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FACT SHEET – July 2005

Pacific Gas and Electric Company (PG&E) Topock Project Begins Interim Measure No. 3 Treatment Operations

Treatment facility for Interim Measure No. 3

This fact sheet describes Interim Measure No. 3 (IM3) at the PG&E Topock Compressor Station. The goal of IM3 is to treat groundwater contaminated with hexavalent chromium and to gain better control of the plume, which is adjacent to the Colorado River. The station is located about 15 miles southeast of Needles, California.

History

In February 2004, DTSC directed PG&E to begin pumping, transporting, and disposing of groundwater from the MW-20 bench location (a level patch of federal land located approximately 600 feet from the river, above the floodplain, see map, page 2) to ensure that groundwater containing hexavalent chromium would not reach the Colorado River. The level of water in the Colorado River has a large influence on groundwater levels, and during periods of low river levels, groundwater will tend to move toward the river. On March 8, 2004, PG&E began extracting groundwater and transporting it by truck to a licensed hazardous waste disposal and treatment facility in Vernon, California. In July 2004, a batch treatment system was added at the MW-20 bench to make the groundwater non-hazardous prior to transport. These actions are termed Interim Measures No. 2 (IM2). Under IM2, PG&E has been removing approximately 70 gallons per minute (gpm) of groundwater, 24 hours per day. This treated groundwater is then trucked to the disposal facility in Vernon, California.

In June 2004, DTSC determined that groundwater would need to be removed at higher rates than could be treated and managed at the current MW-20 bench site. To ensure that hexavalent chromium would not reach the Colorado River, DTSC directed PG&E to design and install a larger treatment facility capable of handling the higher groundwater flows. This facility is known as Interim Measure No. 3, or IM3. Construction of the IM3 system is complete, and it is expected to begin treating groundwater to reduce hexavalent chromium in mid-July 2005.

Elements of Interim Measure No. 3

The IM3 project consists of several elements:

- extraction of groundwater
- transportation via pipelines
- treatment to reduce hexavalent chromium
- management of the treated groundwater

These project components are described in detail below.

Removal, Piping and Transportation of Groundwater

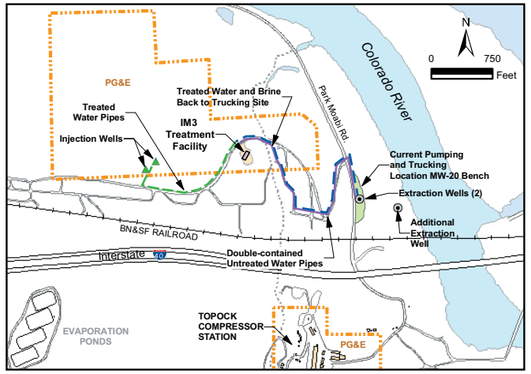
Two extraction wells are located above the floodplain on the MW-20 bench, in the area of the plume where the highest concentrations of hexavalent chromium have been detected. These extraction wells are also being utilized for the current pumping and trucking of groundwater under IM2. A third extraction well was installed in the floodplain in March 2005 (see map) to allow for extraction of groundwater within the floodplain, if deemed necessary to maintain control of the plume.

Double-walled piping will deliver untreated groundwater from the extraction wells to the IM3 treatment facility. Additional piping will carry treated water from the treatment facility back to the MW-20 bench. The water will continue to be trucked to the treatment facility in Vernon until re-injection wells are tested and approved by DTSC. Once approved by DTSC, the treated water will be injected into the local aquifer (as described below under the Management of Treated Water section).

Treatment Process

The treatment facility uses a multi-step process to ensure that groundwater is cleaned to the standards set by the Regional Water Quality Control Board (RWQCB). The cleaned groundwater will meet or be cleaner than the 50 parts per billion (ppb) drinking water standard for chromium set by the State of California. This standard is well below the standard set by Arizona which is 100 ppb.

The first step of the cleanup process is the introduction of chemicals such as iron (in the form of ferrous chloride) to convert the hexavalent chromium to trivalent chromium (see glossary), which forms a solid material in water. This water-solid mixture will be pumped into a clarifier, which will remove a majority of the solids. The solids that are removed by the clarifier will be dewatered and trucked away from the site to be disposed of at a hazardous waste facility. The



Interim Measure No. 3 Treatment System Map

remaining water will be pumped through a micro-filter to remove any small solid particles which are left. After this treatment to reduce hexavalent chromium, a portion of the groundwater will be treated by a process called reverse osmosis which removes dissolved salts from the water. This step is necessary because the aquifer water in the injection area is less salty than the extracted groundwater. Reverse osmosis will result in two water streams – one with high salt content, called brine, and the other with low salt.

Management of Treated Water

After the water has been treated, the solids and brine will be trucked away for offsite disposal. The remaining treated water will be injected into two injection wells located west of the treatment facility (see map). The injection wells will reintroduce the treated groundwater back into the underground groundwater aquifer. The quality of the treated groundwater will not degrade the aquifer into which it will be injected. Injection well locations were selected based on hydrogeology, accessibility, and avoidance of biological and cultural resources.

To ensure that injection of treated water does not degrade the water quality of the aquifer, DTSC and the RWQCB directed PG&E to conduct studies to determine the current groundwater quality, and to install monitoring wells surrounding each injection well. These monitoring wells will be used to verify that the aquifer's groundwater quality is not adversely affected by the injection of treated groundwater.

Schedule

Construction of the IM3 treatment system is complete. Prior to startup, the system will be tested and any necessary adjustments made to ensure the system will operate properly. During testing, water will be trucked offsite. DTSC expects that the IM3 system will begin treating groundwater to reduce hexavalent chromium in mid-July. Injection of the treated water will begin upon approval by DTSC. Treated water will continue to be trucked offsite until injection is approved to begin.

The Interim Measures at the Topock site are temporary measures intended to fully protect the Colorado River until a final cleanup plan can be evaluated, discussed with stakeholders and the public, selected and approved. DTSC has directed PG&E to prepare a Corrective Measures Study that will identify potential long-term cleanup technologies for the site, evaluate those technologies based on selection criteria and recommend a cleanup approach, known as the final remedy. The final remedy will be subject to the California Environmental Quality Act and to stakeholder and public review before being approved and implemented.

Glossary

Aquifer: A water-bearing layer of rock or sediment that is capable of yielding useable amounts of water.

California Environmental Quality Act (CEQA): Enacted in 1970 to provide long-term environmental protection, this law requires that governmental decision-makers and public agencies study the environmental effects of proposed activities, and that significant adverse effects be avoided or reduced where feasible. CEQA also requires that the public and stakeholders be informed and given an opportunity to provide input prior to the decision of the lead public agency.

Clarifier: A process in which solids are separated from liquids.

Corrective Action: Specific activities designed to investigate and cleanup contamination at a site resulting from present and past hazardous waste handling practices.

Department of Toxic Substances Control (DTSC): A department within the California Environmental Protection Agency charged with the regulation of hazardous waste from generation to final disposal, and for overseeing the investigation and clean-up of hazardous waste sites.

Extraction wells: Wells that are used primarily to remove contaminated groundwater from the ground. Water level measurements and water samples can also be collected from extraction wells.

Final Remedy: The final cleanup action proposed for dealing with contaminants at a site.

Groundwater: Water beneath the earth's surface that flows through soil and rock openings, aquifers, and often serves as a primary source of drinking water.

Hexavalent Chromium: A form of chromium, a metal naturally found in rocks, soil and the tissue of plants and animals. Also used in industrial products and processes, hexavalent chromium is a known carcinogen when inhaled (i.e., through breathing).

Hydrogeology: The geology of groundwater, with particular emphasis on the chemistry and movement of water.

Lead agency: A public agency which has the principal responsibility for ordering and overseeing site investigation and cleanup.

Monitoring wells: Specially-constructed wells used exclusively for testing water quality.

Parts per billion (ppb): A unit of measure used to describe levels or concentrations of contamination. A measure of concentration, equaling 0.0000001 percent. Most drinking water standards are expressed in ppb concentrations.

Plume: A body of contaminated groundwater flowing from a specific source. The movement of the groundwater is influenced by such factors as local groundwater flow patterns, the character of the aquifer in which the groundwater is contained, and the density of contaminants.

Regional Water Quality Control Board (RWQCB): A California agency that maintains water quality standards for a specific geographic jurisdiction and enforces state water quality laws.

Remediation: Cleanup or other methods used to remove or contain a toxic spill or hazardous materials from a site.

Reverse osmosis: A treatment process used in water and wastewater systems by adding pressure to force water through a semi-permeable membrane. Reverse osmosis removes most drinking water contaminants, including salts.

Trivalent Chromium: A form of chromium, a metal naturally found in rocks, soil and the tissue of plants and animals. Trivalent chromium is considered an essential nutrient and is relatively harmless. It does not dissolve in groundwater and tends to bind to soil; thus it does not travel readily in the environment.

Information Repository Locations

Project reports, fact sheets, and other project documents can be found in the Information Repositories listed below:

Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630
Contact: Julie Johnson (714) 484-5337
Fax: (714) 484-5318
9am – Noon, 1pm – 4pm, Monday – Friday
Must submit written request prior to visit

Needles Library
1111 Bailey Avenue
Needles, CA 92363
Contact: Kristin Mouton (760) 326-9255
10am – 6pm, Monday and Tuesday
10am – 4pm, Wednesday
10am – 5pm, Thursday through Saturday

Chemehuevi Indian Reservation
2000 Chemehuevi Trail
Havasu Lake, CA 92363
Contact: David Todd (760) 858-1140
8:00am – 4pm, Monday – Friday

Golden Shores/Topock Library Station
13136 Golden Shores Parkway
Topock, AZ 86436
Contact: Avis McKinnon (928) 768-2235
8am – 2pm, Tuesday and Thursday
3pm – 6pm, Wednesday

Lake Havasu City Library
1770 McCulloch Boulevard
Lake Havasu City, AZ 86403
Contact: Sharon Lane (928) 453-0718
9am – 6pm, Monday and Wednesday
9am – 8pm, Tuesday and Thursday
9am – 5pm, Friday and Saturday

Colorado River Tribes Public Library
2nd Avenue and Mohave Road
Parker, AZ 85344
Contact: Amelia Flores (928) 669-1285
8am – Noon, 1pm – 5pm, Monday – Friday

Parker Public Library
1001 Navajo Avenue
Parker, AZ 85344
Contact: Jana Ponce (928) 669-2622
9am – 7pm, Monday – Friday
9am – 2pm, Saturday

Comment and Mailing List Form for PG&E's Topock Compressor Station

If you would like to be added to or taken off the distribution list for mail related to the site, or to submit questions or comments, please fill out this form and return to DTSC. Please address all mailings to Derrick Alatorre, Department of Toxic Substances Control, External Affairs/Public Participation, 5796 Corporate Avenue, Cypress, CA 90630.

Name: _____

Address: _____

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Affiliation (if any): _____

Comments/Questions: _____

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