



Interim Measures at the PG&E Topock Compressor Station

DTSC is one of six Boards and Departments within the California Environmental Protection Agency. The Department's mission is to restore, protect, and enhance the environment, to ensure public health, environmental quality and economic vitality by regulating hazardous waste, conducting and overseeing cleanups, and developing and promoting pollution prevention.



Department of Toxic Substances Control
 5796 Corporate Avenue
 Cypress, CA 90630
 714-484-5474



California Environmental Protection Agency

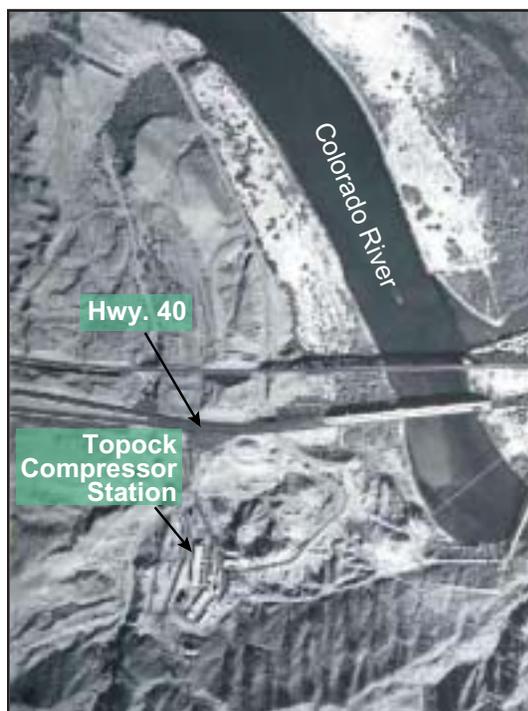
What's Happening?

On March 8, 2004, Pacific Gas and Electric Company (PG&E) began extracting chromium-contaminated **groundwater*** near the Topock Compressor Station (Station) to prevent it from reaching the Colorado River. The chromium contamination is the result of discharges from past operations at the Station. The groundwater cleanup is being conducted under the oversight of the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), which recently determined that urgent action is needed to ensure chromium-contaminated groundwater does not reach the Colorado River. Although the contamination has not been detected in the Colorado River and there is no imminent threat to public

health, DTSC required immediate action as a precautionary measure to protect the Colorado River, a valuable drinking water resource.

The environmental investigation, which has been underway since 1997, is primarily focused on the toxic chemical **hexavalent chromium** (also known as Cr+6). The affected groundwater, commonly referred to as the **plume**, extends about 2,400 feet long and 1,300 feet wide and mostly underlies federal lands. The immediate actions required by DTSC, called **Interim Measures**, include pumping, transporting, and disposing of groundwater from three existing monitoring wells located just above the floodplain of the Colorado River. The pumping is intended to draw the chromium plume in the floodplain toward the monitoring wells and away from the Colorado River.

DTSC is working closely with various regional, state, and federal agencies through a Consultative Workgroup (CWG), which meets regularly with PG&E to discuss and consult on the site cleanup. Agencies involved in the CWG include: Arizona Department of Environmental Quality, Mojave County (Arizona) Department of Health and Social Services, California Regional Water Quality Control Board - Colorado River Basin, Metropolitan Water District of Southern California, U.S. Department of the Interior, U.S. Bureau of Land Management, U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, U.S. Geological Survey, and the U.S. Bureau of Indian Affairs. DTSC also consults regularly with the surrounding Native American communities, including the Fort Mojave, Chemehuevi, and Colorado River Indian Tribes, and has



PG&E Topock Compressor Station near Needles, California

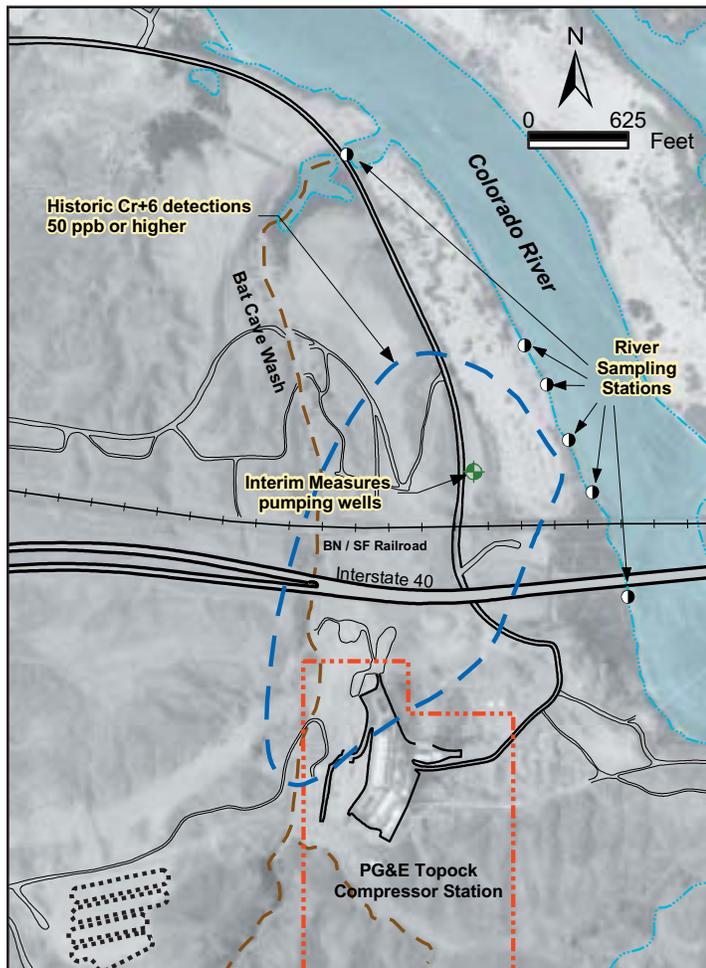
* Words in **bold** appear in the Glossary of Terms on the back page.

been working to keep other members of the public and elected officials apprised of project status.

Interim Measures

Interim Measures are urgent actions taken to clean up the site while the long-term remedy is being evaluated. DTSC required Interim Measures to accelerate removal of chromium contamination and to protect the Colorado River. Planning and implementation of the Interim Measures is being closely coordinated with the U.S. Bureau of Land Management, which acts as trustee of the federal land where the pumping occurs. Based on the need for immediate action, DTSC issued a Notice of Exemption (NOE) under the **California Environmental Quality Act (CEQA)**.

As part of the Interim Measures, PG&E is currently pumping contaminated groundwater 24 hours a day, 16 gallons per minute, for a total removal of approximately 23,000 gallons per day. Water pumped from the wells is being temporarily stored in steel holding tanks, and then transferred into trucks for transport to a licensed waste treatment facility in Los Angeles. Approximately six trucks



Area of historic maximum hexavalent chromium detections (50 ppb or higher) in the area associated with the discharge

per day are hauling water from the site.

Multiple safeguards are in place to ensure that contaminated groundwater is safely contained during the removal process. The entire area where contaminated water is handled is underlain with durable, watertight liners and surrounded by protective **berms**. The site is also secured with fencing and manned on a 24-hour basis. Emergency response procedures are in place, including trained spill response personnel who are on call 24 hours per day. PG&E provides DTSC with a progress report on the Interim Measures every two weeks.

Two high-capacity groundwater extraction wells have recently been completed near the site of the present pumping. It is anticipated that pumping activity will switch over to these high-capacity extraction wells in early May 2004. The Interim Measures include provisions for the installation of additional extraction wells, if necessary, to draw the chromium plume in the floodplain toward the extraction wells and away from the Colorado River. In addition, a treatment plant is currently being planned to reduce or eliminate the need for trucking water off site. PG&E is currently evaluating options for disposal and/or re-use of the treated water.

Why Interim Measures? Has the Colorado River been Affected?

Water from the Colorado River has been sampled quarterly since 1997, and monthly since November 2003. To date, Cr+6 has not been detected in any of these samples. Likewise, bottom sediments from different locations along the river have been sampled and no Cr+6 has been detected. These data indicate that the chromium plume has not affected the Colorado River to any significant and measurable degree.

The current groundwater pumping is targeted at the most contaminated part of the plume, located approximately 600 feet from the river, where concentrations as high as 13,000 ppb of Cr+6 have been measured. It is believed that plume migration occurred mostly between 1951 and 1968 when wastewater was actively discharged from the Station, at the rate of about six to ten million gallons per year. This active discharge provided the main driving force that pushed the plume to its present position. Current data suggests that the plume is moving very slowly, at the rate of one to three feet per year.

At present, there are 35 wells monitoring the plume

including 12 monitoring wells in the floodplain area adjacent to the river. Seven of these wells were installed in 2003 to better monitor the edge of the plume closest to the river. Nine of these floodplain wells have never detected Cr+6. Of the three wells that detected Cr+6, the one closest to the river has exceeded the California drinking water standard of 50 ppb on two occasions, with a concentration as high as 111 ppb. These affected floodplain wells, plus a few others, are currently sampled on a weekly basis.

Based on the chromium detections from these floodplain wells, DTSC required Interim Measures in the form of groundwater pumping to prevent any potential impact to the Colorado River. While Cr+6 has never been detected in the Colorado River, pumping is intended to induce groundwater flow in the flood plain area away from the river to prevent any possibility of the chromium plume reaching the river. Also, the Interim Measures will gather additional technical data which will be used in designing the final cleanup system.

Where is the Topock Compressor Station?

PG&E's Topock Compressor Station is located in eastern San Bernardino County, about 15 miles southeast of Needles, along the Colorado River. The nearest communities are Moabi Regional Park, California (one mile northwest of the Station); Topock, Arizona (one-half mile east-northeast across the Colorado River); and Golden Shores, Arizona (eight miles north). Three Indian reservations are located within 35 miles along the Colorado River: the Fort Mojave Indian Reservation 20 miles upstream; the Chemehuevi Indian Reservation 25 miles downstream; and the Colorado River Indian Reservation 35 miles downstream.

History of Chromium Use at the Topock Compressor Station

PG&E Topock Compressor Station compresses natural gas before transporting it through pipelines to central and northern California. Between 1951 and 1985, PG&E used Cr+6 as an anti-corrosion agent in its cooling towers. From 1951 to 1964, untreated wastewater from the cooling towers was discharged into **percolation** beds in Bat Cave Wash, a normally dry wash next to the Station. Beginning in 1964, PG&E treated the wastewater to remove Cr+6. The treated wastewater was discharged into Bat Cave Wash until 1968, and subsequently into an on-site injection well. Over

time, PG&E installed a series of lined evaporation ponds for wastewater disposal. In 1985, PG&E stopped using the chromium-based additive and switched to a phosphate-based solution. In 1996, PG&E entered into a Corrective Action Consent Agreement with DTSC to investigate and clean up the Cr+6 contamination at the Station.

What is Chromium and Why Should I be Concerned about it?

Chromium is a naturally occurring metal found in rocks, soil, and the tissue of animals and plants. It is present in the environment most commonly in two different forms: hexavalent chromium (Cr+6) and trivalent chromium (Cr+3). Cr+6 is the toxic variety; it is considered a human carcinogen when inhaled. It is also highly soluble, and therefore easily transported in groundwater. Cr+3, on the other hand, is considered an essential nutrient and relatively harmless. It is insoluble and tends to bind to the soil; thus it does not travel readily in the environment. Cr+6 is stable only under certain chemical conditions and may convert into Cr+3. However, Cr+3 does not convert as readily to Cr+6.

The California drinking water standard, which is a legal mandate based on health and other considerations, is currently set at 50 ppb of total chromium (which includes both Cr+6 and Cr+3). There is currently no separate drinking water standard for Cr+6.

Am I Affected by the Contaminated Groundwater?

As stated previously, Cr+6 has not been detected in the Colorado River, which is a major source of drinking water. The groundwater containing Cr+6 is in an isolated area and is not used for drinking or other purposes. Cr+6 is no longer used at the Station, and health and safety procedures are in place to ensure that workers at the Station do not come in contact with chromium-contaminated soil or groundwater. *(continued on back page)*



Interim Measures equipment, including water storage tanks

What's Next?

Interim Measures at the site will continue until the **Final Remedy** is in place. Additional groundwater extraction wells will be installed and a wastewater treatment system will be constructed on site. Groundwater and river water sampling will continue on a regular basis.

The results of the Interim Measures, groundwater monitoring, and supplemental field studies will be incorporated in the evaluation of the Final Remedy and preparation of a **Corrective Measures Study** to select the long-term remedy for the site.

DTSC also has directed PG&E to evaluate the effectiveness of a **subsurface containment barrier**, including a "slurry wall." A subsurface containment barrier, when designed and installed properly, can be used in combination with ongoing groundwater extraction to prevent the contamination from impacting the river. Other long-term alternatives being evaluated include **in-situ treatment**, which converts the Cr+6 to Cr+3 under the ground to speed up the remediation of the site. These and other alternatives will be evaluated for effectiveness in protecting the environment, reliability, technical feasibility, cost effectiveness, community acceptance, and other factors. The Final Remedy may include pumping and treatment of groundwater in combination with these alternatives. Before the Final Remedy is selected, the public will have an opportunity to review and provide comments on the proposed Final Remedy. Additionally, a public hearing will be held.

Glossary of Terms

Berms – A curb, ledge, wall, or mound made of various materials, used to prevent the spread of contaminants.

California Environmental Quality Act (CEQA)

A law mandating environmental impact review of governmental action. It requires that public agencies study the significant environmental effects of proposed activities and that the public be informed and allowed to comment on project decisions.

Corrective Measures Study (CMS) – A study conducted by the facility owner/operator to identify and evaluate alternative remedies (i.e., cleanup options) to address contaminant releases at a site.

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, and often serves as a primary source of drinking water.

Hexavalent chromium (Cr+6) – Hexavalent chromium is a form of chromium, a metal commonly found in soil, plants, and animals. Also used in industrial products and processes, hexavalent chromium is a known human carcinogen when inhaled (i.e., through breathing).

In-situ treatment – Technology that treats

contaminants in place within the soil or in groundwater. It typically involves injection of a material such as air, gases, chemical or biological reagents or solid material (e.g., molasses or lactose) to chemically alter the contaminant, or to encourage bacteria in the soil to aid in the treatment.

Interim Measures – Cleanup actions taken to protect public health and the environment while long-term solutions are being developed.

Parts per billion – A unit of measure used to describe levels or concentrations of contamination. One part per billion is the equivalent of one drop of contaminant in one billion drops of water.

Percolation – The downward flow or filtering of water or other liquids through subsurface rock or soil layers, usually continuing to groundwater.

Plume – A body of contaminated groundwater flowing from a specific source.

Subsurface containment barrier – Barriers used to contain or control the flow of contaminated groundwater or subsurface liquids. They are constructed by digging a trench around a contaminated area and filling the trench with a material that tends not to allow water to pass through it.

We want to hear from you!

DTSC welcomes your feedback. There are several ways to contact us.

For any questions or comments please contact:

Derrick Alatorre, *Public Participation Specialist*

DTSC

5796 Corporate Ave.

Cypress, CA 90630

714-484-5474, DAlatorr@dtsc.ca.gov

Norman Shopay, *Project Manager*

DTSC

700 Heintz Ave., Suite 200

Berkeley, CA 94710

510-540-3943, NShopay@dtsc.ca.gov

Media inquiries please contact:

Jeanne Garcia, *Public Information Officer*

DTSC

1011 N. Grandview Ave.

Glendale, CA 91201

818-551-2176, JGarcia1@dtsc.ca.gov

TDD: Call 1-888-877-5378, and ask to contact Derrick Alatorre

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 Ave., Cypress, CA

Julie Johnson: 714-484-5337

Needles Library

1111 Bailey Ave., Needles, CA

Barbara Degidio: 760-326-9255

Chemehuevi Indian Reservation

2000 Chemehuevi Trail, Havasu Lake, CA

Dave Todd: 760-858-1140

Golden Shores/Topock Library Station

13136 Golden Shores Parkway, Topock, AZ

Avis McKinnon: 928-768-2235

Lake Havasu City Library

1787 McCulloch Blvd., Lake Havasu City, AZ

Sharon Lane: 928-453-0718

Colorado River Tribes Public Library

2nd Ave and Mohave Rd., Parker, AZ

Amelia Flores: 928-669-1285

Parker Public Library

1001 Navajo Ave., Parker, AZ

Jana Ponce: 928-669-2622



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 in 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: _____

City/State/Zip: _____

Phone/Email: _____

Affiliation (if any): _____

Comments/Questions: _____
