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*“The State Water Board’s mission is to preserve, enhance and restore the quality of California’s water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations.”*

## Comprehensive Groundwater Cleanup Strategy for Historical Chromium Discharges from PG&E’s Hinkley Compressor Station

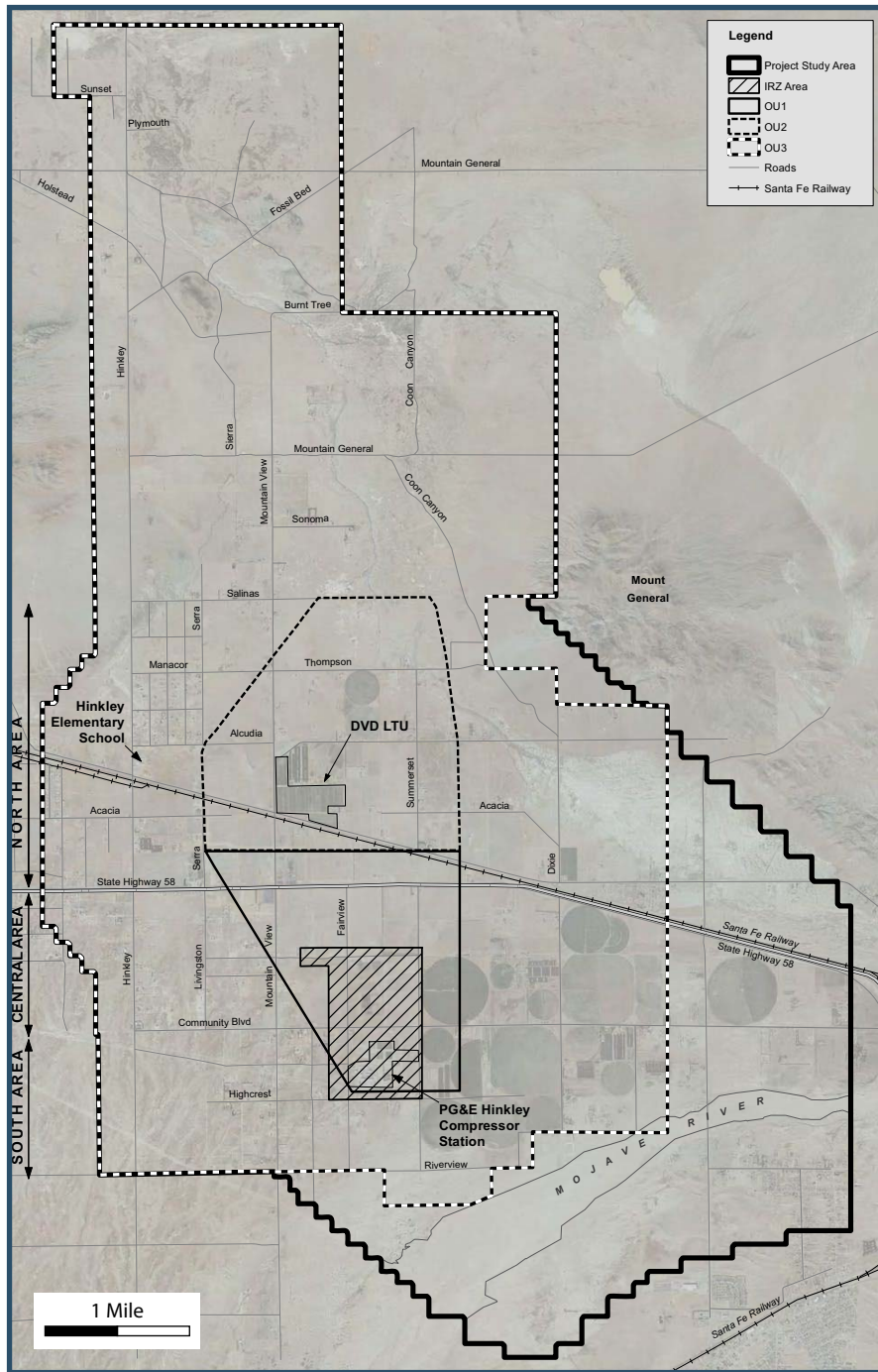
The Lahontan Water Board and its consultant, ICF International, have prepared a draft Environmental Impact Report (EIR) for the comprehensive chromium groundwater cleanup project at Pacific Gas and Electric Company’s Hinkley Compressor Station. A key goal of the groundwater cleanup project is to restore groundwater quality to background levels of chromium in the minimum amount of time feasible, while limiting or mitigating environmental impacts (or effects) associated with the cleanup activities. The draft EIR describes the proposed methods to clean up the groundwater, the environmental impacts of those methods, and ways to avoid or lessen those impacts (called *mitigation measures*), where feasible. Impacts which cannot be avoided or reduced are clearly identified in the draft EIR.

### Groundwater Cleanup Methods Described in the EIR

The draft EIR project alternatives involve different combinations of the following cleanup methods:

1. Groundwater extraction: contaminated groundwater is pumped from the subsurface (also called the *aquifer*) to contain the groundwater plume from further migration and is used in one or more of the following ways:
  - a. Agricultural treatment (also called *land treatment or agricultural units*): extracted groundwater is used to irrigate livestock forage crops, such as alfalfa. Hexavalent chromium in the extracted groundwater is changed to solid trivalent chromium as it infiltrates through the soil. Hexavalent chromium is the toxic form of chromium, while trivalent chromium has very low toxicity.
  - b. Above-ground treatment (also called *ex-situ treatment*), where the extracted groundwater is processed through a water treatment plant to remove all forms of chromium (trivalent and hexavalent), which is transported off-site for disposal.





**Project Area**

2. Subsurface treatment (also called *in-situ treatment* or *in-situ reactive zones, IRZs*): food-grade carbon substances, such as ethanol, are injected into the groundwater within the aquifer to turn the hexavalent chromium into trivalent chromium which is left in solid form at the water table.
3. Subsurface freshwater injection: this method creates barriers of freshwater within the aquifer to deflect the contaminated groundwater towards another direction.

## Draft EIR Project Alternatives

Five project alternatives for final chromium cleanup were developed based on the Water Board's review of information contained in PG&E's 2010 Feasibility Study (FS) and its Addenda, the input and suggestions of the public, independent review of the FS by the U.S. Environmental Protection Agency and the California Department of Toxic Substances Control, as well as information based on previous and existing PG&E remedial pilot projects in Hinkley. A "no project" alternative (basically continuing the existing cleanup efforts without expansion) is also described, as required by California Environmental Quality Act (CEQA). The table on the next page summarizes the key elements of the draft EIR alternatives.

Element	EIR Alternative					
	No Project	4B	4C-2	4C-3	4C-4	4C-5
Years to 50 ppb Cr6*	6	6	6	4	3	20
Years to 3.1 ppb Cr6*	Not estimated	40	39	36	29	50
Years to 1.2 ppb Cr6*	Not estimated	95	90	85	75	95
Maximum agricultural units (AUs)	182 acres	446 acres	575 acres	575 acres	1,394 acres	575 acres
Maximum groundwater pumping rate (gallons per minute, annual average)	1,100	2,395	3,167	4,388	4,388	3,167
Subsurface (in-situ) treatment?	Yes	Yes	Yes	Yes	Yes	Yes
Above-ground (ex-situ) treatment?	Not currently	No	No	Yes, 2 locations (plume core and northern area)	No	Yes, 1 location near plume core
Key Features/Comments	PG&E continues existing cleanup without expansion. (Alternative required by CEQA). Doesn't address full extent of plume.	Expands AUs and in-situ zones over No Project. Groundwater extraction is not year-round.	Up to 9 AUs, year-round groundwater extraction using AUs with winter crops added.	Similar to 4C-2, but year-round groundwater extraction using 2 aboveground treatment facilities instead of AUs in winter.	Up to 25 AUs for year-round groundwater extraction. Most extensive plume capture zone, fastest cleanup, but most aquifer drawdown.	Aboveground treatment in plume core (instead of in-situ). Number of AUs similar to 4C-2. Removes all forms of chromium from the high concentration plume area.
Impact Level** (1 is low, 6 is high)						
<i>Groundwater Drawdown</i>	1	2	4	5	6	3
<i>Aquifer Compaction</i>	1	2	4	5	6	3
<i>Plume Bulge</i>	1	2	3	5	5	3
<i>TDS/Uranium byproducts*</i>	1	2	3	5	6	3
<i>Mn, As, Fe byproducts*</i>	1	4	4	3	4	2
<i>Wildlife habitat or loss</i>	1	2	3	5	6	4

\* ppb Cr6 = parts per billion hexavalent chromium; TDS = Total dissolved solids; Mn = Manganese; As = Arsenic; Fe = Iron.

\*\* For selected water and biological resource impacts only. Additional impacts are described in the draft EIR.

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## How to Review and Provide Comments on the draft EIR

The Water Board is seeking public input on the draft EIR, including the acceptable balance between the speed of cleanup versus the level of impacts to environmental resources. A copy of the draft EIR and related documents can be viewed or downloaded at <http://www.waterboards.ca.gov/lahontan/> or please call Anne Holden, Lahontan Water Board Engineering Geologist, at 530-542-5450 if you would like more information about where you can view the draft EIR or would like a compact disc of the EIR mailed to you.

The review period for the draft EIR is from **August 21 to October 19, 2012**. Written comments should be submitted by 5 pm on October 19, 2012 to the Lahontan Water Board's South Lake Tahoe office, 2501 Lake Tahoe Boulevard, South Lake Tahoe, CA 96150. Comments may also be emailed to Anne Holden at [aholden@waterboards.ca.gov](mailto:aholden@waterboards.ca.gov), or faxed to her attention at 530-544-2271.

## Upcoming Public Meetings on draft EIR

A **public meeting** on this Draft EIR will be held by Water Board staff on **Wednesday, August 29, 2012**, at Hinkley Elementary/Middle School (37600 Hinkley Road, Hinkley) starting at 6:00 p.m. Compact discs of the draft EIR will be available.

The public may also attend the Water Board meeting on **Wednesday, September 12, 2012**, at Hampton Inn (2710 Lenwood Road, Barstow) starting at 7:00 p.m. Meeting details will be posted 10 days prior to the Board meeting at [http://www.waterboards.ca.gov/lahontan/board\\_info/agenda/index.shtml](http://www.waterboards.ca.gov/lahontan/board_info/agenda/index.shtml).

Spanish-language interpreters will be present at both meetings.