

- Status Update on Topock Chromium 6 Remediation

Summary

This report provides an update on the progress of the Topock Chromium 6 Remediation. A Corrective Measures Study is being developed to evaluate the treatment technologies for the groundwater remediation. Pacific Gas and Electric (PG&E) is scheduled to complete the Study in 2009. A draft Environmental Impact Report (EIR) will be available in 2009 for public comment. The final EIR is expected to be completed in 2010 with construction of the final groundwater remediation facilities to be completed by 2012. Cleanup of the groundwater plume could take a number of years (e.g., 20 to 30 years), depending on the type of treatment employed.

The groundwater plume containing hexavalent chromium (chromium 6) is present in an aquifer adjacent to PG&E's gas compressor station, located along the Colorado River across from the town of Topock, Arizona. The plume is from past disposal practices of chromium 6, which was used as an anticorrosive agent at the gas compressor station. The plume contains high levels (e.g., >1,000 parts per billion [ppb]) of chromium 6 next to and possibly under the river. PG&E has implemented interim measures to protect the river. Quarterly monitoring has shown levels of chromium 6 in the river less than 1 ppb, which are considered background and from natural origin.

The Department of Toxic Substance Control (DTSC), the lead regulatory agency for the remediation project, created a Consultative Workgroup comprised of various stakeholders and state and federal agencies to provide consultation and recommendations on the project. Recently, DTSC conducted a Topock Breakthrough Summit to enhance communication and seek process improvements for the project. Also, DTSC formed a Topock Leadership Advisory Board to ensure executive-level oversight.

Chromium 6 is currently regulated under the 50 ppb California Maximum Contaminant Level (MCL) for total chromium. The California Office of Environmental Health Hazard Assessment (OEHHA) is currently evaluating existing toxicological data and is expected to propose a public health goal (PHG) for chromium 6 in the near future. Following release of the PHG, the California Department of Public Health (CDPH) can proceed with final development of a MCL.

Attachment

[Attachment 1 – Cleanup Process and Topock Groundwater Timeline](#)

Detailed Report

Background

In 1951, PG&E began operating the Topock compressor station to compress natural gas for pipeline transport to customers in northern and central California. The station is located in eastern San Bernardino County, about 12 miles southeast of the city of Needles.

Until 1985, PG&E used chromium 6 to inhibit corrosion, minimize scale, and control biological growth in its cooling tower water. From 1951 to 1964, untreated wastewater from the cooling towers was discharged into a normally dry streambed (Bat Cave Wash) adjacent to the station. Beginning in 1964, PG&E began to treat the wastewater to convert hexavalent chromium to trivalent chromium (chromium 3) which is less toxic and less mobile in groundwater. In 1970, PG&E began discharging the wastewater to an injection well near Bat Cave Wash and later installed single-lined wastewater evaporation ponds for wastewater disposal. After 1985, PG&E switched from chromium 6 to a phosphate-based solution.

Remediation of the chromium 6 at PG&E's Topock compressor station is under the direction of DTSC. In 2000, a Consultative Workgroup comprised of various stakeholders and state and federal regulatory agencies was formed to provide consultation and recommendations on the remediation project. Metropolitan has participated as an active member of the Workgroup.

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Regulatory Issues

Chromium 6 is considered by the state of California to be a human carcinogen when inhaled or ingested, and is also highly soluble and therefore easily transported in groundwater. Chromium 6 is a drinking water contaminant stemming from industrial and manufacturing activities in or adjacent to water supplies, and is currently regulated under the 50 ppb California MCL for total chromium. Health concerns raised by exposure to chromium 6 prompted California lawmakers to call for a drinking water standard for this contaminant. OEHHA is evaluating existing toxicological data and is expected to propose a PHG in the near future. The CDPH cannot proceed with final development of a MCL until OEHHA completes its toxicological assessment of chromium 6 and releases the associated PHG.

Interim Measures

Starting March 2004, PG&E began a groundwater extraction and treatment system (Interim Measures) to control the flow of groundwater away from the Colorado River to protect public health and the environment. In 2005, a treatment plant and conveyance system was built. The system consists of groundwater extraction, treatment, and reinjection of the treated water into the groundwater aquifer upstream of the plume. The system removes 3-4 pounds of chromium per day and has treated over 238 million gallons of groundwater with over 5,100 pounds of chromium removed to date. Quarterly monitoring has shown that levels of chromium 6 in the river are less than 1 ppb which are considered background and from natural origin.

Topock Breakthrough Summit

In February 2008, DTSC held a Topock Breakthrough Summit to apply multi-party mediation and process improvement techniques to address the remediation of chromium contamination from the PG&E Topock compressor station. The Summit incorporated a variety of methods to improve communication and relationships among participants. This process resulted in a systematic and collaborative process for determining the final remedies. The Summit participants developed four task forces to address key issues associated with the chromium 6 remediation process.

A Topock Leadership Advisory Board, consisting of leaders from the tribes and agencies, was also formed to provide communication at the executive level. The first board meeting was held on October 29, 2008.

Final Remedy and EIR

The remediation project is following the regulatory timeline for a Resource Conservation and Recovery Act hazardous waste site cleanup ([Attachment 1](#)). The Breakthrough Summit and subsequent task forces have succeeded in streamlining project milestone dates and have reduced the final remedy selection date by eight months. The Consultative Workgroup has been involved in providing stakeholder input into the site characterization, interim measures, and site cleanup options. PG&E is evaluating four cleanup technologies that may be used in combination for the final remedy. They include:

- Pump and Treat – use of extraction wells to pump water to a treatment plant for the removal of chromium 6;
- Barrier Technologies – use of subsurface barriers to isolate the groundwater plume from the river, and Pump and Treat to clean up the contaminated groundwater;
- In-Situ Treatment Zones – injection of reactive materials into groundwater that would convert chromium 6 to the insoluble chromium 3; and
- Monitored Natural Attenuation – use of monitoring wells to verify the effectiveness of naturally occurring reducing conditions to convert chromium 6 to the insoluble chromium 3.

Pump and treat in combination with in-situ treatment appears to be one of the most viable options for the cleanup. A decision on the final cleanup remedy for the groundwater plume is anticipated in early 2010 with construction of facilities completed by 2012. The draft EIR should be available for public comment in 2009. Cleanup of the groundwater plume could take a number of years (e.g., 20 to 30 years), depending on the cleanup technology employed.

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Metropolitan's Next Steps

- Continue to participate on the Consultative Workgroup;
- Continue to meet separately with PG&E to discuss issues and work toward selection of a final remedy;
- Participate on the Topock Leadership Advisory Board; and
- Advocate for the expedient implementation of the final remediation technologies.

Cleanup Process and Groundwater Timeline

