

Item 11

# Final Environmental Impact Report

Comprehensive Cleanup Strategy for  
Chromium in Groundwater,  
PG&E Hinkley Compressor Station



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## EIR provides information on . . .

- Different ways (or alternatives) to clean up chromium-contaminated groundwater in the Hinkley area to background levels
- Impacts of cleanup (*not impacts of existing plume*)
- Mitigation to reduce or avoid impacts where feasible
- Impacts that cannot be reduced or avoided



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## Review: EIR Alternatives

### “No Project”

- No new permit from Water Board, continues current remediation
- Required by CEQA for comparison purposes

### Five “Action” Alternatives

- 4B and 4C-2, 4C-3, 4C-4, 4C-5
- Developed in 2011-2012, based on PG&E 2010 Feasibility Study; public, agency and Water Board input
- Different combinations/intensities of 4 cleanup methods



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## Cleanup Technologies in EIR

### Groundwater extraction & agricultural units (AUs)

- Plume containment
- Use extracted groundwater for forage crops
- Chromium 6 changes to chromium 3 in soil and root zone

### In-situ (in aquifer) treatment

- Inject carbon source (e.g., ethanol) into aquifer
- Changes Cr6 to Cr3
- Cr3 remains as solid in soil

### Above-ground (ex-situ) treatment

- Extracted water run through treatment plant
- Removes all forms of Cr from aquifer
- Off-site disposal of Cr, treated water can be re-injected

### Freshwater injection

- Creates subsurface (in aquifer) barrier of fresh water to push Cr plume in different direction

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## EIR Action Alternatives

- All alternatives have three cleanup methods in common
- 4C-3 and 4C-5 **add** above-ground (ex-situ) treatment to mix
- Difference between alternatives is in scale and intensity of activities

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## Final EIR

- Revised from Draft EIR based on comments received
- Final EIR is two volumes
  - ✓ Volume I: Written responses to comments, and comment letters
  - ✓ Volume II: Revised EIR showing changes from draft

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## Comments on Draft EIR

- Individuals
  - 55 letters/comments from 36 individuals
  - 80+ questionnaires & surveys from community members
- Three governmental agencies

## Responses

- 10 master responses for common issues
  - Mostly related to water resources
- Individual responses to each comment, including verbal comments at September 2012 Board meeting

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## Revisions to Draft EIR

- Mostly adding more details and information in response to comments
- Correcting typos/errors, providing clarification
- All revisions shown in ~~strikeout~~ and underline format in Volume II



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## Key EIR revisions

- 1 Project study area boundary
- 2 Significance conclusion for aquifer compaction (no longer significant)
- 3 Discussion of /mitigation for remediation byproducts
- 4 Environmentally superior alternative
- 5 Research into potential for reconversion of Cr3 to Cr6
- 6 Feasibility evaluation of electrocoagulation technology

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## Comments on other CEQA resources

Comments were received on topics other than water issues, and responses/revisions are provided in Final EIR

✓ For example: air, wildlife, noise, socioeconomics

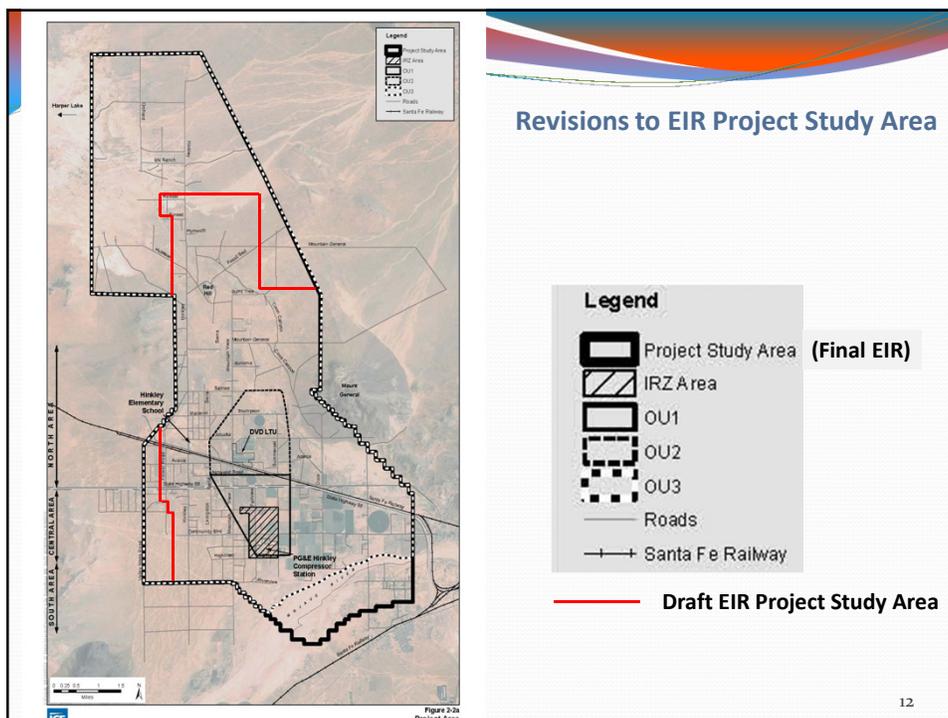
- CA Fish & Wildlife provided comments which were addressed in Final EIR (**no substantial changes needed**)
- Mojave Air Quality District **agreed with proposed mitigation measures**, no other comments
- Native American Heritage Commission provided comments, resulting in **one minor clarification, but no other revisions**

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# 1 Project study area boundary

Area where project activities & impacts *could* occur, depending where remedial actions are located

- Expanded in Final EIR
  - ✓ West and north boundaries
  - ✓ Based on 4<sup>th</sup> quarter 2012 plume
  - ✓ Include areas with domestic wells >3.1 ppb Cr6, plus buffer



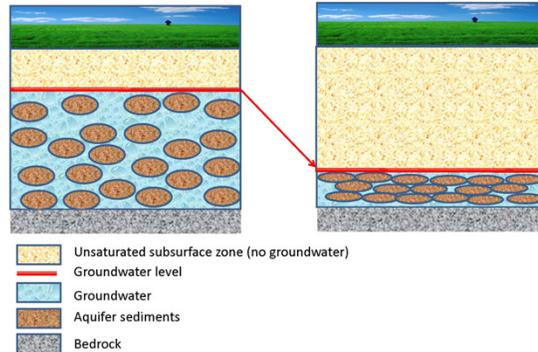
## 2 Potential for Aquifer Compaction

Identified as significant and unavoidable impact in Draft EIR

### Aquifer compaction

- Can result from groundwater drawdown
- As water is removed from spaces between aquifer sediments, the spaces can collapse.

Cartoon of Aquifer Compaction due to Groundwater Drawdown



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## 2 Potential for Aquifer Compaction

Conclusion changed to less than significant, all alternatives

### Based on:

- Additional research shows prior (1930s -1980s) drawdown greater & more widespread than previously described
- No evidence of previous substantial subsidence indicating compaction despite this drawdown
- Coarser-grained sediments in northern part of valley based on review of cross sections
- Groundwater drawdown estimates were highly conservative (over-estimated)

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### 3 In-situ Remediation Byproducts

Manganese, arsenic, iron from ethanol injections at in-situ remediation zones (IRZs)

- Added information on manganese data from community and Water Board samples from domestic wells (summer/fall 2012)
- Discussion of manganese detections outside plume and current evidence on relationship to in-situ zones
- Information on more monitoring of byproducts, required by Water Board Order of Dec 21, 2012

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### 3 In-situ Remediation Byproducts, continued

- More information on how byproduct concentrations change over time in in-situ zones
- Updated information on background & pre-injection levels of byproducts
- Revised mitigation requirements for byproducts
  - Requires completion of byproduct investigation (Water Board Dec 2012 Order)
  - PG&E must demonstrate that byproducts are not migrating to domestic wells **prior to** any expansion of in-situ treatment

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#### 4 Environmentally Superior Alternative

- California Environmental Quality Act (CEQA) requires identification of action alternative that meets project goals with least environmental impacts
- **Alternative 4B** has least new impacts due to remediation, so is Environmentally Superior Alternative
  - Lowest amount of agricultural treatment
  - However, second slowest cleanup time
- Not identified as “preferred alternative” (there isn’t one)

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## Why No Preferred Alternative?

- Water Board cannot set method and manner of compliance (California Water Code)
- Flexibility to implement all cleanup technologies
  - ✓ EIR looks at all alternatives in full detail, rather than just one
- Water Board can specify limits on impacts, cleanup milestones in upcoming Waste Discharge Requirements, Cleanup and Abatement Order

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## 5 Research into reversion potential (Cr3 to Cr6)

EIR consultant conducted additional analysis on Hinkley groundwater data

- >6,000 sampling results, 300 Hinkley sampling locations

### Findings:

- Long-term dataset shows conditions strongly favor dominance of Cr3 in aquifer
- Re-conversion of Cr3 to Cr6 not likely to occur
  - CA Dept of Toxic Substances Control and US EPA agreed (Feasibility Study reviews, 2011)
- New appendix added with supporting data and information

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## 6 Research into Electrocoagulation technology

EIR consultant evaluated feasibility of EC

### Findings:

- Not used full-scale for groundwater remediation
- Pilot-scale testing limited, indicated efficiency issues
- Not enough information on effectiveness and impacts to evaluate as separate alternative
- Could be used in future if shown effective in Hinkley
  - ✓ Specific impacts would be evaluated to see if covered by this EIR
  - ✓ Water Board cannot order use of specific technology, but use is not precluded by EIR

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## Comment letter received on Final EIR

- Letter from PG&E dated June 24, 2013
  - Agenda packet, page 11-12
- Staff response and proposed revisions to Final EIR
  - Agenda packet, pages 11-18; 11-25

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## Comment letter received on Final EIR (PG&E)

**Comment: Use future Maximum Contaminant Level for Cr6 to define actually affected wells.**

Response: EIR uses maximum background to define significant impacts.

- Impact considered significant if well exceeds maximum background (3.1 parts per billion Cr6) due to remedial activities, and it was previously below 3.1 ppb
- Consistent with State Anti-degradation Policy
- Using MCL could result in significant degradation to aquifer water quality if MCL set much higher than background
- Using MCL could result in requirements to mitigate below background if MCL is set lower than 3.1 ppb

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## Comment letter received on Final EIR (PG&E)

**Comment: Use future Cr6 Maximum Contaminant Level for EIR replacement water quality, rather than maximum background.**

Response: Maximum background (3.1 ppb Cr6) is appropriate level.

- Replacement water required for domestic wells affected by remediation
- Affected wells defined by exceeding significance criteria based on maximum background levels
- If future MCL is set higher than 3.1 ppb, then replacement water could be *worse* quality than water in impacted well
- EIR mitigation would not be effective to reduce impact

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## Comment letter received on Final EIR (PG&E)

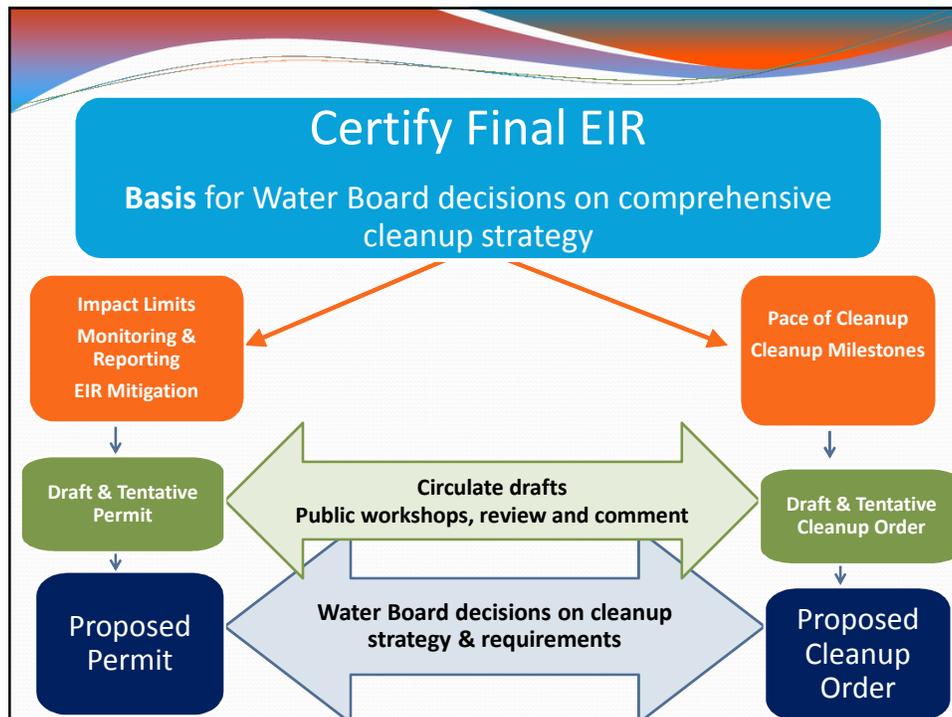
**Comment: Requested changes and clarifications to biological resources section**

- Correct typographical error on location of habitat for fringe-toed lizard
- Clarification on mitigation ratios required for permanent versus temporary impacts to fringe-toed lizard habitat
- Clarification on mitigation approvals for special status plants

Response: Changes are appropriate. Staff proposed three revisions to Final EIR (see Errata Sheet)

- Revisions are not significant new information, recirculation of EIR not required

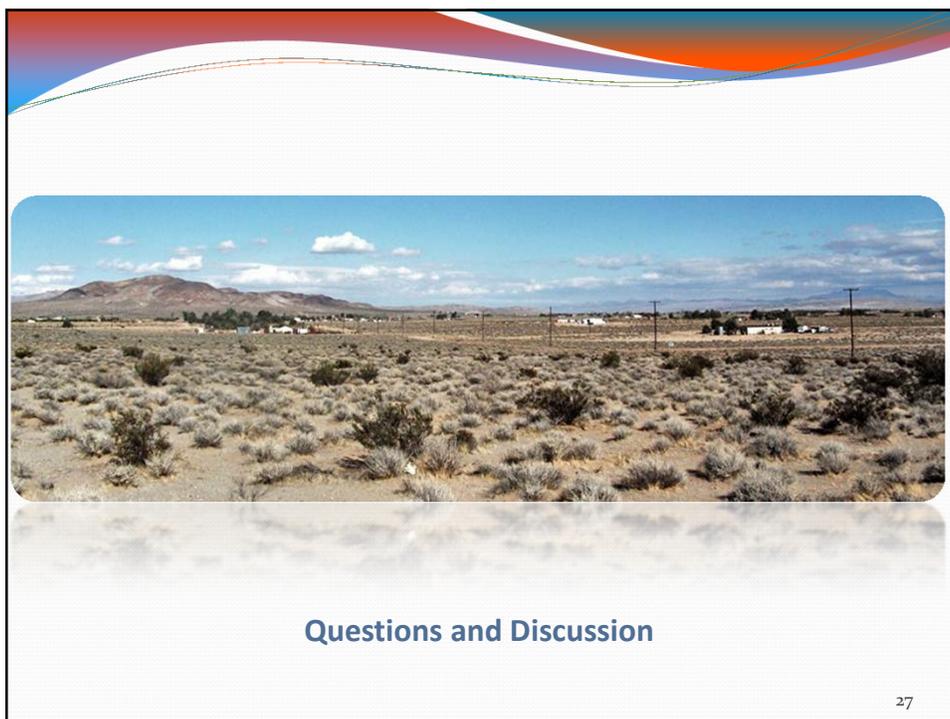
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## Recommendation

Adopt Resolution R6V-2013-Proposed, certifying that :

- The Final EIR was completed in compliance with CEQA;
- The Lahontan Water Board has reviewed and considered the information in the Final EIR, and Attachments 1 and 2, and the Errata Sheet (Attachment 3);
- The Final EIR, Attachments 1 and 2, and Errata Sheet (Attachment 3) reflects the independent judgment and analysis of the Lahontan Water Board.



**Questions and Discussion**

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