

Conestoga-Rovers & Associates - St. Paul, MN
 1801 Old Highway 8 NW, Suite 114
 St. Paul, MN 55112
 Attention: Grant Anderson

Project ID: 54041-03 - Hinkley, CA
 54041-03 Desert View Dairy
 Report Number: IRJ1214

Sampled: 10/09/08-10/10/08
 Received: 10/12/08

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD RPD	RPD Limit	Data Qualifiers
Batch: 8J11045 Extracted: 10/11/08										
Blank Analyzed: 10/11/2008 (8J11045-BLK1)										
Chloride	ND	0.50	mg/l							
Nitrate-NO3	ND	0.50	mg/l							
Sulfate	ND	0.50	mg/l							
LCS Analyzed: 10/11/2008 (8J11045-BS1)										
Chloride	5.05	0.50	mg/l	5.00		101	90-110			
Nitrate-NO3	5.28	0.50	mg/l	5.00		106	90-110			
Sulfate	10.9	0.50	mg/l	10.0		109	90-110			
Matrix Spike Analyzed: 10/11/2008 (8J11045-MS1)					Source: IRJ1214-01					
Chloride	624	50	mg/l	50.0	628	-10	80-120			MHA
Nitrate-NO3	150	50	mg/l	50.0	108	85	80-120			
Sulfate	1150	50	mg/l	100	1130	17	80-120			MHA
Matrix Spike Analyzed: 10/11/2008 (8J11045-MS2)					Source: IRJ1214-11					
Chloride	173	5.0	mg/l	50.0	131	84	80-120			
Nitrate-NO3	99.1	5.0	mg/l	50.0	49.2	100	80-120			
Sulfate	340	5.0	mg/l	100	249	91	80-120			
Matrix Spike Dup Analyzed: 10/11/2008 (8J11045-MSD1)					Source: IRJ1214-01					
Chloride	623	50	mg/l	50.0	628	-11	80-120	0	20	MHA
Nitrate-NO3	153	50	mg/l	50.0	108	90	80-120	2	20	
Sulfate	1160	50	mg/l	100	1130	25	80-120	1	20	MHA
Batch: 8J13039 Extracted: 10/13/08										
Blank Analyzed: 10/13/2008 (8J13039-BLK1)										
Total Dissolved Solids	ND	10	mg/l							

TestAmerica Irvine

Joseph Doak
 Project Manager

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METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	Limits RPD	RPD Limit	Data Qualifiers
Batch: 8J13039 Extracted: 10/13/08									
LCS Analyzed: 10/13/2008 (8J13039-BS1)									
Total Dissolved Solids	1020	10	mg/l	1000		102	90-110		
Duplicate Analyzed: 10/13/2008 (8J13039-DUP1)									
Total Dissolved Solids	426	10	mg/l		419			2	10
Source: IRJ1062-11									
Batch: 8J14058 Extracted: 10/14/08									
Blank Analyzed: 10/14/2008 (8J14058-BLK1)									
Total Dissolved Solids	ND	10	mg/l						
LCS Analyzed: 10/14/2008 (8J14058-BS1)									
Total Dissolved Solids	1040	10	mg/l	1000		104	90-110		
Duplicate Analyzed: 10/14/2008 (8J14058-DUP1)									
Total Dissolved Solids	3340	10	mg/l		3350			0	10
Source: IRJ1214-04									

TestAmerica Irvine

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DATA QUALIFIERS AND DEFINITIONS

- MHA** Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).
- RLI** Reporting limit raised due to sample matrix effects.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- RPD** Relative Percent Difference

TestAmerica Irvine

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Certification Summary

TestAmerica Irvine

Method	Matrix	Nelac	California
EPA 200.7	Water	X	X
EPA 300.0	Water	X	X
SM2540C	Water	X	

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for TestAmerica may be obtained by contacting the laboratory or visiting our website at www.testamericainc.com

TestAmerica Irvine

Joseph Doak
Project Manager

The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from TestAmerica.

IRJ1214 <Page 12 of 12>

CHAIN OF CUSTODY RECORD

(651) 639-0913 CONESTOGA-ROVERS & ASSOCIATES 1801 OLD HWY 8 SUITE #114 ST. PAUL, MN 55112	SHIPPED TO (Laboratory Name): TEST AMERICA - IRVINE, CA	REFERENCE NUMBER: 54041-03
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SAMPLER'S SIGNATURE: <u>S. ILLI</u>		PRINTED NAME: <u>SARAH ILLI</u>		No. of Containers	ANIONIC PARAMETERS NITRATE SULFATE SODIUM TDS	REMARKS
SEQ. No.	DATE	TIME	SAMPLE No.			
100908	1018		W-081009-SI-25	2	X	
100908	1713		W-081009-SI-26	2	X	
100908	1803		W-081009-SI-27	2	X	
100908	1735		W-081009-SI-41	2	X	
100908	1740		W-081009-SI-42	2	X	
100908	1835		W-081009-SI-33	2	X	
101008	0925		W-081010-SI-28	2	X	
101008	1026		W-081010-SI-34	2	X	
101008	1050		W-081010-SI-35	2	X	
101008	1130		W-081010-SI-36	2	X	
101008	1157		W-081010-SI-43	2	X	
101008	1245		W-081010-SI-29	2	X	
-	-		TEMP BLANK	1		
TOTAL NUMBER OF CONTAINERS 25				HEALTH/CHEMICAL HAZARDS		

*** 1-WEEK TAT
 *** SHORT HOLD ON NO3
 *** CALL GREAT W/ OS
 (651) 639-0913

RELINQUISHED BY: <u>S. ILLI</u>	DATE: <u>10/10/08</u>	RECEIVED BY: _____	DATE: _____
① _____	TIME: <u>1400</u>	① _____	TIME: _____
RELINQUISHED BY: _____	DATE: _____	RECEIVED BY: _____	DATE: _____
② _____	TIME: _____	② _____	TIME: _____
RELINQUISHED BY: _____	DATE: _____	RECEIVED BY: _____	DATE: _____
③ _____	TIME: _____	③ _____	TIME: _____

METHOD OF SHIPMENT: FED EX (OVERNIGHT) WAY BILL No. _____

White — Fully Executed Copy Yellow — Receiving Laboratory Copy Pink — Shipper Copy Goldenrod — Sampler Copy	SAMPLE TEAM: <u>LITKOVT / S. ILLI</u>	RECEIVED FOR LABORATORY BY: _____ DATE: <u>10/12/08</u> TIME: <u>1130</u> <u>4.1/3.8°C</u> NO CRA 15589
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Pedez

APPENDIX C

DATA QUALITY ASSESSMENT MEMO



**CONESTOGA-ROVERS
& ASSOCIATES**

1801 Old Highway 8 NW, Suite #114
St. Paul, Minnesota 55112
Telephone: (651) 639-0913 Fax: (651) 639-0923
www.CRAworld.com

MEMORANDUM

TO: Steve Mockenhaupt; CRA REF. NO.: 054041-03

FROM: Grant Anderson *GA* DATE: October 23, 2008

C.C.: Sarah Illi; CRA
Analytical Data File

RE: Data Quality Assessment
October 2008 Water Sampling Event
Desert View Dairy Site in Hinkley, California (COC 15585, 15587, 15588, and 15589)

The following details a data quality assessment for water samples collected October 6-10, 2008, at the Desert View Dairy Site in Hinkley, California. The samples identified in Table 1 were analyzed for the parameters listed in Table 2. The analyses were performed by Test America Laboratories, Inc. in North Canton, Ohio. The quality assurance criteria were defined by the methods.¹

HOLDING TIME PERIODS

The holding time periods for the analyses are listed in Table 2. On the basis of sample collection dates on the chain-of-custody forms and the analytical reports provided by Test America, the analyses were completed within the specified holding time periods.

METHOD BLANK SAMPLES

Contamination of samples contributed by laboratory conditions or procedures was monitored by the concurrent preparation and analysis of method blank samples. The method blank samples were reported to be free from detectable concentrations of target analytes indicating that laboratory contamination was unlikely.

LABORATORY CONTROL SAMPLE (LCS) RECOVERIES

Control samples for the analyses were examined to assess the accuracy of the laboratory procedures. The LCS percent recovery data were within acceptance criteria.

¹ Application of quality assurance criteria was consistent with "National Functional Guidelines for Organic Data Review", October 1999.

**MATRIX SPIKE/MATRIX SPIKE DUPLICATE
(MS/MSD) RESULTS**

To assess the long-term accuracy of the analytical method on various matrices, MS/MSD percent recoveries and relative percent difference (RPD) of the recoveries were determined for the analyses. The MS/MSD data for investigative samples were within acceptance criteria.

**FIELD QUALITY ASSURANCE/
QUALITY CONTROL (QA/QC) SAMPLES**

The field QA/QC for the sampling event consisted of three rinsate blank samples and five field duplicate sample sets.

As a check for cleanliness of sampling equipment, three rinsate blanks were collected as authentic samples for labeling and submission to the lab. The rinsate blank samples are identified in Table 1. The rinsate blanks yielded some low level detections. However, the concentrations present in the sample were above the 5 times blank criteria; therefore, no data qualification was required based on rinsate blank results.

Overall precision for the sampling event was monitored using five field duplicate sample sets. The field duplicate sample sets are identified in Table 1. The RPD for sodium for sample set W-081007-SI-06/ W-081007-SI-07 was 51.3%. As a result, the sodium results for samples W-081007-SI-06/ W-081007-SI-07 should be qualified as estimated (J). The remaining RPD values for positive parameter results were found to be acceptable.

OVERALL ASSESSMENT

The data were found to exhibit acceptable levels of accuracy and precision and may be used with the qualifications noted above.

GDA/sb/1

Enc.

TABLE 1

SAMPLE IDENTIFICATION NUMBERS
DESERT VIEW DAIRY SITE
OCTOBER 2008 SAMPLING EVENT

<i>Sample ID</i>	<i>Sample Location</i>
W-081006-SI-01	EX-04
W-081007-SI-02	EX-03
W-081007-SI-03	EX-02
W-081007-SI-04	EX-01
W-081007-SI-05	EX-13
W-081007-SI-06	MW-63
W-081007-SI-07	MW-63 (dup)
W-081007-SI-08	MW-62B
W-081007-SI-10	R.B. (MW-62A)
W-081007-SI-11	MW-62A
W-081007-SI-12	MW-21A
W-081007-SI-47	38080 Mountain View Rd
W-081008-SI-13	MW-42B2
W-081008-SI-14	MW-42B1
W-081008-SI-15	MW-30A
W-081008-SI-16	R.B. (MW-30B1)
W-081008-SI-17	MW-30B1
W-081008-SI-18	MW-21B1
W-081008-SI-46	22839 Thompson Rd
W-081008-SI-19	MW-29
W-081008-SI-20	MW-55B
W-081008-SI-21	MW-55B (dup)
W-081008-SI-22	MW-55A
W-081008-SI-23	MW-34
W-081008-SI-37	22619 Thompson Rd (1)
W-081008-SI-38	22619 Thompson Rd (2)
W-081008-SI-39	22726 Thompson Rd
W-081008-SI-40	22726 Thompson Rd (dup)
W-081009-SI-30	R.B. (MW-32B2)
W-081009-SI-24	MW-32B2

TABLE 1

**SAMPLE IDENTIFICATION NUMBERS
DESERT VIEW DAIRY SITE
OCTOBER 2008 SAMPLING EVENT**

<i>Sample ID</i>	<i>Sample Location</i>
W-081009-SI-31	MW-31
W-081009-SI-32	MW-31 (dup)
W-081009-SI-25	DW-01
W-081009-SI-26	DW-02
W-081009-SI-27	DW-03
W-081009-SI-41	22698 Alcurdia Rd
W-081009-SI-42	22698 Alcurdia Rd (dup)
W-081009-SI-33	22875 Thompson Rd
W-081010-SI-28	23171 Thompson Rd
W-081010-SI-34	MW-21B
W-081010-SI-35	MW-21C
W-081010-SI-36	MW-32B1
W-081010-SI-43	MW-30B2
W-081010-SI-29	38075 Summerset Rd

TABLE 2

SUMMARY OF ANALYTICAL PARAMETERS
AND HOLDING TIME PERIODS
DESERT VIEW DAIRY SITE
OCTOBER 2008 SAMPLING EVENT

<i>Analysis - Method</i> ¹	<i>Holding Time</i> ²
Sodium - EPA 200.7	6 months
Chloride - EPA 300.0	28 days
Nitrate - EPA 300.0	48 hours
Sulfate - EPA 300.0	28 days
Total Dissolved Solids - SM2540C	7 days

Notes:

1 Methods were derived from:

EPA- "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater",
40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

SM- "Standard Methods for the Examination of Water and Wastewater", 19th Edition,
1995 with current revisions.

2 Holding time periods are based from sample collection date to sample analysis date.

APPENDIX D

EXTRACTION WELL EX-13 EVALUATION

APPENDIX D

EXTRACTION WELL EX-13 EVALUATION DESERT VIEW DAIRY HINKLEY, CALIFORNIA

As stipulated in the Groundwater Investigation Work Plan, historical pumping test data associated with existing extraction well EW-13 (inactive) was reviewed to determine the hydraulic characteristics of the groundwater aquifer in the immediate vicinity of the Site and evaluate the use of EW-13 as a potential remedial option in the event that groundwater containment is necessary.

EX-13 is a 6-inch diameter well that is screened in the unconsolidated alluvial sediment from 100 to 110 ft below ground surface (bgs). Granitic bedrock is encountered at 115 ft bgs. A copy of the EX-13 well log is presented as Attachment A.

CH2MHill conducted both a step test and a subsequent short term (10 hour) constant rate pumping test on EX-13. The step test results determined a specific capacity value, which defines the hydraulic efficiency of the pumping well. Specific capacity is the ratio of the pumping rate (Q) divided by total drawdown (dh). Using data provided electronically by CH2MHill (CH2MHill, 2008)¹, a pumping rate of 54 gpm and a measured drawdown of 23 ft, results in a specific capacity value of 2.3 gpm/ft.

During the 10-hr. constant rate pumping test, EX-13 pumped at a rate of 49 gpm, which represented the maximum allowable rate pumping without exposing the well screen. During the pumping test, CH2MHill monitored hydraulic response at an adjacent monitoring well (MW-63). CRA electronically inputted the hand-measured pumping test data provided by CH2MHill into the computer software program AQTESOLV (HydroSOLV, 2006)² to determine the shallow aquifer's transmissivity (T). The aquifer pumping test data were analyzed by AQTESOLV using the Cooper and Jacob straight-line method (Cooper and Jacob, 1946)³, modified for an unconfined aquifer (Kruseman and DeRidder, 1990)⁴. The analytical method calculated a transmissivity value of 8.5 ft²/min. The AQTESOLV analytical results are provided in Attachment B.

By dividing the transmissivity value (8.5 ft²/min) by the shallow aquifer thickness (b) of 35 ft, the corresponding hydraulic conductivity (K) of the shallow aquifer can be derived, which is

¹ CH2MHill. 2008. Step test and Pumping test data provided to CRA (Steve Mockenhaupt) by CH2MHill (Anne Estabrook) via electronic mail on October 10, 2008.

² HydroSOLV. 2006. AQTESOLV for Windows, version 4.01.

³ Cooper, H.H. and C.E. Jacob, 1946. A generalized graphical method for evaluating formation constants and summarizing well field history, *Am. Geophys. Union Trans.*, vol. 27, pp. 526-534.

⁴ Kruseman, G.P. and N.A. De Ridder, 1990. *Analysis and Evaluation of Pumping Test Data* (2nd ed.), Publication 47, Intern. Inst. for Land Reclamation and Improvement, Wageningen, The Netherlands, 370p.

0.24 ft/min. The hydraulic conductivity value of 0.24 ft/min is indicative of a permeable coarse grained sand deposit.

At a pumping rate of 49 gpm, the projected maximum capture width (d) could be calculated using the following formula (USEPA, 2008)⁵:

$$d = Q / Ti$$

where

Q is the pumping rate in ft³/min

T is the transmissivity of 8.5 ft²/min, and

i is the regional hydraulic gradient of 0.003 ft/ft.

Applying the pumping rate used during the pumping test of 49 gpm (6.6 ft³/min), the corresponding maximum capture width would be 260 ft. At that pumping rate, EX-13 would likely capture groundwater from the DW-02 area. However, it must be noted that the aquifer testing conducted at EX-13 and MW-63 was for a short duration. Therefore, the aquifer analysis conducted for this report could be subject to reinterpretation. Additional hydraulic testing would be necessary to confirm the aquifer hydraulic parameters and the relative nature and extent of hydraulic containment.

⁵ USEPA. 2008. A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems.

ATTACHMENT A

EX-13 WELL LOG

SOIL BORING LOG

PROJECT NAME: Hinkley Remediation Proj.-Boundary Control Program		HOLE DEPTH (ft): 115.5	DRILLING CONTRACTOR: Cascade Drilling, Inc.	
SURFACE ELEVATION: --- ft. MSL	NORTHING (CCS NAD 27 Z 5): 523,583.11	EASTING (CCS NAD 27 Z 5): 2,249,966.44	DATE STARTED: 7/28/2006	DATE COMPLETED: 7/28/2006
DRILLING METHOD: Direct Mud Rotary		WATER LEVEL (ft): 2087.00	DRILLING EQUIPMENT: Speedstar 15K/12.25" Tri-Cone Bit	
LOCATION: Hinkley, CA			LOGGED BY: M. Cavaliere	

DEPTH BGS (feet)	Geophysics		USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES, DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
	Elevation	Long Gaurd Resistivity Log			
5				no lithology sample collected	Notes: Mud Samples Collected from Hopper at separation unit All samples for lithology description collected at surface; therefore depths are estimated No temporary casing installed 25' Mud: Viscosity = 35 s/Qt Weight = 8.9 ppg Sand = 0.75% pH = 8.0
10					
15				POORLY GRADED FINE SAND (SP) -<5% silt, granitic sand	
20			SP		
25					
30					
35			SW	WELL GRADED SAND (SW) -40% fine, 30% med, 30% coarse, <5% fines, subangular to subrounded, granitic	
40					
45			SP	POORLY GRADED SAND (SP) -90% fine, 10% med, granitic	
50					
55				WELL GRADED SAND (SW) -30% fine/med/coarse, <10% silt, granitic	
60			SW		
65					
70					

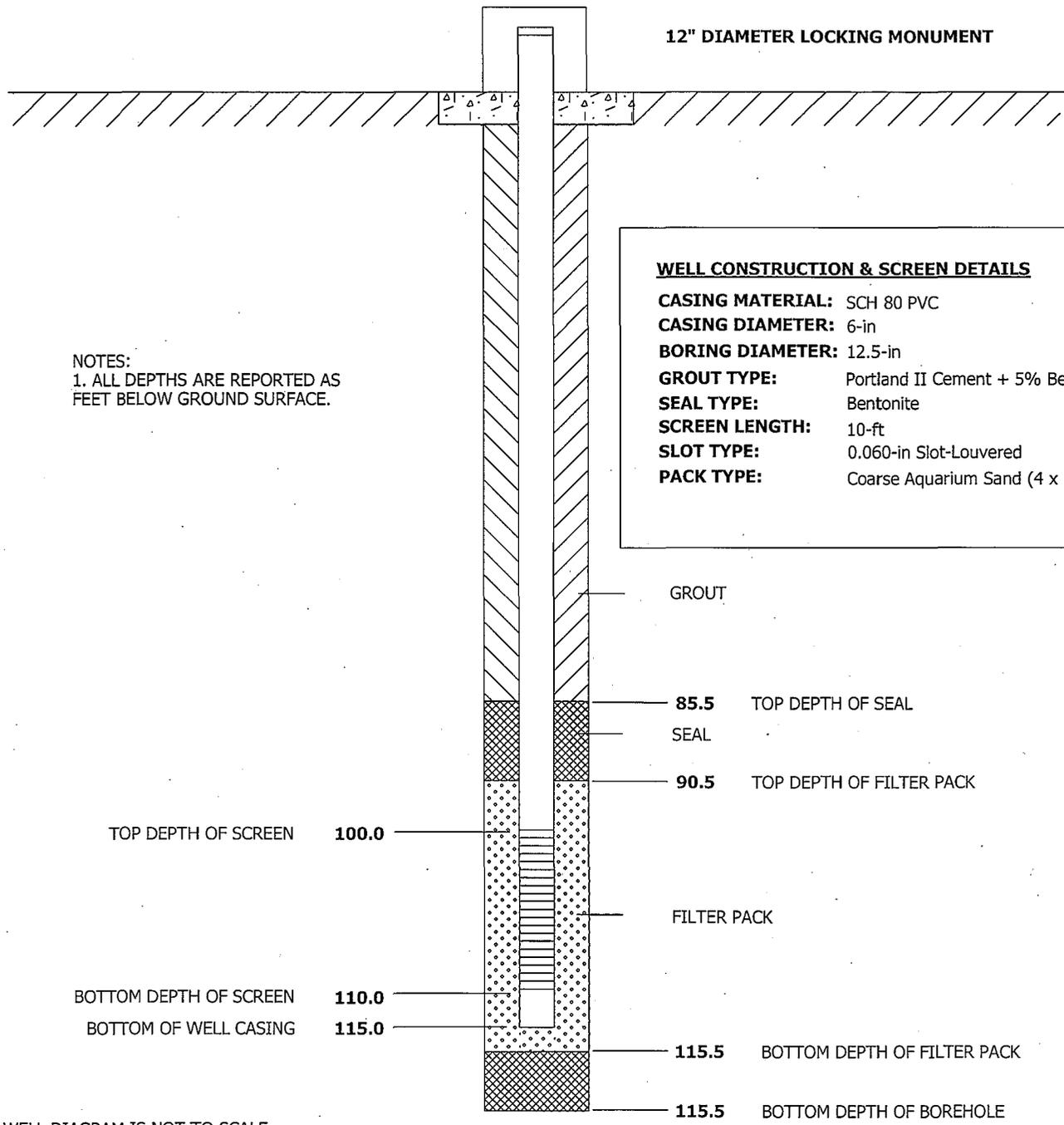
SOIL BORING LOG

PROJECT NAME: Hinkley Remediation Proj.-Boundary Control Program	HOLE DEPTH (ft): 115.5	DRILLING CONTRACTOR: Cascade Drilling, Inc.
SURFACE ELEVATION: --- ft. MSL	NORTHING (CCS NAD 27 Z 5): 523,583.11	EASTING (CCS NAD 27 Z 5): 2,249,966.44
DRILLING METHOD: Direct Mud Rotary	WATER LEVEL (ft): 2087.00	DRILLING EQUIPMENT: Speedstar 15K /12.25" Tri-Cone Bit
LOCATION: Hinkley, CA	LOGGED BY: M. Cavaliere	

DEPTH BGS (feet)	Geophysics		USCS CODE	SOIL DESCRIPTION SOIL NAME, USCS SYMBOL, COLOR, PERCENT COMPOSITION, GRADING, GRAIN SHAPE, MINERALOGY, DENSITY/CONSISTENCY, STRUCTURE, MOISTURE.	COMMENTS DRILLING OBSERVATIONS AND OPERATIONS, DAILY START AND END TIMES, DRILL RATE, REFUSALS, SAMPLING AND TESTING NOTES.
	Elevation	Long Gaurd Resistivity Log			
75			SP	POORLY GRADED COARSE SAND (SP) -<5% fines, angular to subangular, granitic	
80					
85				WELL GRADED SAND (SW) -50% coarse, 30% med, 20% fine, granitic	
90			SW		
95					
100				-60% coarse, 20% med, 20% fine, angular to subangular	
105			SP	POORLY GRADED SAND (SP) -95% fine, granitic	
110					
115			SW	WELL GRADED SAND (SW) -light brown, 70% med, 25% coarse, 25% silt, granitic	
				-bedrock at 115': cuttings very angular to angular granitic coarse sand (~35%), fine biotite sand (60%) <i>Boring terminated at 115.5 ft</i>	
				ABBREVIATIONS brn = brown lt = light dk = dark vf = very fine-grained f = fine-grained m = medium-grained c = coarse-grained vc = very coarse-grained ang = angular subang = subangular subrnd = subrounded rnd = rounded br = bedrock formation (g/s/f) = (% gravel, %sand, %fines)	
					90' Mud: Viscosity = 35 s/Qt Weight = 9.1 ppg Sand = 1.5% pH = 8.0 Heavy rig chatter, penetration rate ~6"/15 minutes

WELL COMPLETION DIAGRAM

PROJECT NO: 347078	PROJECT: Hinkley Remediation Proj.-Boundary Control Program	WELL NO: EX-13
LOCATION: Hinkley, CA		
DRILLING CONTRACTOR: Cascade Drilling, Inc.		DRILLING START DATE: 7/28/2006
DRILLING METHOD: Direct Mud Rotary		DRILLING END DATE: 7/28/2006
LOGGER: M. Cavaliere		WELL COMPLETION DATE: 7/28/2006
TOP OF WELL CASING (NGVD 29): 2168.20 ft. MSL		NORTHING COORDINATE (CCS DAND 27, ZONE 5): 523,583.11
GROUND SURFACE ELEVATION (NGVD 29): --- ft. MSL		EASTING COORDINATE (CCS NAD 27 ZONE 5): 2,249,966.44



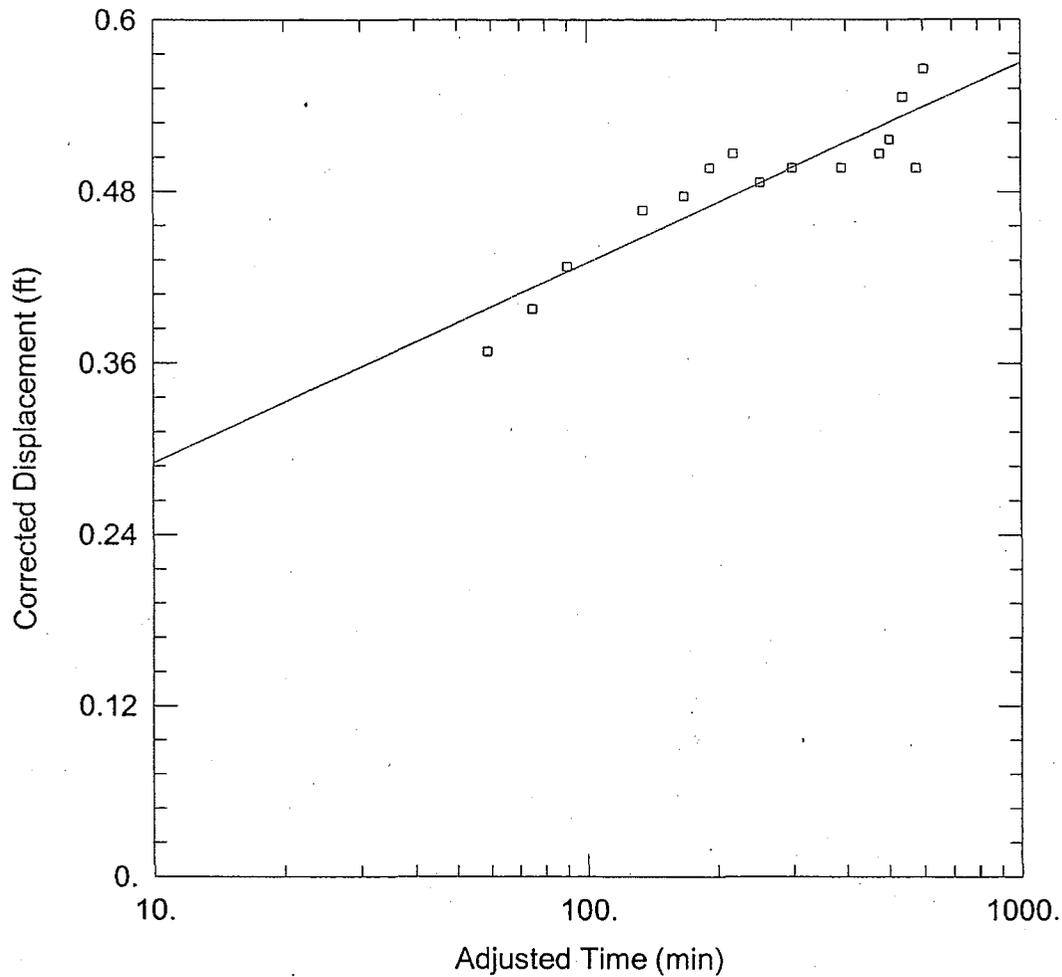
WELL CONSTRUCTION & SCREEN DETAILS

CASING MATERIAL: SCH 80 PVC
CASING DIAMETER: 6-in
BORING DIAMETER: 12.5-in
GROUT TYPE: Portland II Cement + 5% Bentonite
SEAL TYPE: Bentonite
SCREEN LENGTH: 10-ft
SLOT TYPE: 0.060-in Slot-Louvered
PACK TYPE: Coarse Aquarium Sand (4 x 12)

NOTES:
 1. ALL DEPTHS ARE REPORTED AS FEET BELOW GROUND SURFACE.

WELL DIAGRAM IS NOT TO SCALE

ATTACHMENT B
AQTESOLV ANALYTICAL RESULTS



WELL TEST ANALYSIS

Data Set:

Date: 10/13/08

Time: 14:10:07

PROJECT INFORMATION

Company: DVD

Location: HINCKLEY, CA

Test Well: EX-13

Test Date: 4-14-08

AQUIFER DATA

Saturated Thickness: 35. ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
ex-13	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
□ mw-63	30	30

SOLUTION

Aquifer Model: Unconfined

Solution Method: Cooper-Jacob

T = 8.519 ft²/min

S = 0.0008927

Data Set:
Date: 10/13/08
Time: 14:09:44

PROJECT INFORMATION

Company: DVD
Location: HINCKLEY, CA
Test Date: 4-14-08
Test Well: EX-13

AQUIFER DATA

Saturated Thickness: 35. ft
Anisotropy Ratio (Kz/Kr): 1.

PUMPING WELL DATA

No. of pumping wells: 1

Pumping Well No. 1: ex-13

X Location: 0. ft
Y Location: 0. ft

Casing Radius: 0.25 ft
Well Radius: 1. ft

Partially Penetrating Well
Depth to Top of Screen: 20. ft
Depth to Bottom of Screen: 30. ft

No. of pumping periods: 2

Pumping Period Data			
Time (min)	Rate (cu. ft/min)	Time (min)	Rate (cu. ft/min)
0.	6.5	615.	0.

OBSERVATION WELL DATA

No. of observation wells: 1

Observation Well No. 1: mw-63

X Location: 30. ft
Y Location: 30. ft

Radial distance from ex-13: 42.42640687 ft

Partially Penetrating Well
Depth to Top of Screen: 20. ft
Depth to Bottom of Screen: 30. ft

No. of Observations: 15

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
59.	0.37	300.	0.5
75.	0.4	391.	0.5
90.	0.43	478.	0.51
135.	0.47	505.	0.52
168.	0.48	542.	0.55
193.	0.5	580.	0.5
219.	0.51	603.	0.57
252.	0.49		

SOLUTION

Pumping Test
 Aquifer Model: Unconfined
 Solution Method: Cooper-Jacob

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
T	8.519	ft ² /min
S	0.0164	

K = T/b = 0.2434 ft/min (0.1237 cm/sec)
 Ss = S/b = 0.0004685 1/ft

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
T	8.519	1.092	+/- 2.36	7.799	ft ² /min
S	0.0008927	0.000798	+/- 0.001724	1.119	

C.I. is approximate 95% confidence interval for parameter
 t-ratio = estimate/std. error
 No estimation window

K = T/b = 0.2434 ft/min (0.1237 cm/sec)
 Ss = S/b = 2.551E-5 1/ft

Parameter Correlations

	T	S
T	1.00	-0.99
S	-0.99	1.00

Residual Statistics

for weighted residuals

Sum of Squares 0.006669 ft²
 Variance 0.000513 ft²
 Std. Deviation 0.02265 ft
 Mean 5.875E-9 ft
 No. of Residuals 15
 No. of Estimates 2

EXECUTIVE OFFICER'S REPORT

November 2001

NORTH BASIN

1. ***Homewood Mountain Resort – Progress on Parking Lot Runoff BMP Retrofit – Robert Erlich***

Homewood Mountain Resort (HMR) finished installation of a stormwater runoff collection, pre-treatment, and infiltration BMP sized to control runoff from a one-inch storm from the north half of the North Base Lodge parking lot. HMR constructed an infiltration gallery at depths of up to five feet below the existing paved parking lot. Runoff which had previously discharged through a culvert under State Route 89, now flows into a six-foot deep concrete box with a sump for storage of coarse sediment, and is routed into a series of interconnected plastic vaults which leach into a four foot layer of gravel. Any overflows from this system would still discharge under State Route 89 and reach Lake Tahoe, but this BMP retained all runoff from the October 29, 2001 storm which produced approximately one inch of rainfall at nearby rain gauges. HMR also installed drip-line trenches to control runoff from some of the buildings at the South Base area.

This is the first significant step by the new ownership and management of HMR to meet their Waste Discharge Report requirements to collect, treat, and/or infiltrate stormwater runoff from impervious surfaces. HMR has not met the compliance time schedule in Board Order No. 6-95-86A1 Amended Waste Discharge Requirements for Ski

Homewood for completing parking lot and roof runoff retrofit projects by October 15, 2001.

Regional Board and TRPA staff are working with HMR to establish a schedule to construct the remaining parking lot and roof runoff retrofit projects within the next two years. Additionally, HMR will be required to install and maintain interim BMPs. The previous owners had requested the extension of the 1997 compliance dates specified in Board Order No. 6-95-86 in order to complete the Master Planning process. There has been little progress on the Master Plan process over the past few years, and Board staff has advised HMR that completion of the parking lot and roof runoff retrofit projects can not wait until completion of the Master Plan. Staff views the completion of the first phase of the parking lot BMP retrofit as a significant step towards compliance by the new HMR ownership and management. Staff will make recommendations to the Board regarding further amendments to waste discharge requirements and/or enforcement actions during 2002.

2. ***Follow Up On Unauthorized Discharge of Acid Mine Drainage at Colorado Hill, Alpine County – John Steude***

I reported last month on an unauthorized discharge of acid mine drainage that occurred in September from an abandoned mine on USFS Humboldt-Toiyabe Forest

lands at Colorado Hill. I requested a spill report and corrective action plan for the incident as well as a report of waste discharge (RWD) for future discharges and activities. Due to the urgency of the situation and the approach of winter, I also provided for a less-formal written report and circumstances under which mine investigation and de-watering activities may proceed, so long as the USFS demonstrates full compliance with applicable laws and requirements, including State involvement and compliance with applicable State standards and regulations.

The USFS responded this month with a report on the previous incident and a draft work plan for RWQCB approval for additional mine de-watering activities planned for the week of December 10, 2001. Staff reviewed the report and draft work plan and found the report to be responsive to our concerns and has requested additional details to be included in the final work plan. The work plan calls for on-site treatment of the wastewater to neutralize the pH and remove metals prior to release into engineered infiltration lines. The plan also includes contingency plans for any potential spills that may occur as part of the de-watering activities, and proposes on-site disposal of sludge residuals from the treatment.

The response from the USFS acknowledged the unauthorized discharge in September and included management measures taken to ensure that unauthorized discharges do not occur in the future. The USFS also expressed its desire to complete a Memorandum of Understanding (MOU) with the Regional Board and to assemble a Technical Advisory Group to review and comment on all future CERCLA activities at Colorado Hill. The USFS requested that

staff nominate additional members for the Technical Advisory Group.

Staff will continue to work closely with the USFS to develop an acceptable MOU and actively participate in the Technical Advisory Group for Colorado Hill.

3. ***Status of 2000-2001 Basin Plan Amendments - Judith Unsicker***

On September 20, 2001 the State Water Resources Control Board (State Board) approved two separate sets of Basin Plan amendments previously adopted by the Regional Board: the Heavenly Valley Creek TMDL and implementation program, and the July 2000 amendments to remove the Municipal and Domestic Supply beneficial use from nine naturally impaired waters. Both groups of amendments are now being reviewed by the California Office of Administrative Law (OAL), and could receive OAL approval in December 2001. Following OAL action, both sets of amendments must be approved by the U.S. Environmental Protection Agency. State Board legal staff identified several issues of concern in relation to the other set of July 2000 Basin Plan amendments. (This is the group including changes in the industrial waste discharge prohibition and beneficial uses of ground water near Searles Lake, delegation of authority to local governments to implement some of the Basin Plan's septic system criteria, and delegation of authority to the Executive Officer to grant broader exemptions from prohibitions affecting the Lake Tahoe and Truckee River watersheds.) Assuming that these issues can be resolved, these amendments could go before the State Board in February 2002.

4. ***Caltrans Tahoe Basin Stormwater Characterization Monitoring - Robert Erlich***

Caltrans consultants presented the results from its first year of stormwater characterization monitoring at three sites along Highway 50 to the Lake Tahoe Interagency Monitoring Program Tahoe (LTIMP) working group on November 7, 2001. The Final Report for the Caltrans Tahoe Basin Stormwater Monitoring Program (Monitoring Season 2000-2001) was submitted to the Regional Board in August 2001, but this was the first presentation of Caltrans stormwater characterization monitoring data to a wider group of researchers, regulators and agencies that are responsible for monitoring stormwater runoff and constructing BMP projects in the Tahoe Basin. Caltrans involvement and collaboration with LTIMP has increased in the last year, and the Final Report recommends a stronger partnership between the Caltrans Tahoe Basin Stormwater Monitoring Program and LTIMP to coordinate monitoring and share results. LTIMP members seemed eager to use Caltrans expertise in QA/QC methods and information management in other Tahoe water quality monitoring projects.

Caltrans monitored untreated runoff from Caltrans roadways at locations where there was no run-on from adjacent non-Caltrans roads or from adjacent land. Caltrans measured flow and water quality from auto-samplers, and also analyzed precipitation water quality, characterized sediment transported in runoff for particle size and chemical concentrations, and studied the effectiveness of double-barrel sediment traps. Caltrans constituents list included turbidity, chloride, iron, and oil and grease, as well as the approximately 25 conventional

constituents, nutrients, and both total and dissolved metals measured in the other Caltrans statewide highway runoff characterization studies. Although precipitation was only about 50% of normal, Caltrans sampled during approximately ten runoff events, including summer thunderstorms, snowmelt and rain-on-snow events. Caltrans snow removal practices reduced the volume of runoff generated from snowfall or snowmelt.

Mean and median values for electrical conductivity (EC), total suspended solids (TSS), total dissolved solids (TDS), total metals, and total phosphorus were higher in the Tahoe Basin than for the other sites in the Statewide study. Total and dissolved iron values were quite high. The application of sand and salt was likely to have raised the EC, TSS and TDS, and perhaps metals values. Total Kjeldahl nitrogen, nitrate, and dissolved orthophosphate levels were slightly lower in the Tahoe Basin than the statewide study. Untreated highway runoff generally exceeded Tahoe Basin stormwater effluent limits for discharge to surface waters for turbidity, oil and grease, total nitrogen, total phosphorus and total iron. The untreated runoff sometimes met the standards for discharge to infiltration systems, particularly for total nitrogen.

Caltrans sampled sediment trapped in each barrel of the double-barrel sediment traps, and also sampled the effluent from the trap during two runoff events at two stations. For particles that were larger than the smallest (20 microns) screen, most of the sediment mass was trapped in the first barrel, with less mass and generally smaller particles measured in the second barrel and in the effluent. There was no statistical trend in constituents across the grain sizes measured,

and more work on the smaller particle size will be completed in 2002.

For sampling in the 2001-2002 water year, Caltrans will continue sampling at the three south shore locations, and has installed three new sites on the west and north shore. To better understand the actual runoff water quality from Tahoe Basin roads which may need to be treated by BMP retrofit projects, staff has encouraged Caltrans to add sites that include run-on from cut slopes and undeveloped upland areas, as well as commingled flows which include runoff from developed parcels or municipal permittee roads. One of the new sites this year near Snow Creek in Tahoe Vista does receive some runoff from adjacent non-Caltrans roads and parcels. Staff will encourage Caltrans to select additional sites next year which may be more characteristic of the urbanized areas where Caltrans and the municipal permittees are or should be considering stormwater projects to treat commingled flows.

5. ***Progress Report for Lake Tahoe Research and Monitoring Program, October 11 through November 10, Tahoe Basin - Bruce Warden***

The scope of work for the Lake Tahoe BCP stormwater monitoring project was agreed on by Lahontan staff, UC Davis, Desert Research Institute (DRI) and private contractors monitoring team. This stormwater monitoring contract is now being developed. Autosamplers for stormwater have been ordered and monitoring sites are being selected. Modeling of surface runoff from intervening zones and ungaged tributaries, and its relationship to land use is a key TMDL component. During this month, efforts were focused on this issue. We expect that during the next month,

decisions on modeling approach and selection of contractor(s) will be made. A contractor for the stream particle size distribution monitoring project has been identified, the scope of work approved, and a contract is being prepared.

Progress has been made on development of the scope of work for the particle study which is part of the BCP program to refine the Lake Clarity Model. This model will be central to the TMDL process. It is anticipated that this work plan will be submitted and sent out for peer review next month.

Staff and Dr. Reuter of UC Davis continue cooperating with the California Air Resources Board (CARB) by providing technical review of the latest CARB proposal for their study on atmospheric deposition to Lake Tahoe, critical for nutrient and particle loading estimates and Lake Tahoe TMDL development. Also, technical discussions and review of new data was carried out for a number of areas including state-of-the-art phosphorus removal from stormwater by chemical and biological treatment, atmospheric deposition of phosphorus and fine-sediment, BMP effectiveness, nearshore turbidity, and basin-wide discussions on EIP project priorities. Efforts are being made to assemble an external peer-review panel of national water quality and watershed experts to review and provide additional expert input on Lake Tahoe research and monitoring projects.

6. ***Meeting with Nevada Division of Environmental Protection Regarding the Lake Tahoe TMDL - Chuck Curtis***

On September 28, 2001, members of my staff and I met with management of the Nevada Division of Environmental

Protection (NDEP) regarding the Lake Tahoe TMDL and the roles of the Regional Board and NDEP in this project.

We informed NDEP of our plans and schedule for developing the Lake Tahoe TMDL, including our plans for assessing sediment and nutrient loading from the entire Lake Tahoe Basin, including that portion that is in Nevada. Our schedule includes development of a Technical TMDL in 2004 and completion of the entire TMDL including the implementation plan and Basin Plan amendment(s) by 2007. I expressed my desire that the State of Nevada play an active role in the TMDL development. NDEP staff indicated they would like to participate, but with their limited resources they were not sure how much they would be able to devote to the project. Since the meeting, NDEP has identified an NDEP staff person to be the contact with the Regional Board on the TMDL.

I also brought up the issue of identifying Lake Tahoe as impaired on Nevada's Section 303(d) list. I indicated that development and implementation of the Lake Tahoe TMDL would likely be less difficult if the apparent contradiction regarding Nevada's and California's listings were resolved. California has listed Lake Tahoe as impaired by sediment and nutrients that result in our clarity standards (among others) being violated. Nevada currently has listed only Lake Tahoe at Sand Harbor as impaired by nitrogen, and they have footnoted that listing by indicating the impairment is probably localized. We pointed out to NDEP that years of data from the UC Davis Tahoe Research Group show Nevada's lake-wide standards are being violated. NDEP staff requested copies of this data so that they could independently determine if it supported the listing of Lake Tahoe or

Nevada's 303 (d) list. At our request, the Tahoe Research Group provided NDEP with the relevant water quality data.

On the whole, I feel the meeting was a success. We have identified the need to work together on issues regarding our bi-state waters, and a foundation of cooperation was laid. We plan to have additional discussions regarding TMDLs, water quality standards and water quality problems on our bi-state waters such as the Truckee River, Carson River, and Walker River, in addition to Lake Tahoe.

7. ***Prosser Lakeview Estates Septic System Update – Scott Ferguson***

Mr. Kenn Rieders addressed the Board at the public forum during the November 2001 Regional Board meeting regarding potential threats to ground water quality from existing septic systems in the above-referenced subdivision. Mr. Rieders pointed out that he and his wife Julie had contacted staff in May 2001, but had not heard anything since that time. Staff had begun to investigate the situation, but did not complete the investigation nor contact Mr. Rieders.

Since the November 2001 Board meeting, staff has ascertained significant information about the situation described in Mr. and Mrs. Rieders' May 2001 letter. We have been in contact with the Truckee Donner Public Utility District (TDPUD), the Nevada County Department of Environmental Health, and the Truckee Sanitary District (TSD). According to TDPUD, the Prosser Lakeview Estates drinking water wells have never tested positive for bacteria. Prior positive bacteria samples were from the stored water after it had been pumped from the ground. The Prosser Lakeview Estates water system did not include disinfecting

when installed. In order for TDPUD to assume ownership of the system it was required by the state to add disinfection.

The County stated that the Rieders' septic system had failed, and a new system was installed at an appropriate site on the property. The new system used innovative technology and malfunctioned soon after it was installed. The previous septic system was re-attached last summer, and the manufacturer of the new system will inspect the Rieders' new system this spring. The County noted that 15 failures, (approximately 5%) occurred in the Prosser Lakeview Estates over the previous 21-year period, which is not an unusual percentage for septic systems. County regulations require that an adequate backup area be designated on each parcel approved for septic use to account for the fact that septic systems eventually fail over time.

TSD will complete its installation of a new sewer line that crosses the Truckee River this spring with the completion of the Highway 267 Truckee Bypass. That pipeline is eventually scheduled to provide service to the subdivision, but there are no plans yet to extend the line beyond the bypass bridge. (Approximately two miles to Prosser Lakeview Estate.)

We have contacted Mrs. Rieders to convey the information gathered to date. Staff will continue to keep both Mr. and Mrs. Rieders informed on any progress regarding this situation.

8. ***Strategic Plan adopted by the State Water Resources Control Board – Alan Miller***

On November 15, 2001, the SWRCB adopted an updated *Strategic Plan*. The

State and Regional Boards completed a strategic plan in 1995 and revised it in 1997. The current strategic planning process was initiated after the release of the Cal/EPA *Strategic Vision* in October 2000, using the Cal/EPA document and the previous strategic plan as reference points to ensure that the plan helps achieve the goals of the *Strategic Vision*. The *Strategic Plan* identifies the key issues the SWRCB and Regional Boards must address over the next five years. The Plan updates our mission, vision, values, operating principles, and identifies agency objectives and performance measures. The core of the strategy is highlighted by six goals and 27 key strategic projects, which serve as the implementation plan.

The *Strategic Plan* sets forth a vision for “a sustainable California made possible by clean water and water availability for both human uses and environmental resource protection.” Key values to foster this vision are protection, service (to the public as a whole), integrity, leadership, and professionalism. The six strategic goals are listed below:

Goal #1: The Boards' organizations are effective, innovative and responsive.

Goal #2: Surface waters are safe for drinking, fishing, swimming, and support healthy ecosystems and other beneficial uses.

Goal #3: Groundwater is safe for drinking and other beneficial uses.

Goal #4: Water resources are fairly and equitably used and allocated consistent with public trust.

Goal #5: Individuals and other stakeholders support our efforts and understand their role in contributing to water quality.

Goal #6: Water quality is comprehensively measured to evaluate protection and restoration efforts.

The *Strategic Plan* focuses on Total Maximum Daily Loads and Watershed Management Initiatives to implement and integrate point and non-point source pollution controls. It calls for a "new approach" to doing the work of protecting California's vital water resources. The entire text of the *Strategic Plan* can be viewed on the worldwide web at the following address: <http://www.swrcb.ca.gov>. (Expect color copies printed for distribution in the near future).

9. *Nonpoint Source Pollution Conference Combats Water Pollution - Cindy Wise*

The State Water Resources Control Board, the nine Regional Water Quality Boards, the U.S. Environmental Protection Agency, and the Coastal Commission teamed up to present the first ever California Nonpoint Source Conference on October 23-25, 2001. Staff from all these agencies attended the conference along with watershed coordinators, water quality specialists, nonprofit organizations, landowners and others to share experiences and to learn about curbing polluted runoff. The conference included more than 40 speakers who are implementing on-the-ground nonpoint source pollution control projects throughout California funded with Clean Water Act 319 funds. The conference focused on the importance of developing community and agency partnerships, and provided opportunities for networking with new partners. Because of the keen interest in this first conference, a second conference is planned for 2003.

10. *Three Watershed Coordinators Funded in the Lahontan Region -Cindy Wise*

The California Legislature chose Resource Conservation Districts (RCD) to implement

its pilot Watershed Coordinator Grant Program this fiscal year. The goal of the program is to improve watersheds by coordinating conservation efforts throughout the state. This grant program is funding three Watershed Coordinator positions in the Lahontan Region. The Surprise Valley Watershed Group, the Truckee River Watershed Council and the Tahoe RCD now have Watershed Coordinators. Regional Board staff is working with the new Watershed Coordinators to further watershed improvement.

11. *New Land Trust for Inyo and Mono Counties -Cindy Wise*

The Eastern Sierra Conservancy is a newly incorporated land trust serving Inyo and Mono Counties. Its mission is to protect and enhance vital lands in both counties for their scenic, recreational, agricultural, botanical, historical and wildlife values. Over the next several years, the Eastern Sierra Conservancy will be working with county and Regional Board staff to develop watershed management plans for three major watersheds within Mono County.

The Conservancy hopes to assist Inyo and Mono counties and other parties in planning conservation easements on some lands owned by the City of Los Angeles Department of Water and Power (LADWP) within the Owens Valley and Mono Basin. The LADWP and the Wildlands Conservancy proposed conservation easements on more than 300,000 acres of LADWP property in March 2001. This original proposal failed to obtain sufficient political momentum and was withdrawn, but the general concept has widespread support. The Eastern Sierra Conservancy plans to foster that support to develop a conservation easement strategy that can be implemented.

12. *South Tahoe Public Utility District is Developing a Master Plan for Recycled Water Reuse and Disposal, Alpine County*
– Robin Mahoney

The South Tahoe Public Utility District (District) must have a reliable recycled water reuse and land application (disposal) system to accommodate the flows generated by the residents and visitors of South Lake Tahoe. The existing District reuse and application system facilities in Alpine County are approaching their capacity 21 years after the adoption of the District's current Wastewater Master Plan. A summary of the elements that the Master Plan is addressing includes: not enough land available to apply future recycled water flows; water recycling contracts that may be terminated by any party in 2008; improving the capacity and location of the emergency storage facilities; problems with Indian Creek Reservoir water quality; lack of District control over the entire system; and delivery systems that are inadequate and unreliable.

Because the District's facilities for recycled water reuse and application are nearing their planned capacities, it's current Wastewater Master Plan needs to be revised to ensure proper recycled water reuse and/or application through 2020.

The District has chosen a programmatic Environmental Impact Report (EIR) approach for the Master Plan, in which many individual project components will be evaluated and will be grouped into alternative sets prior to project-level review. In addition to the No Project alternative, the EIR will generally evaluate the impacts of: 1) Expanding California Operations; 2) Expanding Recycled Water Application to

Nevada; and 3) Creating Wetlands (i.e., for multiple uses and nutrient uptake).

The District submitted a draft Initial Study (IS) for the Master Plan EIR to the Regional Board on August 31, 2001. Regional Board staff supplied the District with comments to the draft IS and support them in their effort to accommodate for projected growth, operate the recycling system in ways that protect public health and safety, and promote wise uses of water resources. Completion of a draft EIR is the next step; the EIR is expected to be finalized sometime in 2002.

13. *Squaw Valley Public Services District's Future Groundwater Development and Utilization Feasibility Study, Placer County*
– Tammy Lundquist

At the October 2001 Squaw Valley Public Services District (SVPSD) Board meeting, the SVPSD consultant presented the *Future Groundwater Development and Utilization Feasibility Study* results. The study focused on quantifying the Squaw Valley area groundwater basin's sustainable yield with a computer model, identifying procedures to protect the groundwater from known contamination sources, and evaluating alternatives to meet future water demand.

Current groundwater demand is about 873-acre feet per year with the projected buildout demand of 2,262-acre feet per year. Three acre-feet of water are equal to around one million gallons. The groundwater model predicted that the groundwater basin may only be able supply approximately 80% of the buildout demand. The existing supply wells could only supply up to 60% of the buildout demand; any additional new supply wells would require groundwater treatment because of naturally-occurring high concentrations of arsenic and manganese. If

additional supply wells were installed, the study recommended using the lowest cost alternative (pressure green sand filtration process) to remove the arsenic and manganese with a price tag of about \$3.5 million dollars, which is the estimated capital needed that does not include operation and maintenance costs.

14. *Four ACL's Issued to Caltrans, Interstate-80 Rehabilitation Boca/Floriston Project – Eric Taxer*

The 2001 construction season for the Interstate-80 Rehabilitation, Boca/Floriston project resulted in numerous water quality problems affecting the Truckee River east of the Town of Truckee. Staff has coordinated closely with Caltrans throughout the construction season to ensure that a reasonable and effective approach to water quality protection was maintained. Staff participated in Caltrans-sponsored training to its contractors last July to help educate field personnel of the importance of water quality protection and in effective uses of best management practices. Staff has also conducted numerous site inspections throughout the construction season.

There have been several incidents involving discharges of sediment-laden water to the Truckee River, discharges of earthen materials to ephemeral drainages, and discharges of petroleum products to the ground, some near surface waters. Staff responded to the first few incidents by consulting with Caltrans to identify the cause of the discharges, to discuss how to mitigate the impacts of the discharges when possible, and to discuss how to prevent similar incidents. Despite Staff's efforts, discharge incidents continued to occur.

Staff began to escalate its enforcement activity on this project beginning with its response to conditions observed during a July 30, 2001 site inspection. A Notice of Violation was issued to address an earlier discharge of debris to an ephemeral drainage and to address an ongoing hydraulic oil leak. Staff has since found it necessary to issue four Administrative Civil Liability (ACL) Complaints for the discharge of sediment-laden water to the Truckee River during five different discharge incidents (August 1, 2001, August 2, 2001, July 10, 2001 and September 12, 2001 [same site], and September 19, 2001). These discharges could have been prevented with adequate site inspection by Caltrans or its contractors, and by implementing BMPs specified in Caltrans' Storm Water Pollution Prevention Plan (SWPPP) or required by the Caltrans Storm Water Task Force representative. The liability amounts specified in the Complaints total \$50,000 (the maximum amount allowed for the five discharge events).

Caltrans also failed to adequately winterize the project site prior to storm conditions, as required in a written variance to the October 15th soil disturbance deadline. Caltrans was permitted to continue earth-disturbing activities through November 1, 2001, provided that Caltrans winterize the site in the event of a storm. Staff inspected the project during a storm event on October 30, 2001. Even though the storm had been predicted for approximately one week prior to the inspection, many of the disturbed slopes were not winterized as required, and material (shoulder-backing material containing petroleum product) was observed to be stockpiled in a drainage-way and discharging runoff with an oily sheen. A backhoe was also observed disturbing stable ground on a steep slope directly above the

Truckee River. An additional grading variance request was denied based on Caltrans' inability to properly winterize its activities for predicted storm events. An inspection conducted on November 7, 2001 noted that the project had still not been winterized and that earth-disturbing activities were still occurring, in direct violation of permit requirements. The entire project site was not completely winterized until November 21, 2001. Staff is considering issuing another ACL Complaint for an amount that is significantly greater than those specified in the first four Complaints.

15. ***23rd Biennial Groundwater Conference and 10th Annual Meeting of the Groundwater Resources Association of California—Tammy Lundquist***

This two-day joint conference, held at the end of October in Sacramento, provided concurrent presentations on policy issues and technical issues regarding groundwater quality and quantity in California. The conference was well attended by consultants, water agencies, professors, county, state, and federal employees.

Policy Issues were divided into four sessions: 1) Groundwater Quality, 2) Groundwater Quantity, 3) New Tools for Groundwater Management, and 4) Watershed Effects on Groundwater. Each session had five separate topic presentations. One notable topic was conjunctive use of water. The concept of diverting surface water for recharge into a groundwater basin is not something new in California but it is playing a much larger role in water management today. There is an ongoing effort to implement conjunctive operations in areas where such operations have not been tried before.

Technical Issues were also divided into four sessions: 1) Emerging Contaminants, 2) Development of Groundwater In Impaired Water Areas, 3) Groundwater Treatment and Remediation: From Research to Practical Application, and 4) GIS For Hydrologic Applications.

The session on Emerging Contaminants showed that many "new" contaminants are coming from everyday products discarded in the waste stream. A great number of compounds, such as caffeine, steroids, and suntan lotion ingredients, occur in sewage treatment plant influent and effluent that are not considered to be priority pollutants, and are not monitored under the NPDES permit system. Many of these compounds are not listed as analytes under current EPA Methods, and some are being detected for the first time. This raises concerns of the safety in areas where municipalities are planning conjunctive use by recharging a water supply aquifer with treated wastewater effluent.

16. ***Preparation of Administrative Civil Liability Complaint against Pacific Bell Telephone Company for the discharge of sediment laden water to Lake Tahoe – Robert Larsen***

Manual Brothers, Inc. was contracted by Pacific Bell Telephone Company (Pacific Bell) to replace a failing telephone conduit in the Tahoe Keys. To limit soil disturbance, the City of South Lake Tahoe required the contractor to use horizontal drilling methods rather than conventional open trenches. On October 26, 2001 the contractor drilled through an eight-inch water line, discharging water into the street. Flow from the water line break washed excavated soil directly into nearby storm water drop inlets that drain to Lake Tahoe.

Regional Board staff responded to the incident and photographed sediment deposition in the street, in the drop inlets, and the resulting sediment plume. The contractor had placed approximately five cubic yards of excavated soil directly in the curb and gutter and had not implemented appropriate best management practices (BMPs). Although the project was covered under existing Waste Discharge Requirements (WDRs) for underground line installation and maintenance, Pacific Bell failed to obtain a variance to the October 15 grading deadline. Staff asked the contractor to clean all remaining sediment from the drainage path, remove sediment from the drop inlets, fill all excavations, and cease work until a variance could be issued.

In addition to initiating maintenance activities involving soil disturbance after October 15 without a variance, Pacific Bell did not inform the Regional Board office of its intent to perform maintenance work nor did they inform their contractor of applicable WDRs and associated best management practices. Consequently, Manual Brothers, Inc. did not take appropriate measures to protect water quality and sediment was discharged to Lake Tahoe. Such discharge violates WDRs and prohibitions contained in the Water Quality Control Plan for the Lahontan Region.

Anthropogenic inputs of sediment and nutrients have been directly tied to clarity loss at Lake Tahoe and the discharge of such materials is considered a serious violation. Furthermore, Pacific Bell has a history of similar violations. I issued a Notice of Violation to Pacific Bell on August 30, 1999 for threatened discharge of sediment during trenching activities on Ski Run Boulevard in South Lake Tahoe. No erosion control

measures had been implemented to control runoff and thunderstorms resulted in significant sediment discharge to storm water conveyances. Similar to the current violation, Pacific Bell's contractor was not made aware of permit requirements and failed to implement appropriate best management practices.

Due to these factors, I intend to issue an Administrative Civil Liability Complaint to Pacific Bell for the discharge of sediment-laden water to a storm water conveyance and thence to Lake Tahoe.

SOUTH BASIN

17. *U.S. Borax Meeting – Kai Dunn*

Board staff met with U.S. Borax to discuss the Owens Lake Trona Processing project on November 2, 2001. U.S. Borax proposes to file for Waste Discharge Requirements (WDRs) to discharge waste associated with the installation and operation of an ore processing facility located at the site of current mining activities being conducted on Owens Lake by U.S. Borax. Board staff discussed potential effects on water quality associated with the proposed project and provided information on alternate processes to reduce possible impacts on water quality.

18. *IMC Chemicals, Inc. (IMCC), Trona – Kai Dunn*

Improving Technology

IMCC and its consultant completed the study for the analytical methods to support site-specific analytical monitoring and compliance testing as required in the WDRs and submitted a report to the Regional Board. The IMCC plant laboratory has been certified by California Department of Health

Services to perform analysis for its effluent. Board staff will be requiring periodic outside laboratory verification to ensure compliance with Board Orders. A technical report of process and source control alternative study also was submitted to the Regional Board. This report screens and evaluates the candidate process alternatives to minimize hydrocarbon discharges for the IMCC Trona boric acid manufacturing process. Board staff is reviewing these reports and will provide comments.

Compliance with Board Order

Daily reporting data from IMCC shows that interim effluent limitations set forth in the WDRs have not been exceeded during the month of October 2001. Thirty-four bird deaths were reported during the same period. As part of the WDRs (Board Order No. 6-00-52A1), IMCC has submitted the Argus Plant Best Management Practices (BMPs) Implementation and Conceptual Design Plan to the Regional Board. IMCC proposes to increase inspection and follow-through with necessary repairs and maintenance to reduce oily discharge from the process equipment.

Basin Plan Beneficial Uses

IMCC submitted a Report of Comparison of Searles Dry Lake Ephemeral and Process Pond Brine Composition to the Regional Board. The information IMCC developed in the report will be instrumental in evaluating appropriate beneficial uses for surface water of Searles Lake.

19. *Yucca Mountain Moves Another Step Closer to Licensing - Tim Post*

On October 26, 2001, the Nuclear Regulatory Commission (NRC) announced that it had signed off on changes to the

suitability guidelines proposed by the Department of Energy (DoE). The proposed changes involve the 1984 Geologic Repository Standards that specified the mountain's natural geologic features must contain the high-level radioactive waste. The revised guidelines proposed by DoE depend on engineered barriers and storage containers for waste containment rather than an effective geologic barrier.

The State of Nevada and environmental groups are strongly opposed to these changes charging they are inconsistent with the 1984 Standards. They also charge that if the revised guidelines are adopted, it will make it easier for Yucca Mountain to be found suitable as a repository. Nevada also charges that this is just one more change, in a litany of changes, DoE has proposed over the years whenever a technical problem is encountered with Yucca Mountain that cannot be overcome without changing the rules for siting.

DoE is expected to finalize its revised guidelines within a month. After a review of the guidelines by the Office of Management and Budget, Secretary of Energy would decide whether to recommend the site to the President for approval. If the site is approved, the NRC will begin reviewing DoE's license application to operate the facility.

20. *Hinkley Sampling Events Detect High Nitrates - Patrice Copeland*

As part of a joint effort between the Regional Board, the California Department of Health Services and the California Air Resources Board, Board staff from the Victorville office performed water sampling

to measure hexavalent chromium in the Hinkley area during August 2001. In addition to hexavalent chromium, the suite of analytes for this sampling event included general inorganics such as chloride, nitrate as nitrogen, sulfate, and total dissolved solids.

Analytical results detected high nitrate as nitrogen levels (at 62 mg/L), in the Hinkley area. Elevated nitrate levels (55 mg/L) were again detected during a confirmation sampling round in September 2001. The state drinking water standard for nitrate as nitrogen is 10 mg/L. A nearby dairy and agricultural operation are a possible source of the nitrate problem.

I issued a 13267 letter to Mr. Paul Ryken (owner/operator) the nearby dairy operation requesting a technical report regarding waste disposal practices. The requested information has been received. Regional Board staff has met with the dairy operator and is requesting that the dairy operator submit a work plan for ground water monitoring. The dairy operator is cooperative.

21. *United States Geological Survey (USGS) Proposes Study to Evaluate Naturally Occurring Total and Hexavalent Chromium Underlying the Sheep Creek Fan, San Bernardino County - Jehiel Cass*

The USGS proposes a three-year study to evaluate the occurrence and concentration of chromium, arsenic and other trace elements in ground water along a flow path from recharge areas in the San Gabriel Mountains to discharge areas near El Mirage Dry Lake (Sheep Creek fan). These elements can occur at high concentrations in varied pH conditions in ground water situations. Geochemical and chromium isotopes will be used to distinguish between natural and

anthropogenic sources. The USGS reports that preliminary data collected in the western part of the Mojave Desert show that chromium is present in naturally occurring concentrations as high as 28 ug/L in ground water and that 80 percent of chromium is in the form of hexavalent chromium (Cr VI). As a result of aquifer geochemistry, chromium, arsenic and other trace elements sorbed on surface coatings of mineral grains are soluble and may be present in water at high concentrations relative to respective drinking water standards. The USGS believes that the ratio of the ⁵³Cr to ⁵⁴Cr isotope is very small in nature and may shed light on the amount of Cr VI that is naturally occurring. Board staff met in early November with the USGS, Department of Toxic Substances Control staff and Ducommun Aerostructures (formerly Aerochem). Both agencies expressed an interest in participating in the study. The USGS also invites participation in the study by State Water Project water purveyors (Mojave Water Agency and Antelope Valley-East Kern Water Agency) and other drinking water purveyors so the study can be expanded to include other regions of the High Desert.

22. *Treatability Study Site 282, Operable Unit No. 5, Edwards Air Force Base, Kern County - Elizabeth Lafferty*

A Treatability Study for Site 282 has been completed to determine the most economical and feasible methods to remediate a mix of contaminants including rocket propellants such as: hydrazine and ammonium perchlorate; solvents such as tetrachloroethylene (PCE), trichloroethylene (TCE), freon, carbon tetrachloride (CCl₄) and methyl ethyl ketone isopropyl alcohol; and fuels such as diesel, leaded and unleaded gasoline, and JP-4 that were released to soil and ground water. The

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION**

**BOARD ORDER NO. R6V-2004-0034
WDID NO. 6B360303001**

**NEW WASTE DISCHARGE REQUIREMENTS
FOR**

**PACIFIC GAS AND ELECTRIC COMPANY
INTERIM PLUME CONTAINMENT AND HEXAVALENT CHROMIUM
TREATMENT PROJECT**

San Bernardino County

The California Regional Water Quality Control Board, Lahontan Region (Regional Board), finds:

1. Dischargers

Pacific Gas and Electric Company (PG&E) submitted a Report of Waste Discharge (RWD) to conduct an Interim Plume Containment and Hexavalent Chromium Treatment Project (Project) at the Desert View Dairy located east of the community of Hinkley in San Bernardino County. The RWD consists of transmittals dated August 4, 2003, January 13, 2004, March 5, 2004, and reports listed in Attachment "C" – List of References. The RWD was deemed complete on March 5, 2004. PG&E proposes to discharge pumped ground water containing hexavalent chromium to a land treatment unit on the Desert View Dairy Property. The project is intended to provide containment of hexavalent chromium pollution in the ground water. PG&E owns the land on which the dairy is located. For the purposes of this Order (Order), PG&E is referred to as the "Discharger."

2. Facility

PG&E has proposed to construct and operate an interim Land Treatment Unit (LTU) encompassing approximately 80 acres on the Desert View Dairy to treat ground water polluted with hexavalent chromium [Cr(VI)]. The polluted ground water will be extracted and applied to the LTU through subsurface irrigation. The soils and vegetation in the LTU will reduce the Cr(VI) to trivalent chromium [Cr(III)]. The LTU on the Desert View Dairy is the facility to which the discharge occurs. The proposed drip irrigation system is part of what PG&E has called its "Interim Pumping Project" (Project), is planned as a temporary measure to limit further movement of the ground water plume containing Cr(VI). PG&E plans to operate the Project until a long-term ground water treatment system is constructed and operational. For the purposes of this Order, the LTU on the Desert View Dairy is referred to as the "Facility."

3. Facility Location

The Facility is located east of the community of Hinkley in San Bernardino County in the Harper Valley Subarea of the Mojave Hydrologic Unit within portions of Section 26, T10N, R3W and Section 2, T9N, R3W, SBB&M, as shown on Attachment "A," which is made a part of this Order.

4. Permit History

These are new Waste Discharge Requirements (WDRs) for a new facility. PG&E had operated a ground water remediation system at the East and Ranch LTUs located within 8,000 feet south of the proposed project location during 1991 to 2001 under the WDRs set forth in Board Order No. 6-91-917 and revised in Board Order No. 6-97-81.

5. Enforcement History

On December 29, 1987, the Executive Officer issued Cleanup and Abatement Order (CAO) No. 6-87-160 to the Discharger, ordering the investigation, cleanup and abatement of the effects of chromium in the soil and ground water, that were discharged at the PG&E Compressor Station. The selected remediation system consisted of the extraction of ground water for irrigation of pasture crops on the East and Ranch LTUs.

In June 2001, the Regional Board issued CAO 6-01-50 ordering PG&E to eliminate the threatened nuisance condition created at the East and Ranch LTUs due to the spray irrigation of chromium-polluted ground water to crops at these LTUs. In response to this order, PG&E shut down the ground water remediation system.

6. Reason for Action

In response to the termination of the prior remediation method, PG&E proposed a temporary measure to limit further movement of the ground water plume. The Regional Board is issuing WDRs for this new facility (LTU) proposed to receive the discharge of extracted ground water associated with a ground water containment and remediation system designed to protect the beneficial uses of downgradient ground water.

7. Site Geology

The soils underlying the Facility are comprised of interbedded sands, gravels, silts, and clays. The depth to bedrock is about 175 feet below the Facility. The nearest active fault is the northwest - southeast trending Lenwood fault located about one mile southeast of the Facility.

8. Site Hydrogeology and Hydrology

The hydrogeology in the vicinity of the LTU consists of an upper confined-to-semi-confined, aquifer, and a lower confined aquifer separated by approximately 20 feet of lacustrine clay that forms a regional aquitard.

The upper aquifer is approximately 80 feet thick and extends from 80 feet below the ground surface (bgs) to 160 bgs. The upper aquifer is comprised of interbedded gravels, silts, and clay and is divided into two major production zones, the "A" zone, and the "B" zone. Ground water flow in the upper aquifer is primarily to the north with an average gradient of 0.002 feet per foot.

The lower aquifer, or "C" zone, consists of semi-consolidated calcareous sediments, layers of silty sand, and minor amounts of clay. The lower aquifer extends from approximately 180 feet bgs to 230 bgs and is bounded at its base by competent crystalline rock.

The closest surface water body is the Mojave River, which is located approximately one mile southeast of the Facility.

9. Climatology

The precipitation in the area of the Facility is approximately three inches annually. The evaporation rate is approximately 74 inches annually.

10. Ground Water Quality

The ground water below the Desert View Dairy contains constituents from past and present agricultural activities, chromium from the PG&E plume, and naturally occurring constituents. The most significant constituents are chromium, nitrate and TDS. The ground water quality, based on data from one extraction well has total chromium [Cr(T)] concentration of 0.05 mg/L, a nitrate concentration of 9.35 mg/L (as nitrogen) and a TDS concentration of 997 mg/L. Within the capture zone of the ground water extraction system, nitrate concentrations range from less than 0.1 mg/L (as nitrogen) to a maximum of 62.2 mg/L. Within the same area, TDS ranges from 997 mg/L to a maximum of 3,884 mg/L. Cr(T) concentrations in the untreated extracted ground water are estimated to range from 0.001 mg/L to 0.295 mg/L.

The maximum contaminant levels (MCLs) for a municipal water source for these constituents are: 10 mg/L for nitrate as N; 500 mg/L for TDS (a California Secondary MCL); 1,000 mg/L for TDS (a California Primary MCL); and 0.050 mg/L for Cr(T). Therefore, some of the ground water in the capture zone does not presently support the beneficial use of a municipal and domestic supply.

The water quality goals for an agricultural water source for TDS is 450 mg/L (Water Quality for Agriculture - Ayers & Westcot). Therefore, some of the ground water in the capture zone does not presently support the beneficial use for an agricultural supply. The TDS concentrations are unsuitable for irrigation of some sensitive crops but are still suitable for moderately tolerable crops, such as alfalfa, that are expected to be grown in this area.

11. Project Description

The Project is comprised of a ground water extraction system and an 80-acre LTU. The ground water extraction system is designed to provide hydraulic containment of the chromium contamination plume. Three ground water extraction wells will provide the necessary hydraulic control of the leading edge of the plume by pumping an estimated average of 345 gallons per minute (gpm) to nine irrigation fields. The extraction field will be operated from September through May to provide a flow rate of approximately 300 gpm (0.432 million gallons per day (mgd)). During the months of June, July, and August, the extraction rate will be increased to approximately 450 gpm (0.648 mgd). The nine irrigated fields are classified as an LTU and consist of approximately 80 acres of cultivated grasses. These fields are shown on Attachment "B," which is made a part of

this Order. The LTU is designed primarily to treat hexavalent chromium in extracted ground water and convert it to trivalent chromium. Treatment will occur in the vadose zone from ground surface to a depth of five feet bgs. Natural soil properties will promote the reduction of hexavalent chromium Cr(VI) in the applied extracted ground water to less-mobile, less-soluble, and less-toxic trivalent chromium Cr(III) during crop cultivation. Based on ground water and vadose zone monitoring data from the East LTU that operated for almost nine years (1992 to 2001) using a similar remediation technology, Cr(VI) reduction in the LTU is expected to be approximately 95 percent. Analyses of data from plume monitoring wells show that Cr(T) concentrations may be as high as 0.295 mg/L. According to the baseline soil data obtained at the DVD in April 2004, the average Cr(T) concentration is 11.9 mg/kg (Cr(T) ranges from 5.7 mg/kg to 19.0 mg/kg). The increase of Cr(T) concentration in soil after 8 years of operation is estimated to be 0.5 mg/kg over the baseline. Using this number, after 8 years of continue operation, the Cr(T) concentration in the soil at the DVD would increase from 11.9 mg/kg to 12.4 mg/kg. The predicted Cr(T) concentration remaining in the soil at the end of the project would still be far below the USEPA Region 9 preliminary remediation goal (PRG) for residential soil of 210 mg/kg for Cr(T).

While the primary objective of the LTU is to treat hexavalent chromium, the application of extracted ground water to the irrigated fields will provide much-needed nitrogen to crops. This will have the secondary effect of reducing nitrate mass in ground water. Deep percolation of irrigation water below the LTU was predicted using unsaturated zone capillary characteristics and irrigation water application rates. Deep percolation of irrigation water is predicted to reach ground water after eight years. The long-term nitrate concentration in ground water will be approximately 9.0 mg/L after eight years when the vadose zone water encounters the upper aquifer.

The mass loading of TDS to the ground water will increase due to operation of the LTU. The estimated TDS concentration at the end of eight years of operation will be 1,400 mg/L in the ground water. The increase of TDS caused by the LTU operation does not render this water unusable for agricultural use for the types of crops typically grown in this area. Currently, ground water under the LTU does not meet the beneficial use of municipal and domestic supply due to the TDS levels.

12. Waste Classification

The chromium-contaminated extracted ground water is classified as a liquid designated waste under Section 20210 of Title 27 California Code of Regulations.

13. Waste Management Unit Classification

The first five feet of soils in the irrigation sites are classified as a Class II LTU in accordance with Section 20614 of Title 27 California Code of Regulations.

14. Authorized Disposal Sites

The LTU delineated on Attachment "B" is the only authorized disposal site.

15. Water Quality Protection Standard

A Water Quality Protection Standard (WQPS) is established in the Order for the Facility, and consists of constituents of concern (including monitoring parameters), concentration limits, monitoring points, and the point of compliance. The WQPS applies over the active life of the Facility, post-closure monitoring period, and the compliance period.

16. Land Uses

The land uses at, and surrounding, the Facility consist of residential, commercial, agricultural, and open desert land. The nearest residence, worker housing for dairy personnel, is located adjacent to the eastern boundary of the LTU.

17. Receiving Waters

The receiving waters are the ground waters of the Harper Valley Hydrologic Area of the Mojave Hydrologic Unit. The Department of Water Resources (DWR) designation for the Harper Valley Hydrologic Area is 628.42.

18. Lahontan Basin Plan

The Regional Board adopted a Water Quality Control Plan for the Lahontan Basin (Basin Plan), which became effective on March 31, 1995. This Order implements the Basin Plan.

19. Beneficial Ground Water Uses

The beneficial uses of the ground water of the Middle Mojave River Valley Ground Water Basin as set forth in the Basin Plan are:

- a. MUN - municipal and domestic supply;
- b. AGR - agricultural supply;
- c. IND - industrial supply;
- d. FRSH - freshwater replenishment; and
- e. AQUA - aquaculture.

20. Non-Degradation

In accordance with State Water Resources Control Board (SWRCB) Resolution No. 68-16 (*Statement of Policy with Respect to Maintaining High Quality of Waters in California*) and the Water Quality Control Plan for the Lahontan Region (Basin Plan) water degradation may be allowed if the following conditions are met: 1) any change in water quality must be consistent with maximum benefit to the people of the State; 2) will not unreasonably affect present and anticipated beneficial uses; and 3) will not result in water quality less than that prescribed in the Basin Plan; and 4) discharges must use the best practicable treatment or control to avoid pollution or nuisance and maintain the highest water quality consistent with maximum benefit to the people of the State.

The application of extracted ground water to irrigate crops will cause some TDS and nitrate degradation of the ground water consistent with the effects of crop irrigation observed

throughout the watershed. Within the capture zone of the ground water extraction system, nitrate concentrations range from less than 0.1 mg/L to a maximum of 62.2 mg/L. TDS for the same area ranges from 997 mg/L to a maximum of 3,884 mg/L. However, the nitrate degradation will be temporary and improve over time as more nitrate mass is removed from ground water by extraction than is added from percolation. The long-term nitrate concentration in ground water will be approximately 9.0 mg/L after eight years of the operation when the vadose zone water encounters the upper aquifer. At the same period of the operation, the estimated TDS concentration of 1,400 mg/L in the aquifer below the LTU is well within the tolerance ranges of crop grown in the area. The TDS degradation will be localized, minor and will not further adversely impact present or future beneficial uses of the ground water in the area. The LTU and the ground water extraction system are designed to implement equivalent of the Best Practicable Technology as required by SWRCB's Resolution No. 68-16. The long-term benefit of the project will result in removal of chromium and nitrate from the ground water. The TDS concentration of 1,400 mg/L in the ground water will still be suitable for crops expected to be grown in the area. Therefore, the resulting water quality from this project will be consistent with the SWRCB's Resolution No. 68-16.

21. Constituents of Concern

The Constituents of Concern (COCs) consist of total chromium Cr(T), hexavalent chromium Cr(VI), nitrate (as N) and TDS.

22. Water Quality Data Evaluation

A statistical method for evaluation of monitoring data is necessary for the earliest detection of a statistically significant evidence of a release of waste from the Facility. Title 27 requires statistical analysis. The Monitoring and Reporting Program includes a method for statistical analysis.

23. Detection Monitoring

A Detection Monitoring Program (DMP) is designed to monitor the ground water for evidence of a release. Pursuant to Sections 20385 and 20420, Title 27 CCR, the Discharger is required to submit a DMP. The DMP is described in the Monitoring and Reporting Program No. R6V-2004-0034.

24. Evaluation Monitoring

An Evaluation Monitoring Program (EMP) may be required, pursuant to Sections 20385 and 20425, Title 27 CCR, to evaluate evidence of a release, if detection monitoring and/or verification procedures indicate evidence of a release.

25. Corrective Action

A Corrective Action Program (CAP) to remediate released wastes from the Facility may be required pursuant to Sections 20385 and 20430, Title 27 CCR, should results of an EMP warrant a CAP.

26. Closure and Post-Closure Maintenance

Once the Facility is no longer in use, it shall be closed as a land treatment unit (LTU) under Section 21420 of Title 27 California Code of Regulations. This Order requires the Discharger to prepare: (a) discrete plans for initiating and completing closure and post-closure maintenance activities; and (b) lump sum estimates of the costs to carry out the actions specified in the plans.

27. Reasonably Foreseeable Release

Pursuant to Section 20080 (a)(a) of Title 27, the Discharger is required to provide financial assurance for remediation of a reasonably foreseeable release. This Order requires the Discharger to prepare: (a) a plan for initiating and completing corrective action for a known or reasonably foreseeable release from the facility; and (b) a lump sum estimate of the costs to carry out the actions necessary to perform the corrective action.

28. Financial Assurance

This Order requires that evidence of financial assurance be annually submitted to Board staff along with updated closure cost estimates. In accordance with Section 22510, Chapter 7, Title 27, California Code of Regulations, the Discharger shall provide for adequate funding to pay for the cost of closure, post-closure maintenance, and remediation of the reasonably foreseeable release.

29. California Environmental Quality Act

The Project is a new project under CEQA and is subject to the provisions of the CEQA (Public Resources Code, Section 21000 et seq.) in accordance with Title 14, Section 15301, CCR. The Regional Board is the lead agency for this project under the California Environmental Quality Act (Public Resources Code section 21000 et seq.).

An Initial Study describing the project was prepared by CH2M Hill on behalf of the Regional Board and PG&E. It was circulated under State Clearinghouse No. 2004051114 to satisfy CEQA with the Regional Board as Lead Agency. The Initial Study indicates the intent of the Regional Board to consider a Mitigated Negative Declaration.

In a public meeting on June 27, 2004, the Regional Board adopted a Resolution: certifying the Initial Study stating that the effects on the environment from the Project are not significant as mitigated; adopting a Mitigated Negative Declaration and a Mitigation Monitoring and Reporting Plan to satisfy CEQA; authorizing the Executive Officer to sign the Certificate of Fee Exemption and to transmit it to the California Department of Fish and Game in lieu of payment of the CDFG filing fee; and authorizing Regional Board staff to send a Notice of Determination to the State Clearinghouse.

The discharge described in these WDRs is consistent with the Negative Declaration and no new significant impacts are expected from the discharge allowed by these WDRs.

30. Notification of Interested Parties

The Regional Board has notified the Discharger and all known interested parties of its intent to adopt new WDRs for the project.

31. Consideration of Interested Parties

The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Discharger shall comply with the following:

I. DISCHARGE SPECIFICATIONS

A. Discharge Limitations

1. The discharge to the Facility shall be limited to the extracted ground water from the Project extraction wells at the Desert View Dairy.
2. The maximum volume of discharge to the LTU in the months of September through May shall not exceed 0.432 million gallons in a 24-hour period (mgd).
3. The maximum volume of discharge to the LTU in the months of June through August shall not exceed 0.648 mgd.

B. Receiving Water Limitation

The peak discharge from the LTU is not expected to reach the ground water for about eight years according to unsaturated zone transport predictions produced by the Discharger's consultants.

The discharge of waste shall not cause a violation of any applicable water quality standards with the exception of TDS and nitrate for receiving water adopted by the Regional Board or the State Water Resources Control Board (SWRCB). The discharge shall not cause the presence of the following substances or conditions in ground waters of the Middle Mojave River Valley Ground Water Basin.

The ground water quality, as a result of the discharge, shall not exceed the following:

1. Prior to September 1, 2012, TDS of 1,000 mg/L;
2. After September 1, 2012, TDS of 1,400 mg/L; and
3. The nitrate (as N) of 9.5 mg/L.

These limits are based on an average of all samples analyzed in a 12-month period.

4. Chemical Constituents - Ground waters shall not contain concentrations of chemical constituents (with the exception of TDS and nitrate) in excess of the maximum contaminant level (MCL) or secondary maximum contaminant level (SMCL) based upon drinking water standards specified in the following

provisions of Title 22 of the CCR (with the exception of TDS and nitrate): Table 64431-A of Section 64431 (Inorganic Chemicals), Table 64431-B of Section 64431 (Fluoride), Table 6444-A of Section 64444 (Organic Chemicals), Table 64449-A of Section 64449 (SMCLs - Consumer Acceptance Limits), and Table 64449-B of Section 64449 (SMCLs - Ranges). This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect. Waters designated as Agricultural Supply shall not contain concentrations of chemical constituents with the exception of TDS in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes).

Ground waters shall not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.

5. Radioactivity - Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life, or that result in the accumulation of radionuclides in the food chain to an extent that it presents a hazard to human, plant, animal, or aquatic life. Waters shall not contain concentrations of radionuclides in excess of limits specified in the CCR, Title 22, Chapter 15, Article 5, Section 64443.
6. Taste and Odors - Ground waters shall not contain taste or odor-producing substances other than from TDS in concentrations that cause nuisance or that adversely affect beneficial uses. For ground waters designated as Municipal or Domestic Supply at a minimum, concentrations shall not exceed adopted SMCLs specified in Table 64449-A of Section 64449 (SMCLs - Ranges), and Table 64449-B of Section 64449 (SMCLs - Ranges) of Title 22 of the CCR, including future changes as the changes take effect.
7. Any presence of toxic substances in concentrations that individually, collectively, or cumulatively cause detrimental physiological response in humans, plants, animals, or aquatic life is prohibited.
8. The presence of hexavalent chromium and total chromium in concentrations that statistically exceed background levels is prohibited.

C. Water Quality Protection Standard

1. Monitoring Parameters

The monitoring parameters for the Facility are: total chromium Cr(T), hexavalent chromium Cr(VI), nitrate (as N) and TDS.

2. Monitoring Points

The monitoring points for the Land Treatment Unit are the lysimeters located five and twenty feet below ground surface grade, as shown on Attachment "B", and random sampling points for near surface soil.

3. Point of Compliance

The point of compliance as defined in Section 20164, Title 27, California Code of Regulations (Title 27) for the land treatment unit for Cr(T) and Cr(VI) is a horizontal surface located five feet below ground surface grade. The discharge of Cr(T) and Cr(VI) from the bottom of the LTU cannot exceed the concentration limits established in the Section I.C.5 at the point of compliance.

4. Vadose Zone Evaluation Point

The predicted concentrations of nitrate and TDS in ground water as a result of the Project are presented in Finding 11. TDS and nitrate concentrations in the soil pore fluids below the LTU will be monitored at an evaluation point 20 feet below ground surface. Unsaturated zone transport calculations for this project indicate the soil pore water liquid will not exceed the following concentrations for the constituents indicated below.

<u>Monitoring Parameter</u>	<u>Matrix</u>	<u>Concentration Limit</u>	<u>Reporting Limit</u>	<u>Recommended Analytical Method</u>
Nitrate (as N)	Liquid ¹	75 mg/L	0.5 mg/L	EPA 300
Total Dissolved Solids (TDS)	Liquid ¹	20,000 mg/L	0.1 mg/L	EPA 160.1

If TDS and nitrate concentrations exceed the predicted values in the table below, the discharger shall begin evaluation monitoring to assess whether continued LTU operation will threaten ground water quality and if cessation of the LTU is required. The Discharger shall provide a report explaining the findings to the Regional Board.

5. Concentration Limits

The concentration limits for the monitoring parameters located at the monitoring points for the Facility are the following:

<u>Monitoring Parameter</u>	<u>Matrix</u>	<u>Concentration Limit</u>	<u>Reporting Limit</u>	<u>Recommended Analytical Method</u>
Hexavalent Chromium Cr(VI)	Liquid ²	0.021 mg/L ^{3,5}	0.001 mg/L	EPA 7199

¹ Soil pore liquid collected from lysimeters at 20 feet bgs

² Soil pore liquid collected from lysimeters at 5 feet bgs

³ USEPA Integrated Risk Information System (IRIS) Reference Dose as a Drinking Water Level

⁴ California Primary Maximum Contaminant Level (MCL)

⁵ Based on the 95% upper confidence limit (UCL) of the median value for all lysimeters per quarterly sampling event

⁶ USEPA Region IX 2002 Preliminary Remedial Goals (PRGs) for Residential Soil

Total Chromium Cr(T)	Liquid ²	0.05	mg/L ^{4,5}	0.005 mg/L	EPA 6020
Hexavalent Chromium Cr(VI)	Soil	30	mg/kg ⁶	0.2 mg/kg	EPA 3060A/7199
Total Chromium Cr(T)	Soil	210	mg/kg ⁶	0.2 mg/kg	EPA 3060A/7199

D. General Requirements and Prohibitions

1. Surface flow or visible discharge of waste to land surface, surface waters, or surface water drainage courses is prohibited.
2. The discharge shall not cause a pollution as defined in Section 13050 of the California Water Code (CWC), or a threatened pollution.
3. Neither the treatment nor the discharge shall cause a nuisance as defined in Section 13050 of the CWC.
4. The discharge of waste except to the authorized disposal site is prohibited.
5. The discharge of waste, as defined in the CWC, which causes a violation of any narrative water quality objective (WQO) contained in the Basin Plan including the Nondegradation Objective, with the exception of nitrate and TDS, is prohibited.
6. The integrity of the LTU shall be maintained throughout the life of Project, and shall not be diminished as a result of any maintenance operation.
7. The discharge of waste which, causes a violation of any numeric WQO contained in the Basin Plan, with the exception of nitrate and TDS, is prohibited.
8. Where any numeric or narrative WQO contained in the Basin Plan is already being violated, the discharge of waste which causes further degradation or pollution is prohibited.
9. The Discharger shall remove and relocate or otherwise mitigate any wastes, which are discharged not in accordance with these WDRs.
10. LTU and containment structures shall be designed and constructed to limit ponding, inundation, erosion, slope, failure, washout and overtopping which could be caused by a 100 year, 24-hour precipitation event.
11. Hazardous waste as defined under Article 1, Chapter 11, Division 4.5 (§66261.3 et seq.) of Title 22 CCR shall not be disposed and/or treated at the Facility.

12. The discharge to the ground of any chemicals stored in tanks at the Facility is prohibited.
13. At closure, the Facility shall be closed in accordance with a final Closure and Post-Closure Maintenance Plan approved by the Regional Board.
14. Verbal notification shall be made to the Regional Board within 24-hours whenever there is leachate containing chromium greater than the concentration limits, as established in the Monitoring and Reporting Program, detected below the five-foot treatment zone. A report containing written confirmation shall follow within 14 days of receipt of the last laboratory report(s). The report shall include the agencies contacted, date(s) that leachate was found in the lysimeters, corrective action taken, and measures taken to ensure a similar leachate event will be avoided.
15. Discharge of solid waste to the Facility is prohibited.
16. The Facility shall be delineated by using at least four permanent markers certified by a California Registered Land Surveyor or a Civil Engineer to define the area containing extracted ground water undergoing treatment.
17. If either the presence of hexavalent chromium or total chromium is detected at a level exceeding the concentration limits established in the Monitoring and Reporting Program in the native soil beneath the five-foot treatment zone, the Discharger shall immediately cease using the LTU and begin evaluation monitoring.

E. Required Programs

The Discharger shall conduct a monitoring and response program pursuant to Section 20385 of Title 27 for the Facility as follows.

1. Detection Monitoring Program

The Discharger shall maintain a Detection Monitoring Program (DMP) under Section 20420 of Title 27 as required in Section 20385(a)(1) of Title 27.

2. Evaluation Monitoring Program

The Discharger shall establish an Evaluation Monitoring Programs (EMP) under Section 20425 of Title 27 as required in Sections 20385(a)(2) or 20385(a)(3) of Title 27 whenever there is evidence of a release from the Facility.

3. Corrective Action Program

The Discharger shall institute a Corrective Action Program (CAP) under Section 20430 of Title 27 when required pursuant to Section 20385(a)(4) of

Title 27.

II. PROVISIONS

A. Standard Provisions

The Discharger shall comply with the "Standard Provisions for Waste Discharge Requirements," dated September 1, 1994, in Attachment "D," which is made a part of this Order.

B. Monitoring and Reporting

1. Pursuant to California Water Code Section 13267(b), the Discharger shall comply with Monitoring and Reporting Program No. R6V-2004-0034 as specified by the Executive Officer.
2. The Discharger shall comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made part of the Monitoring and Reporting Program.

C. Closure and Post-Closure Maintenance Plan

The preliminary closure and post-closure maintenance plan shall be updated if there is a substantial change in operations or a substantial change in costs for closure. A report shall be submitted annually indicating conformance with existing operations. The report indicating conformance with existing operations may be included in the annual report required in the Monitoring and Reporting Program. A final plan shall be submitted at least 180 days prior to beginning any partial or final closure activities or at least 120 days prior to discontinuing the use of the site for waste treatment, storage or disposal, whichever is greater. The final plan shall be prepared by or under the supervision of either a California Certified Engineering Geologist or a California Registered Civil Engineer.

D. Financial Assurance

Beginning with the first Annual Report, the Discharger shall annually submit reports, prepared by or under the supervision of either a California Certified Engineering Geologist or a California Registered Civil Engineer, providing evidence that adequate financial assurance pursuant to the requirements of the WDRs has been provided for closure, post-closure, and for potential releases. Evidence shall include the total amount of money available in the fund developed by the Discharger. In addition, the Discharger shall either provide evidence that the amount of financial assurance is still adequate or revise the amount of financial assurance by the appropriate amount. An increase may be necessary due to inflation, a change in regulatory requirements, a change in the approved closure plan, or other unforeseen events.