



# Fact Sheet

April 2013



## Cleanup and Restoration of the 2009 Jet Fuel Pipeline Leak

### BACKGROUND

This fact sheet updates the status of the cleanup of the February 2009 petroleum pipeline leak near the intersection of State Route 12 and Lawler Ranch Parkway in Suisun City. The leak was discovered along a portion of the pipeline that formerly transferred jet fuel from a Martinez petroleum facility to Travis Air Force Base (AFB). This pipeline is no longer used; a new pipeline was installed to deliver jet fuel to Travis AFB. The type of jet fuel Travis AFB uses is Jet Propellant 8 (JP-8), which is kerosene-based and less flammable and less hazardous than earlier jet fuel formulas.

In October 2009, June 2010 and February 2012, Travis AFB published fact sheets with more details about the leak, the initial response, the site investigation, additional monitoring conducted and the plan to clean up the JP-8. Electronic copies of these fact sheets are available on the Travis AFB public environmental website at <http://www.travis.af.mil/enviro>.

### CLEANUP PROJECT ON FINAL APPROACH

The February 2012 fact sheet outlined steps to select an appropriate remedy to clean up the fuel. After performing several field tests in the vicinity of the fuel leak area, Travis AFB and the Solano County Department of Resource Management decided to use a two-step cleanup strategy that offered the best chance for success in a cost-effective manner.

The first step involves an aggressive technology known as Dual Phase Extraction or DPE. As the name implies, it involves two phases: liquid and vapor. DPE uses powerful blowers to apply a vacuum to specially designed groundwater extraction wells. The vacuum

lowers the water table, exposing the fuel to the air between soil particles, known as soil gas. The volatile chemicals in jet fuel evaporate into soil gas quicker than they dissolve in water. So, a high percentage of the fuel is removed via the vapor phase. The contaminated vapors are treated with activated carbon filters, and the contaminated groundwater is collected in tanks and transported to a water treatment facility for disposal. The DPE system should run for 3

to 6 months and will only be needed in one location where the concentration of fuel in the groundwater remains high. Additional monitoring wells will be installed around the extraction wells to evaluate the performance of the DPE system and to verify that the fuel is being cleaned up and is not moving away from the site.

Travis has successfully used DPE to remove large amounts of chlorinated hydrocarbon contamination from several of its groundwater sites, so the expectation is that this technology will work equally well in the fuel spill area. However, a small quantity of fuel will stick to soil particles and be very difficult to extract. So, any residual fuel that cannot be pumped or vacuumed out of the groundwater will



A portable Dual-Phase Extraction System unit, such as the one shown here, applies a powerful vacuum to an extraction well to remove contaminated vapors and increase the rate of groundwater extraction.

be treated by In-Situ Chemical Oxidation or ISCO, which was described in the 2012 fact sheet. ISCO is a non-invasive cleanup technology that involves the injection of an oxidant into the contaminated area. The oxidant is a powerful compound that chemically breaks down fuel. Also, it adds oxygen to the groundwater, which promotes the growth and activity of microscopic organisms that use the residual fuel as food. When the cleanup is complete, the fuel is broken down into harmless compounds.

For ISCO to be successful, the oxidant must be injected into all areas where residual fuel is present. The contaminated area contains a lot of clay, which makes the injection process more challenging. Travis AFB conducted initial tests last year to determine if injecting an oxidant into this type of soil is possible. The base was able to inject enough water into the targeted area to show that the DPE-ISCO cleanup strategy is likely to achieve its cleanup goals.

Another key to the success of ISCO as a cleanup strategy is the presence of microbes that can biologically break down petroleum products. Over the last five years, Travis AFB has conducted demonstration projects to inject a substrate into groundwater contaminated with chlorinated hydrocarbons. Although the biological processes that microbes use to clean up fuel are different than those for chlorinated hydrocarbons, these demonstrations show that there is a large microbe population in this part of Solano County that can break down different types of contaminants. More detailed information about these demonstration projects and studies can be found in the April 2012 and July 2010 editions of the Guardian, a newsletter that is published by the Travis AFB Environmental Restoration Program. All copies of the Guardian can be downloaded from the news section of the Travis AFB public environmental website.

To carry out this cleanup strategy, Travis AFB and the U.S. Army Corps of Engineers picked two

environmental companies that specialize in DPE and ISCO applications. JC Palomar has a lot of experience with fuel systems, and Endpoint Consulting has a successful track record of using ISCO at local cleanup sites.

### SCHEDULING THE NEXT STEP

Below is the current schedule for the next step in this project.

Period	Activity
April 2013	Obtain permits, licenses and permissions
June 2013	Install up to three groundwater monitoring/extraction wells and five DPE wells
June 2013	Perform baseline groundwater sampling from up to ten wells
June - August 2013	DPE construction, set up and operation
September - November 2013	Monthly groundwater sampling
December 2013	Confirmation that DPE goals are met and propose ISCO injection schedule

### HOW CAN I LEARN MORE ABOUT THIS FUEL LEAK CLEANUP ACTION?

There are several ways to obtain updates on the status of this cleanup project. Both Ms. Merrie Schilter-Lowe (Travis AFB Public Affairs Office) and Mr. Josuwa Bernardo (SCDRM) can answer your questions or provide the latest information available.

1. Write to them at the addresses below.
2. Call them using the phone numbers below.
3. Send email to the addresses below.

**For additional information, please contact:**

Ms. Merrie Schilter-Lowe  
60th Air Mobility Wing Public Affairs Office  
400 Brennan Circle, Building 51  
Travis Air Force Base, CA 94535  
(707) 424-2011  
merrie.schilterlowe@us.af.mil

Mr. Josuwa Bernardo  
Solano County Department of Resource Management  
675 Texas Street, Suite 5500  
Fairfield, CA 94533  
(707) 784-6765  
jbernardo@solanocounty.com