



Montrose & Del Amo Superfund Sites

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • October 2019

Groundwater Treatment Plan Update

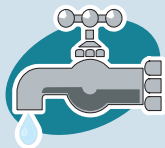
The U.S. Environmental Protection Agency (EPA) lists its highest-priority hazardous waste sites on the National Priorities List (NPL), informally known as “Superfund list.” The NPL was established in 1980 by Congress under the Comprehensive Environmental Response, Compensation and Liability Act to address concerns over the health and environmental risks posed by hazardous waste sites. The Montrose and the Del Amo Superfund sites, located in Torrance, California, were listed on the NPL in 1989 and 2002, respectively. EPA separated the sites in pieces called operable units to efficiently manage the cleanup. This fact sheet reviews work to date to clean up one of the operable units shared by both sites, the Dual Site Groundwater operable unit.

Background

The Dual Site Groundwater operable unit includes an underground plume of groundwater primarily polluted by a chemical called chlorobenzene. This plume started from beneath the former Montrose property and moved off site. The operable unit also includes a plume primarily polluted by the chemical benzene from beneath the Del Amo property. Lastly, the operable unit also includes a plume primarily polluted by the chemical trichloroethene (TCE) from other companies north of the former Montrose property. In addition to these primary chemicals, there are many other chemicals in the groundwater as well. Given how trapped some of the chemicals are in the soil in certain areas in the plume, a **technical impracticability waiver zone (TI Zone)** was established for a portion of the most highly-polluted groundwater. *Please refer to the page for more information.*

Goals

- Protect drinking water from any site contaminants
- Prevent movement of high concentrations of chemicals from leaving the Technical Impracticability Waiver Zone (TI Zone)
- Restore groundwater to drinking water standards
- Involve communities in the Superfund process



Please note that no one is drinking or using groundwater contaminated by the Sites. Drinking water provided to residents and businesses in the area is safe to drink.

Technical Impracticability Waiver

Zone (TI Zone): An area where EPA decided to waive cleanup standards (for example, meeting drinking water standards in groundwater) because it is technically impracticable to achieve those cleanup standards, due to site conditions.

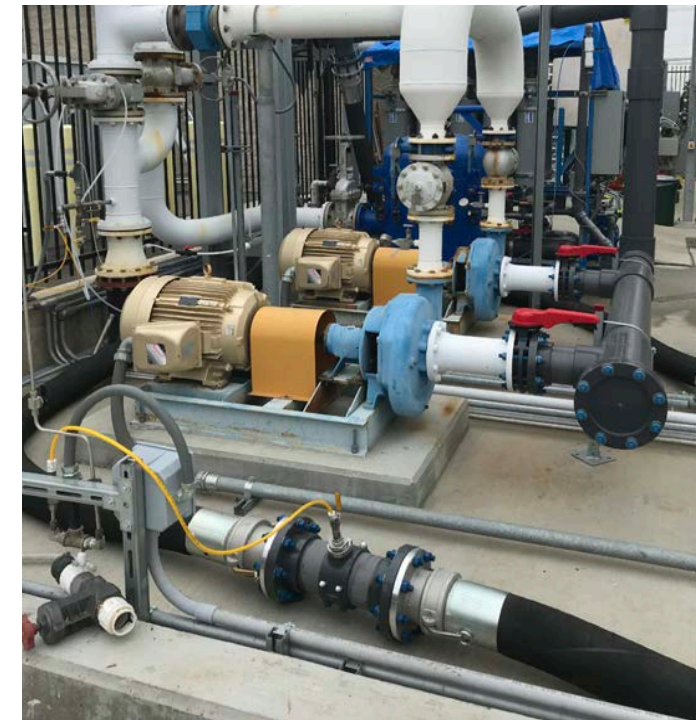


Cleaning Up Groundwater: The Groundwater Treatment System

In 1999, EPA issued a cleanup plan for the Dual Site Groundwater operable unit not part of the TI Zone. The plan called for building a groundwater system that pumped contaminated groundwater out of the ground and into a groundwater treatment system. The water is then treated until it meets all federal and state cleanup goals. This treated water is then injected back underground. The groundwater system is designed, and will be operated, to prevent polluted groundwater from moving outside the TI Zone. The groundwater system will also clean up all the water outside the TI Zone to meet federal and state drinking water standards.

Building and Testing the Groundwater System

In 2013, under EPA oversight, Montrose began building a groundwater treatment system on the former Montrose property. Montrose started testing the system in 2015 and found it was not operating properly. Since then, Montrose has been working with EPA to redesign and rebuild



***Note:** Any solids removed during the groundwater treatment are properly disposed of off-site. Solids are separated and minimized using an inclined plate and filter press before removal.

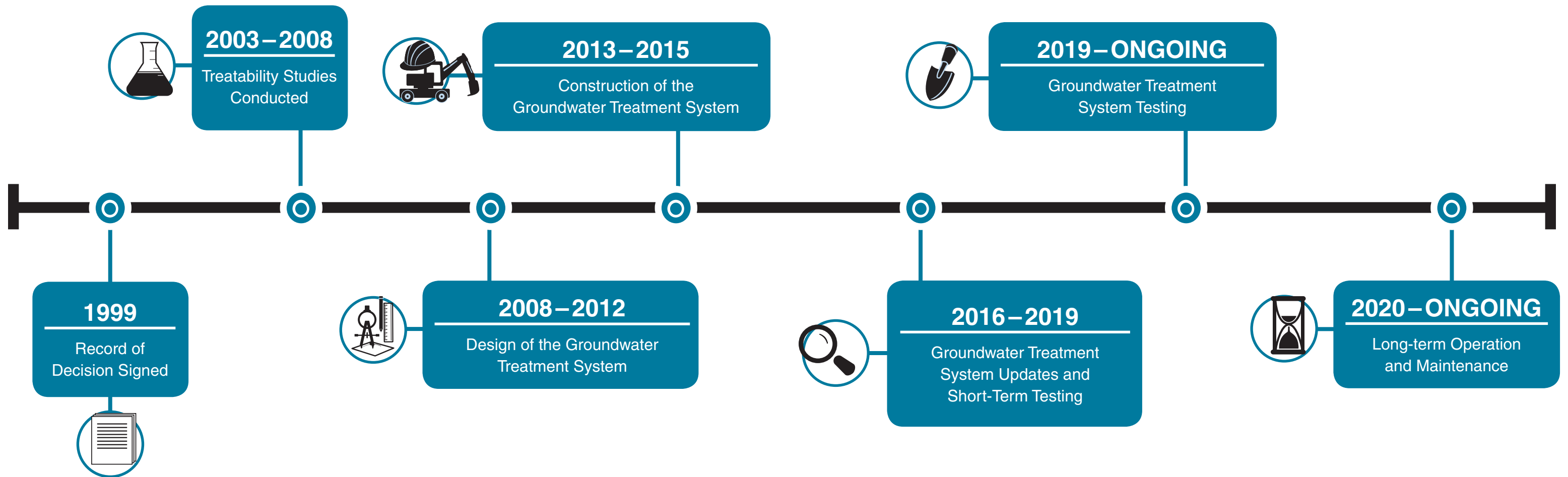
portions of the system. In February 2019, Montrose started continuously operating the system at a low pumping rate. The system operated as intended and all treated water was injected back underground. The treatment system has met or exceeded all treatment standards and has removed over 7,000 pounds of contaminants since February 2019.

However, during this period, data showed it was necessary to use a set of wells in the eastern portion of the OU. If these wells—called the “eastern wellfield”—were not used, the groundwater system would not work as planned. Bringing these wells online will help keep the contaminants inside the TI Zone and prevent them from spreading.

To operate the treatment plant, EPA only allowed using the wells in the western portion of the site. Bringing the eastern wellfield online requires an amendment to a report called Anti-Degradation Policy Analysis (ADPA). The ADPA was done by EPA for the groundwater system to meet a policy set by the State of California. Additionally, EPA has developed a document called a “Memo to the File,” which documents minor changes to the plan to allow the cleanup to comply with ADPA. Both of these documents show how EPA intends to operate the eastern wellfield in a way that will: 1) ensure the treatment system works as designed; and 2) ensure the treatment system’s operation complies with California’s ADPA. These documents can be found on the sites’ webpage. See the information box at the end of this fact sheet for a link to the sites’ webpages.

Montrose Superfund Site Background

The Montrose Chemical Corporation of California (Montrose) manufactured the pesticide chemical dichloro-diphenyl-trichloroethane (DDT) from 1947 until 1982. Chlorobenzene and DDT were released and contaminated the groundwater. DDT and other waste products contaminated the soils both on and near the plant property, the groundwater, the historical storm water drainage ditches, and the Pacific Ocean. EPA has done conducted investigations to assess whether, where, and how much of this contamination persists today, and is selecting cleanup actions to address the contamination on each one of the operable units of the Montrose Superfund site.



Del Amo Superfund Site Background

The site is the former location of a large-scale manufacturing plant built by the United States government to produce synthetic rubber during World War II. The operation consisted of three facilities: a styrene plant operated by Dow Chemical Co., a butadiene plant operated by Shell Oil Co., and a synthetic rubber plant operated by U.S. Rubber Co., Goodyear Tire & Rubber Co., and others.

During its operations, waste byproducts were put in six unlined pits and three unlined evaporation ponds located in a four-acre waste pit area along the plant's southern boundary. During plant operations, hazardous substances primarily consisting of BTEX compounds (benzene, toluene, ethylbenzene, and xylenes) and Polycyclic Aromatic Hydrocarbons (PAH's), also leaked into the soil and groundwater beneath the former plant facilities. Some of these hazardous substances exists as undissolved liquid in the soil or groundwater.

MONTROSE TREATMENT SYSTEM



Groundwater is pumped from twelve extraction wells located south and southwest of the former Montrose Property and sent to the treatment plant through underground, double-walled pipes. At the treatment plant, the contaminated groundwater is treated using three different technologies. First, an advanced oxidation system (HiPOx) treats the pCBSA, an unknown chemical that is hard to treat. Once through the HiPOx, the contaminated groundwater moves through the Air Strippers which removes the volatile chemicals, such as TCE and chlorobenzene. At this point, the groundwater meets all drinking water standards. As a final step, the groundwater travels through the Granulated Activated Carbon (GAC), a type of filter, where it is polished to ensure water is ready to be injected. Finally, the treated groundwater is run through two systems, an Ultrafiltration system and a Dissolved Oxygen Removal system, that removes minerals and dissolved oxygen in order to reinject the treated water easier. The treated water is then pumped to the injection wells and injected into the subsurface. Any solids that are removed from the groundwater are separated at the inclined plate and filter press to minimize before shipping offsite.

Contaminated
Groundwater
from Wells

HiPOx
pCBSA treatment by injecting a non toxic compound called ozone



Air Stripping
VOC removal by adding air to cause VOCs to evaporate



Liquid Carbon Filter
Last step to remove remaining VOCs



Dissolved Oxygen Removal
Improves reinjection to aquifer



Ultra filtration
Minerals/solids not hazardous, removed prior to reinjection



Inclined Plate
Separates solids from water



Filter Press
Compresses solids for disposal



Treated
Water
Returned to
Aquifer






To
Outside
Air

Solids
transported
offsite for
disposal


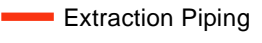
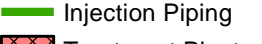
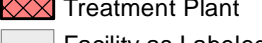
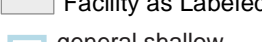
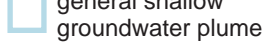
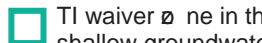
Montrose Treatment System

Dual Site Groundwater Operable Unit
Los Angeles, California

TGRS Extraction Wells

-  Water Table (approx 50 ft below ground surface)
-  Water Table / MBFB (approx 50-100 ft below ground surface)
-  MBFB Merged MBFC Middle Bellflower Sand: below water table
-  MBFC Middle Bellflower C Sand: below MBFB
-  Gage (approx. starts about 150 ft below ground surface)

TGRS Injection Wells

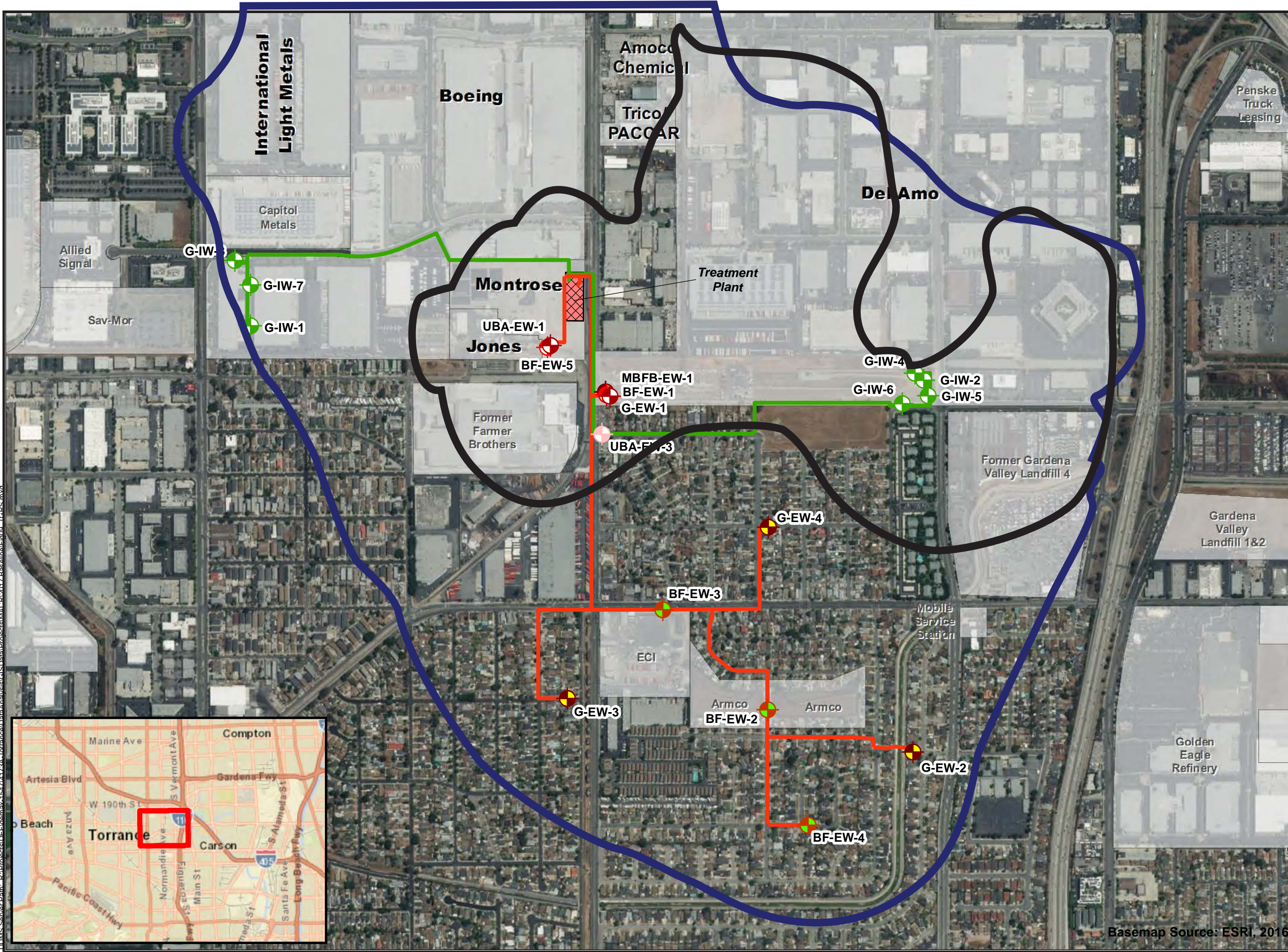
-  Gage
-  Extraction Piping
-  Injection Piping
-  Treatment Plant
-  Facility as Labeled
-  general shallow groundwater plume outlines (approx 50 feet below ground)
-  TI waiver zone in the shallow groundwater (approx 50 feet below ground)



0 360 720 Feet

1 inch = 700 feet

generated by ddms



Basemap Source: ESRI, 2016

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How Do I Get More Information?

If you have any questions about the Del Amo or Montrose Superfund Sites or if you would like to be added to the site mailing list, please don't hesitate to contact us.

EPA Contacts

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Community Involvement Coordinator
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Information Repositories

An information repository is placed near a Superfund site and contains documents, reports, and letters about site cleanup activities.

Carson Public Library
151 East Carson Street
Carson, CA 90745
(310) 830 – 0901

Torrance Civic Center Library
3301 Torrance Boulevard
Torrance, CA 90503
(310) 618 – 5959

Superfund Records Center
Mail Stop SFD-7C
75 Hawthorne Street, 3rd floor
San Francisco, CA 94105
(415) 536 – 2000

Websites

Del Amo Superfund site website: <http://www.epa.gov/superfund/delamo>

Montrose Superfund site website: <http://www.epa.gov/superfund/montrose>

*Official Business
Penalty for Private Use, \$300
Address Service Requested*

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