STATE ROAD 114 (HOCKLEY COUNTY) LEVELLAND, TEXAS

EPA ID# TXSFN0605177
Site ID: 0605177

EPA REGION 6
CONGRESSIONAL DISTRICT 19

Contact: Vincent Malott
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Last Updated: July 2015

Effective October 1, 2015 this Site Status Summary will be replaced with a new site profile. The new site profile will be available at: www.epa.gov/superfund/state-road-114

Current Status

The site is in the 5th year of the 10-year long-term remedial action. The ground water pump and treat system is currently operating at the Site. The ground water pump and treat system is averaging over 5.5 million gallons of groundwater extracted and treated per month with an average daily flow rate over 125 gallons per minute.

Background

The State Road 114 Ground Water Plume site is an area of ground water contamination underlying the western boundary of the City of Levelland, Hockley County, Texas, approximately 31 miles due west of Lubbock. The population of Levelland is approximately 13,000. The land use over the plume area is mostly agricultural with pockets of light commercial or residential development. There are 28 impacted private drinking water wells in the area of the plume.

The site consists of a 1,2-dichloroethane (DCA) and benzene plumes in the Ogallala Aquifer that extends from west to east (in the direction of ground water flow) along State Highway 114 for approximately 1½ miles from the former Motor Fuels Corporation (MFC) property to the City of Levelland municipal park. The ground water plume is approximately a mile wide, bounded roughly by Ellis Road to the north and Houston Avenue to the south. Analyses of samples collected during site investigations to date indicate maximum benzene concentrations of 19,000 ppb and maximum DCA concentrations of 380 ppb. EPA has established a maximum contaminant level (MCL) of 5 ppb for both DCA and benzene in drinking water. The businesses and residences in the plume area were previously dependent on private wells for drinking water until completion of the water line extension. The City of Levelland is dependent on ground water for approximately 1/3 of its drinking water supply. The Ogallala aquifer is the only source of high-quality drinking water in the site area. The saturated zone is approximately 150 feet below ground surface and varies in thickness from 40 to 90 feet. Clays form the base of the aquifer. Ground water flow in the aquifer is to the east.

The systems were designed and constructed in 2009 to achieve the remedial action objectives for the Site. The final inspection was conducted on July 27, 2010, and the Interim Remedial Action Report was completed on August 31, 2010. The soil vapor extraction and treatment system has recovered over

185,000 gallons of refined condensate from beneath the refinery that was contributing to the groundwater contamination. The groundwater treatment system has recovered and treated over 27 million gallons of water that has been injected back into the Ogallala aquifer. The 10-year long-term remedial action started in September 2010. The remedial action construction milestones included the following:

- Completion of the remedial design in 7 months between July 2008 and January 2009.
- Completion of the remedial action construction in 8 months between January 2009 and August 2009. The formal construction completion date is September 1, 2009.
- Completed installation of 21 groundwater extraction wells, 10 monitoring wells, and 4 injection wells by April 2009.
- Completed installation of 62 soil vapor extraction (SVE) wells by January 2009 within the former refinery area.
- Completed excavation and on-site disposal of 3,600 cubic yards of contaminated soil in April 2009.
- Completed construction of a treatment plant building for the combined groundwater and soil vapor treatment system in May 2009.
- Completed installation of the treatment system in August 2009. The treatment train for the contaminated groundwater includes an air stripper for removal of the volatile organic compounds, and metals precipitation and filtration for metals removal. A cryogenic compression and condensation treatment system was integrated into the treatment system for off-gas treatment from the air stripper and the SVE well network.
- Installation of the water supply line from the City of Levelland was started in April and completed in July for all residential and commercial connections. Installation of the main line from the City of Levelland pump station was completed in May 2009. Testing and sampling of the line was completed in June followed by residential and commercial connections to the water line.

Benefits

The completed water supply line and service connections replaced the filtration systems installed on impacted private drinking water wells. The completed remedial action has eliminated the ecological risk posed by contaminated soils and achieved hydraulic containment of the groundwater contaminant plume. The completed remedial action has implemented the actions to reduce the source area concentrations and achieve long-term aquifer restoration.

National Priorities Listing (NPL) History

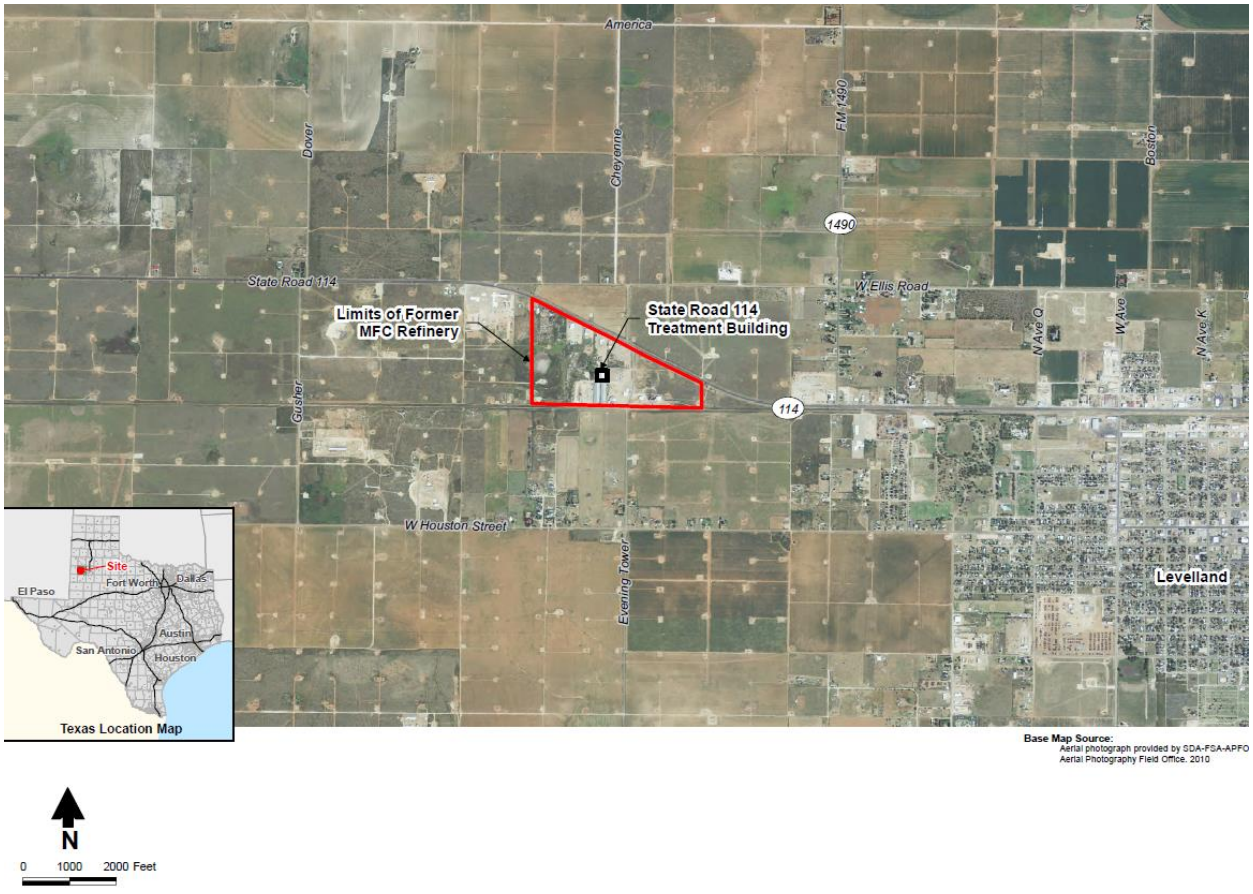
NPL Inclusion Proposal Date: July 19, 1999
NPL Inclusion Final Date: October 22, 1999

Site Photos

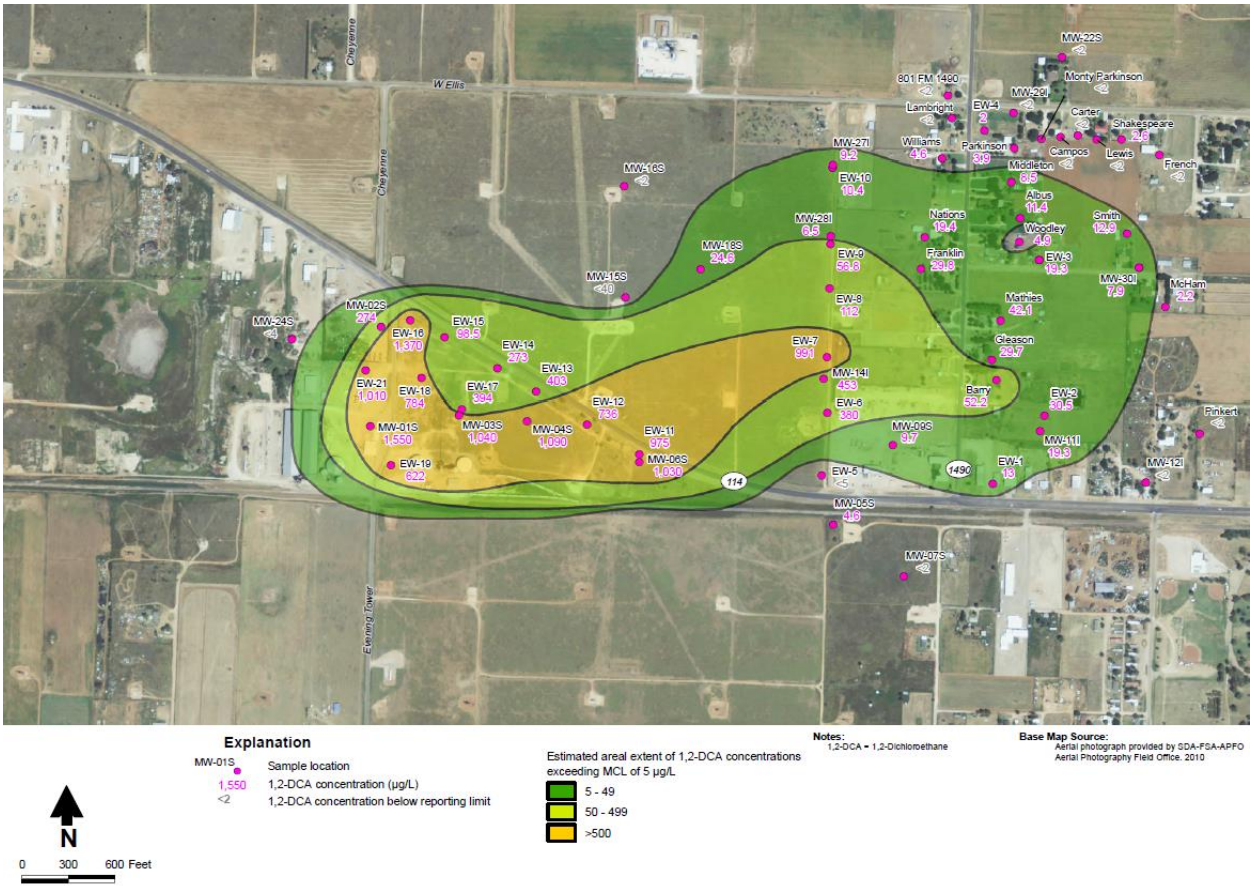
Panoramic view of exterior of the treatment plant building in September 2009.

Panoramic view of interior of the treatment plant building in September 2009

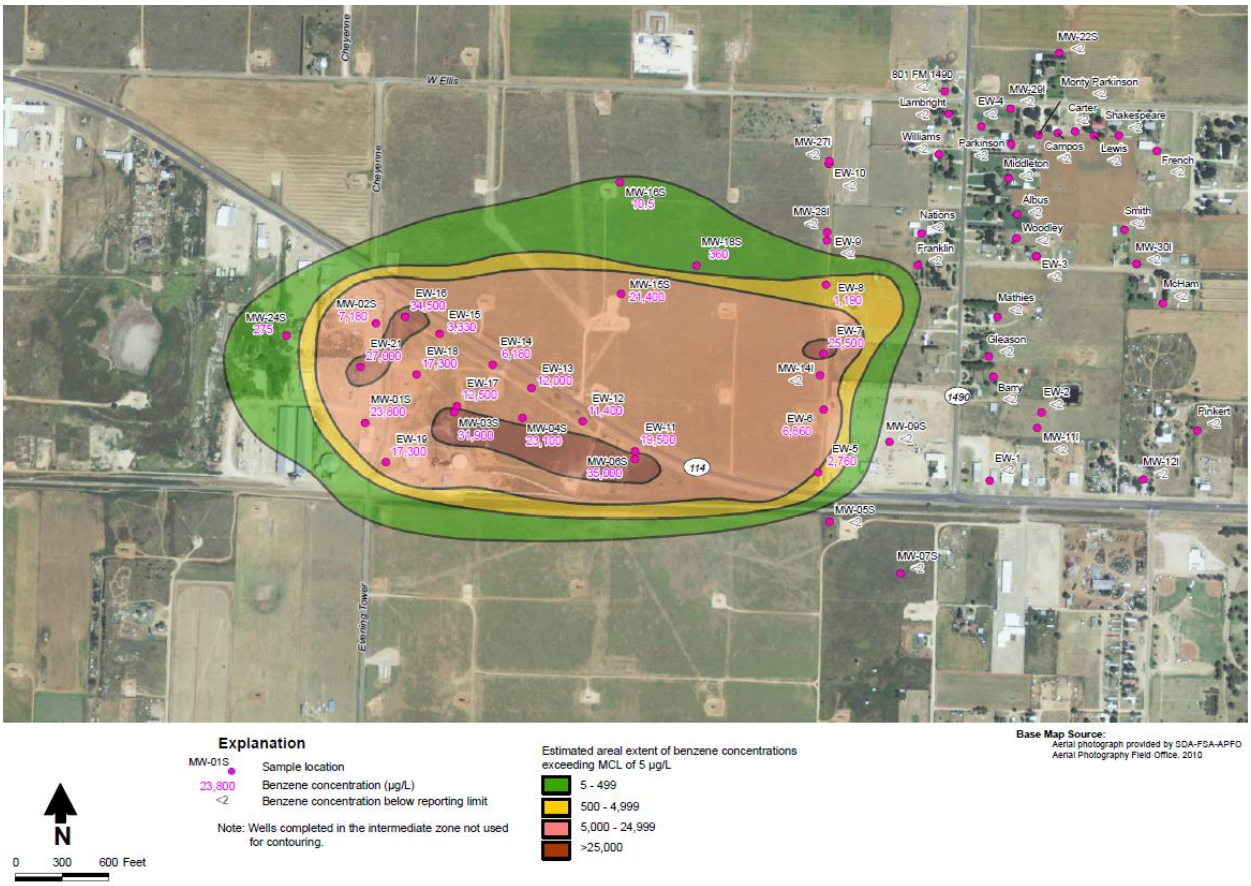
Site Map


America
Dover
Cheyenne
FM 1490
Boston
1490
State Road 114
W Ellis Road
Limits of Former
MFC Refinery
State Road 114
Treatment Building
N Ave Q
W Ave
N Ave K
Geiser
114
W Houston Street
Evening Tower
Levelland
Site
El Paso
Fort Worth
Dallas
Austin
San Antonio
Houston
Texas Location Map
Base Map Source:
Aerial photograph provided by SDA-FSA-APFO
Aerial Photography Field Office. 2010
N
0
1000
2000 Feet

Distribution of 1,2-dichloroethane exceeding the drinking water standard of 5 ug/L in the shallow and intermediate zone of the Ogallala aquifer is illustrated in the attached figure for the August 2013 sampling event.



Distribution of benzene exceeding the drinking water standard of 5 ug/L in the shallow and intermediate zone of the Ogallala aquifer is illustrated in the attached figure for the August 2013 sampling event.



Explanation

MW-01S — Sample location

23,800 — Benzene concentration (µg/L)

<2 — Benzene concentration below reporting limit

Note: Wells completed in the intermediate zone not used for contouring.

Estimated areal extent of benzene concentrations exceeding MCL of 5 µg/L

- 5 - 499
- 500 - 4,999
- 5,000 - 24,999
- >25,000

N

0 300 600 Feet

Base Map Source:
Aerial photograph provided by SDA-FSA-APFO Aerial Photography Field Office. 2010

Distribution of the soil vapor extraction wells within the former refinery area, now located at the Farmers Cooperative Elevator Association.

Wastes and Volumes

The cleanup goal for DCA and benzene in the ground water is 5 ppb. The DCA/benzene plumes as defined by the 5 ppb limit extends approximately 1½ miles from the former Motor Fuels refinery, and is approximately 1 mile wide. The Ogallala aquifer supplies drinking water to private residences and municipalities as well as water for irrigation across West Texas. The land above the plume is not affected by the contamination and remains in active agricultural use as well as residential and light commercial development.

Health Considerations

EPA installed a water line to the affected residential area over the contaminant plume. The businesses located on or near the former Motor Fuels refinery were not included in the water line extension and still have filtration units on the private water supply wells maintained by the TCEQ.

Record of Decision (ROD)

The Record of Decision was signed on March 31, 2008. The selected remedy includes 3 main remedy components. The groundwater remedy includes installation of 21 ground water extraction wells, 4 ground water injection wells, and 62 soil vapor extraction wells. The ground water will be treated to remove VOCs through an air stripper and dissolved metals through chemical precipitation. The vapor from the air stripper and SVE system will be collected and condensed using an innovative green technology that utilizes cryogenic compression and condensation (also known as C3) to recover the contaminant vapor as a liquid for potential recycling and resale. The C3 technology will eliminate air emissions from the treatment plant, allow for an accelerated cleanup using the SVE system, and reduce the carbon footprint for the site cleanup.

The drinking water remedy includes installation of installation of a water supply line from the City of Levelland to a service area along FM 1490, north of State Highway 114, and adjacent to Levelland. Individual connections to homes and businesses with private water supply wells currently or potentially impacted by the ground water contamination will be connected to the water supply line. The monthly costs for water usage will be the responsibility of the resident or business at a rate set by the City of Levelland.

The soil remedy includes excavation and on-site burial of an estimated 3,600 cubic yards of contaminated soils and spent catalyst material at the former refinery site.

Community Involvement

EPA held site meetings with eight residents concerning water line connections on June 8th and 9th. Access agreements for 2 new residential connections were obtained which brings the total number of connections to 50. EPA also responded to several phone calls from four residents concerning the technical specifications on the water line connections.

Information Repository: Hockley County Library, 802 Houston Street, Suite 108, Levelland, Texas 79336 (806) 894-6750

Site Contacts

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EPA Superfund Region 6 Toll Free Number: 1-800-533-3508