



**Pacific Gas and
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April 20, 2007

Mr. Robert Perdue
Executive Officer
California Regional Water Quality Control Board
Colorado River Basin Region
73-720 Fred Waring Drive, Suite 100
Palm Desert, California 92260

**Subject: Board Order R7-2007-0015
PG&E Topock Compressor Station, Needles, California
Upland In-Situ Pilot Test
Contingency Plan**

Dear Mr. Perdue:

Enclosed is the Contingency Plan for the upland reductive zone in-situ pilot test at the Pacific Gas and Electric Company (PG&E) Topock Compressor Station. This plan is being submitted in compliance with provision V.C.1 of the Waste Discharge Requirements (WDRs) issued by the Colorado River Basin Regional Water Quality Control Board (Water Board) under Board Order R7-2007-0015. WDRs under Board Order R7-2007-0015 apply to the Upland in-situ pilot test only.

If you have any questions regarding this plan, please call me at (805) 234-2257.

Sincerely,

Yvonne Meeks
Topock Project Manager

Enclosures:

Contingency Plan, Upland In-Situ Pilot Test, Order No. R7-2007-0015

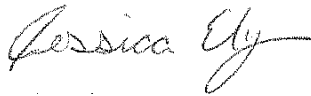
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Pacific Gas and Electric Company

Contingency Plan

Upland In-Situ Pilot Test
Order No. R7-2007-0015
Topock Compressor Station
Needles, California

20 April 2007



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Contingency Plan

Upland In-Situ Pilot Test
Order No. R7-2007-0015
Topock Compressor Station
Needles, California

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1. Introduction

Pacific Gas and Electric (PG&E) is implementing an upland in-situ pilot test (ISPT) to address hexavalent chromium in upland groundwater at the Topock Compressor Station near Needles, California. The purpose of the upland ISPT is to evaluate how well recirculation wells can distribute reductant throughout the aquifer, reduce soluble hexavalent chromium to relatively insoluble trivalent chromium, and create reduced minerals in the aquifer that will continue to treat hexavalent chromium after injection of the reductant has ceased.

On March 21, 2007, the California Regional Water Quality Control Board, Colorado River Basin Region issued Waste Discharge Requirements (WDRs) under Order No. R7-2007-0015 (Order), which authorized PG&E to inject a dilute ethanol solution into a recirculation system located in the upland area of the Topock site. The upland ISPT will include monitoring at the recirculation wells (PTR-1 and PTR-2) and at 14 monitoring wells (PT-7S/M/D, PT-8S/M/D, PT-9S/M/D, MW-24A/B, MW-11, and MW-38S/D).

In accordance with provision V.C.1 of the Order, PG&E is providing this *Contingency Plan* within 30 days of adoption of the Order. The *Contingency Plan* is used during the design phase to anticipate potential events and to plan appropriate responses to mitigate them.

Upland In-Situ Pilot Test
Order No. R7-2007-0015
Topock Compressor Station
Needles, California

2. Contingency Analysis

On the basis of the Order and project experience, potential ISPT events have been identified and contingency measures to address these events developed. The specific ISPT events and contingency measures are summarized in Table 1.

Upland In-Situ Pilot Test
Order No. R7-2007-0015
Topock Compressor Station
Needles, California

Table 1
Event Analysis
 Topock Compressor Station
 Needles, California
 Contingency Plan

Event	Observable Condition	Effect of Unmitigated Event	Potential Mitigation Actions
Dewatering of recirculation well	Initiation of alarm condition for well pump will temporarily stop reductant injection to well; time of alarm will be recorded by programmable logic controller (PLC).	Recirculation of water and reagents prevented	Upon initiation of alarm, the PLC will wait a specified period of time (using a timer) and then attempt to restart the pump. If the alarm condition is not cleared, this sequence will continue until sufficient water is in the well.
Clogged recirculation well	Reduced flow rates and increased pressure during recirculation. To prevent overpressure conditions in the aquifer, alarm condition will be initiated if the injection pressure exceeds 50 percent of the effective vertical stress. Initiation of alarm will shut down system and will alert engineer.	May reduce effectiveness of recirculation well to deliver reductant.	Flush recirculation well with a non-toxic well rehabilitation reagent and redevelop well to increase permeability
Reduction of aquifer permeability	Flow rates in redeveloped well do not increase	May reduce effectiveness of recirculation well to deliver reductant	Consider decreasing reductant concentrations that may be clogging aquifer
Excessive migration of by-products	Excessive increase in by-product concentrations in downgradient ISPT monitoring wells	May adversely affect down-gradient groundwater quality on a temporary basis	Monitor for by-products; determine sorption and re-precipitation characteristics of mobilized by-products.
Well damage	Damage observed	Well not usable for intended purpose (e.g. monitoring or recirculation)	Repair well; abandon in accordance with applicable regulations and replace if unrepairable
Insufficient tracer in downgradient monitoring well	No significant increase in tracer concentrations in downgradient monitoring wells	Inadequate data to assess hydrogeology/flow field	Increase injected tracer concentrations

Table 1
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Event	Observable Condition	Effect of Unmitigated Event	Potential Mitigation Actions
Groundwater flow direction varies from predicted direction	No significant increase in tracer concentrations in downgradient monitoring wells despite increasing injected tracer concentrations	Inability to precisely interpret flow direction	Re-evaluate flow field based on local water level data. Revise monitoring program to reflect reinterpreted groundwater direction.
Observed effects of reductant injection less than anticipated	No significant increase in reductant effects in downgradient monitoring wells	Inadequate data to assess performance of pilot test	Increase concentration of reductants in reductant or increase volume of reductant.