

SAN FERNANDO VALLEY SUPERFUND SITE

Community Involvement Plan



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The U.S. Environmental Protection Agency
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CHAPTER 1

Introduction

The US Environmental Protection Agency (EPA) recognizes the importance of protecting drinking water **aquifers*** to provide a safe and clean drinking water resource. However, in past decades, chemical disposal practices at several sites in the area have contaminated **groundwater** with various chemicals. As EPA works to restore the critical drinking water aquifer in the San Fernando Valley (SFV), working closely with the community and all interested stakeholders is critical to achieving a successful outcome. EPA's Community Involvement Program helps citizens participate throughout the cleanup process, including the investigation phase and the remedy selection phase. This **Community Involvement Plan (CIP)** organizes EPA's public participation efforts to actively involve the public in the cleanup decision-making process. It is based on a series of community interviews conducted with local stakeholders, and is in accordance with EPA's cleanup rules and guidance (**Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** commonly called **Superfund**) and the 2016 EPA Community Involvement Handbook and Toolkit. The Superfund law is designed to clean up sites contaminated with hazardous substances.

This CIP sets forth the community involvement activities EPA expects to undertake at three separate Superfund sites in the SFV: Area 1, which includes the North Hollywood and Burbank **Operable Units**; Area 2, which includes the Glendale North Operable Unit, the Glendale South Operable Unit, and the Glendale Chromium Operable Unit; and Area 4, which includes the Pollock Operable Unit. An Operable Unit is an area that is defined so that EPA may take action on a distinct area or type of contamination, as part of an overall site cleanup. The CIP activities for the three SFV sites are included in a single CIP because all groundwater sites are in the same groundwater basin, contaminant plumes are contiguous and contaminants of concern are the same in most areas.

The goals of EPA's CIP, which EPA will achieve through various means described in this document, include the following:

1. Summarize concerns identified during the community interview process.
2. Meet the community's information needs.
3. Provide opportunities for the public to become actively involved, and incorporate community issues and concerns into cleanup decisions.
4. Give feedback to the public on how their issues and concerns have been incorporated into the cleanup work.
5. Outline the actions that EPA will use to achieve the Community Involvement Program.



Note: All water purveyors are regulated to make sure water served to the public meets state and Federal drinking water requirements.

*NOTE: Words in BOLD are defined in the Glossary on page 37.

CIP ORGANIZATION

The purpose of the CIP is to show how, when, and where EPA will provide the information the public needs to understand EPA's work, and to show how the stakeholders can be actively involved in the cleanup process. The remainder of this CIP is outlined as follows:

- Chapter 2 provides a general overview.
- Chapter 3 identifies the issues and concerns raised during the community interviews.
- Chapter 4 provides community profile information for the SFV Superfund Sites.
- Chapter 5 provides EPA's Action Plan for addressing the issues and concerns through various activities. The CIP relies on the tools and techniques that EPA has developed over the years, but has the flexibility to add site-specific activities as circumstances arise.
- Chapter 6 presents EPA's preliminary schedules for the investigation and cleanup activities. Where appropriate, it lists possible or required community involvement activities.

Community members are encouraged to be involved in the cleanup process by providing feedback on an ongoing basis. EPA recognizes that community members, especially long time residents, have knowledge about local activities that may assist in cleanup decisions.

In addition to community involvement activities noted in this CIP, EPA offers a Technical Assistance Grant (TAG) Program. The EPA TAG program awards one grant per site on the **National Priorities List (NPL)** to an eligible citizen group who lives near a Superfund site. This group contracts with an independent technical advisor to help the community interpret and comment on site-related information. If a group is interested, they can send a letter of intent to the community involvement coordinator listed in Appendix 8. EPA also manages a Technical Assistance Services for Communities contract mechanism that is available to meet specific technical assistance needs without the administrative responsibilities. Both technical assistance programs are discretionary and based on funding availability.

EPA is committed to keeping the community engaged in the environmental investigation and cleanup program in the SFV. Part of that commitment includes preparing this CIP to plan the path forward for community involvement. This CIP presents communication tools and community involvement program activities designed to meet the specific needs of the SFV community.

The CIP is a "living document," meaning that it will be modified as new information and issues develop over the course of the investigation and cleanup of the Sites.

Further, the CIP contains appendices that provide additional information to the community:

Appendix 1: General Overview of Superfund Cleanup Program

Appendix 2: San Fernando Valley Superfund Sites History

Appendix 3: Site Contaminants and Exposure Information

Appendix 4: Site Maps

Appendix 5: Web Links to EPA Fact Sheets and Site Overview Web Pages

Appendix 6: Community Interview Questions and Organizations Represented

Appendix 7: Community Demographics

Appendix 8: Key Contacts, Meeting Locations, and Site Information Repositories

Appendix 9: Acronyms and Abbreviations

Appendix 10: Glossary of Terms

***Note: Words in BOLD are defined in the Glossary on page 37.**

CHAPTER 2

Overview of San Fernando Valley Superfund Sites

The SFV Superfund Sites are located in the eastern portion of the SFV, between the San Gabriel and Santa Monica Mountains. The SFV is an important source of drinking water for the Los Angeles metropolitan area; the Cities of Glendale, Burbank, San Fernando, and La Cañada-Flintridge; and the unincorporated area of La Crescenta. Four separate areas comprise the SFV Superfund Sites, with some areas further divided into operable units based on historical wellfields (not by city boundaries) (See Map on page 24):

Area 1: Burbank and North Hollywood Operable Units

Area 2: Glendale/Crystal Springs: Glendale North, Glendale South and Glendale Chromium Operable Units

Area 3: Verdugo: (This site has been deleted from the EPA's National Priorities List and was not included in the interviews and subsequent community involvement plans.)

Area 4: Pollock/Los Angeles: Study Area

The Site history for each of the Areas is presented in Appendix 2.

In 1980, after finding chemical contamination in the groundwater of the San Gabriel Valley, the California State Water Resources Control Board, Division of Drinking Water (DDW; formerly, the California Department of Public Health, and before that the California Department of Health Services) requested all major groundwater users conduct tests for the presence of certain industrial chemicals in the water. The results of testing revealed that there was **volatile organic compound (VOC)** contamination in the groundwater beneath large areas of the SFV. As a result, many wells were taken out of service until treatment systems could be installed to manage the contamination. From that time to the present, water purveyors are regulated to make sure water served to the public meets state and Federal drinking water requirements. The primary contaminants of concern were the solvents **trichloroethylene (TCE)** and **tetrachloroethylene (PCE)**, which were widely used in variety of industries including metal plating, machinery degreasing, and dry cleaning.



Typical Degreasing Unit at the Plant

***NOTE: Words in BOLD are defined in the Glossary on page 37.**



Typical Drill Rig for Monitoring Well Installation

TCE and PCE have been detected in many drinking water wells at levels that exceed the federal and California **Maximum Contaminant Level (MCL)** of 5 **parts per billion (ppb)** (MCLs are drinking water standards). TCE and PCE contamination largely resulted from the aerospace and related manufacturing industries that were historically present throughout the SFV. Other contaminants in the SFV have also been detected above the federal and/or state MCLs.

Chromium has also been detected in groundwater in varying concentrations in the SFV although only a subset of the water supply wells exceed the California MCL of 10 ppb for hexavalent chromium. Most of the chromium found in the SFV groundwater is in the form of hexavalent chromium (Cr [VI]). Historic chromium releases were through spills of solution used in plating operations and from the release of chromium-containing water from industrial cooling towers to unlined washes in the area in the 1950s and 1960s. Plating is a process where chemicals are used to apply a thin metal coating to a manufactured object, which protects it from corrosion.



Finished Monitoring Well

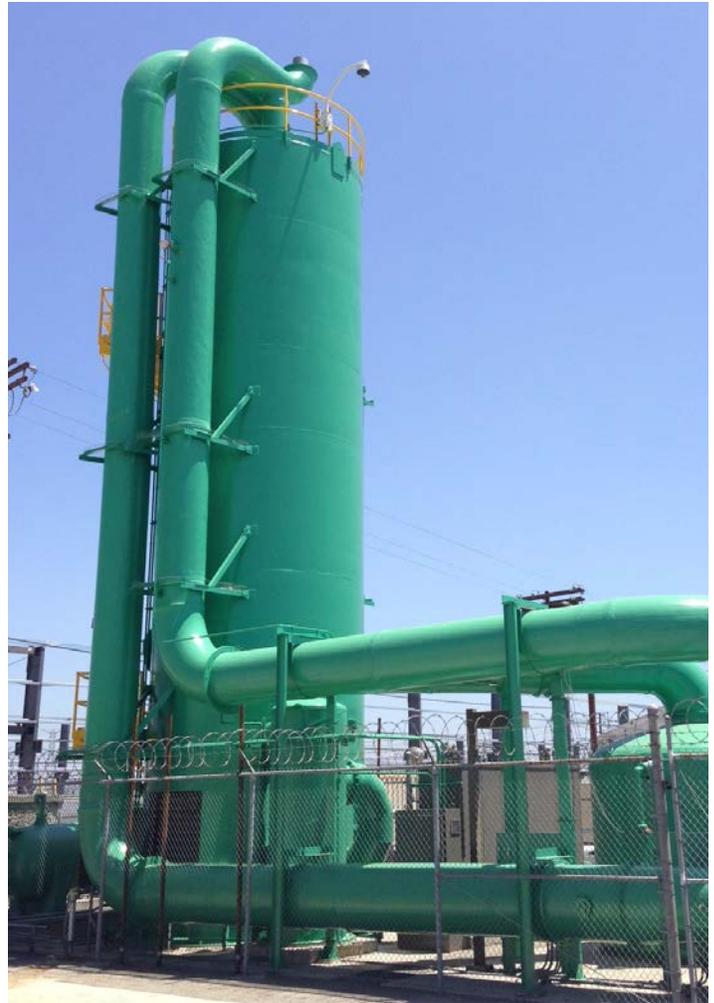
***Note: Words in BOLD are defined in the Glossary on page 37.**

The contaminant, 1, 4-dioxane, has also been detected in the groundwater in the SFV. 1, 4-dioxane is a stabilizing agent added to contaminants such as TCE and Trichloroacetic (TCA) to preserve it during transport and storage, and is often associated with VOC contamination in groundwater. 1, 4-dioxane is also commonly found in some paint strippers, dyes, greases, varnishes, waxes, antifreeze, and aircraft deicing fluids. While there is not an MCL for 1, 4-dioxane, the California Division of Drinking Water (DDW) has an established notification level of 1 ppb. The California DDW regulates public drinking water systems within California. The “notification level” is the level at which water purveyors must notify the DDW and its customers of the presence of the contaminant.

Finally, **nitrate**, an inorganic contaminant, has also been detected in the groundwater in the SFV, consistently at concentrations in excess of the MCL of 45 parts per million (ppm). Nitrate contamination may be the result of past agricultural practices and/or septic system or ammonia releases.

As a result of the VOC contamination in groundwater in the eastern SFV, many drinking water wells have been taken out of service. Much of the drinking water currently delivered to residents is purchased from the Metropolitan Water District (MWD) of Southern California. MWD obtains most of its water from the Colorado River Aqueduct and the State Water Project (from the Sacramento-San Joaquin Delta). In addition, the City of Los Angeles obtains a substantial portion of its drinking water from the Los Angeles aqueducts, which collect surface water from the Owens Valley and eastern Sierra Nevada Mountains. Groundwater from wells that remain in service in the SFV is tested frequently and treated, if necessary, before being blended with surface water from MWD, Los Angeles aqueducts, and other sources. The water agencies of the SFV closely monitor the quality of drinking water delivered to residents. The delivered water meets all federal and state requirements.

Additional information on the Site contaminants and the health effects are presented in Appendix 3. Site maps of the contaminants are provided in Appendix 4, and a list of links to the Site Overviews web page and EPA Fact Sheets are provided in Appendix 5.



Typical Air Treatment System



Typical Carbon Vessel at a Site

***NOTE: Words in BOLD are defined in the Glossary on page 37.**

CHAPTER 3

Community Interviews, Issues, and Concerns

To better understand the SFV communities, EPA interviewed local residents, property owners, business representatives, activists, state and local agency representatives, and local elected officials. Interviewees have lived or worked in the area for an average of 30 years.

Each interview consisted of approximately 20 questions and covered many topics. The interviews were conducted in a discussion format. Each interviewee was encouraged to discuss his or her interests, concerns, and ideas. The interviews revealed a number of common concerns, which are grouped by theme. A list of the organizations interviewed and the full list of interview questions is provided in Appendix 6.

Interview responses showed a moderate level of knowledge about and medium to high interest in the SFV Superfund Sites; however, interviewees perceived general community interest to be lower.

The responses are grouped into five themes. These themes will guide communication and community involvement program activities to meet the specific needs of the SFV community.



Typical Community Meeting Setting

***Note: Words in BOLD are defined in the Glossary on page 37.**

Theme 1

Environmental Contamination Concerns: Highest on the list of concerns was a desire for contaminant-specific information, including original and ongoing sources of contaminants.

Theme 2

Treatment Concerns: Also high on the list of concerns was interest in how the contaminants are treated, including cleanup systems, timing of cleanup, and the availability of groundwater as a resource. Organization representatives and residents were very interested in knowing when the groundwater would be returned to beneficial use.

Theme 3

Communication Concerns: The SFV is densely populated and the population is diverse, resulting in varied concerns, and communication preferences. No single involvement method would satisfy the communication needs for all of the stakeholders in the community. Many interviewees asked for more information about the environmental cleanup program, stating that they had heard nothing about it previously. In terms of what they would like conveyed, most interviewees said that they would like general information about the cleanup, including an overview of the program, the responsibilities of the people working on the cleanup, a cleanup timeline, and the status of work.

Theme 4

Health Concerns: Health is a concern for most segments of the community. Interviewees were concerned about the potential health effects of contamination at the SFV Sites, including **emerging contaminants** and whether new contaminants might be discovered in the future.

Theme 5

Financial Concerns: Local government representatives and other stakeholders would specifically like to know sources for cleanup funding.

CHAPTER 4

Community Profile

Historically, the SFV's population growth has been tied to the aerospace and entertainment industries. In the mid 1920s, Lockheed Aircraft Company purchased a piece of Burbank farmland and built a plant for the production of its planes. By the beginning of World War II, there were some 94,000 employees producing planes. Other large aerospace and defense facilities followed, which were supported by many small- to medium-sized electronics, machining, avionics, and related businesses in the area. When Lockheed and other aerospace, defense, and supporting businesses closed their manufacturing operations in the SFV in the 1990s, their facilities were often transformed into light industrial and commercial development projects. The motion picture business also moved to the SFV in the 1920s and has continued to grow. Large and small entertainment companies continue to influence the SFV culture and business.

To assist the communities located within the SFV Superfund Site areas, demographic information for age, income, length of residence, education, race, country of origin, and language preference was collected. Information was collected from the United States Census Bureau (2010 and 2000 data) and from consumer marketing data (2012). Demographic information was collected for the ZIP codes that fall within the SFV Superfund Site Areas 1, 2, 3, and 4. A total of 22 ZIP codes were identified for these areas (see map on page 21). These ZIP codes include portions of the Cities of Los Angeles, Burbank, and Glendale. Although some ZIP code areas are only partially within the Superfund boundaries, the data for these ZIP codes is included because it is a valuable indicator in developing the community profile. Four of the 22 ZIP codes are special business ZIP codes and do not have residences associated with them (91521, 91522, 91523, and 91608); therefore, no data is included for these ZIP codes in the following summary.

The following information includes a summary of 18 ZIP codes within the Superfund Site areas. A detailed breakdown of this information by ZIP code is presented in Appendix 7. Table 4-1 presents demographics for age, income, length of residence, and education.



Public Meeting

***NOTE: Words in BOLD are defined in the Glossary on page 37.**

Table 4-1: Summary 18 Zip Codes in Appendix 7

Age, Income, Length of Residence, and Education Demographics

| CATEGORY | DATA |
|--|-------------|
| Population | |
| Total Residents | 574,532 |
| Age | |
| Median Age | 37.3 |
| Less than 18 years | 23.3% |
| 19 to 64 years | 66.1% |
| 65 years and older | 10.7% |
| Income | |
| Individual | \$33,671 |
| Median Household | \$59,749 |
| Length of Residence | |
| Less than 5 years | 32.4% |
| 5 to 14 years | 36.0% |
| More than 14 years | 31.7% |
| Education | |
| Completed High School | 28.6% |
| Completed College | 24.0% |
| Completed Graduate School | 7.5% |
| Attended Vocational/ Technical School | 0.3% |
| Unknown | 39.6% |

*Population and age data is from the 2010 US Census, individual income data is from the 2000 U.S. Census. Other data is based on consumer marketing data for 2012.

Table 4-2: Summary 18 Zip Codes in Appendix 7

Race, Country of Origin, and Language Preference Demographics

| CATEGORY | DATA |
|--|-------------|
| Race | |
| Asian | 12.0% |
| African American | 1.8% |
| Hispanic | 38.3% |
| White/Other | 46.7% |
| Unknown | 1.2% |
| Country of Origin – Top Ten | |
| Hispanic | 39.2% |
| English (British) | 14.1% |
| Armenian | 8.6% |
| German | 3.9% |
| Irish | 3.4% |
| Scottish | 3.1% |
| Korean | 2.2% |
| Italian | 2.1% |
| Chinese | 1.7% |
| French | 1.6% |
| Language Preference – Top Ten (excluding English) | |
| Spanish | 33.8% |
| Armenian | 2.6% |
| Korean | 1.1% |
| Chinese | 0.6% |
| Arabic | 0.5% |
| Japanese | 0.4% |
| Vietnamese | 0.3% |
| French | 0.3% |
| Hindi | 0.3% |
| Russian | 0.2% |

*Based on consumer marketing data for 2012.

Table 4-2 presents demographics for race, country of origin, and language preference. The top ten countries of origin and top ten language preferences are included, excluding the English language.

*Note: Words in BOLD are defined in the Glossary on page 37.

CHAPTER 5

Community Involvement Action Plan

Based on the themes and input obtained during the interviews, data from the Community Profile, and regulatory guidelines, EPA may implement a variety of outreach activities and communication tools to meet the information needs of the community. These outreach methods are outlined in Table 5-1, which lists each activity, indicates which of the five themes are addressed by the activity, and indicates whether the activity can be used to meet regulatory requirements by communicating a milestone in the Superfund process. The five themes have 9 to

18 activities associated with them to reach out to the community. The multiple activities will target the diverse population and cultures of the SFV. Appendix 8 provides additional information including key contacts, meeting locations, and locations of Site information repositories where the community can obtain more information about the Sites. Materials will be translated to meet audience language needs. The Community Profile information will be used to determine what languages are applicable depending on the specific area(s) impacted.



Site Inspection

***NOTE: Words in BOLD are defined in the Glossary on page 37.**

Table 5-1: Outreach Activities and Communication Tools to Meet Theme Concerns

| Activity |
|---|
| Community Point of Contact: EPA will have one main point of contact for the public. |
| Telephone Hotline available at 1(800) 231-3075 |
| Web site: Provides project data including background info and published reports. Other organizations, such as the Los Angeles Department of Water and Power (LADWP) could provide links to EPA's Web site. |
| E-mail Lists: Interested parties can receive information electronically, rather than via regular mail by contacting the community involvement coordinator in Appendix 8 |
| Technical Assistance: can be provided to the community for activities that help the community participate in decision making at a site. Funding is available to qualified community groups in the form of a Technical Assistance Grant to contract with independent technical advisors to interpret and help the community understand technical information about the site. EPA contractor, through the Technical Assistance Services for Communities, can assist the community on specific projects as well. |
| Mailing List: Key stakeholders, residents in the area of treatment facilities, and anyone requesting to be added will be included on the Site mailing list. |
| Multi-lingual information: Materials can be translated according to audience needs. |
| Fact Sheet: For information regarding specific aspects of the investigation and cleanup, usually at milestones in the process. |
| Notification Flyers: For information specific to a targeted area, usually for field work such as well installation. |
| Door-to-Door Outreach: Method for distributing information about field activities and for understanding stakeholder concerns. |
| Public Notice: Used to announce public meetings and other project milestones in local newspapers. |
| Community and Formal Public Meeting: Held at key points in the process to officially announce project information. |
| Public Comment Period: Required at decision-making points in the process, such as the Proposed Plan. |
| Map and Visual Information: Poster board and online resources so residents can see where they live in relation to site facilities. |
| Public Open House or Availability Session: May be held when a new phase of work begins. (or as needed) |
| Presentations to Groups: Upon request, EPA will provide project information to organizations such as city councils and neighborhood councils. |
| News Release: Current information released to local media outlets, such as the Burbank Leader, Glendale News Press, San Fernando Sun, LA Daily News, LA Times, and radio such as KPFK, KPCC, and KHTS. This will be accomplished at key milestones, and at the discretion of EPA's press officer. |
| Social Media: EPA may use alternative to tradition methods of outreach, such as Facebook, Yahoo news groups, Twitter, patch.com, SFV Scoop, SFV Buzz, and Toluca. |
| Existing Media: Brief project updates and pre-written articles can be published in regional publications, such as CBO Newsletters (League of Women Voters, homeowner's associations, GSFV Chamber of Commerce). |
| Community Events/Booths: Information can be provided direct to the public at events that attract community members. This will be accomplished as needed, as interest dictates. |

CHAPTER 6

Cleanup Actions for Sites and Schedule

To manage the multi-year investigation and cleanup project, EPA will create a schedule by SFV Area that includes sampling efforts, delivery of technical documents, cleanup decision making, remedy design, construction, and review and evaluation

of the results. Throughout this process, there are opportunities for community involvement. Table 6-1 provides a sample of the types of community involvement activities related to the different phases of a Site status.

Table 6-1: Superfund Process and Required Activities

| SITE STATUS | POSSIBLE ACTIONS | ESTIMATED DATES |
|---|---|-----------------|
| Beginning of Remedial Investigation | Identify Administrative Record | EPA Requirement |
| | Community Interview and CIP | EPA Requirement |
| | Identify EPA Spokesperson | EPA Requirement |
| Initial Monitoring Well Installation | Fact sheet mailing | |
| | Community open house | |
| | Door-to-door notification and outreach | |
| Sampling Results | Fact sheet mailing | |
| | Community group presentations | |
| Remedial Investigation Complete | Fact sheet mailing | |
| | Interactive community presentations | |
| Feasibility Study Beginning | Alternatives workshop | |
| Feasibility Study Complete | Proposed Plan mailing | EPA Requirement |
| | Public notice and press release | EPA Requirement |
| | Proposed Plan public meeting | EPA Requirement |
| | Public comment period | EPA Requirement |
| | Interactive community presentations | |
| Record of Decision (ROD) Signed | Fact sheet mailing | |
| | ROD and responsiveness summary availability notice in newspaper | EPA Requirement |
| | Interactive community presentations | |
| Remedial Design Complete | 30% Design Fact Sheet | |
| | Fact sheet mailing and email | |
| | Interactive community presentations | |
| Remedy Construction Complete | Press release | |
| | Fact sheet mailing and email | |
| | Interactive community presentations | |
| Five Year Review | Notice in local paper and email interested stakeholders | |
| Site Deletion | Notice in Federal Registry and local newspaper | EPA Requirement |

*Note: Words in BOLD are defined in the Glossary on page 37.

Table 6-2: Schedule of Cleanup Activities for each San Fernando Valley Area.

Presents a tentative schedule for each area of the SFV Site Areas with a list of upcoming activities and estimated completion dates. This list will be updated periodically.

| AREA | POSSIBLE ACTIONS | ESTIMATED DATES |
|------------------------------------|--|------------------------|
| Area 1 – North Hollywood OU | • Remedial Design for Second interim Remedy | December 2017 |
| | • Five-Year Review | September 2018 |
| | • Remedial Construction for Second Interim Remedy | December 2018 |
| Area 1 – Burbank OU | • Five-Year Review | September 2018 |
| | • Focused Feasibility Study | September 2018 |
| | • Second Interim ROD | September 2019 |
| | • Remedial Design | September 2020 |
| | • Remedial Construction | September 2021 |
| Area 2 – Glendale OU | • Remedial Construction for Remedy Enhancements | March 2016 |
| | • Remedial Investigation for Second Interim Remedy | June 2017 |
| Feasibility Study Beginning | • Feasibility Study for Second Interim Remedy | December 2017 |
| Feasibility Study Complete | • Second Interim ROD | September 2018 |
| | • Third Five-Year Review | September 2018 |
| | • Remedial Design for Second Interim Remedy | September 2019 |
| | • Remedial Construction for Second Interim Remedy | September 2020 |
| Area 2 – Glendale Chrome OU | • Remedial Investigation | January 2016 |
| | • Feasibility Study and Proposed Plan | October 2017 |
| | • ROD | April 2018 |
| | • Remedial Design | April 2019 |
| | • Five-Year Review | September 2018 |
| | • Remedial Construction | October 2019 |
| Area 3 – Verdugo | • Site delisted | No Further Action |
| Area 4 – Pollock | • Remedial Investigation/Feasibility Study | March 2018 |
| | • Proposed Plan | November 2018 |
| | • ROD | November 2019 |
| | • Remedial Design | November 2020 |
| | • Remedial Construction | November 2021 |

***NOTE: Words in BOLD are defined in the Glossary on page 37.**



APPENDIX 1

General Overview of the Superfund Cleanup Process

Many community interviewees had questions about how EPA cleans up sites. The following summary details the steps in the cleanup process, from an initial investigations through the removal of the site from the National Priorities List (NPL or Superfund List). Table 6-2 shows where each SFV Site is in this process explained below.

1. Site Discovery

The first step in the Superfund process is called Site Discovery. This term refers to all of the different ways that EPA becomes aware of the need to consider a site for cleanup. Sometimes the notification comes from the general public, from a State or local agency that has been working on the site for some times, and other reports, such as the media, bring the site to EPA's attention. If an immediate threat is found, EPA will conduct an emergency response to protect the public and environment as needed.

2. Preliminary Assessment/Site Inspection (PA/SI)

Following Site Discovery, EPA reviews any existing information, including prior sampling results, in a step called the Preliminary Assessment. This is followed by site visit, additional sampling or other activities, which are called the Site Inspection. Together these are called the Preliminary Assessment/Site Inspection or PA/SI.

3. National Priorities List (NPL) Process

If the site is thought to have significant contaminants, EPA then goes through the National Priorities Listing (NPL) process, which requires an analysis of the types of known or suspected contaminants and the proximity of contaminants to people or the environment, to determine the potential for harm. If EPA action is found to be needed, EPA will approach a State's Governor to request the State's agreement for proposing that the site be added to the National Superfund List.

If EPA receives State concurrence, EPA publishes an announcement of the site being proposed to be designated as a Superfund site in the **Federal Register** and begins a 30-day public comment period. EPA will provide notification of the designation to the public through outreach, such as newspaper advertisements, and if the site has an existing mailing list, a flyer or fact sheet announcing the comment period and explaining the Superfund program.

EPA will consider public comments about adding the site to the NPL before it makes a decision. If the site is added to the NPL, EPA will again notify the public and formally begin to develop its Community Involvement process.

4. Remedial Investigation (RI)

Following NPL listing, EPA conducts a thorough investigation of the site, characterizing both the lateral extent of contamination (the area affected and to what depth), and the types and concentrations of contaminants. This process usually involves sampling air, soil, surface water and/or groundwater and often times multiple sampling events that can take many years.

During this time, the site's Community Involvement Coordinator conducts stakeholder interviews to help understand the unique issues and concerns. This information is included into a Community Involvement Plan (CIP) which organizes EPA's public participation effort. The CIP includes a general cleanup timetable, a list of activities to involve the public, and contact information. Sometimes at the conclusion of the RI, EPA issues a fact sheet that summarizes the findings. The RI report is placed in the Information Repository (usually at a library) and on the site's web page. In the case of the San Fernando Valley Sites, initiation of an investigation will not necessarily trigger a new CIP; rather, the development of an updated CIP will correspond to determinations of need and/or interest.

***Note: Words in BOLD are defined in the Glossary on page 37.**

5. Feasibility Study (FS)

Once the contamination has been identified, EPA develops a list of ways to address the contamination. The tools, techniques and processes to address contamination are organized into alternatives, often with multiple elements, and are evaluated using nine required Superfund criteria, including protection of human health and the environment, ease of implementation, cost, time to reach cleanup goals, and acceptance from the State and public.

The **Feasibility Study** report is available in the Information Repository and on the Site web page. The RI and FS are often spoken of in combination because they are often part of the same scope of work, so they are often noted as the “RI/FS” process.

6. Proposed Plan

A **Proposed Plan** is a document written for the public and distributed principally through EPA’s mailing list and a notice in the local newspaper. It announces a formal 30-day comment period (minimum), summarizes the findings of the RI/FS, compares various ways to address site contaminants, identifies EPA’s preferred cleanup alternative, and explains how to provide public comments. EPA considered comments received and makes a cleanup decision. It is memorialized in a document called a **Record of Decision** (ROD). The ROD includes a responsiveness summary to comments received.

7. Remedial Design (RD)

Remedial Design is the development of engineering drawings and specifications for the site cleanup. This phase follows the **remedial investigation**/feasibility study and publication of a ROD. A fact sheet is distributed when the design work is at 30% complete, and another fact sheet when final, if warranted. The basis for this activity is to give the most affected part of the community an opportunity to give input into this part of the process.

8. Remedial Action (RA)

Remedial Action is the actual building of treatment facilities, removal of waste piles, entombment of contamination, implementation of **institutional controls** or any other aspect that implements the cleanup. This phase includes the testing and certifying of any facilities that are put into operation and the development of a maintenance and operational manual for the duration of the cleanup.

9. Five-Year Review

This is an analysis prepared every five years to determine if site remedies where waste remains is protective of human health and the environment. Prior to the initiation of the **Five-Year Review** process, the community is notified and asked to provide any information it has about the operations of the as-built remedy, or any issues and concerns that have arisen regarding the remedy. Five-Year Review are available at the site repositories and on the web site. The Five-Year Review report will also give recommendations to ensure the remedy operates and achieves its cleanup goals. This process is on-going until there no remaining contamination on the site above the stated cleanup levels established in the ROD. Five-Year Reviews are available in the site repositories in Appendix 8.

10. Delisting

When a site has met its cleanup objectives, it can be removed from the National Priorities List (NPL or the Superfund List). Removing a site from the NPL is referred to as a “deletion.” The public is notified and a comment period is held prior to removal from the NPL.

OTHER CLEANUP STEPS

Two other potential steps in the site’s cleanup process might occur.

1. Interim Actions

An interim action is any short-term, temporary or preliminary construction or activity that addresses contamination before a final cleanup decision is made. Interim actions are taken to protect public health or the environment, where the timeframe to get to the final action is very long and/or complicated. The choosing of an interim action often results in a public participation process similar to that leading to a Record of Decision.

2. ROD Amendment/Explanation of Significant Differences

If a final remedy needs to be amended after a Record of Decision has been issued, a public comment process occurs similar to the Proposed Plan process identified in item 6 of the previous section. An **Explanation of Significant Differences (ESD)** is presented in a fact sheet format and a notice is published in a local paper upon its availability to the public.

***NOTE: Words in BOLD are defined in the Glossary on page 37.**

THE SUPERFUND PROCESS



1. Preliminary Assessment/Site Inspection

EPA evaluates the potential or actual risk posed by hazardous waste from a site to determine whether designating it as a Superfund site (in other words, placing it on the NPL) is warranted.



2. Placement on the National Priorities List (NPL)

EPA adds the site to the National Priorities List.



3. Remedial Investigation

The levels and location of contamination at the site are studied, and risks to human health and the environment are evaluated.



4. Feasibility Study

Potential cleanup technologies for the site are explored, compared and evaluated.



5. Proposed Plan

Community members can comment on the proposed cleanup alternatives for the site.



6. Record of Decision

EPA explains which cleanup alternative(s) will be used to clean up the site in a public document called the Record of Decision.



7. Remedial Design

Design of the cleanup technologies that will be used at the site.



8. Remedial Action

Construction of the cleanup technologies and the actual cleanup of the site.



9. Long-term Operations and Maintenance

Measures designed to ensure that the remedy is protective of human health and the environment.



APPENDIX 2

San Fernando Superfund Sites History

There are four San Fernando Valley (SFV) Superfund sites located in the eastern portion of the SFV, two of which are further divided into operable units (OUs). The four sites are North Hollywood and Burbank OUs (Area 1); Glendale/Crystal Springs: Glendale North and South OUs, including Glendale Chromium OU (Area 2); Verdugo (Area 3); and Pollock/Los Angeles: Study Area (Area 4). See page 24 General Site map.

As described below, EPA has selected remedies to address contamination in Area 1 and the VOC contamination in Area 2 sites, and a final “no action” remedy for the Area 3 site. Area 4 and the chromium contamination in Area 2 is still being investigated to determine the full nature and extent of contamination.

Concurrent with the implementation of the interim remedies, EPA is continuing its basin-wide groundwater investigation to evaluate remedy performance and provide the basis for selecting final remedies at the sites. The interim remedies were selected to address volatile organic compound (VOC) contamination in groundwater.

Area 1: North Hollywood Operable Unit (OU)

Since 1989, the Los Angeles Department of Water and Power (LADWP), with EPA funding and oversight, has been operating the existing North Hollywood OU remedy, which is comprised of a groundwater extraction and treatment facility designed to remove VOCs from the groundwater and prevent the movement of contamination within the North Hollywood OU. The contaminated groundwater is captured by a series of extraction wells and treated for VOCs using air stripping and vapor-phase **granular activated carbon (GAC)**. The treated groundwater is then sent to the LADWP’s North Hollywood Pumping Station, where it is blended with other sources of water to supplement LADWP’s water supply. In 1996 and 1997, EPA settled with 37 **potentially responsible parties (PRPs)** for the costs incurred in the investigation, construction, and operation of the existing North Hollywood OU remedy.

Beginning in 1998, EPA has conducted four Five-Year Reviews of the effectiveness of the North Hollywood OU remedy. The reviews determined that the existing remedial actions at the North Hollywood OU were not meeting the objectives, including plume capture of groundwater, identified in the 1987 ROD for the North Hollywood OU. The reviews also identified the threat posed by emerging contaminants, such as hexavalent chromium (Cr [VI]) and 1, 4-dioxane, which the existing system is not capable of treating. EPA subsequently prepared a **Focused Feasibility Study (FFS)** to evaluate alternatives for improving the existing North Hollywood OU extraction and treatment system, proposed a remedy in a Proposed Plan (July 2009), conducted a public meeting and a 30-day comment period (with an extension), and selected a remedy that is documented in the Second Interim ROD (September 2009). EPA subsequently amended the Second Interim ROD to also allow for reinjection of the treated groundwater, should an expected agreement between the PRPs and the water purveyors not be accomplished (January 2014).

By improving the capture of the contaminant plume within the North Hollywood OU, the Second **Interim Remedy** will minimize the migration of contaminants from the North Hollywood OU to the Burbank OU and to the downgradient SFV Area 2 Superfund Site, as well as into the nearby LADWP water supply wells. The Second Interim Remedy also includes treatment systems to remove chromium and 1, 4 dioxane. The second interim remedy is currently being designed. In the future, EPA will select a final remedy for the SFV Area 1 Site.

Area 1: Burbank Operable Unit

The Interim Remedy for the Burbank OU is a pump-and-treat facility designed to capture contaminated groundwater and treat it to drinking water standards for use in the City of Burbank’s water supply system. The extraction wells and treatment plant were constructed in 1994 under EPA’s oversight pursuant to a settlement between EPA and the **PRPs**. This remedy has been operational since 1997. The plant’s intended

***NOTE: Words in BOLD are defined in the Glossary on page 37.**

design capacity of 9,000 gallons per minute (gpm) can supply up to 50 percent of Burbank's drinking water needs. The Burbank OU groundwater remedy was implemented through an agreement between EPA, Lockheed Martin, and Weber Aircraft (which now has gone bankrupt). In March 1992, EPA entered into a legally enforceable agreement stipulating that the lead PRP, Lockheed Martin, was responsible for designing and constructing a facility capable of producing water that met both California and federal drinking water requirements. The Burbank Treatment Facility became fully operational by June 1997. Lockheed relinquished facility operations to the City of Burbank in early 2000. The City of Burbank continues to operate and improve the facility with support from both Lockheed and EPA.

Since then, the City of Burbank has embarked on a number of facility improvement projects. Operations at the plant have been running smoothly throughout the decade with the exception of a fire in February 2008. High temperatures in an overheated blower set fire to fiberglass and other material. Fire damage kept the plant out of operation until fall 2008. In 2011, the City of Burbank conducted a 60-day test demonstrating the facility is capable of meeting all criteria set forth in the 1992 Agreement with EPA, as amended, including the ability to operate at its 9,000-gpm design capacity. EPA and Lockheed Martin will continue to monitor the effectiveness of the groundwater remedy and work with Burbank to improve plant operations. Similar to the North Hollywood OU, assessments of plant performance and plume containment have been conducted as part of Five-Year reviews, the next of which will occur in 2018.

Area 2: Glendale North and South Operable Units

Since August 2000, the City of Glendale, with EPA oversight, has operated a 5,000 gallon per minute (gpm) treatment plant to address VOC (TCE and PCE) contamination for the Glendale OU. The PRP paying for the operation of the plant is the Glendale Respondents Group (GRG). In September 2000, the City of Glendale became concerned about the Cr(VI) concentrations in the Glendale OU water, and began to operate the system to limit the concentration in the City water supply to 5 ppb, the level approved by the Glendale City Council.

In September 2013, EPA completed the Second Five-Year Review of the Glendale OU remedy. The conclusions of the Second Five-Year Review include:

- Contaminants in the North and South groundwater plumes are not completely captured by the plant;

***Note: Words in BOLD are defined in the Glossary on page 37.**

- New MCLs for hexavalent chromium may affect the duration and effectiveness of the current remedy; and
- The potential for a **vapor intrusion** exposure pathway. Vapor intrusion generally occurs when there is a migration of volatile chemicals from contaminated groundwater or soil into an overlying building. Volatile chemicals can emit vapors that may migrate through subsurface soils and into indoor air spaces of overlying buildings

An overall **protectiveness determination** was delayed until additional data could be collected to evaluate the vapor intrusion pathway. Additionally, obtaining complete capture of contamination also would need to be established to be protective in the long term.

The GRG is implementing enhancements to the remedies intended to improve capture of contamination in groundwater. The remedy enhancements include the installation of an additional extraction well, the installation of a new groundwater **monitoring well**, the modification of pumping rates, and a monitoring period to evaluate well performance.

The City of Glendale constructed two chromium treatment demonstration projects to evaluate technologies to remove Cr(VI) from drinking water. The demonstration studies were completed in 2012, but the system continued operating until 2015 since it was effectively working to reduce contamination. As part of the remedy enhancements, the treatment systems will be relocated to another part of the Glendale Operable Unit and will begin operation in early 2016, where it will run indefinitely.

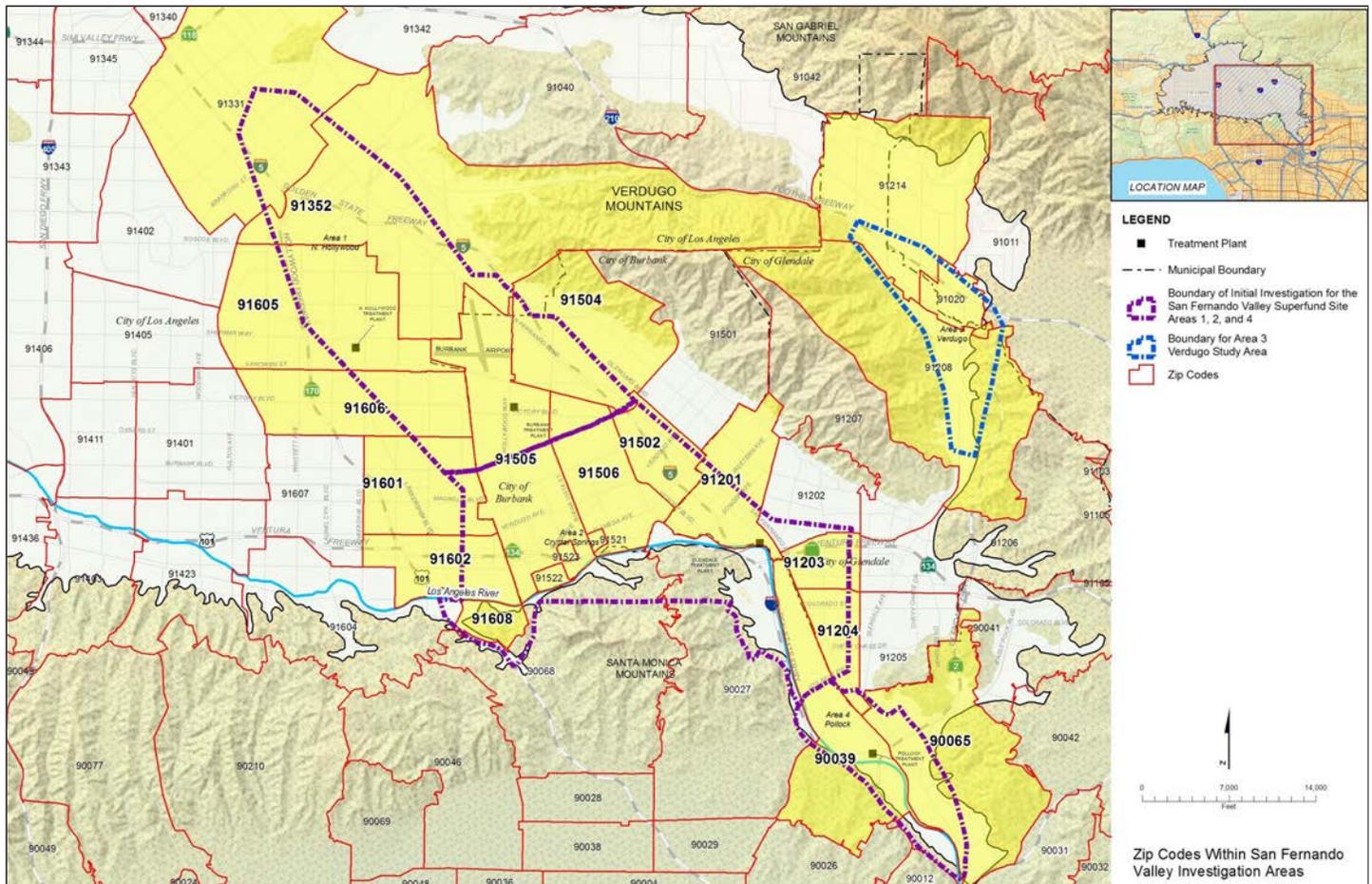
The GRG is also conducting a desktop study to evaluate the vapor intrusion pathway from the regional groundwater across Area 2. In conjunction with the desktop study, the GRG will be conducting sampling to assess areas identified with a higher likelihood of vapor intrusion and address data gaps. Sampling may include the collection of groundwater, soil gas, sub-slab and indoor air data from residences and other overlying structures. Data will be compared against screening levels by EPA's toxicologists to determine the appropriate next steps.

Area 2: Glendale Chromium Operable Unit

EPA created the Glendale Chromium OU in 2007 to address Cr(VI) contamination in Glendale area groundwater. These efforts are being conducted in collaboration with two state



Groundwater Sampling



San Fernando Site Map by Zip Codes

agencies, the Los Angeles Regional Water Quality Control Board (RWQCB), and the California Department of Toxic Substances Control (DTSC), who are taking the lead on investigating and cleaning up the numerous sources of chromium contamination. EPA has taken on the lead agency role for several suspected Cr(VI) sources on a case by case basis, including two facilities within the Glendale Chromium Operable Unit, “All Metals” and “Drilube – Wilson.”

To address the All Metals site (an abandoned plating shop), EPA completed a cleanup action in December 2007, which removed large volumes of hazardous substances and contaminated soil from the site, and capped and fenced the site.

At the Drilube – Wilson site (an abandoned plating shop), EPA completed an investigation of soil, soil gas, surface soil, and indoor air in May 2009. The investigation revealed high concentrations of chromium and VOC contamination. EPA conducted a **Removal Action** in 2010 to address chromium contamination in the shallow soil.

EPA is leading the remedial investigation of chromium contamination in groundwater in the Glendale Chromium OU. A group of PRPs, the Glendale Chromium OU Respondents, assisted EPA by performing a portion of the remedial investigation. In 2012, EPA and the Glendale Chromium OU Respondents installed over 30 new groundwater monitoring wells to help evaluate the extent of chromium contamination.

The Remedial Investigation report is scheduled for completion in late 2015. Following the remedial investigation, a feasibility study will evaluate cleanup options to address chromium contamination. EPA is currently negotiating with the Glendale Chromium OU Respondents to conduct the Feasibility Study.

Area 3: Verdugo

EPA conducted an investigation at the SFV Area 3 site in 1992, in addition to an investigation of potential contaminant sources conducted by the RWQCB. Based on these investigations, EPA found no significant levels of groundwater contamination in the area. EPA issued a ROD in February 2004 that determined that no further action was needed for this site. The site was officially deleted as a Superfund site in April 2004, and no further action will be performed.

Area 4: Pollock/Los Angeles: Study Area

The SFV Pollock (Area 4) site comprises a study area located at the southern portion of the SFV basin near LADWP’s Pollock well field. In 1994, EPA completed a site assessment of this

area and determined that selecting and implementing a remedy was not necessary at that time because LADWP planned to install wellhead treatment at the Pollock well field to treat the contaminated groundwater captured by those wells.

In March 1999, LADWP reactivated two wells in the Pollock well field and began operating a groundwater treatment facility. The water is treated to drinking water standards and transferred to LADWP’s public water supply system. Pumping in the Pollock well field was expected to capture nearly all the contamination that is not captured by the Glendale OU remedy and prevent movement of contaminated groundwater into the Los Angeles River. EPA is currently evaluating available environmental contamination and source area data in Area 4, in preparation for a **Remedial Investigation/Feasibility Study**. EPA plans to evaluate the effectiveness of the Pollock well field project as part of its ongoing basin-wide studies, and determine whether additional actions are needed.

Groundwater Monitoring Program

Since 1992, EPA has monitored SFV groundwater contamination through its “Basin-wide Monitoring Program,” which historically consisted of quarterly groundwater sampling events, and has more recently consisted of semi-annual sampling events. EPA uses the groundwater monitoring results to help define the boundaries of the site contamination (extent and depth), develop contamination plume maps, assess the threat from emerging contaminants, and refine the **groundwater model** to assist in developing final cleanup remedies for the sites. Beginning in 2009, EPA has worked with the PRPs to begin implementing this basin-wide sampling event, by having the PRPs take over the sampling in their area. EPA continues to maintain the database of the sampling results, as well as the updated groundwater contaminant flow model.

In 2015, EPA migrated its data into a more user-friendly, web-based, database system, called EQUIS. This migration is currently ongoing, but is expected to allow more interaction by all interested parties, and provide a common platform for data review and analysis.

During each sampling event, EPA monitoring wells are sampled for volatile organic compounds (VOCs), primarily **trichloroethylene (TCE)** and **tetrachloroethylene (PCE)**, as well as **methyl tertiary butyl ether (MTBE)**, and **hexavalent chromium Cr(VI)**. Once per year, typically during the fourth quarter, samples are analyzed for a wider suite of constituents of concern, including **1, 4-dioxane**.

***Note: Words in BOLD are defined in the Glossary on page 37.**

APPENDIX 3

Site Contaminants and Exposure Information

The primary contaminants of concern for the San Fernando Valley (SFV) Superfund Sites are hexavalent chromium (Cr(VI)), trichloroethylene (TCE) and tetrachloroethylene (PCE). Cr(VI), TCE, and PCE have been detected in a large number of production wells at concentrations that are above the federal Maximum Contaminant Level (MCL), which is 5 parts per billion (ppb) for each of these volatile organic compounds (VOCs), and 10 ppb for Cr(VI). Other VOC contaminants in the SFV have also been detected above the federal and/or state MCLs. The table below summarizes the contaminants of concern, and describes potential sources of the contaminants, how a person can become exposed, and health effects. All water providers must ensure that water served to the public meets all Federal and state drinking water standards. The cleanup efforts at the SFV Sites are to ensure drinking water sources are protected.

As a result of the contamination in groundwater in the eastern SFV, many production wells have been removed from service. Much of the drinking water currently delivered to residents is purchased from the Metropolitan Water District (MWD) of

Southern California. MWD obtains most of its water from the Colorado River Aqueduct and the State Water Project (from the Sacramento-San Joaquin Delta). In addition, the City of Los Angeles obtains a substantial fraction of its drinking water from the Los Angeles aqueducts, which convey surface water from the Owens Valley and eastern Sierra Nevada Mountains. Groundwater from the production and extraction wells that remain in service in the SFV is tested frequently and treated, if necessary, before being blended with surface water from MWD, Los Angeles aqueducts, and other sources. The water agencies of the SFV closely monitor the quality of drinking water delivered to residents. The water meets all federal and state requirements and is safe to drink.

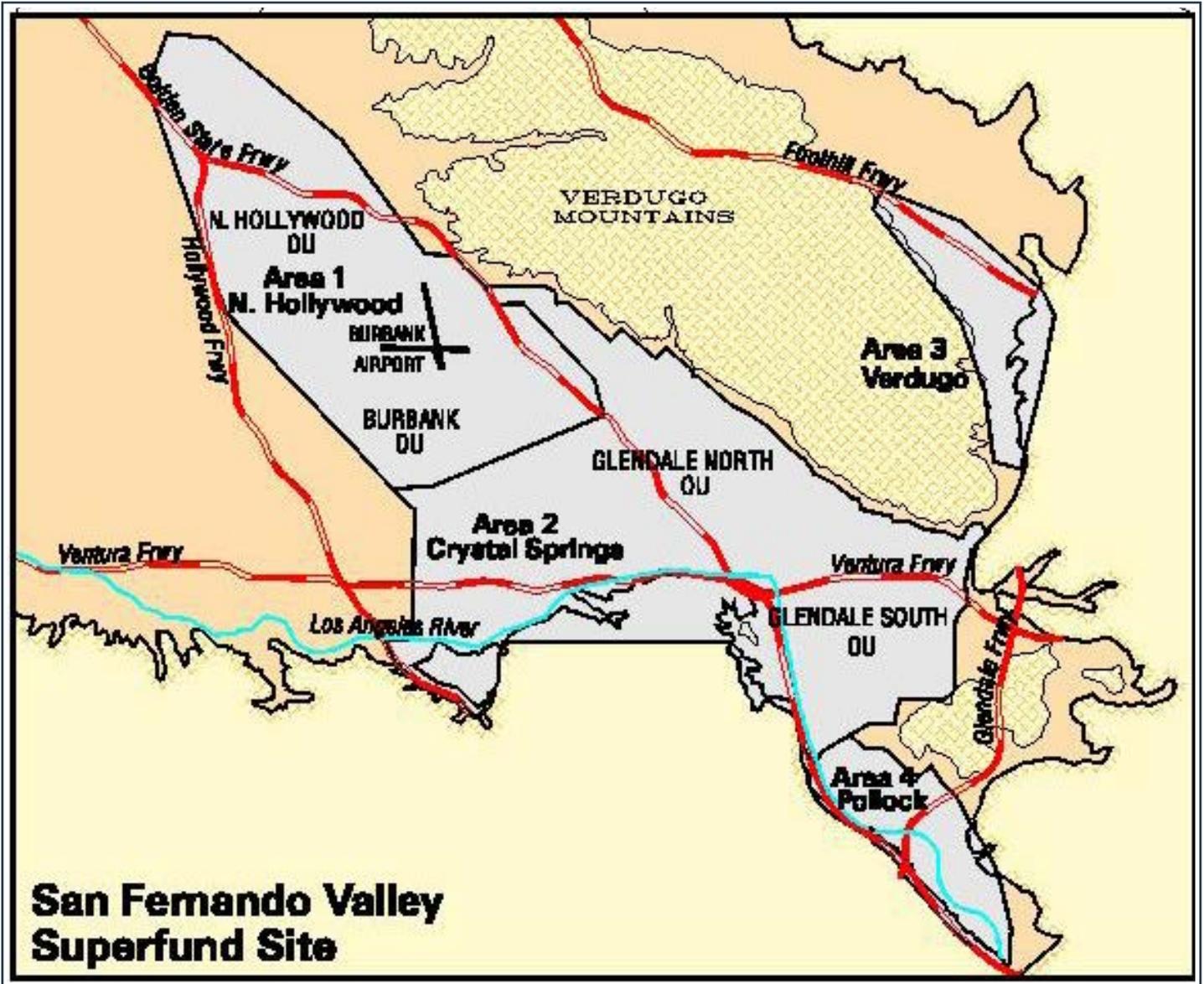
Additional information about these chemicals can be found on the Agency for Toxic Substances and Disease Registry (ATSDR) Web Site (<http://www.atsdr.cdc.gov/>). ATSDR is a federal public health agency that serves the public by using the best science, taking responsive public health actions, and providing trusted health information to prevent harmful exposures and diseases related to toxic substances.

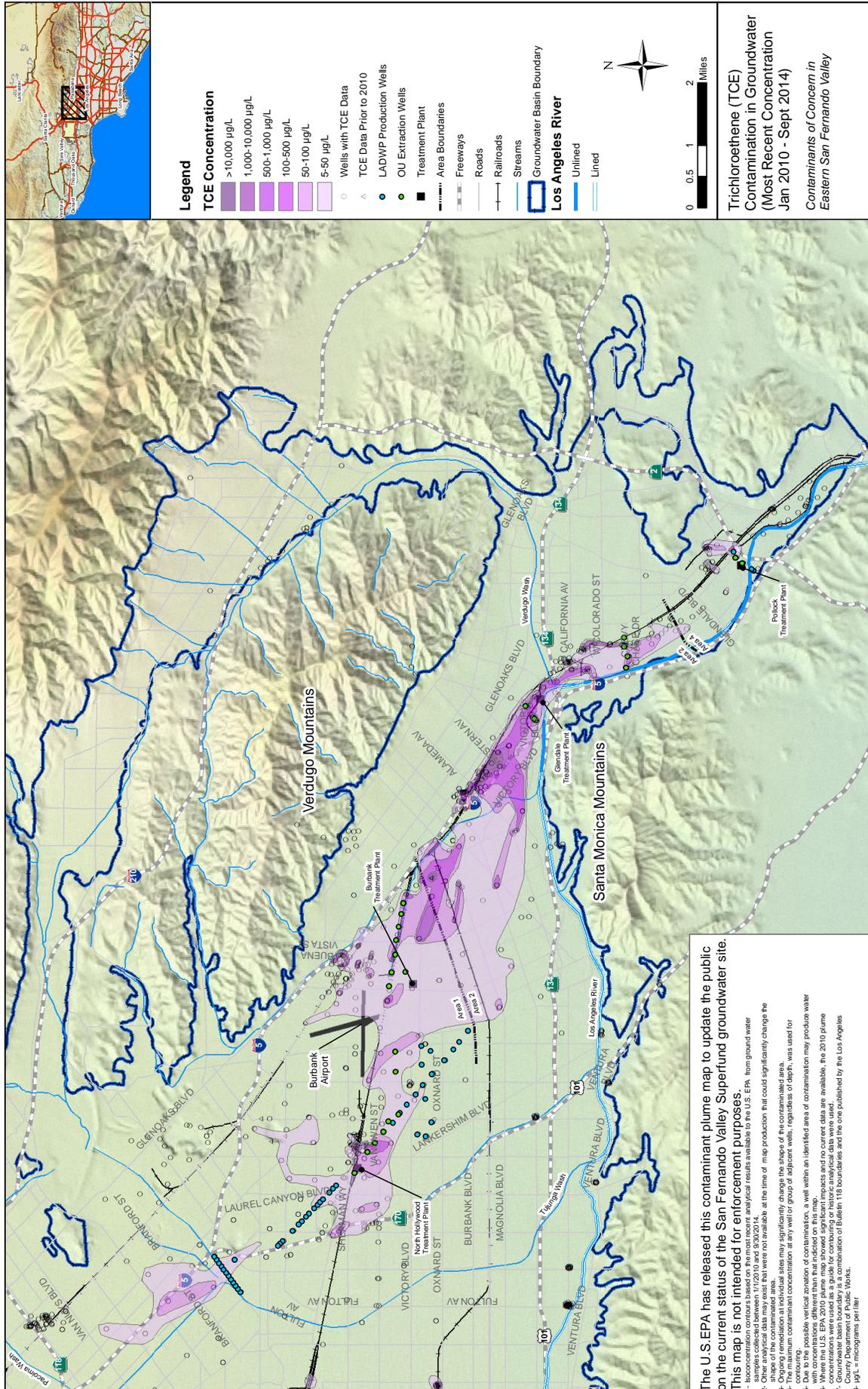
| Contaminant | Description | Pathways | Effects |
|--|---|---|--|
| Trichloroethylene State MCL: 5 ppb | Human-made chemical commonly used in commercial and industrial solvents/cleaners; also a degradation product of PCE | Ingestion of contaminated groundwater or inhalation | Nervous system effects, liver and lung damage, abnormal heartbeat, coma, and possibly death |
| Tetrachloroethylene State MCL: 5 ppb | Human-made chemical commonly used in industrial degreasers, spot removers, and dry cleaning solvent | Ingestion of contaminated groundwater or inhalation | Dizziness, headaches, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness, and death |
| Hexavalent Chromium Cr(VI) State MCL: 10 ppb (Note: Glendale City Council approve 5ppb) | Naturally occurring heavy metal used in industrial applications such as chrome plating, the manufacture of dyes and pigments, leather and wood preservation, and treatment of cooling tower water; the oxidation state of the chromium impacts its effect: Cr(III) is an essential dietary mineral in low doses, and Cr(VI) is carcinogenic | Skin contact, ingestion of contaminated groundwater or food, or inhalation | Cr(VI): Shortness of breath, coughing, wheezing, gastrointestinal and neurological effects; dermal exposure causes skin burns |
| 1,4-dioxane | Stabilizer added to solvents in manufacture of other chemicals and as a laboratory reagent | Skin contact, ingestion of contaminated groundwater or consumer products, or inhalation | Short-term exposure at high levels can cause severe kidney and liver effects. Long-term exposure over time can cause damage to the kidney and liver. |

***NOTE: Words in BOLD are defined in the Glossary on page 37.**

APPENDIX 4

Site Maps

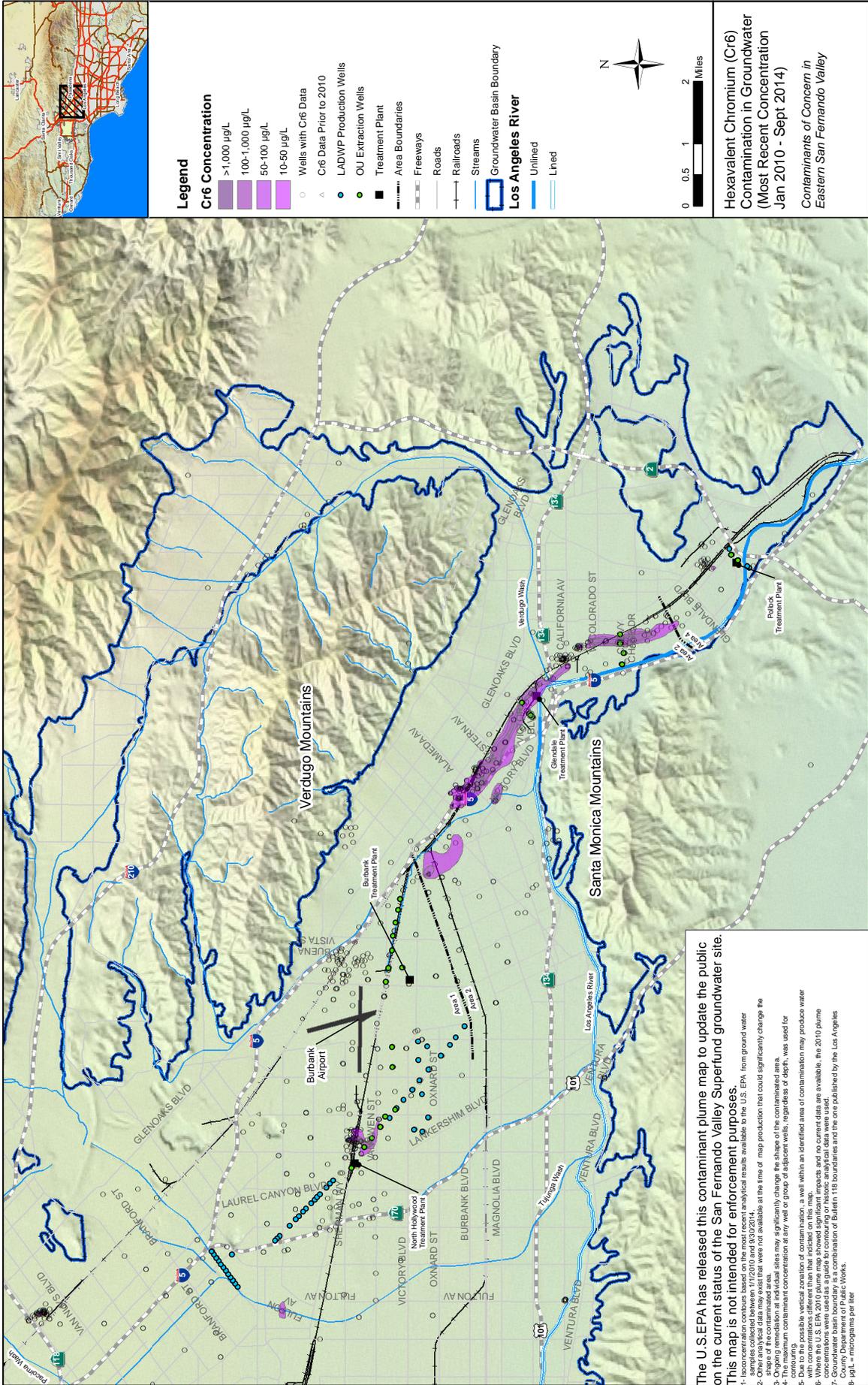




The U.S. EPA has released this contaminant plume map to update the public on the current status of the San Fernando Valley Superfund groundwater site. This map is not intended for enforcement purposes.

1. The maximum contaminant concentration at any well or group of adjacent wells, regardless of depth, was used for this map.
2. Other analytical data may exist that were not available at the time of map production that could significantly change the plume.
3. Ongoing remediation at individual sites may significantly change the shape of the contaminated area.
4. The maximum contaminant concentration at any well or group of adjacent wells, regardless of depth, was used for this map.
5. Contaminant concentrations may vary significantly over time and space.
6. Contaminant concentrations may vary significantly over time and space.
7. Where the U.S. EPA 2010 plume map showed significant impacts and no current data are available, the 2010 plume map was used.
8. Groundwater basin boundary is a combination of Bulletin 118 boundaries and the one published by the Los Angeles County Department of Public Works.
9. µg/L = micrograms per liter.

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Legend

- Cr6 Concentration**
- >1,000 µg/L
 - 100-1,000 µg/L
 - 50-100 µg/L
 - 10-50 µg/L
- Wells with Cr6 Data
 - △ Cr6 Data Prior to 2010
 - LADWP Production Wells
 - OU Extraction Wells
 - Treatment Plant
 - Area Boundaries
 - Fireways
 - Roads
 - Railroads
 - Streams
 - Groundwater Basin Boundary

Los Angeles River

- Unlined
- Lined



Hexavalent Chromium (Cr6)
Contamination in Groundwater
(Most Recent Concentration
Jan 2010 - Sept 2014)

Contaminants of Concern in
Eastern San Fernando Valley

The U.S. EPA has released this contaminant plume map to update the public on the current status of the San Fernando Valley Superfund groundwater site. This map is not intended for enforcement purposes.

- 1- Isoconcentration contours based on the most recent analytical results available to the U.S. EPA, from ground water.
- 2- Other analytical data may exist that were not available at the time of map production that could significantly change the shape of the contaminated area.
- 3- The maximum contaminant concentration at any well or group of adjacent wells, regardless of depth, was used for contouring.
- 4- The maximum contaminant concentration at any well or group of adjacent wells, regardless of depth, was used for contouring.
- 5- Where the U.S. EPA 2010 plume map showed significant impacts and no current data are available, the 2010 plume map was used as a guide for contouring or historic analytical data were used.
- 6- Where the U.S. EPA 2010 plume map showed significant impacts and no current data are available, the 2010 plume map was used as a guide for contouring or historic analytical data were used.
- 7- Concentrations were used as a guide for contouring or historic analytical data were used.
- 8- The maximum contaminant concentration at any well or group of adjacent wells, regardless of depth, was used for contouring.
- 9- µg/L = micrograms per liter.



APPENDIX 5

EPA Fact Sheet and Site Overview Web Links.....

| EPA Fact Sheet & Site Overview | Web Links |
|---|---|
| San Fernand Valley (Areas 1-4) | http://yosemite.epa.gov/r9/sfund/r9sfdocw.nsf/vwsoalphabetic/San+Fernando+Valley+(All+Areas)?OpenDocument |
| Area 1: North Hollywood and Burbank Operable Unit | http://www.epa.gov/superfund/sanfernandonorthhollywood |
| Area 2: Glendale Operable Unit | http://www.epa.gov/superfund/sanfernandoglendale |
| Area 3: Verdugo Operable Unit | http://www.epa.gov/superfund/sanfernandoverdugo |
| Area 4: Pollock | http://www.epa.gov/superfund/sanfernandopollock |

San Fernando Valley Basin Fact Sheets

| | |
|-----------------|--|
| 03/01/88 | EPA and DWP Begin Investigating Groundwater Contamination in the San Fernando Valley |
| 07/01/90 | Groundwater Cleanup Studies Continue in the San Fernando Valley Basin |
| 05/01/93 | EPA Announces Results of Basinwide Groundwater Remedial Investigation |
| 08/01/93 | Status Update Fact Sheet |
| 04/01/97 | EPA Reduces San Fernando Valley Cleanup Costs by \$49 Million |
| 09/01/97 | U.S. EPA Efforts Minimize Impacts on the Valley's Economy |
| 10/01/98 | Superfund Law and Real Estate Transactions |
| 11/01/99 | EPA Announces Well Sampling Event |
| 06/01/03 | Site Update Revised Site Update (Web Version) |
| 12/10/09 | San Fernando Valley Superfund Sites Update, and EPA Selects Second Interim Remedy for the North Hollywood Operable Unit |
| 07/05/11 | EPA Seeks Your Input – Participate in Community Interviews |
| 05/07/12 | EPA to Install Ground Water Monitoring Wells in the Glendale/Burbank Area La EPA instalará pozos de monitoreo en el área de Glendale/Burbank |

*Note: Words in BOLD are defined in the Glossary on page 37.

Area 1 – North Hollywood and Burbank Operable Units Fact Sheets

| | |
|-----------------|--|
| 09/01/87 | EPA Will Fund Construction of a Treatment System to Clean Contaminated Groundwater in the North Hollywood/Burbank Area |
| 06/01/88 | Agencies Announce Completion of North Hollywood Groundwater Treatment Facility |
| 10/01/88 | EPA, DWP, and the City of Burbank Announce Clean-Up Plan for Burbank Area |
| 08/01/89 | EPA Announces Cleanup Plan for Burbank Area |
| 07/01/90 | Changes Proposed in the Burbank Groundwater Cleanup Plan |
| 09/01/91 | U.S. EPA, Lockheed Corporation, Weber Aircraft and City of Burbank Sign Agreement to Conduct Cleanup Activities |
| 07/09/09 | North Hollywood: Proposed Plan for Enhanced Groundwater Remedy |
| 08/05/09 | EPA Extends Public Comment Period on Proposed Plan for Groundwater Remedy at North Hollywood OU of San Fernando Valley Area 1 Superfund Site |
| 12/10/09 | San Fernando Valley Superfund Sites Update, and EPA Selects Second Interim Remedy for the North Hollywood Operable Unit Link to new fact sheet for RODA |

Area 2 – Glendale Operable Unit Fact Sheets

| | |
|-----------------|---|
| 07/01/92 | EPA Proposes Cleanup Plan for Glendale Area |
| 09/01/92 | EPA Proposes Plan for Second Cleanup Project in Glendale Area |
| 06/01/93 | EPA Signs Cleanup Remedy for Glendale North and South Operable Units |
| 08/01/98 | Construction of Glendale Groundwater Treatment Plant Under Way |
| 05/01/00 | Notice of Public Hearing on the Use of Water from the Glendale Water Treatment Plant, page 1 and page 2 |
| 12/10/09 | San Fernando Valley Superfund Sites Update, and EPA Selects Second Interim Remedy for the North Hollywood Operable Unit |
| 05/01/11 | Opportunity to Comment on the Proposed Prospective Purchaser Agreement for the Former Excello Plating Facility - May 2011 |
| 04/02/12 | EPA to Install Ground Water Monitoring Wells in the Glendale/Burbank Area La EPA instalará pozos de monitoreo en el área de Glendale/Burbank |

Area 4 – Pollock Fact Sheets

| | |
|-----------------|---|
| 12/10/09 | San Fernando Valley Superfund Sites Update, and EPA Selects Second Interim Remedy for the North Hollywood Operable Unit |
|-----------------|---|

***NOTE: Words in BOLD are defined in the Glossary on page 37.**



APPENDIX 6

Interview Questions and Organizations Represented

A total of 28 interviews were conducted understand the San Fernando Valley (SFV) communities. These interviews were conducted to be conversational in nature and therefore the same questions were not asked of every individual. However, the same set of questions was used for all interviews.

Interviews are confidential in nature, and comments and opinions are not attributed to any individual. However, it is important that a variety of stakeholders are represented. The stakeholders interviewed represent the following interests:

- Arroyo Seco Foundation (2)
- California Environmental Protection Agency (Cal EPA), Department of Toxic Substances Control
- Cal EPA, Los Angeles Regional Water Quality Control Board (3)
- City of Burbank (6)
- City of Burbank Water and Power
- City of Glendale Resident (3)
- City of Glendale Water and Power
- City of La Crescenta Resident
- City of Los Angeles Department of Water and Power
- County of Los Angeles Supervisor Antonovich's Office (4)
- Greater San Fernando Valley Chamber of Commerce
- The League of Women Voters (3)
- North Hollywood Resident

The following questions were used to obtain information during the interviews.

1. How long have you lived or worked in this area?
2. Have you heard of the San Fernando Valley Superfund sites?
3. How and when did you first learn of the site?

4. What are your current concerns about the site? What is your biggest concern?
5. Prior to today, have you had any contact with government officials or agencies regarding the site? If yes, briefly describe.
6. Do you feel these officials or agencies have been responsive to your concerns? How can these interactions be improved?
7. How can the agencies (local, state, and EPA) best provide you information concerning the site? What kind? How often?

- Fact Sheets
- Internet
- Email
- Social media
- News media
- Meetings/workshops
- Community Advisory Groups
- Public Notices
- Bulletin Boards
- Other

- a. Do you use the internet?
 - b. Are you aware of EPA's web page that contains information about this Site and others?
8. If EPA were to send you a fact sheet in mail or by email, what type of information would you most be interested in hearing about?

***Note: Words in BOLD are defined in the Glossary on page 37.**

-
-
9. Are you interested in receiving future mailings about the sites?
 - How often?
 - May we add you to our mailing list?
 10. Do you have any comments regarding the current location for the site documents (located at the Burbank, Glendale and City of Los Angeles Central Libraries)?
 11. Do you have any suggestions for the location, time of day, and day of week to hold community meetings? Do you know of any conflicting meetings we should be aware of?
 12. Are there any established organizations or groups that should be kept abreast of progress on the Site?
 13. Please rate your interest in learning about the Site (1 being low and 5 being high).
 14. Please rate your surrounding community's interest in learning about the Site (1 being low and 5 being high).
 15. Can you tell me the main languages spoken in the area? Do these households also speak English?
 16. What would you suggest we do to involve your neighbors and friends in the area?
 17. Can you suggest other individuals or groups that should be contacted for an interview or added to the mailing list for the sites?
 18. Do you have any other comments or suggestions as we close this interview?

***NOTE: Words in BOLD are defined in the Glossary on page 37.**

APPENDIX 7

Community Demographics

Demographic information was collected from the United States Census Bureau (2010 and 2000 data) and from consumer marketing data (2012). Information was collected for the ZIP codes that fall within the San Fernando Valley (SFV) Superfund Site Areas 1, 2, 3, and 4. A total of 22 ZIP codes were identified for these areas (see map at the end of this appendix). These ZIP codes include portions of the Cities of Los Angeles, Burbank, and Glendale. Although some ZIP codes are only partially within the Superfund boundaries, the data for these ZIP codes is included because it is a valuable indicator in developing the community profile. Four of the 22 ZIP codes are special business ZIP codes and do not have residences associated with them (91521, 91522, 91523, and 91608); therefore, no data is included for these ZIP codes.

Tables in this appendix present the demographics for age, income, length of residence, and education, by general city areas (as indicated in the table titles). Additional tables present demographics for race, country of origin, and language preference, by general city areas (as indicated in the table titles). The top 10 countries of origin and top 10 language preferences are included, excluding the English language.



Overview of San Fernando Valley

***Note: Words in BOLD are defined in the Glossary on page 37.**

Pollock

Age, Income, Length of Residence, and Education
Demographics (90039, 90065)

| CATEGORY | DATA* |
|--|----------|
| Population | |
| Total Residents | 74,041 |
| Age | |
| Median Age | 37.5 |
| Less than 18 years | 21.6% |
| 19 to 64 years | 66.5% |
| 65 years and older | 11.9% |
| Income | |
| Individual | \$31,219 |
| Median Household | \$55,337 |
| Length of Residence | |
| Less than 5 years | 29.0% |
| 5 to 14 years | 37.1% |
| More than 14 years | 33.9% |
| Education | |
| Completed High School | 27.4% |
| Completed College | 26.1% |
| Completed Graduate School | 8.8% |
| Attended Vocational/ Technical School | 0.2% |
| Unknown | 37.5% |

*Population and age data is from the 2010 US Census,
individual income data is from the 2000 U.S. Census.
Other data is based on consumer marketing data for 2012.

Los Angeles

Race, Country of Origin, and Language Preference
Demographics (90039, 90065)

| CATEGORY | DATA* |
|--|-------|
| Race | |
| Asian | 11.1% |
| African American | 1.5% |
| Hispanic | 46.1% |
| White/Other | 40.6% |
| Unknown | 0.7% |
| Country of Origin – Top Ten | |
| Hispanic | 47.0% |
| English (British) | 13.2% |
| Armenian | 1.0% |
| German | 4.2% |
| Irish | 3.5% |
| Scottish | 3.1% |
| Korean | 0.9% |
| Italian | 1.7% |
| Chinese | 3.4% |
| French | 1.7% |
| Language Preference – Top Ten (excluding English) | |
| Spanish | 40.7% |
| Armenian | 0.3% |
| Korean | 0.3% |
| Chinese | 1.0% |
| Arabic | 0.2% |
| Japanese | 0.7% |
| Vietnamese | 0.5% |
| French | 0.3% |
| Hindi | 0.2% |
| Russian | 0.1% |

*Based on consumer marketing data for 2012.

***NOTE: Words in BOLD are defined in the Glossary on page 37.**

Glendale Area

Age, Income, Length of Residence, and Education
Demographics (91020, 91201, 91203, 91204, 91208,
91214)

| CATEGORY | DATA* |
|--|----------|
| Population | |
| Total Residents | 107,049 |
| Age | |
| Median Age | 40.6 |
| Less than 18 years | 20.5% |
| 19 to 64 years | 65.5% |
| 65 years and older | 14.0% |
| Income | |
| Individual | \$50,163 |
| Median Household | \$68,807 |
| Length of Residence | |
| Less than 5 years | 31.1% |
| 5 to 14 years | 37.6% |
| More than 14 years | 31.3% |
| Education | |
| Completed High School | 28.6% |
| Completed College | 23.5% |
| Completed Graduate School | 11.0% |
| Attended Vocational/ Technical School | 0.2% |
| Unknown | 36.6% |

*Population and age data is from the 2010 US Census,
individual income data is from the 2000 U.S. Census.
Other data is based on consumer marketing data for 2012.

Glendale Area

Race, Country of Origin, and Language Preference
Demographics (91020, 91201, 91203, 91204, 91208,
91214)

| CATEGORY | DATA* |
|--|-------|
| Race | |
| Asian | 24.7% |
| African American | 0.9% |
| Hispanic | 14.8% |
| White/Other | 58.5% |
| Unknown | 1.0% |
| Country of Origin – Top Ten | |
| Hispanic | 14.7% |
| English (British) | 14.5% |
| Armenian | 21.3% |
| German | 4.3% |
| Irish | 3.6% |
| Scottish | 3.2% |
| Korean | 8.0% |
| Italian | 2.6% |
| Chinese | 2.6% |
| French | 1.7% |
| Language Preference – Top Ten (excluding English) | |
| Spanish | 8.4% |
| Armenian | 6.1% |
| Korean | 3.9% |
| Chinese | 1.1% |
| Arabic | 0.8% |
| Japanese | 0.4% |
| Vietnamese | 0.3% |
| French | 0.4% |
| Hindi | 0.4% |
| Russian | 0.2% |

*Based on consumer marketing data for 2012.

*Note: Words in BOLD are defined in the Glossary on page 37.

Burbank Area

Age, Income, Length of Residence, and Education Demographics (91502, 91504, 91505, 91506)

| CATEGORY | DATA* |
|--|--------------|
| Population | |
| Total Residents | 85,992 |
| Age | |
| Median Age | 38.7 |
| Less than 18 years | 19.7% |
| 19 to 64 years | 66.8% |
| 65 years and older | 13.4% |
| Income | |
| Individual | \$37,569 |
| Median Household | \$65,631 |
| Length of Residence | |
| Less than 5 years | 36.0% |
| 5 to 14 years | 33.3% |
| More than 14 years | 30.8% |
| Education | |
| Completed High School | 31.8% |
| Completed College | 24.9% |
| Completed Graduate School | 9.0% |
| Attended Vocational/ Technical School | 0.3% |
| Unknown | 34.0% |

*Population and age data is from the 2010 US Census, individual income data is from the 2000 U.S. Census. Other data is based on consumer marketing data for 2012.

Burbank Area

Ethnicity Demographics (91502, 91504, 91505, 91506)

| CATEGORY | DATA* |
|--|--------------|
| Race | |
| Asian | 10.5% |
| African American | 1.1% |
| Hispanic | 21.3% |
| White/Other | 66.0% |
| Unknown | 1.1% |
| Country of Origin – Top Ten | |
| Hispanic | 21.9% |
| English (British) | 21.7% |
| Armenian | 6.7% |
| German | 6.0% |
| Irish | 5.3% |
| Scottish | 4.8% |
| Korean | 1.2% |
| Italian | 4.0% |
| Chinese | 1.5% |
| French | 2.3% |
| Language Preference – Top Ten (excluding English) | |
| Spanish | 13.0% |
| Armenian | 1.9% |
| Korean | 0.5% |
| Chinese | 0.4% |
| Arabic | 0.6% |
| Japanese | 0.4% |
| Vietnamese | 0.4% |
| French | 0.4% |
| Hindi | 0.6% |
| Russian | 0.1% |

*Based on consumer marketing data for 2012.

*NOTE: Words in BOLD are defined in the Glossary on page 37.

North Hollywood Area

Age, Income, Length of Residence, and Education
Demographics (91331, 91352, 91601, 91602, 91605,
91606)

| CATEGORY | DATA* |
|--|----------|
| Population | |
| Total Residents | 536,580 |
| Age | |
| Median Age | 33.1 |
| Less than 18 years | 52.5% |
| 19 to 64 years | 42.7% |
| 65 years and older | 4.9% |
| Income | |
| Individual | \$27,596 |
| Median Household | \$48,242 |
| Length of Residence | |
| Less than 5 years | 32.6% |
| 5 to 14 years | 36.0% |
| More than 14 years | 31.5% |
| Education | |
| Completed High School | 27.8% |
| Completed College | 23.2% |
| Completed Graduate School | 5.0% |
| Attended Vocational/ Technical School | 0.3% |
| Unknown | 43.6% |

*Population and age data is from the 2010 US Census,
individual income data is from the 2000 U.S. Census.
Other data is based on consumer marketing data for 2012.

North Hollywood Area

Race, Country of Origin, and Language Preference
Demographics (91331, 91352, 91601, 91602, 91605,
91606)

| CATEGORY | DATA* |
|--|-------|
| Race | |
| Asian | 7.1% |
| African American | 2.5% |
| Hispanic | 52.9% |
| White/Other | 36.0% |
| Unknown | 1.4% |
| Country of Origin – Top Ten | |
| Hispanic | 54.2% |
| English (British) | 11.2% |
| Armenian | 5.9% |
| German | 2.9% |
| Irish | 2.5% |
| Scottish | 2.5% |
| Korean | 0.5% |
| Italian | 1.2% |
| Chinese | 0.8% |
| French | 1.3% |
| Language Preference – Top Ten (excluding English) | |
| Spanish | 50.8% |
| Armenian | 2.0% |
| Korean | 0.2% |
| Chinese | 0.2% |
| Arabic | 0.4% |
| Japanese | 0.3% |
| Vietnamese | 0.3% |
| French | 0.3% |
| Hindi | 0.3% |
| Russian | 0.3% |

*Based on consumer marketing data for 2012.

*Note: Words in BOLD are defined in the Glossary on page 37.

APPENDIX 8

Key Contacts, Meeting Locations, and Site Information Repositories

EPA CONTACTS

EPA Remedial Project Managers

Gary Riley
Assignment
SFV Areas Sitewide
(415) 972–3003
riley.gary@epa.gov

Kelly Manheimer
Assignment
SFV Area 1:
North Hollywood & Burbank
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Rebecca Connell
Assignment
SFV Area 2: N&S Glendale
(415) 947–4278
connell.rebecca@epa.gov

Lynn Keller
Assignment
SFV Area 4: Pollock Study Area
(415) 947–4162
keller.lynn@epa.gov

Mail Code SFD-7-1
75 Hawthorne Street
San Francisco, CA 94105

EPA Community Involvement Coordinator

Carlin Hafiz
Assignment
All SFV Sites
(213) 244–1814
hafiz.carlin@epa.gov

MEETING LOCATIONS

Interviewees suggested many locations for EPA to hold meetings, including various libraries, city halls, fire stations, parks, schools, community centers, churches, and country clubs. Future meeting locations will be determined as needed. EPA will notify residents of future meetings via media described in Table 5-1, such as use of mailing lists, flyers, newspapers, and websites.

SITE INFORMATION REPOSITORIES

The public information repositories for the sites are at the following locations. Each site's Administrative Record index is also located at the **information repositories**.

Burbank Public Library
Central Library
110 North Glen Oaks Boulevard,
Burbank, CA 91502
(818) 238–5580

City of Glendale Public Library
222 East Harvard Street,
Glendale, CA 91205
(818) 548–2021

City of Los Angeles Central Library
Science and Technical Department
630 West 5th Street,
Los Angeles, CA 90071
Stella Mittlebach
(213) 228–7216

Superfund Records Center
Mail Stop SFD-7C
75 Hawthorne Street, 3rd floor, San Francisco, CA 94105
(415) 820–4700

Contact the number above to arrange access or request copies of Site documents.

***NOTE: Words in BOLD are defined in the Glossary on page 37.**



APPENDIX 9

Acronyms and Abbreviations

| | | | |
|----------------|---|--------------|---|
| µg/L | Microgram(s) per Liter | NPL | National Priorities List |
| ATSDR | Agency for Toxic Substances and Disease Registry | OU | Operable Unit |
| Cal EPA | California Environmental Protection Agency | PA/SI | Preliminary Assessment/Site Inspection |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act | PCE | Tetrachloroethylene |
| CIP | Community Involvement Plan | ppb | Part(s) per billion |
| Cr(VI) | Hexavalent Chromium | ppm | Part(s) per million |
| DDW | California Division of Drinking Water | PRPs | Potentially Responsible Parties |
| DTSC | California Department of Toxic Substances Control | RA | Remedial Action |
| EPA | U.S. Environmental Protection Agency | RCRA | Resource Conservation and Recovery Act |
| FFS | Focused Feasibility Study | ROD | Record of Decision |
| GAC | granular activated carbon | RI/FS | Remedial Investigation/Feasibility Study |
| gpm | gallon(s) per minute | RWQCB | California Regional Water Quality Control Board |
| LADWP | Los Angeles Department of Water and Power | SFV | San Fernando Valley |
| MCL | Maximum Contaminant Levels | SWRCB | California State Water Resources Control Board |
| MTBE | methyl tertiary butyl ether | TAG | Technical Assistance Grant |
| MWD | Metropolitan Water District | TASC | Technical Assistance Services for Communities |
| NLs | Notification Levels | TCE | Trichloroethylene |
| | | VOC | Volatile organic compounds |

*Note: Words in **BOLD** are defined in the Glossary on page 37.



APPENDIX 10

Glossary of Terms

Administrative Record: All documents which EPA considered or relied on in selecting the response action at a Superfund site, culminating in the record of decision for remedial action or, an action memorandum for removal actions.

Aquifer: An underground layer of soil, sand, or gravel that can store and supply groundwater to wells and springs.

Chromium: Chromium is often used as pigments for photography, and in pyrotechnics, dyes, paints, inks, and plastics. The most common oxidation states of chromium are +2, +3, and +6 (hexavalent), with +3 (trivalent) being the most stable. The +1, +4 and +5 oxidation states are rare. Hexavalent chromium Cr (VI) is recognized as a human carcinogen.

Community Involvement Plan (CIP): A blueprint for community involvement objectives and activities pertaining to a specific site.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law (Public Law 96-510; December 11, 1980) that provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and the cleanup of inactive waste disposal sites.

1, 4-Dioxane: A clear liquid that dissolves easily in water. It is used primarily as a solvent in the manufacture of chemicals and as a laboratory reagent. It is a trace contaminant of some chemicals used in cosmetics, detergents, and shampoos.

Deletion: can happen when a site or portion of a site is removed from the National Priorities List. This occurs once all response actions are complete and all cleanup goals have been achieved.

Emerging contaminant: An “emerging contaminant” is a chemical or material that is a perceived, potential, or real threat to human health or the environment, or lacks published health standards. A contaminant may also be “emerging” because of the discovery of a new source or a new exposure pathway to

humans, or a new detection method or treatment technology has been developed.

Explanation of Significant Differences (ESD): A document outlining minor changes in the original remedy selected at a site as described in the Record of Decision (ROD), such as a contingent remedy.

Focused Feasibility Study (FFS): is when an analysis of potential cleanup alternatives are developed to address a specific issue identified on a Site where a cleanup action has begun or has already taken place.

Feasibility Study (FS): Analysis of the practicability of a proposal; e.g., a description and analysis of potential cleanup alternatives for a site that recommends a preferred cleanup alternative. It usually follows completion of the remedial investigation (RI); together, these reports are commonly referred to as the RI/FS.

Federal Register: The daily listing of official government actions.

Five-Year Review (FYR): A review required by CERCLA for sites with long-term cleanups or where waste will be left at the site. They are conducted every five years on such sites after a ROD has been signed and the remedial action has begun. The review is completed to ensure that the remedy continues to be protective of human health and the environment, and to achieve the cleanup goals.

Focused Feasibility Study (FFS): A study that evaluates a limited range of options to clean up environmental contamination at a Superfund site.

Granular Activated Carbon (GAC): A form of carbon that has been processed to make it extremely porous and thus to have a very large surface area available for adsorption or chemical reactions. It can be used on vapor waste streams (Vapor Phase Granular Activated Carbon – VPGAC) or liquid waste streams (Liquid Phase Granular Activated Carbon – LPGAC) to remove VOCs.

Groundwater: The supply of water found below the ground surface that supplies wells and springs.

Groundwater Model: An interactive computer tool that simulates the flow of water and toxins through confined and unconfined aquifers as well as the effects of pumping on these aquifers.

Information Repository: The closest location in the area of a site where selected documents about the site are available for public review.

Institutional Controls (ICs): Administrative or legal mechanisms such as permits, zoning, and/or deed restrictions that help to minimize the potential for human exposure to contamination and/or protect the integrity of a remedy.

Interim Remedy: An interim remedy is a temporary remedy, chosen to address contamination until the final remedy can be selected.

Maximum Contaminant Level (MCL): MCLs are enforceable standards, and are the highest concentration of a contaminant that is allowed in drinking water. MCLs are set as close as feasible to the level of a contaminant in drinking water below which there is no known or expected risk to health. Best available treatment technology and cost are taken into consideration when setting MCLs.

Monitoring Well: A well installed to sample groundwater at specific depths to determine groundwater flow and contamination in the aquifer.

National Priorities List (NPL): A published list of hazardous waste sites in the country that are eligible for extensive, long-term cleanup under the Superfund program.

Nitrate: a chemical compound that contains oxygen and nitrogen and that is used in fertilizer.

Operable Unit (OU): An area that is defined so that EPA may take action on a distinct area or type of contamination, as part of an overall site cleanup.

Parts per Billion (ppb): Unit commonly used to express contamination ratios, as in establishing the maximum permissible amount of a contaminant in water, land, or air.

Perchlorate: A salt derived from perchloric acid. It can occur both naturally and through manufacturing. It is used as a medicine (thyroid treatment) or also used as an oxidizer in rocket fuel and explosives and be found in airbags and fireworks.

Potentially responsible parties (PRPs): A possible polluter who may eventually be held liable under CERCLA for the contamination or misuse of a particular property or resource.

Proposed Plan: A document that summarizes the cleanup alternatives evaluated as part of the Feasibility Study process and identifies the preferred cleanup alternative.

Record of Decision (ROD): The document that formalizes EPA's selected cleanup remedy for a Superfund site.

Remedial Investigation (RI): Actions undertaken to characterize the full nature and extent of contamination, including characterization of hazardous substances, characterization of the facility, assessments of human health and ecological risk, and collection and evaluation of information relevant to the identification of hot spots of contamination.

Removal Action: are common at Superfund Sites when the contamination poses an immediate threat to human health and the environment. Removals are classified as either emergency, time-critical, or non-time-critical depending on the extent and type of contamination.

Risk Assessment: Qualitative and quantitative evaluation of the risk posed to human health and/or the environment by the actual or potential presence and/or use of specific pollutants.

Superfund: see Comprehensive Environmental Response, Compensation, and Liability Act

Tetrachloroethylene (PCE) (also known as perchloroethylene): A colorless liquid widely used for dry cleaning of fabrics. It has a sweet odor detectable by most people. It is considered a probable carcinogen.

Trichloroethylene (TCE): A man made 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. 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.

Volatile organic compounds (VOCs): Carbon-containing chemical compounds that evaporate readily at room temperature. Many are hazardous to human health or the environment.

Vapor intrusion: is the migration of volatile chemicals from contaminated groundwater or soil into an overlying building. Volatile chemicals can emit vapors that may migrate through subsurface soils and into indoor air spaces of overlying buildings.

