environmental Protection Agency Region 5 is conducting a vapor intrusion investigation at the Reilly site that includes collecting samples. These sample results, along with other factors and information, are a critical part of assessing health risks from potential vapor intrusion in the area. In the chart below are screening levels EPA will use to help analyze the sample data.

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Screening Levels

Chemical of Concern	Residential Air Interior µg/m^3	Residential Air Subslab µg/m^3
benzo(b)fluoranthene	0.02	0.22
benzo(j)fluoranthene	0.02	0.22
naphthalene	0.07	0.72
tetrachloroethene	0.41	4.1
trichloroethene	0.59	5.9
cis-1,2-dichloroethene	63	630
trans-1,2-dichloroethene	63	630
vinyl chloride	0.55	5.5
benzene	0.31	3.1
ethylbenzene	0.97	9.7
tolune	5,200	52,000
xylenes	100	1,000
1,4-dioxane	0.32	3
acrolein	0.02	0.21
bromodichloromethane	0.07	0.7
dichlorodifluoromethane	104	1,043
chloroform	0.11	1.1

For more information visit www.epa.gov/oswer/vaporintrusion/ or www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm or http://www.epa.gov/region5/sites/reillytarmn/index.html. You can also contact EPA Remedial Project Manager Michelle Kerr at 800-621-8431, Ext. 68961, weekdays 8:30 a.m. – 4:30 p.m. or kerr.michelle@epa.gov.

United States
Environmental Protection
Agency

Recent Site Work Prompts EPA to Hold an Open House

Reilly Tar & Chemical Corp. Site
St. Louis Park, Minnesota November 2015

You are invited

EPA, along with the city of St. Louis Park, the Minnesota Pollution Control Agency and the Minnesota Department of Health is holding an open house about the old Reilly Tar & Chemical Corp. site.

Thursday, Nov. 12

6 p.m. to 8 p.m.

The St. Louis Park Rec Center
Banquet Room
3700 Monterey Drive
St. Louis Park

For more information

For questions or comments, or for more information about the Reilly Tar & Chemical Corp. Site, contact:

Nabil Fayoumi
Remedial Project Manager
Superfund Division
312-886-6840
Fayoumi.nabil@epa.gov

Heriberto León
Community Involvement Coordinator
Superfund Division
312-886-6163
leon.heriberto@epa.gov

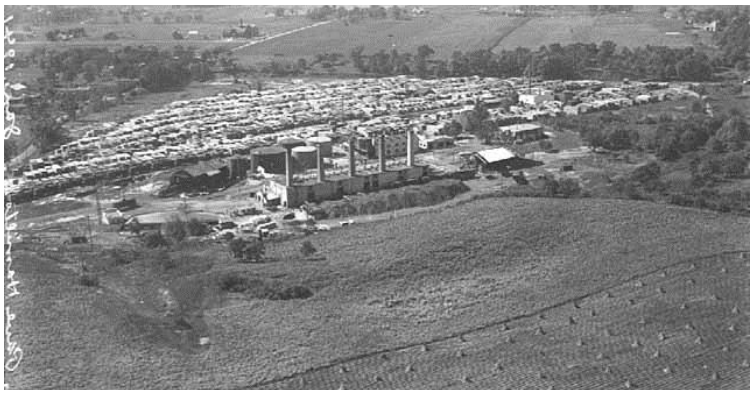
You may call EPA's Chicago regional office toll-free at 800-621-8431, weekdays, 8:30 a.m. to 4:30 p.m.

Site files are at:

St. Louis Park Public Library
3240 Library Lane
St. Louis Park

Website:

www.epa.gov/superfund/reilly-tar



Historical photo of the Republic Creosoting Co. plant in St. Louis Park.

Earlier this year the city of St. Louis Park worked on a pedestrian bridge around the old Reilly Tar & Chemical Corp. Superfund site. Even though the U.S. Environmental Protection Agency began cleanup of the site many years ago, there have been some questions about the city's work. To answer those questions, EPA is holding an open house (see box, left) and providing this summary of the site history and cleanup.

Background

The Reilly Tar & Chemical Superfund site is near the intersection of Louisiana Avenue and U.S. Highway 7 in St. Louis Park. From 1917 to 1972, Reilly Tar & Chemical Corp. distilled coal tar and treated wood products at a plant known as Republic Creosoting Co. Reilly disposed of waste on-site in several ditches that flowed to an adjacent wetland. In 1972, the facility was dismantled and sold to the city of St. Louis Park. The property has been redeveloped by the city into Louisiana Oaks Park with adjacent multi-family housing.

The main contaminant was polycyclic aromatic hydrocarbons, or PAHs, which contaminated soil at the site, a nearby wetland and groundwater beneath the site. PAHs are a group of chemicals created by the incomplete burning of organic materials like coal, oil, gas and garbage. The Reilly Tar site was added to EPA's National Priorities List in 1983, making it eligible for investigation and cleanup under the Superfund program. Cleanup involved several different actions to eliminate exposure to contaminants in the soil and groundwater.

Soil cleanup

There were about one million cubic yards of contaminated soil and waste in the nearby wetland and the Reilly site. EPA filled the wetland with two to three feet of clean soil to eliminate any potential exposure. The city of St. Louis Park also placed soil on top of the site as part of redevelopment. Any work that involves digging in contaminated areas must be approved by the Minnesota Pollution Control Agency and EPA. Work plans must include safe handling of any waste or contaminated soil found, and air monitoring to protect site workers and nearby residents if waste or contaminated soil is encountered.

Groundwater cleanup

Cleanup of the groundwater was done on a focus area or aquifer basis. EPA studied aquifers individually, and made cleanup decisions on each from 1984 through 1995 (see table below).

What is an aquifer?

An aquifer is a geological formation capable of yielding a significant amount of water to a drinking water well or spring. There are several aquifers underneath the Reilly Tar site – the Glacial Drift, Platteville, St. Peter, Prairie du Chien/Jordan, Ironton/Galesville and Mt. Simon/Hinkley aquifers. The groundwater cleanup is outlined in the table below.

What is the difference between a drinking water well and a source control well? Drinking water wells that are part of the Reilly cleanup pump large volumes of water that is treated before use. Pumping these wells also helps control the movement of contaminated groundwater. St. Louis Park drinking water wells are identified by the letters "SLP." Source control wells are used to pump and treat groundwater and control the spread of the contamination and can be identified by the letter "W" before the number. Water from source control wells is treated and discharged into either the sanitary sewer or into Minnehaha Creek.

Drinking water treatment plant.

Year cleanup decision made	Cleanup or focus area	Actions taken	Current status
1984	Drinking water	• Building a drinking water treatment plant for two city drinking water wells (SLP10 & SLP15).	• The treatment plant was built in 1985 and continues to operate today. It is maintained by the city of St. Louis Park. The water is treated and used for drinking water.
1986	Drinking water	• Monitoring, pumping, and treating water in the Prairie du Chien/Jordan aquifer until drinking water quality for PAHs is reached throughout the area. • Monitoring, pumping and treating water in the Ironton/Galesville aquifer, to protect the underlying Mt. Simon/Hinkley drinking water aquifer from PAH contamination. • Monitoring of the Mt. Simon/Hinkley aquifer, and contingency treatment if it becomes contaminated with PAHs.	• The city of St. Louis Park pumps a city well (SLP4) in the Prairie du Chien aquifer. According to the cleanup decision, the water could be discharged to surface water or treated and used for drinking water. A treatment plant was built in 1992 and since that time the water has been used for drinking water. • The city of St. Louis Park pumped contaminated water from a source control well (W105) in the Ironton/Galesville aquifer from 1987 through 1991. The water was treated and discharged to the sanitary sewer. EPA and MPCA approved discontinuing pumping of this well because it met the cleanup goals. • The city of St. Louis Park continues to monitor the Mt. Simon/Hinkley aquifer.
1986	Source area groundwater and liquid waste	• Monitoring, pumping and treating contaminated water and liquid waste in the Glacial Drift aquifer and in source control well W23 in the Prairie du Chien/Jordan aquifer.	• The city of St. Louis Park operates two source control wells (W420 & W421) to control groundwater in the source area. The water from both wells is treated and discharged to Minnehaha Creek.
1990	Source area groundwater	• Monitoring, pumping and treating contaminated water from source control well W410 to intercept and contain contaminated groundwater in the St. Peter aquifer.	• The city of St. Louis Park built and began pumping and treating contaminated water from a source control well (W410) in 1991. The well currently discharges the water to the sanitary sewer.
1992	Source area groundwater	• Monitoring, pumping and treating contaminated groundwater from source control well W422, and at least one additional well, to intercept and contain contaminated groundwater in the northern area of the Glacial Drift aquifer.	• The city of St. Louis Park built and began operating source control well W422 in 1987. The water is discharged to the sanitary sewer. An additional source control well (W439) was built and began operating in 1995. Pumping at well W422 was discontinued in 2000 when EPA and MPCA approved its shutdown. The city of St. Louis Park continues to pump well W439. The water is discharged to the sanitary sewer.
1995	Source area groundwater	• Monitoring, pumping and treating contaminated groundwater from source control well W434 in the northern area of the Platteville aquifer.	• Well W434 operated until 2006, when EPA and MPCA approved its shutdown.

Groundwater monitoring

The city of St. Louis Park regularly takes water quality samples from a large network of groundwater monitoring wells. EPA, MPCA and MDH oversee the city's groundwater monitoring and ensure that the treatment remains effective.

A city contractor takes a sample from an area drinking water well.

Vapor intrusion study

Between 2011 and 2014 EPA conducted an extensive study into possible vapor intrusion from site contamination on properties on and near the site. Vapor intrusion occurs when chemicals, such as volatile organic compounds, in groundwater give off dangerous gases that can seep into buildings through foundation cracks and holes, causing unsafe indoor air pollution. EPA and its contractors took samples from indoor air, soil gas beneath the basements and foundations, and background soil gas samples off-site. This sampling showed no danger to people from vapor intrusion. Any contamination detected in indoor air was below or within EPA's acceptable ranges.

Five-year reviews

The five-year reviews determine whether the remedy at the Reilly Tar & Chemical Corp. site still protects people and the environment. The reviews identify issues and recommend how to resolve them. Four five-year reviews were done in 1996, 2001, 2006 and 2011. Recommended actions have been completed or are in progress, and EPA has determined that the cleanup is still working.

Site reuse

Redeveloping the formerly contaminated property was important to the city's growth as a Minneapolis suburb, primarily because St. Louis Park has little land available for new construction other than previously used property. Ultimately, a strong commitment to redevelopment and the local government's willingness to invest in a contaminated property were key factors to overcoming impediments to reuse. Now the area has condominiums and townhouses, a restaurant and bowling alley, an office building and a recreational park with athletic fields, walking paths, a recreation center, a pond, a playground and a parking lot.

A playground on the former site.

RECENT SITE WORK PROMPTS EPA TO HOLD AN OPEN HOUSE
Reilly Tar & Chemical Corp. Site

U.S. Environmental Protection Agency
Region 5
Superfund Division (SI-7J)
77 W. Jackson Blvd.
Chicago, IL 60604-3590

Benzene - ToxFAQs™

CAS # 71-43-2

This fact sheet answers the most frequently asked health questions (FAQs) about benzene. For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHTLIGHTS: Benzene is a widely used chemical formed from both natural processes and human activities. Breathing benzene can cause drowsiness, dizziness, and unconsciousness; long-term benzene exposure causes effects on the bone marrow and can cause anemia and leukemia. Benzene has been found in at least 1,000 of the 1,684 National Priority List (NPL) sites identified by the Environmental Protection Agency (EPA).

What is benzene?

Benzene is a colorless liquid with a sweet odor. It evaporates into the air very quickly and dissolves slightly in water. It is highly flammable and is formed from both natural processes and human activities.

Benzene is widely used in the United States; it ranks in the top 20 chemicals for production volume. Some industries use benzene to make other chemicals which are used to make plastics, resins, and nylon and other synthetic fibers. Benzene is also used to make some types of rubbers, lubricants, dyes, detergents, drugs, and pesticides. Natural sources of benzene include emissions from volcanoes and forest fires. Benzene is also a natural part of crude oil, gasoline, and cigarette smoke.

What happens to benzene when it enters the environment?

- Industrial processes are the main source of benzene in the environment.
- Benzene can pass into the air from water and soil.
- It reacts with other chemicals in the air and breaks down within a few days.
- Benzene in the air can attach to rain or snow and be carried back down to the ground.
- It breaks down more slowly in water and soil, and can pass through the soil into underground water.
- Benzene does not build up in plants or animals.

How might I be exposed to benzene?

- Outdoor air contains low levels of benzene from tobacco smoke, automobile service stations, exhaust from motor vehicles, and industrial emissions.
- Vapors (or gases) from products that contain benzene, such as glues, paints, furniture wax, and detergents, can also be a source of exposure.
- Air around hazardous waste sites or gas stations will contain higher levels of benzene.
- Working in industries that make or use benzene.

How can benzene affect my health?

Breathing very high levels of benzene can result in death, while high levels can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness. Eating or drinking foods containing high levels of benzene can cause vomiting, irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, and death.

The major effect of benzene from long-term exposure is on the blood. Benzene causes harmful effects on the bone marrow and can cause a decrease in red blood cells leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection. Some women who breathed high levels of benzene for many months had irregular menstrual periods and a decrease in the size of their ovaries, but we do not know for certain that benzene caused the effects. It is not known whether benzene will affect fertility in men.

Agency for Toxic Substances and Disease Registry
Division of Toxicology and Human Health Sciences

ATSDR

CS249955-F

Benzene

CAS # 71-43-2

How likely is benzene to cause cancer?

Long-term exposure to high levels of benzene in the air can cause leukemia, particularly acute myelogenous leukemia, often referred to as AML. This is a cancer of the bloodforming organs. The Department of Health and Human Services (DHHS) has determined that benzene is a known carcinogen. The International Agency for Research on Cancer (IARC) and the EPA have determined that benzene is carcinogenic to humans.

How can benzene affect children?

Children can be affected by benzene exposure in the same ways as adults. It is not known if children are more susceptible to benzene poisoning than adults.

Benzene can pass from the mother's blood to a fetus. Animal studies have shown low birth weights, delayed bone formation, and bone marrow damage when pregnant animals breathed benzene.

How can families reduce the risks of exposure to benzene?

Benzene exposure can be reduced by limiting contact with gasoline and cigarette smoke. Families are encouraged not to smoke in their house, in enclosed environments, or near their children.

Is there a medical test to determine whether I've been exposed to benzene?

Several tests can show if you have been exposed to benzene. There is a test for measuring benzene in the breath; this test must be done shortly after exposure. Benzene can also be measured in the blood; however, since benzene disappears rapidly from the blood, this test is only useful for recent exposures.

In the body, benzene is converted to products called metabolites. Certain metabolites can be measured in the urine. The metabolite S-phenylmercapturic acid in urine is a sensitive indicator of benzene exposure. However, this test must be done shortly after exposure and is not a reliable indicator of how much benzene you have been exposed to, since the metabolites may be present in urine from other sources.

Has the federal government made recommendations to protect human health?

The EPA has set the maximum permissible level of benzene in drinking water at 5 parts benzene per billion parts of water (5 ppb).

The Occupational Safety and Health Administration (OSHA) has set limits of 1 part benzene per million parts of workplace air (1 ppm) for 8 hour shifts and 40 hour work weeks.

References

Agency for Toxic Substances and Disease Registry (ATSDR) 2007. Toxicological Profile for Benzene (Update). Atlanta, GA: U.S. Department of Public Health and Human Services, Public Health Service.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30333.

Phone: 1-800-232-4636

ToxFAQs™ Internet address via WWW is http://www.atsdr.cdc.gov/toxfaqs/index.asp.

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

CREOSOTE

CAS # 8021-39-4, 8001-58-9, 8007-45-2

Division of Toxicology ToxFAQs™ September 2002

This fact sheet answers the most frequently asked health questions (FAQs) about creosote. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Creosote is a mixture of many chemicals. Eating food or drinking water with high levels of creosote may cause burning in the mouth and throat, and stomach pain. Long-term contact with creosote has been associated with increased risk of contracting cancer. Creosote has been found in at least 46 of the 1,613 National Priorities List sites identified by the Environmental Protection Agency (EPA).

What is creosote?

Creosote is the name used for a variety of products: wood creosote, coal tar creosote, coal tar, coal tar pitch, and coal tar pitch volatiles. These products are mixtures of many chemicals created by burning of beech and other woods, coal, or from the resin of the creosote bush.

Wood creosote is a colorless to yellowish greasy liquid with a smoky odor and burned taste. Coal tar creosote is a thick, oily liquid typically amber to black in color. Coal tar and coal tar pitch are usually thick, black, or dark-brown liquids or semi-solids, with a smoky odor.

Wood creosote has been used as a disinfectant, a laxative, and a cough treatment, but has since been replaced by better medicines. Coal tar products are used in medicines to treat skin diseases such as psoriasis, and also as animal and bird repellents, insecticides, animal dips, and fungicides. Coal tar creosote is the most widely used wood preservative in the United States. Coal tar, coal tar pitch, and coal tar pitch volatiles are used for roofing, aluminum smelting, and coking.

What happens to creosote when it enters the environment?

❑ Coal tar creosote is released to water and soil mainly as a result of its use in the wood preservation industry.
❑ Components of creosote that do not dissolve in water will remain in place in a tar-like mass.
❑ Some components of coal tar creosote dissolve in water and may move through the soil to groundwater.
❑ Once in groundwater, it may take years for it to break down.
❑ Coal tar creosote can build up in plants and animals.
❑ We do not know what happens to wood creosote when it enters the environment.

How might I be exposed to creosote?

❑ Using products that contain creosote to improve skin problems such as eczema or psoriasis.
❑ Eating herbal remedies containing the leaves from the creosote bush, which are sold as dietary supplements.
❑ Working in the wood preservative, coke-producing, or asphalt industries.
❑ Using creosote-treated wood in building fences, bridges, or railroad tracks, or installing telephone poles.
❑ Living in treated-wood houses that may result in air or skin contact with creosote.
❑ Drinking water contaminated by a hazardous waste site.

How can creosote affect my health?

Eating food or drinking water contaminated with high levels of creosotes may cause a burning in the mouth and throat, and stomach pains. Taking large amounts of herbal remedies containing creosote bush leaves may cause damage to the liver or kidney.

Brief direct contact with large amounts of coal tar creosote may result in a rash or severe irritation of the skin, chemical burns of the surfaces of the eyes, convulsions and mental confusion, kidney or liver problems, unconsciousness, and even death. Longer direct skin contact with low levels of

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, Public Health Service
Agency for Toxic Substances and Disease Registry

CREOSOTE

CAS # 8021-39-4, 8001-58-9, 8007-45-2

ToxFAQs™ Internet address is http://www.atsdr.cdc.gov/toxfaq.html

creosote mixtures or their vapors can result in increased light sensitivity, damage to the cornea, and skin damage. Longer exposure to creosote vapors can cause irritation of the respiratory tract.

How likely is creosote to cause cancer?

Long-term exposure to low levels of creosote, especially direct contact with the skin during wood treatment or manufacture of coal tar creosote-treated products, has resulted in skin cancer and cancer of the scrotum. Cancer of the scrotum in chimney sweeps has been associated with long-term skin exposure to soot and coal tar creosotes. Animal studies have also shown skin cancer from skin exposure to coal tar products.

The International Agency for Research on Cancer (IARC) has determined that coal tar is carcinogenic to humans and that creosote is probably carcinogenic to humans. The EPA has determined that coal tar creosote is a probable human carcinogen.

How can creosote affect children?

There is no unique exposure pathway of children to creosote. Children exposed to creosote will probably experience the same health effects seen in adults exposed to creosote. Children who played on soil contaminated with creosote had more skin rashes than children who played in uncontaminated areas. We do not know whether children differ from adults in their susceptibility to health effects from creosote.

Studies in animals have shown birth defects in the young of mothers exposed to high levels of creosote during pregnancy, but we do not know whether the same effects would occur in humans. Some animal studies indicate that creosotes may cross the placenta and reach the fetus. Because chemical components (PAHs, cresol, phenols) of coal tar creosote may be stored in body fat, they may be found in breast milk and could pass to nursing infants.

How can families reduce the risk of exposure to creosote?

❑ If you live in a residential area that used to have a wood preservation facility or gas manufacturing plant nearby, wear long-sleeved shirts and long pants when working or playing outside and avoid using water contaminated with creosote.
❑ Instruct children not to come in contact with creosote-treated wood when playing on or near railroad tracks, in ditches close to utility poles, in old barns or other farm structures, or on bridges or piers.
❑ Avoid using herbal remedies containing the leaves of the creosote bush and seek alternatives to skin remedies containing creosote.
❑ If you are exposed to creosote in the workplace, make sure you do not carry the chemical home in your clothing, skin, hair, tools, or other objects from the workplace (shower before going home).

Is there a medical test to show whether I've been exposed to creosote?

There is no medical test to determine if you have been exposed to creosote. Some components of creosote mixtures can be measured in body tissues, urine, or blood after exposure to creosote. These tests cannot tell whether harmful health effects will occur. The tests are not routinely available at the doctor's office because they require special equipment.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) has set an exposure limit of 0.2 milligrams of coal tar pitch volatiles per cubic meter of air (0.2 mg/m^3) in workplace air during an 8-hour day, 40-hour workweek.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2002. Toxicological Profile for Creosote (Update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html. ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

1,2-DICHLOROETHENE
CAS # 540-59-0, 156-59-2, and 156-60-5

Agency for Toxic Substances and Disease Registry ToxFAQs September 1997

This fact sheet answers the most frequently asked health questions (FAQs) about 1,2-dichloroethene. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to 1,2-dichloroethene occurs mainly in workplaces where it is made or used. Breathing high levels of 1,2-dichloroethene can make you feel nauseous, drowsy, and tired. *cis*-1,2-Dichloroethene has been found in at least 146 of the 1,430 National Priorities List sites identified by the Environmental Protection Agency (EPA). *trans*-1,2-Dichloroethene was found in at least 563 NPL sites. 1,2-Dichloroethene was found at 336 sites, but the isomer (*cis*- or *trans*-) was not specified.

What is 1,2-dichloroethene?

(Pronounced 1,2-dī-klôr′ ō-ĕth′ēn)

1,2-Dichloroethene, also called 1,2-dichloroethylene, is a highly flammable, colorless liquid with a sharp, harsh odor. It is used to produce solvents and in chemical mixtures. You can smell very small amounts of 1,2-dichloroethene in air (about 17 parts of 1,2-dichloroethene per million parts of air [17 ppm]).

There are two forms of 1,2-dichloroethene; one is called *cis*-1,2-dichloroethene and the other is called *trans*-1,2-dichloroethene. Sometimes both forms are present as a mixture.

What happens to 1,2-dichloroethene when it enters the environment?

- 1,2-Dichloroethene evaporates rapidly into air.
- In the air, it takes about 5-12 days for half of it to break down.
- Most 1,2-dichloroethene in the soil surface or bodies of water will evaporate into air.
- 1,2-Dichloroethene can travel through soil or dissolve in water in the soil. It is possible that it can contaminate groundwater.
- In groundwater, it takes about 13-48 weeks to break down.
- There is a slight chance that 1,2-dichloroethene will break down into vinyl chloride, a different chemical which is believed to be more toxic than 1,2-dichloroethene.

How might I be exposed to 1,2-dichloroethene?

- Breathing 1,2-dichloroethene that has leaked from hazardous waste sites and landfills.
- Drinking contaminated tap water or breathing vapors from contaminated water while cooking, bathing, or washing dishes.
- Breathing 1,2-dichloroethene, touching it, or touching contaminated materials in the workplace.

How can 1,2-dichloroethene affect my health?

Breathing high levels of 1,2-dichloroethene can make you feel nauseous, drowsy, and tired; breathing very high levels can kill you.

When animals breathed high levels of *trans*-1,2-dichloroethene for short or longer periods of time, their livers and lungs were damaged and the effects were more severe with longer exposure times. Animals that breathed very high

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, Public Health Service
Agency for Toxic Substances and Disease Registry

1,2-DICHLOROETHENE
CAS # 540-59-0, 156-59-2, and 156-60-5

ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html

levels of *trans*-1,2-dichloroethene had damaged hearts.

Animals that ingested extremely high doses of *cis*- or *trans*-1,2-dichloroethene died.

Lower doses of *cis*-1,2-dichloroethene caused effects on the blood, such as decreased numbers of red blood cells, and also effects on the liver.

The long-term (365 days or longer) human health effects after exposure to low concentrations of 1,2-dichloroethene aren't known. One animal study suggested that an exposed fetus may not grow as quickly as one that hasn't been exposed.

Exposure to 1,2-dichloroethene hasn't been shown to affect fertility in people or animals.

How likely is 1,2-dichloroethene to cause cancer?

The EPA has determined that *cis*-1,2-dichloroethene is not classifiable as to its human carcinogenicity.

No EPA cancer classification is available for *trans*-1,2-dichloroethene.

Is there a medical test to show whether I've been exposed to 1,2-dichloroethene?

Tests are available to measure concentrations of the breakdown products of 1,2-dichloroethene in blood, urine, and tissues. However, these tests aren't used routinely to determine whether a person has been exposed to this compound. This is because after you are exposed to 1,2-dichloroethene, the breakdown products in your body that are detected with these tests may be the same as those that come from exposure to other chemicals. These tests aren't available in most doctors' offices, but can be done at special laboratories that have the right equipment.

Has the federal government made recommendations to protect human health?

The EPA has set the maximum allowable level of *cis*-1,2-dichloroethene in drinking water at 0.07 milligrams per liter of water (0.07 mg/L) and *trans*-1,2-dichloroethene at 0.1 mg/L.

The EPA requires that any spills or accidental release of 1,000 pounds or more of 1,2-dichloroethene must be reported to the EPA.

The Occupational Health Safety and Health Administration (OSHA) has set the maximum allowable amount of 1,2-dichloroethene in workroom air during an 8-hour workday in a 40-hour workweek at 200 parts of 1,2-dichloroethene per million parts of air (200 ppm).

Glossary

Carcinogenicity: Ability of a substance to cause cancer.

CAS: Chemical Abstracts Service.

Fertility: Ability to reproduce.

Ingest: To eat or drink something.

Milligram (mg): One thousandth of a gram.

ppm: Parts per million.

Solvent: A chemical that can dissolve other substances.

References

This ToxFAQs information is taken from the 1996 Toxicological Profile for 1,2-Dichloroethene produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop F-32, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 770-488-4178. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Polycyclic Aromatic Hydrocarbons (PAHs) - ToxFAQs™

This fact sheet answers the most frequently asked health questions (FAQs) about polycyclic aromatic hydrocarbons (PAHs). For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

SUMMARY: Exposure to polycyclic aromatic hydrocarbons usually occurs by breathing air contaminated by wild fires or coal tar, or by eating foods that have been grilled. PAHs have been found in at least 600 of the 1,430 National Priorities List (NPL) sites identified by the Environmental Protection Agency (EPA).

What are polycyclic aromatic hydrocarbons?

(Pronounced pŏl′ĭ-sī′klĭk ăr′ə-măt′ĭk hī′drə-kar′bənz)

Polycyclic aromatic hydrocarbons (PAHs) are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat. PAHs are usually found as a mixture containing two or more of these compounds, such as soot.

Some PAHs are manufactured. These pure PAHs usually exist as colorless, white, or pale yellow-green solids. PAHs are found in coal tar, crude oil, creosote, and roofing tar, but a few are used in medicines or to make dyes, plastics, and pesticides.

What happens to PAHs when they enter the environment?

- PAHs enter the air mostly as releases from volcanoes, forest fires, burning coal, and automobile exhaust.
- PAHs can occur in air attached to dust particles.
- Some PAH particles can readily evaporate into the air from soil or surface waters.
- PAHs can break down by reacting with sunlight and other chemicals in the air, over a period of days to weeks.
- PAHs enter water through discharges from industrial and wastewater treatment plants.
- Most PAHs do not dissolve easily in water. They stick to solid particles and settle to the bottoms of lakes or rivers.
- Microorganisms can break down PAHs in soil or water after a period of weeks to months.
- In soils, PAHs are most likely to stick tightly to particles; certain PAHs move through soil to contaminate underground water.
- PAH contents of plants and animals may be much higher than PAH contents of soil or water in which they live.

How might I be exposed to PAHs?

- Breathing air containing PAHs in the workplace of coking, coal-tar, and asphalt production plants; smokehouses; and municipal trash incineration facilities.
- Breathing air containing PAHs from cigarette smoke, wood smoke, vehicle exhausts, asphalt roads, or agricultural burn smoke.
- Coming in contact with air, water, or soil near hazardous waste sites.
- Eating grilled or charred meats; contaminated cereals, flour, bread, vegetables, fruits, meats; and processed or pickled foods.
- Drinking contaminated water or cow's milk.
- Nursing infants of mothers living near hazardous waste sites may be exposed to PAHs through their mother's milk.

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CS249955-AD

Polycyclic Aromatic Hydrocarbons

How can PAHs affect my health?

Mice that were fed high levels of one PAH during pregnancy had difficulty reproducing and so did their offspring. These offspring also had higher rates of birth defects and lower body weights. It is not known whether these effects occur in people.

Animal studies have also shown that PAHs can cause harmful effects on the skin, body fluids, and ability to fight disease after both short- and long-term exposure. But these effects have not been seen in people.

How likely are PAHs to cause cancer?

The Department of Health and Human Services (DHHS) has determined that some PAHs may reasonably be expected to be carcinogens.

Some people who have breathed or touched mixtures of PAHs and other chemicals for long periods of time have developed cancer. Some PAHs have caused cancer in laboratory animals when they breathed air containing them (lung cancer), ingested them in food (stomach cancer), or had them applied to their skin (skin cancer).

Is there a medical test to show whether I've been exposed to PAHs?

In the body, PAHs are changed into chemicals that can attach to substances within the body. There are special tests that can detect PAHs attached to these substances in body tissues or blood. However, these tests cannot tell whether any health effects will occur or find out the extent or source of your exposure to the PAHs. The tests aren't usually available in your doctor's office because special equipment is needed to conduct them.

Has the federal government made recommendations to protect human health?

The Occupational Safety and Health Administration (OSHA) has set a limit of 0.2 milligrams of PAHs per cubic meter of air (0.2 mg/m^3). The OSHA Permissible Exposure Limit (PEL) for mineral oil mist that contains PAHs is 5 mg/m^3 averaged over an 8-hour exposure period.

The National Institute for Occupational Safety and Health (NIOSH) recommends that the average workplace air levels for coal tar products not exceed 0.1 mg/m^3 for a 10-hour workday, within a 40-hour workweek. There are other limits for workplace exposure for things that contain PAHs, such as coal, coal tar, and mineral oil.

Glossary

Carcinogen: A substance that can cause cancer.

Ingest: Take food or drink into your body.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Toxicological profile for polycyclic aromatic hydrocarbons. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30333.

Phone: 1-800-232-4636.

ToxFAQs™ Internet address via WWW is http://www.atsdr.cdc.gov/toxfaqs/index.asp.

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Tetrachloroethylene - ToxFAQs™

CAS # 127-18-4

This fact sheet answers the most frequently asked health questions (FAQs) about tetrachloroethylene. For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It's important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Tetrachloroethylene is a manufactured chemical used for dry cleaning and metal degreasing. Exposure to very high concentrations of tetrachloroethylene can cause dizziness, headaches, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death. Tetrachloroethylene has been found in at least 771 of the 1,430 National Priorities List (NPL) sites identified by the Environmental Protection Agency (EPA).

What is tetrachloroethylene?

(Pronounced tĕt'rə-klôr' ō-ĕth'ə-lēn')

Tetrachloroethylene is a manufactured chemical that is widely used for dry cleaning of fabrics and for metal-degreasing. It is also used to make other chemicals and is used in some consumer products.

Other names for tetrachloroethylene include perchloroethylene(PERC), PCE, and tetrachloroethene. It is a nonflammable liquid at room temperature. It evaporates easily into the air and has a sharp, sweet odor. Most people can smell tetrachloroethylene when it is present in the air at a level of 1 part tetrachloroethylene per million parts of air (1 ppm) or more, although some can smell it at even lower levels.

What happens to tetrachloroethylene when it enters the environment?

- Much of the tetrachloroethylene that gets into water or soil evaporates into the air.
- Microorganisms can break down some of the tetrachloroethylene in soil or underground water.
- In the air, it is broken down by sunlight into other chemicals or brought back to the soil and water by rain.
- It does not appear to collect in fish or other animals that live in water.

How might I be exposed to tetrachloroethylene?

- When you bring clothes from the dry cleaners, they will release small amounts of tetrachloroethylene into the air.
- When you drink water containing tetrachloroethylene, you are exposed to it.

How can tetrachloroethylene affect my health?

High concentrations of tetrachloroethylene (particularly in closed, poorly ventilated areas) can cause dizziness, headache, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death.

Irritation may result from repeated or extended skin contact with it. These symptoms occur almost entirely in work (or hobby) environments when people have been accidentally exposed to high concentrations or have intentionally used tetrachloroethylene to get a "high."

In industry, most workers are exposed to levels lower than those causing obvious nervous system effects. The health effects of breathing in air or drinking water with low levels of tetrachloroethylene are not known.

Results from some studies suggest that women who work in dry cleaning industries where exposures to tetrachloroethylene can be quite high may have more menstrual problems and spontaneous abortions than women who are not exposed. However, it is not known if tetrachloroethylene was responsible for these problems because other possible causes were not considered.

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CS249955-AH

Tetrachloroethylene

CAS # 127-18-4

Results of animal studies, conducted with amounts much higher than those that most people are exposed to, show that tetrachloroethylene can cause liver and kidney damage. Exposure to very high levels of tetrachloroethylene can be toxic to the unborn pups of pregnant rats and mice. Changes in behavior were observed in the offspring of rats that breathed high levels of the chemical while they were pregnant.

How likely is tetrachloroethylene to cause cancer?

The Department of Health and Human Services (DHHS) has determined that tetrachloroethylene may reasonably be anticipated to be a carcinogen. Tetrachloroethylene has been shown to cause liver tumors in mice and kidney tumors in male rats.

Is there a medical test to show whether I've been exposed to tetrachloroethylene?

One way of testing for tetrachloroethylene exposure is to measure the amount of the chemical in the breath, much the same way breath-alcohol measurements are used to determine the amount of alcohol in the blood.

Because it is stored in the body's fat and slowly released into the bloodstream, tetrachloroethylene can be detected in the breath for weeks following a heavy exposure.

Tetrachloroethylene and trichloroacetic acid (TCA), a breakdown product of tetrachloroethylene, can be detected in the blood. These tests are relatively simple to perform. These tests aren't available at most doctors' offices, but can be per formed at special laboratories that have the right equipment.

Because exposure to other chemicals can produce the same breakdown products in the urine and blood, the tests for breakdown products cannot determine if you have been exposed to tetrachloroethylene or the other chemicals.

Has the federal government made recommendations to protect human health?

The EPA maximum contaminant level for the amount of tetrachloroethylene that can be in drinking water is 0.005 milligrams tetrachloroethylene per liter of water (0.005 mg/L).

The Occupational Safety and Health Administration (OSHA) has set a limit of 100 ppm for an 8-hour workday over a 40-hour workweek.

The National Institute for Occupational Safety and Health (NIOSH) recommends that tetrachloroethylene be handled as a potential carcinogen and recommends that levels in workplace air should be as low as possible.

Glossary

Carcinogenicity: The ability of a substance to cause cancer.

CAS: Chemical Abstracts Service.

Milligram (mg): One thousandth of a gram.

Nonflammable: Will not burn.

References

This ToxFAQs™ information is taken from the 1997 Toxicological Profile for Tetrachloroethylene (update) produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30333.

Phone: 1-800-232-4636.

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Trichloroethylene - ToxFAQs™

CAS # 79-01-6

This fact sheet answers the most frequently asked health questions (FAQs) about trichloroethylene. For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Trichloroethylene is a colorless liquid which is used as a solvent for cleaning metal parts. Drinking or breathing high levels of trichloroethylene may cause nervous system effects, liver and lung damage, abnormal heartbeat, coma, and possibly death. Trichloroethylene has been found in at least 852 of the 1,430 National Priorities List (NPL) sites identified by the Environmental Protection Agency (EPA).

What is trichloroethylene?

Trichloroethylene (TCE) is a nonflammable, colorless liquid with a somewhat sweet odor and a sweet, burning taste. It is used mainly as a solvent to remove grease from metal parts, but it is also an ingredient in adhesives, paint removers, typewriter correction fluids, and spot removers.

Trichloroethylene is not thought to occur naturally in the environment. However, it has been found in underground water sources and many surface waters as a result of the manufacture, use, and disposal of the chemical.

What happens to trichloroethylene when it enters the environment?

- Trichloroethylene dissolves a little in water, but it can remain in ground water for a long time.
- Trichloroethylene quickly evaporates from surface water, so it is commonly found as a vapor in the air.
- Trichloroethylene evaporates less easily from the soil than from surface water. It may stick to particles and remain for a long time.
- Trichloroethylene may stick to particles in water, which will cause it to eventually settle to the bottom sediment.
- Trichloroethylene does not build up significantly in plants and animals.

How might I be exposed to trichloroethylene?

- Breathing air in and around the home which has been contaminated with trichloroethylene vapors from shower water or household products such as spot removers and typewriter correction fluid.
- Drinking, swimming, or showering in water that has been contaminated with trichloroethylene.
- Contact with soil contaminated with trichloroethylene, such as near a hazardous waste site.
- Contact with the skin or breathing contaminated air while manufacturing trichloroethylene or using it at work to wash paint or grease from skin or equipment.

How can trichloroethylene affect my health?

Breathing small amounts may cause headaches, lung irritation, dizziness, poor coordination, and difficulty concentrating.

Breathing large amounts of trichloroethylene may cause impaired heart function, unconsciousness, and death. Breathing it for long periods may cause nerve, kidney, and liver damage.

Drinking large amounts of trichloroethylene may cause nausea, liver damage, unconsciousness, impaired heart function, or death.

Drinking small amounts of trichloroethylene for long periods may cause liver and kidney damage, impaired immune system function, and impaired fetal development in pregnant women, although the extent of some of these effects is not yet clear.

Skin contact with trichloroethylene for short periods may cause skin rashes.

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Division of Toxicology and Human Health Sciences

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CS249955-AI

Trichloroethylene

CAS # 79-01-6

How likely is trichloroethylene to cause cancer?

Some studies with mice and rats have suggested that high levels of trichloroethylene may cause liver, kidney, or lung cancer. Some studies of people exposed over long periods to high levels of trichloroethylene in drinking water or in workplace air have found evidence of increased cancer. Although, there are some concerns about the studies of people who were exposed to trichloroethylene, some of the effects found in people were similar to effects in animals.

In its 9th Report on Carcinogens, the National Toxicology Program (NTP) determined that trichloroethylene is "reasonably anticipated to be a human carcinogen." The International Agency for Research on Cancer (IARC) has determined that trichloroethylene is "probably carcinogenic to humans."

Is there a medical test to show whether I've been exposed to trichloroethylene?

If you have recently been exposed to trichloroethylene, it can be detected in your breath, blood, or urine. The breath test, if it is performed soon after exposure, can tell if you have been exposed to even a small amount of trichloroethylene.

Exposure to larger amounts is assessed by blood and urine tests, which can detect trichloroethylene and many of its breakdown products for up to a week after exposure. However, exposure to other similar chemicals can produce the same breakdown products, so their detection is not absolute proof of exposure to trichloroethylene. This test isn't available at most doctors' offices, but can be done at special laboratories that have the right equipment.

Has the federal government made recommendations to protect human health?

The EPA has set a maximum contaminant level for trichloroethylene in drinking water at 0.005 milligrams per liter (0.005 mg/L) or 5 parts of TCE per billion parts water.

The EPA has also developed regulations for the handling and disposal of trichloroethylene.

The Occupational Safety and Health Administration (OSHA) has set an exposure limit of 100 parts of trichloroethylene per million parts of air (100 ppm) for an 8-hour workday, 40-hour workweek.

Glossary

Carcinogenicity: The ability of a substance to cause cancer.

CAS: Chemical Abstracts Service.

Evaporate: To change into a vapor or gas.

Milligram (mg): One thousandth of a gram.

Nonflammable: Will not burn.

ppm: Parts per million.

Sediment: Mud and debris that have settled to the bottom of a body of water.

Solvent: A chemical that dissolves other substances.

References

This ToxFAQs™ information is taken from the 1997 Toxicological Profile for Trichloroethylene (update) produced by the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services, Public Health Service in Atlanta, GA.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30333.

Phone: 1-800-232-4636.

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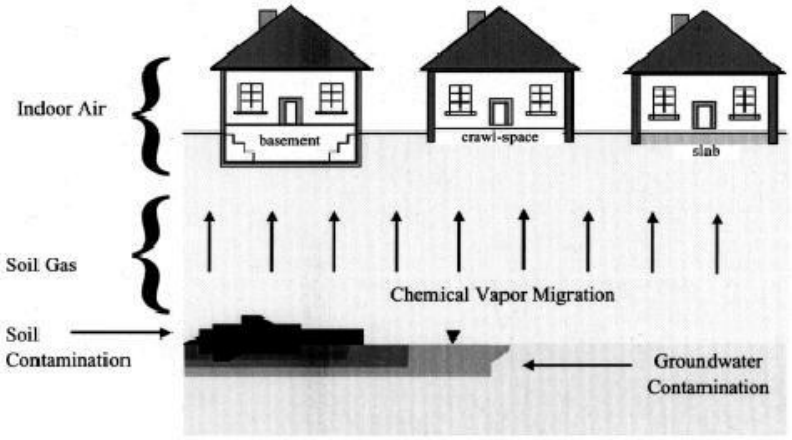
EPA United States Environmental Protection Agency

What You Should Know About the Problem of Vapor Intrusion

EPA Superfund Division
Chicago, Illinois January 2012

Vapor Intrusion into Indoor Air



This diagram shows how vapors can rise up through the soil and into your home.

Vapors and gases from contaminated ground water and soil have the potential to seep into indoor spaces and cause health problems. The U.S. Environmental Protection Agency wants you to know how to deal with vapor intrusion in your home.

What is vapor intrusion?

When chemicals or petroleum products are spilled or leak from underground storage tanks, they can give off gases or vapors that can get inside buildings. Common products that can cause vapor intrusion are gasoline or diesel fuel, dry cleaning solvents and industrial degreasers. The vapors can move through the soil and seep through cracks in basements, foundations, sewer lines and other openings.

Vapor intrusion is a concern because vapors can build up to a point where the health of residents or workers in those buildings could be at risk. Some vapors from petroleum products have a gasoline odor, others are odor-free.

Common household items can give off vapors

Common household products can be a source of indoor air problems. Vapors and gases can come from paint, paint strippers or thinners, moth balls, new carpeting and furniture, stored fuel, air fresheners, cleaning products, dry-cleaned clothing and cigarette smoke.

What you can do to improve indoor air quality

- Don't buy more chemicals than you need.
- Store unused chemicals in appropriate tightly sealed containers.
- Don't make your home too air-tight. Fresh air helps prevent chemical build-up and mold growth.
- Fix leaks promptly, as well as other moisture problems that encourage mold.
- Check all appliances and fireplaces annually.
- Test your home for radon. Test kits are available at hardware and home improvement stores or you can call the Radon Hotline at 800-767-7236 (800-SOSRADON).
- Install carbon monoxide detectors in your home. They are available at hardware and home improvement stores.

For more information

For questions on how vapor intrusion affects your health, contact your local health department or the federal Agency for Toxic Substances and Disease Registry at 888-422-8737, or visit www.atsdr.cdc.gov.

For detailed EPA information on vapor intrusion, visit www.epa.gov/oswer/vaporintrusion.

For more information on indoor air quality, visit www.epa.gov/iaq.

You may also call EPA Region 5 at 800-621-8431, 8:30 a.m. to 4:30 p.m. (Central), weekdays.

Vapor intrusion may affect your health

Health risks vary based on the type and amount of chemicals. How healthy you are and how long you are exposed are also factors. Some people may experience eye and respiratory irritation, headaches or nausea. These symptoms are temporary and should go away when the vapors are vented. Low-level chemical exposures over many years, however, may raise your lifetime risk of cancer or chronic disease.

Steps in the study of vapor intrusion

EPA first takes samples of gas in the soil and ground water near a site with known contamination. If we don't find the type of contamination that can turn into a gas – known as "volatile" – then vapor intrusion should not be a problem.

If we find volatile contamination, we may widen the search to include sampling closer to or on individual properties. The next step is to take vapor samples from the soil under building foundations. These are called "sub-slab soil" gas samples.

The results of these samples will tell EPA if indoor air samples are needed. The indoor air samples will tell us if there are vapors in the indoor air. The samples will also show if the vapors pose a health risk, or if they are at levels normally present in most buildings.

One way to keep harmful vapors out of your home is to make sure common household products, especially chemical- and petroleum-based products, are tightly sealed and properly stored in a well-ventilated area.

An example of a system that draws radon and other vapors out of the soil and vents them outside. It's known as a "sub-slab mitigation system."

EPA does not generally recommend indoor air sampling before sub-slab sampling because indoor air quality varies widely day to day. Also, household products may interfere with sampling results.

Finally, we will determine if there is enough of a problem to take action. Environmental law and EPA regulations tell us when we need to do something to protect your family's health.

If EPA finds a problem

The most common solution is to install systems often used to reduce naturally occurring radon that seeps into homes in some geographic areas. These systems remove soil vapors from below basements or foundations before they enter homes.

Vapors are vented into the outside air where they become dispersed and harmless. These systems use minimal electricity and do not affect heating and cooling efficiency. Once the source of the vapors is eliminated, the systems should no longer be needed.

Vinyl Chloride - ToxFAQs™

CAS # 75-01-4

This fact sheet answers the most frequently asked health questions (FAQs) about vinyl chloride. For more information, call the CDC Information Center at 1-800-232-4636. This fact sheet is one in a series of summaries about hazardous substances and their health effects. It is important you understand this information because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

HIGHLIGHTS: Exposure to vinyl chloride occurs mainly in the workplace. Breathing high levels of vinyl chloride for short periods of time can cause dizziness, sleepiness, unconsciousness, and at extremely high levels can cause death. Breathing vinyl chloride for long periods of time can result in permanent liver damage, immune reactions, nerve damage, and liver cancer. This substance has been found in at least 616 of the 1,662 National Priority List (NPL) sites identified by the Environmental Protection Agency (EPA).

What is vinyl chloride?

Vinyl chloride is a colorless gas. It burns easily and it is not stable at high temperatures. It has a mild, sweet odor. It is a manufactured substance that does not occur naturally. It can be formed when other substances such as trichloroethane, trichloroethylene, and tetrachloroethylene are broken down. Vinyl chloride is used to make polyvinyl chloride (PVC). PVC is used to make a variety of plastic products, including pipes, wire and cable coatings, and packaging materials.

Vinyl chloride is also known as chloroethene, chloroethylene, and ethylene monochloride.

What happens to vinyl chloride when it enters the environment?

- Liquid vinyl chloride evaporates easily. Vinyl chloride in water or soil evaporates rapidly if it is near the surface.
- Vinyl chloride in the air breaks down in a few days to other substances, some of which can be harmful.
- Small amounts of vinyl chloride can dissolve in water.
- Vinyl chloride is unlikely to build up in plants or animals that you might eat.

How might I be exposed to vinyl chloride?

- Breathing vinyl chloride that has been released from plastics industries, hazardous waste sites, and landfills.
- Breathing vinyl chloride in air or during contact with your skin or eyes in the workplace.
- Drinking water from contaminated wells.

How can vinyl chloride affect my health?

Breathing high levels of vinyl chloride can cause you to feel dizzy or sleepy. Breathing very high levels can cause you to pass out, and breathing extremely high levels can cause death.

Some people who have breathed vinyl chloride for several years have changes in the structure of their livers. People are more likely to develop these changes if they breathe high levels of vinyl chloride. Some people who work with vinyl chloride have nerve damage and develop immune reactions. The lowest levels that produce liver changes, nerve damage, and immune reaction in people are not known. Some workers exposed to very high levels of vinyl chloride have problems with the blood flow in their hands. Their fingers turn white and hurt when they go into the cold.

The effects of drinking high levels of vinyl chloride are unknown. If you spill vinyl chloride on your skin, it will cause numbness, redness, and blisters.

Animal studies have shown that long-term exposure to vinyl chloride can damage the sperm and testes.

Agency for Toxic Substances and Disease Registry
Division of Toxicology and Human Health Sciences

ATSDR

CS249955-AL

Vinyl Chloride

CAS # 75-01-4

How likely is vinyl chloride to cause cancer?

The U.S. Department of Health and Human Services (DHHS) has determined that vinyl chloride is a known carcinogen. Studies in workers who have breathed vinyl chloride over many years showed an increased risk of liver, brain, lung cancer, and some cancers of the blood have also been observed in workers.

How can vinyl chloride affect children?

It has not been proven that vinyl chloride causes birth defects in humans, but studies in animals suggest that vinyl chloride might affect growth and development. Animal studies also suggest that infants and young children might be more susceptible than adults to vinyl chloride-induced cancer.

How can families reduce the risk of exposure to vinyl chloride?

Tobacco smoke contains low levels of vinyl chloride, so limiting your family's exposure to cigarette or cigar smoke may help reduce their exposure to vinyl chloride.

Is there a medical test to determine whether I've been exposed to vinyl chloride?

The results of several tests can sometimes show if you have been exposed to vinyl chloride. Vinyl chloride can be measured in your breath, but the test must be done shortly after exposure. This is not helpful for measuring very low levels of vinyl chloride.

The amount of the major breakdown product of vinyl chloride, thiodiglycolic acid, in the urine may give some information about exposure. However, this test must be done shortly after exposure and does not reliably indicate the level of exposure.

Has the federal government made recommendations to protect human health?

Vinyl chloride is regulated in drinking water, food, and air. The EPA requires that the amount of vinyl chloride in drinking water not exceed 0.002 milligrams per liter (mg/L) of water.

The Occupational Safety and Health Administration (OSHA) has set a limit of 1 part vinyl chloride per 1 million parts of air (1 ppm) in the workplace.

The Food and Drug Administration (FDA) regulates the vinyl chloride content of various plastics. These include plastics that carry liquids and plastics that contact food. The limits for vinyl chloride content vary depending on the nature of the plastic and its use.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2006. Toxicological Profile for Vinyl Chloride (Update). Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information?

For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30333.

Phone: 1-800-232-4636.

ToxFAQs™ Internet address via WWW is http://www.atsdr.cdc.gov/toxfaqs/index.asp.

ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.

Appendix F

List of questions asked during community interviews

Community Interview Questionnaire
Reilly Tar & Chemical – Feb 2-4, 2016

Name: _____

Address: _____

Home Phone: (_____) _____ **Cell Phone: (_____)** _____

E-Mail Address: _____ **Date:** _____

1. Do you live or work on or near the site(s)? If no, are you affiliated with any organization that has an interest in the site? [What organization]?
2. How long have you been a resident in the area?
3. What do you know about the site(s)?
4. What concerns do you have about the site(s)?
5. Where are you getting your information about the site(s)? From whom? In what form?
6. Do you feel that you have been adequately informed about the site(s) from EPA? If not, what other kind of information would you like/need?
7. What newspapers do you read? What television stations do you watch? What radio stations do you listen to?
8. How would you like to be informed concerning future site activities (mail, e-mail, telephone, newspapers, television, radio, social media such as Facebook)?
9. If EPA holds a public meeting or availability session, would you attend? Yes _____ No _____
    a. What day and time would be most convenient for you?
    b. What format do you think works best? Public meeting verses availability session? (explain formats)
    c. If not, what obstacles keep you from attending?
    d. Do you have suggestions about locations for future meetings?
10. Have you received or read any EPA fact sheets about the site(s)? If so, were they understandable?
11. Site information is posted on the EPA's web site(s). Have you used the EPA web site(s)? If so, did you find the information you needed?
12. An information repository is located at the St. Louis Park Library. Have you ever looked at the site information at the library? If so, did you find the information you needed?
13. Are there any other people or groups you think we should talk to about the site(s) either because they have unique information or would like to know more from EPA?
14. What is special/important to you about your community?
15. Do you have any questions?
16. Is there anything else you would like to add regarding the site(s) or the EPA's involvement with the local community?