

AP - 46

STAGE 2 REPORTS

DATE:

July 30, 2009

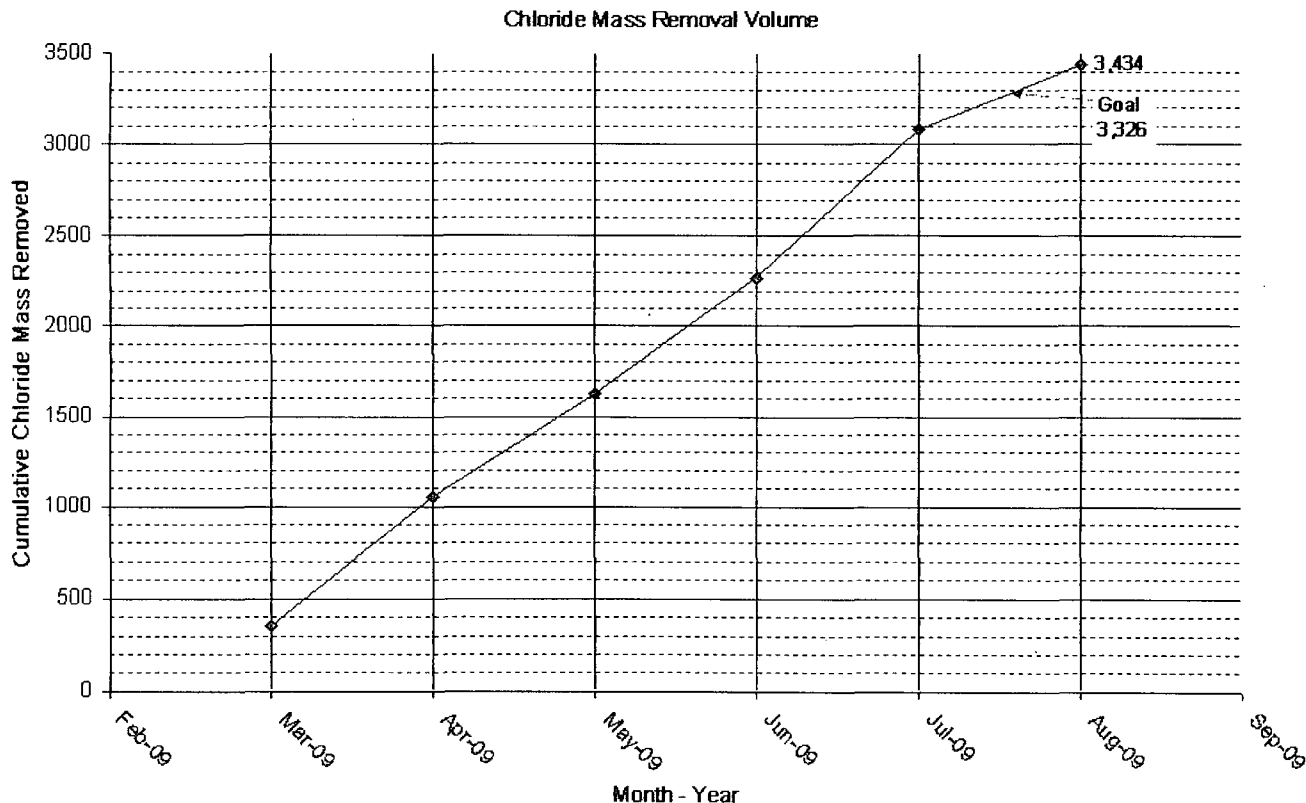
From: "Gil Van Deventer" <gilbertvandeventer@suddenlink.net>
 To: "Hansen, Edward J., EMNRD" <edwardj.hansen@state.nm.us>
 Cc: "Katie Jones" <kjones@riceswd.com>; "Haskell Conder" <hconder@riceswd.com>; "Buddy Hill" <larry.hill@state.nm.us>; "Geoffrey Leking" <GeoffreyR.Leking@state.nm.us>
 Sent: Wednesday, August 19, 2009 11:02 AM
 Attach: Lab 8.3.09 K-6.pdf
 Subject: EME Jct. K-6 Site (AP-46) - Termination Request

Attention: Edward Hansen, New Mexico Oil Conservation Division - Environmental Bureau
 Subject: Termination Request
 Site Name: EME Jct. K-6 Site (AP- 46)
 Site Agent: RICE Operating Company (ROC) Site
 Location: T20S-R37E-Section 6, Unit Letter K, Lea County, New Mexico

Greetings Edward:

In accordance with the Stage 2 Final Report and Termination Request submitted to you on July 30, 2009, the following is an update of the completed chloride removal program which has been performed at the above-referenced site.

As of August 13, 2009, a total of 83,065 gallons (1,978 barrels) of groundwater with an average chloride concentration of 10,920 mg/L has been recovered at the site. The most recent laboratory analytical results for the groundwater recovered from recovery well RW-1 are attached. The groundwater recovered at this site has resulted in the removal of 3,434 kg of chlorides. As stated in the NMOCD-approved Stage 2 Abatement Plan, the goal of groundwater recovery was to remove 3,326 kg of chloride mass. The graph below depicts the cumulative chloride mass removed at the site since recovery operations began on February 18, 2009.



ROC is the service provider (agent) for the EME SWD System and has no ownership of any portion of pipeline, well, or facility. The EME SWD System is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

ROC has met all abatement requirements in accordance with 19.15.30 NMAC, and respectfully requests closure/termination of the regulatory file for this site. Approval of this request will allow ROC to re-mobilize the groundwater recovery system to the next available site in the Monument area and continue the success of their chloride mass removal program. If you have any questions, please contact me at (432) 638-8740 or Hack Conder at (575) 393-9174.

Thanks - Gil

Gilbert J. Van Deventer, PG, REM
Trident Environmental
P. O. Box 7624, Midland TX 79708
Work/Mobile: 432-638-8740
Fax: 413-403-9968
Home: 432-682-0727

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ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 W. TAYLOR STREET
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 08/03/09
Reporting Date: 08/05/09
Project Number: NOT GIVEN
Project Name: RW-1
Project Location: EME K-6

Sampling Date: 08/03/09
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: HM

LAB NUMBER SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (μ S/cm)	T-Alkalinity (mgCaCO ₃ /L)
ANALYSIS DATE:	08/04/09	08/04/09	08/04/09	08/04/09	08/04/09	08/04/09
H17914-1 RW-1	7,200	962	340	21.6	29,200	480
Quality Control	NR	49.7	51.5	2.95	1,426	NR
True Value QC	NR	50.0	50.0	3.00	1,413	NR
% Recovery	NR	99.4	103	98.3	101	NR
Relative Percent Difference	NR	< 0.1	1.9	0.3	0.6	NR

METHODS:	SM3500-Ca-D	3500-Mg E	8049	120.1	310.1
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	Cl (mg/L)	SO ₄ (mg/L)	CO ₃ (mg/L)	HCO ₃ (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:	08/04/09	08/04/09	08/04/09	08/04/09	08/04/09	08/04/09
H17914-1 RW-1	10,800	3,640	0	586	6.74	23,900
Quality Control	500	38.5	NR	1000	7.03	NR
True Value QC	500	40.0	NR	1000	7.00	NR
% Recovery	100	96.3	NR	100	100	NR
Relative Percent Difference	< 0.1	3.7	NR	3.7	0.1	9

METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1
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Chemist

Date

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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CERTIFIED MAIL
RETURN RECEIPT NO. 7099 3400 0017 1759

July 30, 2009

Mr. Edward Hansen
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87504

RECEIVED 000
2009 AUG -3 P 1:03

**RE: Stage 2 Final Report and Termination Request
EME Jct. K-6 Site (AP-46)
T20S-R37E-Section 6, Unit Letter K
Lea County, New Mexico**

Mr. Hansen:

On behalf of Rice Operating Company (ROC), Trident Environmental (Trident) is submitting this Stage 2 Final Report and Termination Request for the above-referenced site in accordance with 19.15.29 NMAC. This report documents the completion of abatement actions which were performed in accordance with the NMOCD-approved Stage 2 Abatement Plan.

A four-inch diameter recovery well (RW-1) was installed at the site on October 9, 2008 (Attachment A) and groundwater recovery operations were initiated on February 18, 2009. The groundwater recovery system consists of the following major components:

- A solar-powered submersible pump installed in RW-1,
- Three 3,000 gallon (gal) polyethylene bulk storage tanks,
- One 1,200 gal. water tank for reverse osmosis-treated water
- One 1,200 gal. water tank and a 200 gal. trough for livestock watering
- Plastic-lined earthen berm for secondary containment
- Associated polyethylene piping, valves, metering devices, and telemetry

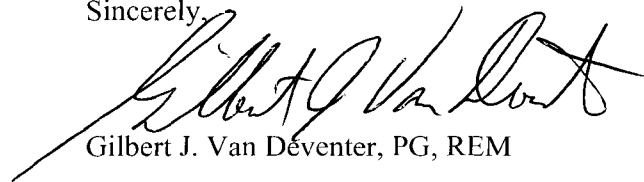
Stage 2 Final Report and Termination Request
EME Jct. K-6 Site (AP-46)
T20S-R37E - Section 6, Unit Letter K

Photographs of the groundwater recovery system are included in Attachment B. A total of 67,872 gallons (1,616 barrels) of water and 2,813 kg of chlorides were recovered from the well over a five month period. Recovered groundwater was either utilized for pipeline maintenance or treated with a reverse osmosis system and pumped to a livestock watering tank located approximately 650 ft east of the groundwater recovery system within the right-of-way. During groundwater recovery operations, four groundwater recovery samples were collected for laboratory analysis of chloride concentrations (Attachment C) which averaged 10,950 mg/L. An estimated 1,853 bbls will need to be removed in order to remove a chloride mass of 3,326 kg. The remaining 237 bbls will be removed by mid August. NMOCD will receive an email notification when the appropriate number of barrels has been removed. A site map with the most recent sampling results is depicted in Figure 1.

As stated in the approved Stage 2 Abatement Plan, the goal of groundwater recovery was to remove 3,326 kg of chloride mass which will be achieved in mid August. In addition, the healthy growth of native vegetation has been established as documented in Attachment B. In mid August, when all abatement requirements have been met in accordance with 19.15.30 NMAC, ROC respectfully requests closure/termination of the regulatory file for this site.

Thank you for your consideration concerning this final report and request for site termination. If you have any questions, please contact me at (432) 638-8740 or Hack Conder at (575) 393-9174.

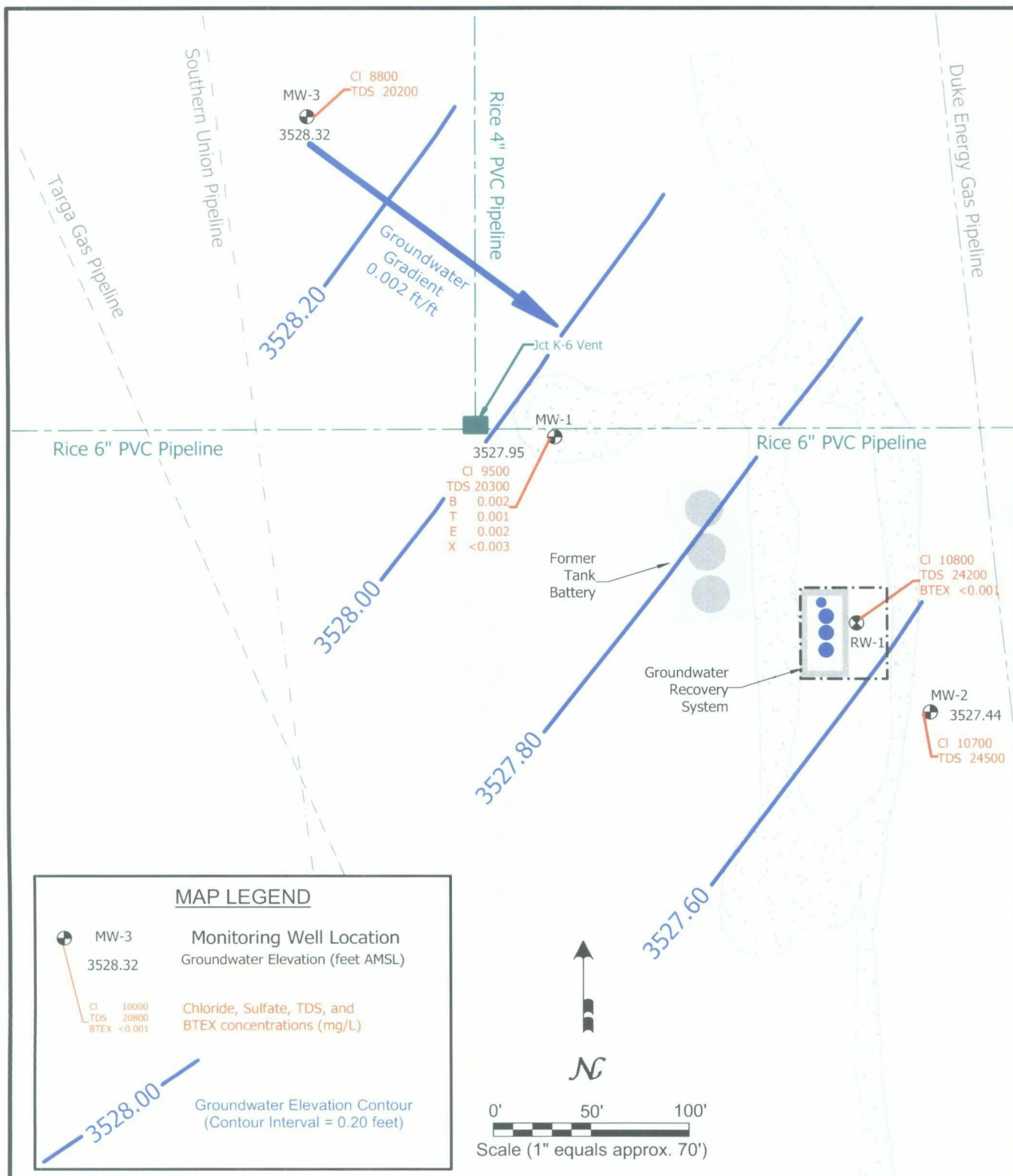
Sincerely,



Gilbert J. Van Deventer, PG, REM

Attachments (site map, well diagram, photo documentation, laboratory reports)

cc: Hack Conder (ROC)
Brad Jones (NMOCD Santa Fe)
Buddy Hill (NMOCD-District 1)



EME Jct. K-6 Site (AP-46)
T20S - R37E - Section 6 - Unit K
RICE Operating Company

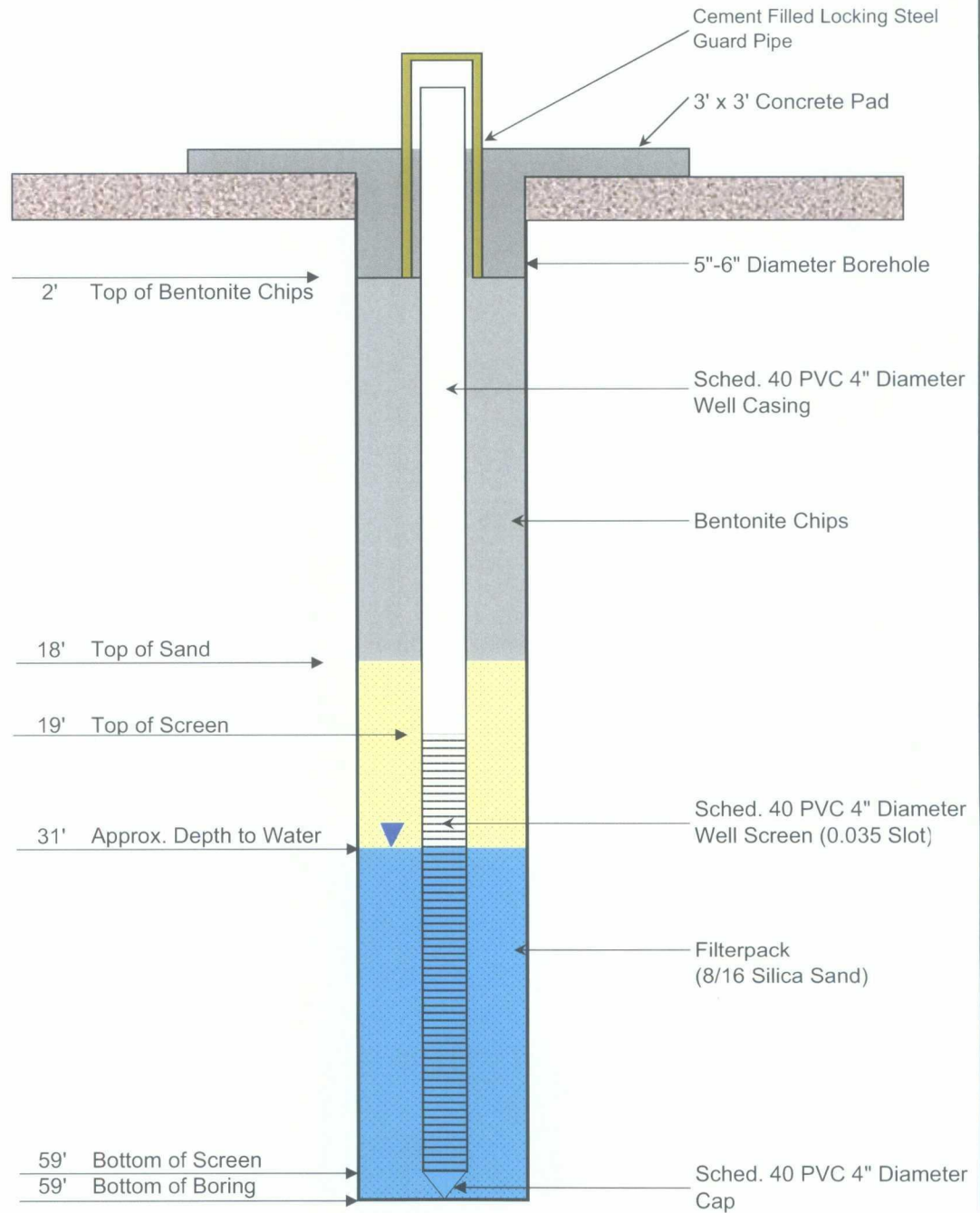
FIGURE 1
GROUNDWATER GRADIENT AND
CHLORIDE, TDS, & BTEX
CONCENTRATION MAP
MAY 14, 2009

ATTACHMENT A

Recovery Well Construction Diagram

RECOVERY WELL (RW-1) CONSTRUCTION DIAGRAM

(Not to Scale)



Client:	Rice Operating Company
Site Name:	EME Jct. K-6 Site (AP-46)
Completion Date:	October 9, 2008
On Site Geologist:	Gil Van Deventer

Recovery Well (RW-1)
Construction Diagram

ATTACHMENT B

Photo Documentation

(Groundwater Recovery System and Vegetation Restoration)

Stage 2 Final Report and Termination Request
EME Jct. K-6 Site (AP-46)
T20S-R37E - Section 6, Unit Letter K



View facing northwest showing groundwater recovery system at RW-1



View facing west showing livestock water tank and trough in foreground and groundwater recovery system in background.

Stage 2 Final Report and Termination Request
EME Jct. K-6 Site (AP-46)
T20S-R37E - Section 6, Unit Letter K



View facing south showing healthy growth of native vegetation.



View facing east showing healthy growth of native vegetation.

ATTACHMENT C

Laboratory Analytical Reports
And
Chain of Custody Documentation



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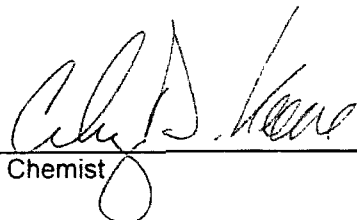
ANALYTICAL RESULTS FOR
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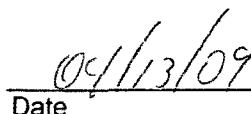
Receiving Date: 04/09/09
Reporting Date: 04/13/09
Project Number: NOT GIVEN
Project Name: EME K-6
Project Location: NOT GIVEN

Analysis Date: 04/13/09
Sampling Date: 04/09/09
Sample Type: GROUNDWATER
Sample Condition: INTACT
Sample Received By: ML
Analyzed By: TR

LAB NO.	SAMPLE ID	Cl ⁻ (mg/L)
H17226-1	EME K-6	10,900
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		<0.1

METHOD: Standard Methods	4500-ClB
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Chemist


Date

H17226 RICE

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(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

BILL TO										ANALYSIS REQUEST														
Company Name: <u>Rice Operating Co</u>										<div style="border: 1px solid black; height: 100px; width: 100%;"></div>														
Project Manager: <u>Hack Conder</u>																								
Address: <u>1822 W. Taylor</u>																								
City: <u>Hobbs</u> State: <u>NM</u> Zip: <u>88240</u>																								
Phone #: <u>575/393-9174</u> Fax #: <u>575/397-1471</u>																								
Project #: _____ Project Owner: _____																								
Project Name: <u>EME K-6</u>																								
Project Location: _____																								
Sampler Name: <u>Noel Carmona</u>																								
FOR LAB USE ONLY																								
<div style="display: flex; justify-content: space-around;"> <div>Lab I.D.</div> <div>Sample I.D.</div> </div>										<div style="display: flex; justify-content: space-between;"> <div> <div style="border: 1px solid black; padding: 2px;"># CONTAINERS</div> <div style="border: 1px solid black; padding: 2px;">(G) RAB OR (COMP.</div> </div> </div>					<div style="display: flex; justify-content: space-between;"> <div> <div style="border: 1px solid black; padding: 2px;">GROUNDWATER</div> <div style="border: 1px solid black; padding: 2px;">WASTEWATER</div> <div style="border: 1px solid black; padding: 2px;">SOIL</div> <div style="border: 1px solid black; padding: 2px;">OIL</div> <div style="border: 1px solid black; padding: 2px;">SLUDGE</div> <div style="border: 1px solid black; padding: 2px;">OTHER:</div> </div> <div> <div style="border: 1px solid black; padding: 2px;">ACID/BASE:</div> <div style="border: 1px solid black; padding: 2px;">ICE / COOL</div> <div style="border: 1px solid black; padding: 2px;">OTHER:</div> </div> </div>					<div style="display: flex; justify-content: space-between;"> <div> <div style="border: 1px solid black; padding: 2px;">PRESERV</div> <div style="border: 1px solid black; padding: 2px;">SAMPLING</div> </div> </div>				
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ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 WEST TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397-1471

Sampling Date: 05/14/09
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: HM

Cheryl Kane
Chemist

H17442 RICE

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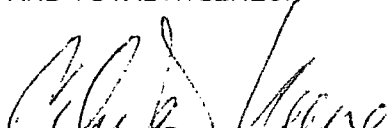
Receiving Date: 05/15/09
Reporting Date: 05/21/09
Project Number: NOT GIVEN
Project Name: EME JUNCTION K-6
Project Location: T20S-R37E-SEC6 K~ LEA CO., NM

Sampling Date: 05/14/09
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: ZL

LAB NUMBER	SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE		05/20/09	05/20/09	05/20/09	05/20/09
H17442-1	MONITOR WELL #1	0.002	0.001	0.002	<0.003
H17442-4	RECOVERY WELL #1	<0.001	<0.001	<0.001	<0.003
Quality Control		0.044	0.057	0.050	0.150
True Value QC		0.050	0.050	0.050	0.150
% Recovery		88.0	114	100	100
Relative Percent Difference		5.3	8.2	8.9	7.5

METHOD: EPA SW-846 8021 B

TEXAS NELAP ACCREDITATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE,
AND TOTAL XYLENES.


Chemist

05/22/09
Date

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ATTN: HACK CONDER
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HOBBS, NM 88240
FAX TO: (575) 397-1471

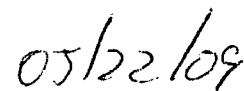
Receiving Date: 05/21/09
Reporting Date: 05/22/09
Project Number: NOT GIVEN
Project Name: RW-1
Project Location: EME K-6

Analysis Date: 05/22/09
Sampling Date: 05/21/09
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: AB
Analyzed By: HM

LAB NO.	SAMPLE ID	Cl ⁻ (mg/L)
H17479-1	RW-1	10,700
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Difference		2.0

METHOD: Standard Methods	4500-Cl ⁻ B
--------------------------	------------------------


Chemist


Date

H17479 RICE

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Company Name: Rice Operating Co.
Project Manager: H. C. C.

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 W. TAYLOR STREET
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 06/12/09
Reporting Date: 06/19/09
Project Number: NOT GIVEN
Project Name: RW-1 WELL
Project Location: EME K-6

Sampling Date: 06/12/09
Sample Type: GROUNDWATER
Sample Condition: INTACT
Sample Received By: ML
Analyzed By: AB/CK/HM

LAB NUMBER SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (μ S/cm)	T-Alkalinity (mgCaCO ₃ /L)
ANALYSIS DATE:	06/19/09	06/18/09	06/18/09	06/19/09	06/16/09	06/16/09
H17622-1 RW-1 WELL	7,460	1,160	364	23.8	36,200	492
H17622-2 RW-1 RO	70	3.2	1.9	1.2	395	12
Quality Control	NR	49.7	52.5	2.46	1,410	NR
True Value QC	NR	50.0	50.0	3.00	1,413	NR
% Recovery	NR	99.4	105	82.0	99.7	NR
Relative Percent Difference	NR	3.3	2.8	12.2	0.1	NR

METHODS:	SM3500-Ca-D	13500-Mg E	8049	120.1	310.1
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	Cl (mg/L)	SO ₄ (mg/L)	CO ₃ (mg/L)	HCO ₃ (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:	06/15/09	06/15/09	06/16/09	06/16/09	06/16/09	06/17/09
H17622-1 RW-1 WELL	11,500	3,790	0	600	6.73	24,600
H17622-2 RW-1 RO	112	< 10	0	14.6	6.26	194
Quality Control	490	38.8	NR	1000	7.07	NR
True Value QC	500	40.0	NR	1000	7.00	NR
% Recovery	98.0	97.1	NR	100	101	NR
Relative Percent Difference	2.0	2.3	NR	1.2	0.7	3.2

METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1
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Chemist

Date

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101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

BILL TO										ANALYSIS REQUEST									
Company Name: <u>Rice Operating Co.</u>										P.O. #:									
Project Manager: <u>Hack Conder</u>										Company:									
Address: <u>122 W. Taylor</u>										Attn:									
City: <u>Hobbs</u>										Address:									
Phone #: <u>575-393-9174</u>										City:									
State: <u>NM</u>										State:									
Zip: <u>88240</u>										Zip:									
Phone #: <u>575-393-9174</u>										Phone #:									
Fax #: <u>575-393-9174</u>										Fax #:									
Project Owner: <u>Eme H-6</u>										Project Name: <u>RW-1 well</u>									
Project Location: <u>Eme H-6</u>										Project Location: <u>Eme H-6</u>									
Sampler Name: <u>Noel Carmone</u>										Sampler Name: <u>Noel Carmone</u>									
FOR LAB USE ONLY										FOR LAB USE ONLY									
Lab I.D.										Lab I.D.									
Sample I.D.										Sample I.D.									
H17022-1										H17022-1									
-2										-2									
Date: <u>6-12-09</u>										Date: <u>6-12-09</u>									
Time: <u>11:59 AM</u>										Time: <u>11:59 AM</u>									
Relinquished By: <u>[Signature]</u>										Relinquished By: <u>[Signature]</u>									
Date: <u>6-12-09</u>										Date: <u>6-12-09</u>									
Time: <u>5:00</u>										Time: <u>5:00</u>									
Relinquished By: <u>[Signature]</u>										Relinquished By: <u>[Signature]</u>									
Date: <u>6-12-09</u>										Date: <u>6-12-09</u>									
Time: <u>5:00</u>										Time: <u>5:00</u>									
Delivered By: (Circle One)										Delivered By: (Circle One)									
Sampler - UPS - Bus - Other:										Sampler - UPS - Bus - Other:									

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Received By: [Signature] Date: 6-12-09 Time: 5:00

Received By: [Signature] Date: 6-12-09 Time: 5:00

Delivered By: (Circle One) UPS

Sampler - UPS - Bus - Other: UPS

Phone Result: ☐ Yes ☐ No Fax Result: ☐ Yes ☐ No Add'l Phone #: 575-393-9174 Add'l Fax #: 575-393-9174

REMARKS: Email hconder & ncarmone
kevinheimer
@ Rice SWD, com



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PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 W. TAYLOR STREET
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 07/01/09
Reporting Date: 07/08/09
Project Number: NOT GIVEN
Project Name: R-W-1 WELL
Project Location: EME K-6

Sampling Date: 07/01/09
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: HM

LAB NUMBI SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (μ S/cm)	T-Alkalinity (mgCaCO ₃ /L)
ANALYSIS DATE:	07/08/09	07/07/09	07/07/09	07/07/09	07/06/09	07/06/09
H17739-1 RW-1 WELL	7,190	942	377	28.6	28,300	500
Quality Control	NR	49.7	52.5	2.46	1,412	NR
True Value QC	NR	50.0	50.0	3.00	1,413	NR
% Recovery	NR	99.4	105	82.0	99.9	NR
Relative Percent Difference	NR	3.3	2.8	12.2	0.3	NR

METHODS:	SM3500-Ca-D	3500-Mg E	8049	120.1	310.1
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	Cl (mg/L)	SO ₄ (mg/L)	CO ₃ (mg/L)	HCO ₃ (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:	07/06/09	07/07/09	07/06/09	07/06/09	07/06/09	07/06/09
H17739-1 RW-1 WELL	10,700	3,850	0	610	6.58	23,900
Quality Control	490	38.8	NR	964	7.02	NR
True Value QC	500	40.0	NR	1000	7.00	NR
% Recovery	98.0	97.1	NR	96.4	100	NR
Relative Percent Difference	2.0	4.0	NR	3.7	0.3	0.3

METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1
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Chemist

Date

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