



Frontier Fertilizer Superfund Site

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • September 2011

Cleanup Action Update Bulletin Number 4

Introduction

The United States Environmental Protection Agency (EPA) is treating pesticide-contaminated soils and groundwater at the Frontier Fertilizer Superfund Site (Site) in Davis, CA (Figure 1). The purpose of this fact sheet is to update you on the progress of the cleanup and to invite you to a community meeting (see below).

Site Background

The long-term groundwater extraction and treatment system has operated since 1995. After the contaminated groundwater is extracted from up to 16 locations, it is pumped through large carbon filter vessels where contaminants are removed. The treated water from this process meets Federal and state primary drinking water standards for Site contaminants and is currently piped to the City of Davis Wastewater Treatment Plant.

In February 2011, EPA started a short-term treatment system, Electrical Resistive Heating (Heating System), to accelerate removal of Site contaminants in the source area, which is where the past operators of the Site disposed of unused pesticides and fertilizers in an unlined basin. Site contaminants include pesticides [e.g., 1,2-dibromoethane (EDB), 1,2-dibromo-3-chloropropane (DBCP), 1,2-dichloropropane (DCP) and 1,2,3-trichloropropane (TCP)] and carbon tetrachloride, a chlorinated solvent.

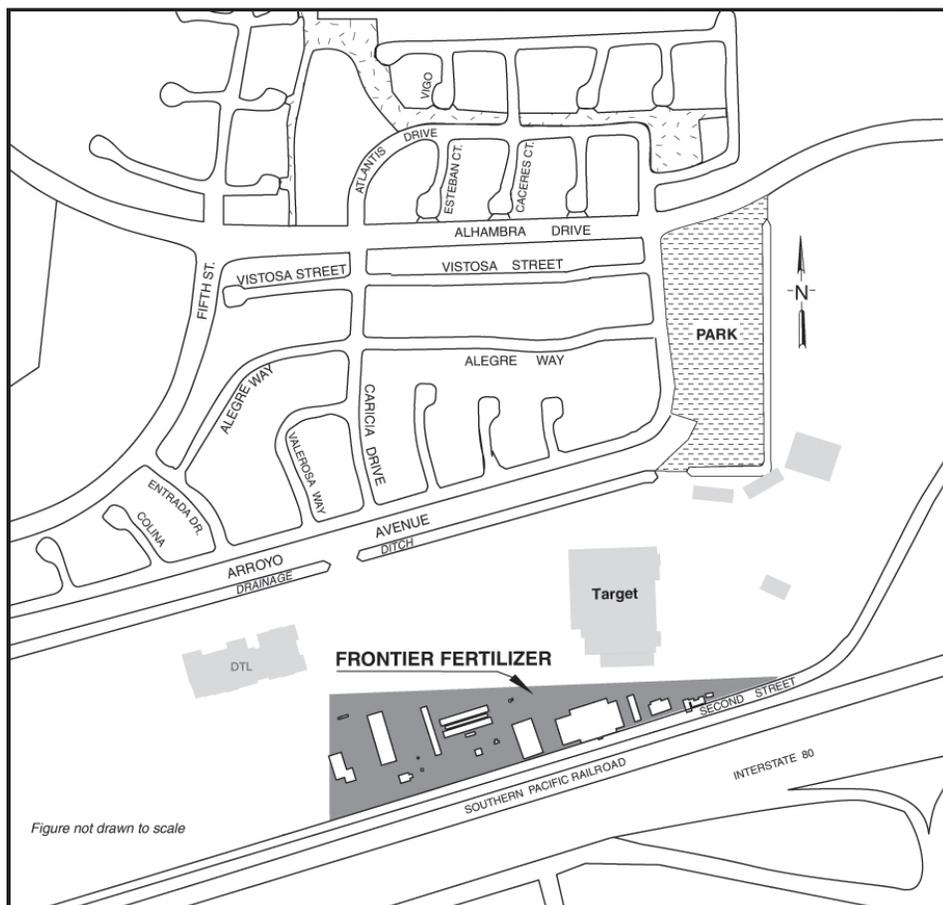


Figure 1: Frontier Fertilizer Superfund Site Location

Community Update Meeting Announcement

Date:

Wednesday,
October 12, 2011
7:00 – 9:00 p.m.

Location:

City of Davis
Police Station
2600 Fifth Street
Davis, California

Purpose:

To discuss the “Heating System” operation and answer questions from the community.



Heating System Progress and Details

EPA completed Heating System installation in November 2010 (Figure 2), and testing continued until start-up in late February 2011. The Heating System moves electrical current through 236 subsurface electrodes installed in the ground. Resistance to electrical current flow between electrodes increases soil and groundwater temperatures (i.e., electrical energy is converted to heat) to the boiling point of water (100 degrees Celsius). The Heating System will reduce the highest levels of contamination in the source soils. Extraction wells located in and around the heated area collect gas and liquids mobilized by the Heating System. Granular activated carbon removes contaminants from the extracted gas and liquids. Below-ground temperatures are continuously monitored in thirty one temperature-monitoring wells.

The Heating System includes many safeguards to ensure the safety of neighbors and on-site workers. These include:

- Fencing to restrict entry and sensors to detect unauthorized access into the heating area;
- A back-up generator and vacuum system to maintain gas emission controls in the event of a power outage;
- A multi-layer cap over the shallow heating area to further contain contaminants; and
- Air monitoring to test and monitor air quality near the Heating System, adjacent residences and businesses.

EPA also requires that the system protect the community if safety features fail to perform. The Heating System is monitored continuously, and attendants will be notified and can respond quickly if there is a system malfunction. Also, if air monitoring detects pesticides, EPA's contractors will immediately investigate and take action to address the situation and stop heating, if necessary.

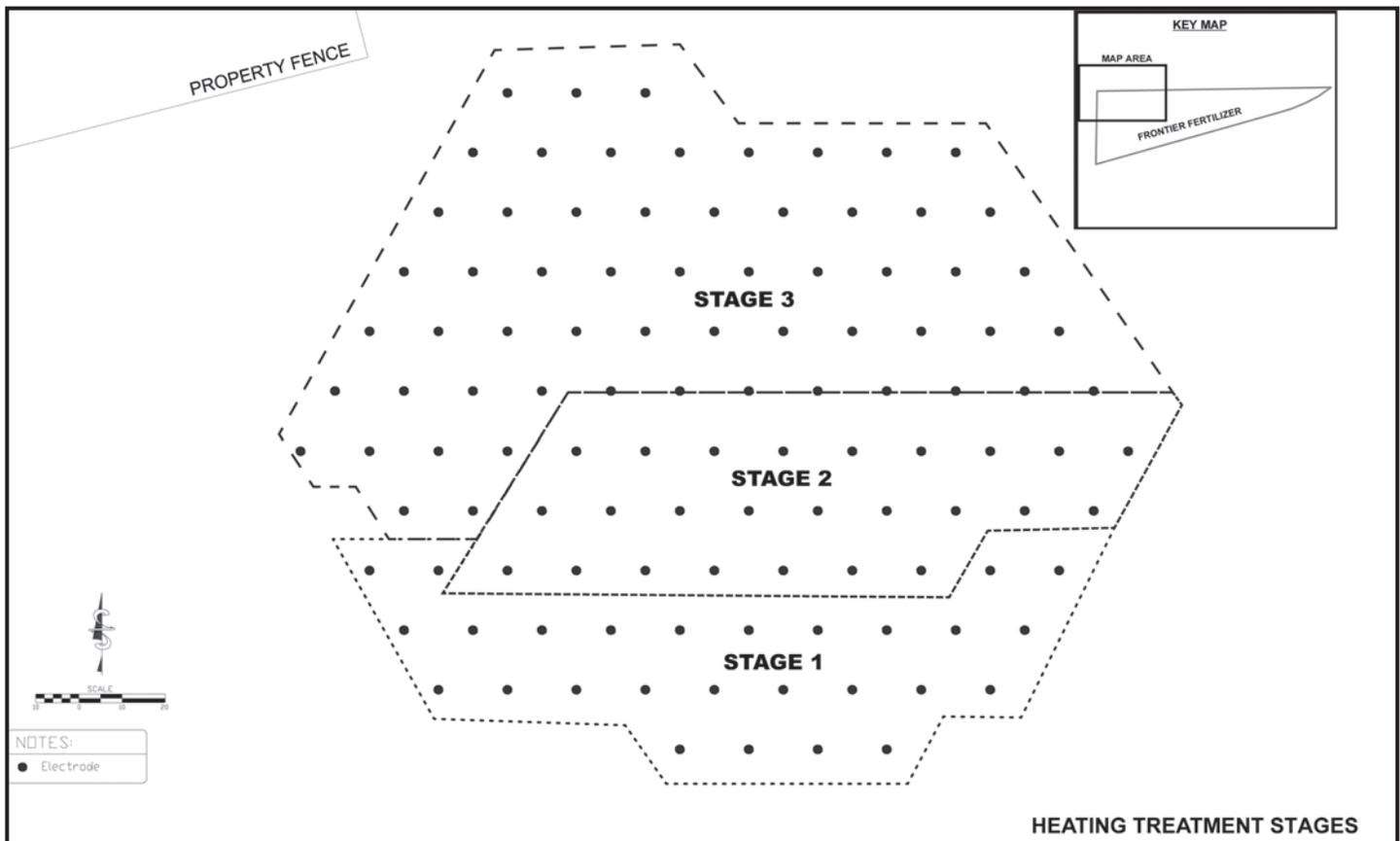


Figure 2: Heating System installation at Frontier Fertilizer

Heating System Operational Progress

Since heating began in February 2011, 15 pounds of Site contaminants have been removed from the soil and groundwater. EPA provides a weekly progress update by email, and monthly by conference call, to the Frontier Fertilizer Superfund Oversight Group (FFSOG) and the State (Department of Toxic Substances Control and the Regional Water Quality Control Board). The heating area is divided into three stages to optimize energy usage. Stage 1 and 2 heating started in February and July 2011, respectively, and EPA plans to begin Stage 3 heating in late 2011/early 2012.

Long-term Groundwater Treatment System Update

To date, the Groundwater Treatment System has extracted 1,512 pounds of Site contaminants. Currently, the treated groundwater is discharged under the terms of a permit to the City of Davis Wastewater Treatment Plant for disposal. As mentioned in EPA's May 2010 bulletin, EPA is investigating reuse of treated groundwater for landscape and agricultural irrigation. EPA currently is discussing these reuse options with the City of Davis and other possible users.

EPA's solar voltaic system was installed in two phases (2007, 2010) and now provides 100% of the energy required to operate the groundwater treatment system. A local vendor won the contracts for both systems, and the solar panels occupy a half-acre area south of the treatment plant. The yearly savings from electricity costs is approximately \$15,000.

Target, Inc. Agreement Update

As part of an administrative agreement with EPA, Target, Inc. (Target) agreed to conduct sub-floor vapor sampling to determine if there are risks to workers and/or shoppers from the contaminants found at the Frontier Fertilizer Site.

Target's contractors completed the first round of sampling in July 2011. Samples were collected from a monitoring port under the building. Target's building specifications included venting through a sub-slab system. EPA and the FFSOG reviewed Target's plan prior to sampling.

Preliminary results from this first round of sampling indicate that TCP, carbon tetrachloride, and DCP were detected at trace levels below the building (less than one part per billion), using a highly sensitive chemical test. The only chemical

detected in outdoor air during the testing was carbon tetrachloride, which was detected at similar levels in ambient air and under the building. This chemical appears routinely in ambient air monitoring on-site as well as upwind stations and is due to another source. EPA and other monitoring groups typically detect carbon tetrachloride in urban areas at levels similar to those observed during the July sampling event.

EPA does not believe there is a risk to workers and/or shoppers due to the detections of chemicals in the sub-slab venting system. The mitigation system is designed to prevent volatile chemicals from entering the building. In addition, the chemical concentrations that were measured were very low. EPA plans to discuss next steps with Target, State agencies, and the FFSOG.

Three more sampling events are scheduled within the next year. EPA will update you regarding these sampling results in future bulletins.

Updated Activity Schedule

Below you will find the Heating System operation schedule and community involvement activities:

- Continued monthly conference calls between the Frontier Fertilizer Superfund Oversight Group (FFSOG), State of California and EPA.
- Heating expected to be completed August 2012
- Continued groundwater extraction and treatment
- Update bulletins: Bi-annually
- Community meetings/Open houses: Bi-annually

Technical Assistance Grant (TAG)

EPA believes it is important for community members to provide input on the cleanup of Superfund sites. One of EPA's tools is to give an eligible group a grant to hire an independent technical advisor to help them interpret and comment on EPA's site decision documents. The Frontier Fertilizer Superfund Oversight Group has been the recipient of the TAG for this Site since 1995. The group and its technical advisor work closely with EPA and State regulators to make sure that community concerns are incorporated into the cleanup decision-making process. The primary point of contact for the TAG is Pamela Nieberg who can be reached at (530) 756-6856. If you would like to receive updates from the TAG recipient, send an email to: pnieberg@dcn.org.



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EPA Contact Information

Jackie Lane, SFD-6-3

Community Involvement Coordinator
Ph.: (415) 972-3236
or leave message at 800-231-3075
Fax: (415) 947-3528
Lane.Jackie@epa.gov

Bonnie Arthur, SFD-7-3

Project Manager
Ph.: (415) 972-3030
Fax: (415) 947-3520
Arthur.bonnie@epa.gov

**EPA 24-Hour
Emergency Line**
800-700-2193



Site Information Repositories and On-Line Web Page

The information repositories below house Site documents available for public review.
EPA also has a Site Overview web page at <http://www.epa.gov/region09/frontierfertilizer/>

Yolo County Library

315 East 14th Street
Davis, CA 95616
(530) 757-5593

**Shields Library**

Government Documents Departments,
University of California
Davis, CA 95616
(530) 752-6561

United States Environmental Protection Agency, Region 9
75 Hawthorne Street (SFD-6-3)
San Francisco, CA 94105
Attn: Jackie Lane (Frontier 9/11)

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