District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Form C-141 Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

	Release Notification and Corrective Action											
						OPERA:	ror			✓ Initia	al Report	Final Report
Name of Co		Rice Opera				Contact		олу (Grieco			
Address		aylor St., H		1 88240		Telephone 1			393-91			
Facility Nar	ne Pipeli	ne (Justis P	2 Leak)			Facility Typ	<u>e</u>	Salt V	Water	Gathering	System	
Surface Ow	ner:	George Wil	lis	Mineral C	wner:	Stat	8			API No	30.025	24761
			ı	LOCA	TION	OF RE	LEASE					
Unit Letter	Section	Township	Range	Feet from the		South Line	Feet from t	he	East/V	est Line	County	
I, P	2	258	37E								Lea	
L	L	Lati	tude_N3	2 *0 9*21.55931	Lo	ngitude <u>V</u>	103*07'39	.5200	01 (M	AD 83)	WTI	250
				NAT	URE	OF RELI	EASE		-	MD (PACC APPROX	LOOBB
Type of Relea	asc P	roduced Wat	er .				Release 17	bbl	7		Recovered 15 bb	
Source of Re	lease I	Pipeline				Date and H Unknown	our of Occu	rrence	;	Date and 11/10/0	Hour of Discovery 9 9:00 am	
Was Immedia	te Notice C			_		If YES, To						
				No Not Re	equired		son, OCD, H					
By Whom?			ice Opera	ting		Date and H			12:30		·····	
Was a Water	ourse Reac		Yes 🏻	No		If YES, Vo	lume Impact	ing th	ic Wate	rcourse.		
If a Watercou	rse was Im	pacted, Descr	ibe Fully.			<u> </u>						
Describe Cau Pipeline was				Taken.* ions. The broken	segmen	t of line has	een replace	d as a	ретпал	ent repair.		
a crew was so surface soil w	ere affected ant to repair vill be excar	, consisting o the line, and rated on Nove	f unvegeta a water tu mber 16, 1	ted areas related to tck was dispatche	d to rem	ove and prop	erly dispose	of flui	ids. A	one-call ha	. After the leak wa as been made and in nd a final C141 rep	npacted
regulations al public health should their o	l operators or the envi operations h nment. In a	are required to connent. The ave failed to a ddition, NMC	o report ar acceptant adequately CD accep	nd/or file certain r to of a C-141 repo investigate and r	elease no ort by the emediate	otifications a NMOCD m contaminati	nd perform c arked as "Fin on that pose	orrecti nal Re a thre	ive acti port" d at to gr	ons for rele ses not reli ound water	suant to NMOCD re eases which may en ieve the operator of r, surface water, hur ompliance with any	danger liability nan health
Signature:	Th.						OILC	OME	ERV	ATION	DIVISION	
Printed Name	: Tony G	ricco			1	Approved by	District Sup	TYP	<u> 100</u>	MENT	AL ENGINE	ER
Title: Enviro	nmental Te	ch				Approval Dat	e: 5.6.	10		expiration	Date: 7.6.16	S
E-mail Addre	ss: tgricc	@riceswd.co	om			Conditions of	Approval:				Attached	
Date: 11/	12/09	Pho	ne: (575)	393-9174		SUBMIT F	whe C.	141	u D	०८५ हुन	175 Pet 10.5.	2508

* Attach Additional Sheets If Necessary

... 1

Figure 2

AAO- PLUTIOI 5533791





April 28, 2010

Mr. Larry Johnson

New Mexico Energy, Minerals, & Natural Resources Oil Conservation Division, Environmental Bureau 1625 N. French Drive Hobbs, New Mexico 88240 RECEIVED

APR 2 9 2019

HOBBSOCD

RE: Rice Operating Company
Justis P-2 Leak
INVESTIGATION REPORT AND REMEDIATION WORK PLAN
Unit Letters I & P, Sec. 2, T25S, R37E
Lea County, New Mexico

Mr. Johnson,

RICE Operating Company (ROC) has retained Crain Environmental to address potential environmental concerns at the above-referenced site in the Justis SWD system. ROC is the service provider (operator) for the Justis System and has no ownership of any portion of the pipeline, well, or facility. The system is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage/usage basis. Environmental projects of this nature require System Party AFE approval prior to work commencing at the site. In general, project funding is not forthcoming until NMOCD approves the work plan. Therefore, your timely review of this submission is greatly appreciated.

Background and Previous Work

The site is located approximately 5 miles northeast of Jal, New Mexico in Unit Letters I & P, Sec. 2, T25S, R37E as shown on the Site Location Map (Figure 1). NM OSE records indicated that groundwater would likely be encountered at a depth of approximately 83 feet.

On November 10, 2009, ROC discovered an accidental discharge of approximately seventeen barrels of produced water released from a point within 30 ft of the eliminated Justis P-2 vent junction box. Fifteen barrels of fluid were recovered and properly disposed. The line was permanently repaired on November 10, 2009. ROC submitted an initial C-141 on November 13, 2009 (Figure 2).

Initial soil sampling conducted on November 10, 2009 indicated approximately 6,736 square feet of surface was affected in Unit Letters I and P based on chloride field tests and visual observation. On November 16, 2009, a backhoe was used to collect samples at three sampling points confirming elevated chloride concentrations in Vertical 1 and Vertical 2 to a depth of 7 ft below ground surface (BGS). Additionally, approximately 12 cubic yards of damp soil was scraped from the area surrounding the Vertical 1 location and hauled to an NMOCD approved disposal facility. Imported soil was brought on site to replace scraped soil. A site map showing the field sampling results and the scraped area is shown in Figure 3. Appendix A provides laboratory data and chain of custody documentation.

2925 East 17th Street, Odessa, TX 79761

Phone: (432) 530-9797 Fax: (432) 272-0304

Mr. Larry Johnson Page 2 April 28, 2010

ROC submitted an Investigation & Characterization Plan (ICP) to the NMOCD on March 10, 2010, proposing additional investigative work of the site to determine if there is potential for groundwater degradation from residual chlorides and/or hydrocarbons.

Recent Investigation

In order to assess the horizontal and vertical limits of the spill, ROC installed seven (7) soil borings (SB-2 through SB-8) and one (1) monitoring well (MW-1) at the site on March 15, 16 and 17, 2010. The borings and monitoring well were installed using an air rotary drilling rig operated by Harrison & Cooper, Inc., of Lubbock, Texas.

Soil samples from the exploratory borings and the monitoring well installation were collected in five foot intervals from the ground surface to a depth of approximately 80 feet below ground surface (bgs) in borings SB-2 and SB-6, a depth of 75 feet bgs in boring SB-3, a depth of 20 feet bgs in borings SB-4, SB-5 and SB-7, and a depth of approximately 55 feet bgs in boring SB-8. Soil samples were collected from the monitoring well installation (MW-1) from the ground surface to a depth of 70 feet bgs. Samples from each boring (to a depth of 20' bgs) were collected using a split spoon sampling device. Samples from each boring, at depths greater than 20' bgs, were collected via cuttings from drilling. All soil borings were plugged with bentonite. Figure 4 shows the locations of the soil borings and the monitoring well. Appendix B provides soil boring and monitoring well logs. Appendix C provides photographs on soil boring and monitoring well installations.

The soil samples from borings SB-2 through SB-8 and monitoring well (MW-1) were labeled and sealed in plastic bags for headspace analysis. The headspace samples were allowed to reach ambient temperature before a RAE Instruments, Model 2000 photoionization detector (PID) was used to measure the concentration of organic vapors in the headspace of the sample container. The PID probe was inserted into the plastic bag, and the concentration of organic vapors was displayed by the instrument in parts per million (ppm). A portion of each sample was reserved for field chloride testing and possible laboratory submission. The Field Chloride Analyses and PID readings are shown on Table 1, as well as the Soil Boring Logs included in Appendix B.

Two (2) samples from each soil boring (SB-2 through SB-8) and from the monitoring well (MW-1) installation were placed in clean glass sample jars, labeled, and delivered under chain-of-custody control to Cardinal Laboratories (Cardinal), located in Hobbs, New Mexico, where they were analyzed for total petroleum hydrocarbons (TPH) by EPA Method SW-846 8015 M, extended for Gasoline Range Organics (GRO) and Diesel Range Organics (DRO), and chlorides by EPA method 4500 Cl⁻B. As all PID readings were less than 100 ppm, samples were not analyzed for benzene, toluene, ethylbenzene and xylenes (collectively referred to as BTEX). The samples submitted to Cardinal were chosen based on the highest field chloride result and the deepest sample collected from each boring. Table 1 presents a summary of the laboratory analysis of soil samples. Laboratory analysis and chain of custody documentation are included in Appendix A.

Referring to Table 1, all TPH concentrations were reported less than the test method detection limit. Chloride concentrations were reported above 250 mg/kg in the uppermost sample

Mr. Larry Johnson Page 3 April 28, 2010

from each boring, but were reported less than 250 mg/kg in the deepest sample collected from borings SB-3 (176 mg/kg at 75' bgs), SB-4 (112 mg/kg at 20' bgs), SB-5 (32 mg/kg at 20' bgs), SB-7 (32 mg/kg at 20' bgs), SB-8 (64 mg/kg at 55' bgs), and MW-1 (48 mg/kg at 70' bgs). The chloride concentrations in the deepest samples (80 feet bgs) collected from soil borings SB-2 and SB-6 (672 mg/kg and 512 mg/kg, respectively) were above 250 mg/kg, but were greatly decreased from the chloride concentration reported in shallower sample from those borings (3,520 mg/kg and 1,650 mg/kg, respectively).

The monitoring well MW-1 was drilled to a depth of approximately 87 feet bgs and constructed with 2-inch diameter schedule 20 PVC casing and screen. Twenty feet of well screen was placed in the well, with approximately 15 feet of screen extending into groundwater, and 5 feet extending above groundwater. Silica sand was placed around the well screen to about 2 feet above the screen. A layer of bentonite pellets, approximately 3 feet thick, was placed over the sand, and hydrated with potable water.

On April 10, 2010, depth to groundwater was measured at 77.46 feet bgs. The well was developed until fine-grained sediments disturbed during drilling were removed, and the water was clear. Approximately 30 gallons of water were removed from the well.

On April 11, 2010 a groundwater sample was collected from monitoring well MW-1 for laboratory analysis. The sample was carefully poured into laboratory prepared containers, labeled, chilled in an ice chest and delivered to Cardinal, where it was analyzed for chloride, SO₄, and total dissolved solids (TDS). The laboratory reported a chloride concentration of 760 milligrams per liter (mg/L), an SO₄ concentration of 90.7 mg/L, and a TDS concentration of 1,740 mg/L in the groundwater sample. Appendix A provides the laboratory documentation.

Conclusions

It was reported in the initial C141, that approximately 17 barrels (bbl) of produced water was released at the site. ROC personnel were onsite when the leak occurred and immediately called a vacuum truck to recover as much fluid as possible. It was reported that 15 bbl were removed from the site. The horizontal limits of the spill were also immediately mapped by ROC personnel.

Initial and subsequent investigations have led to the conclusion that the majority of the chloride impact at the site possibly originated from the Justis P-2 vent, located immediately west of the Justis P-2 leak origination point. One groundwater monitoring well (MW-1) has been installed at the site in order to observe the chloride concentration in groundwater at the site. Sample results report a concentration of 760 mg/L.

ROC does not believe that the groundwater impact is a result of the Justis P-2 leak, and it is unknown at this time if the impact is from the Justis P-2 vent. An Investigation and Characterization Plan (ICP) was submitted to Mr. Edward Hansen (NMOCD – Santa Fe) on March 8, 2010. The **Recent Investigation**, detailed in this report, also serves as the **Recent Investigation** for the Justis P-2 vent site. As there was a chloride impact to groundwater, further

Mr. Larry Johnson Page 4 April 28, 2010

groundwater investigation and soil remediation in the vicinity of soil borings SB-2, SB-5 and SB-6 will be conducted under the Justis P-2 vent ICP.

Proposal

Rice Operating Company proposes to excavate an approximately 25' x 25' area of soil in the vicinity of soil boring SB-3 to a depth of approximately five (5) feet below ground surface (bgs). Soil will be scraped from all other areas of the spill (north and south of the SB-3 location) to a depth of approximately six (6) inches to one (1) foot bgs. The spill area located west of boring SB-3 will be addressed in the remediation for the Justis P-2 Vent. All scraped soil will be hauled to an NMOCD approved disposal facility.

A 20 mil plastic liner will be installed at a depth of five (5) feet bgs in the excavation surrounding boring SB-3, and the excavation will be backfilled with blended soil to a depth of one (1) foot bgs. In order to promote successful revegetation of the site, additional clean soil will be blended with organic materials (ex.- hay or cotton gin) and used to backfill the upper one (1) foot of the SB-3 excavation and all other excavated areas. All backfilled areas will be graded to surface and re-seeded to achieve native conditions. ROC will submit a final report to the NMOCD following completion of the proposed remediation activities, and will submit a final C141 for closure at that time.

I appreciate the opportunity to work with you on this project. Please call me at (432) 530-9797 or Hack Conder at (575) 393-9174 if you have any questions or wish to discuss the proposal in more detail.

Sincerely,

Crain Environmental

Cindy K. Crain, P.G.

Environmental Manager

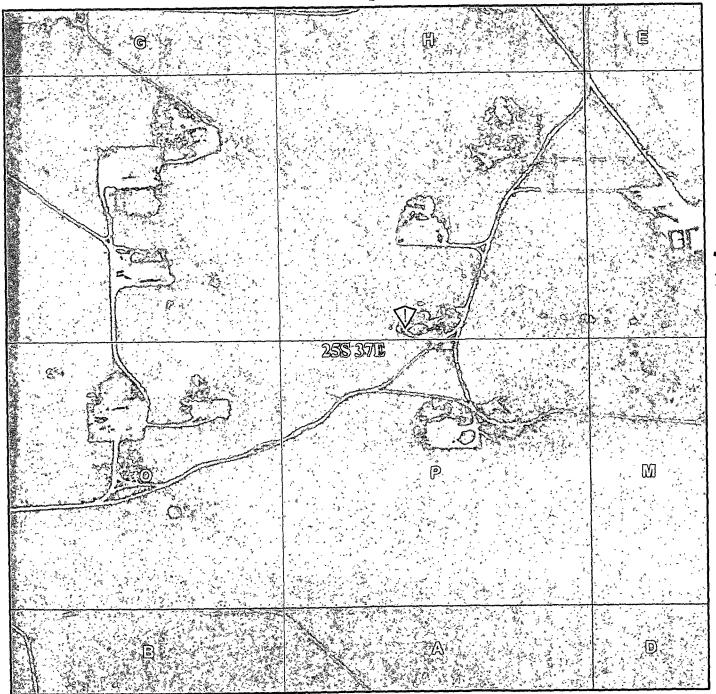
Lindy K. Crain

cc: Hack Conder, ROC

Attachments: site location map, initial C-141, site maps (2), table 1, laboratory documentation, soil boring and MW logs, photographs

FIGURES

Location of site





122 W. Taylor Hobbs, NM 88240 Phone (575) 393–9174 Fax (575) 397–1471

Justis P-2 leak

Legals: UL: I and P

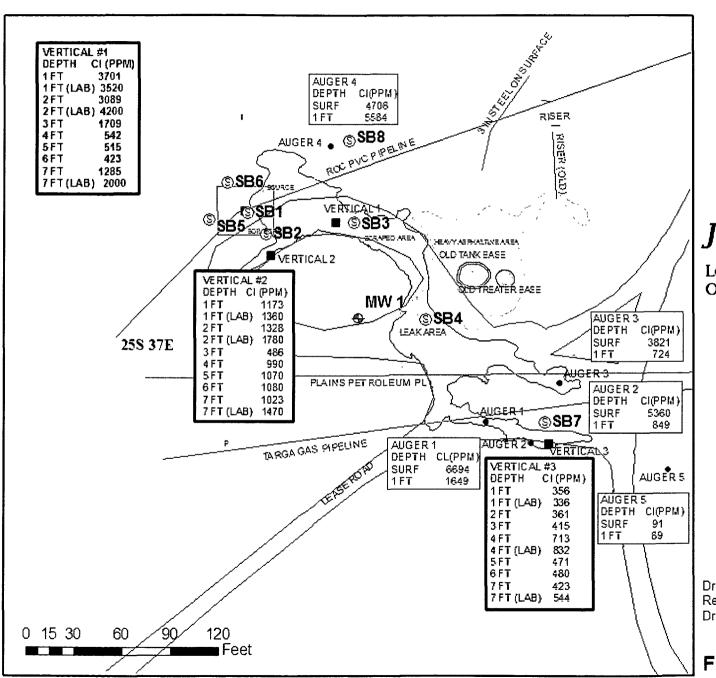
sec. 2 T25S R37E

Owner: State

Drawing date: Revision date: Drafted by:

FIGURE 1





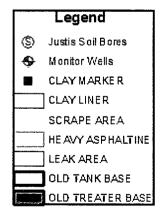


122 W. Taylor Hobbs, NM 88240 Phone (575) 393-9174 Fax (575) 397-1471

JUSTIS P-2 LEAK

Legals: U/L I&P SEC 2 T25S R37E

Owner: STATE



Drawing date: 11/10/09 Revision date: 3/25/10

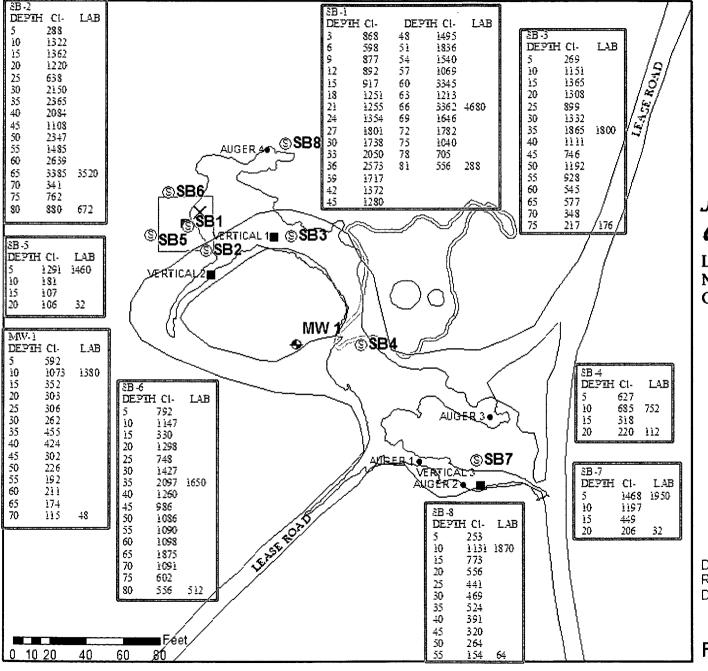
Drafted by: TONY GRIECO

LARA WEINHEIMER





Location of soil bores and monitor wells





122 W. Taylor Hobbs, NM 88240 Phone (575) 393-9174 Fax (575) 397-1471

Justis Jct P-2 and Leak

Legals: UL/P SEC 2 T25S R37E

NMOCD Case #: 1R423-18

Owner: State

	Leg	end
	(2)	
	solli	BORE
	♦	MONITOR WELL
		CLAY MARKER
	X	SOURCE
		CLAY LINER
ĺ	SANCOLUSION LEPAS	HEAVY ASPHALTINE
		OLD TREATER BASE
		OLD TANK BASE -
		LEAKAREA

Drawing date: 4/22/10

Revision date:

Drafted by: T. GRIECO

L. WEINHEIMER

FIGURE 4



TABLE

Table 1: Summary of Laboratory Analysis of Soil Samples Rice Operating Company, Justis P-2 Leak Unit Letters I & P, Section 2, Township 25 South, Range 37 East Lea County, New Mexico

Page 1 of 2

Sample Date Number Number Depth (feet BGS) Depth (feet BGS)	(mg/kg) 250
	250
RRAL 1000 3/15/10 SB-2 5 0.7 288 3/15/10 SB-2 10 0.8 1,32	
3/15/10 SB-2 10 08 1,32	
3/15/10 SB-2 10 08 1,32	
	2
3/13/10 33/2 10	
3/15/10 SB-2 20 0.8 1,22	
3/15/10 SB-2 25 07 638	
3/15/10 SB-2 30 03 2,15	
3/15/10 SB-2 35 0.9 2,36	
3/15/10 SB-2 40 0.9 2,08	
3/15/10 SB-2 45 0.8 1,10	
3/15/10 SB-2 50 0.9 2,34	
3/15/10 SB-2 55 0.3 1,48	
3/15/10 SB-2 60 03 2,63	
3/15/10 SB-2 65 04 <100 <100 <200 3,38	
3/15/10 SB-2 70 02 341	
3/15/10 SB-2 75 01 762	
3/15/10 SB-2 80 0.0 <10.0 <10.0 <20.0 880	
200	
3/15/10 SB-3 5 269	
3/15/10 SB-3 10 1,15	
3/15/10 SB-3 15 1,36	
3/15/10 SB-3 20 1,30	
3/15/10 SB-3 25 899	
3/15/10 SB-3 30 1,333.	
3/15/10 SB-3 35 <10.0 <10.0 <20.0 1,86	
3/15/10 SB-3 40 1,11	
3/15/10 SB-3 45 746	
3/15/10 SB-3 50 1,19	
3/15/10 SB-3 55 928	
3/15/10 SB-3 60 545	
3/15/10 SB-3 65 577	
3/15/10 SB-3 70 348	
3/15/10 SB-3 75 <10.0 <10.0 <20.0 217	
	1
3/15/10 SB-4 5 03 627	
3/15/10 SB-4 10 0.0 <10.0 <10.0 <20.0 685	
3/15/10 SB-4 15 00 318	
3/15/10 SB-4 20 0.0 <10.0 <10.0 <20.0 220	
3/15/10 SB-5 5 0.7 <10.0 <10.0 <20.0 1,29	1 1,460
3/15/10 SB-5 10 10 181	
3/15/10 SB-5 15 0.5 107	
3/15/10 SB-5 20 01 <100 <100 <200 116	32
3/16/10 SB-6 5 0.4 792	
3/16/10 SB-6 10 0.6 1,14	7
3/16/10 SB-6 15 0.6 330	
3/16/10 SB-6 20 0.3 1,29	8
3/16/10 SB-6 25 02 748	
3/16/10 SB-6 30 0.4 1,42	7
3/16/10 SB-6 35 0.3 <10.0 <10.0 <20.0 2,09	7 1,650
3/16/10 SB-6 40 0.2 1,26	0

Sample	Soil Boring	Sample	PID	TPH (GRO)	TPH (DRO)	Total TPH	Field Chloride	Chloride
Date	Number	Depth	(ppm)	C6 - C10	>C10 - C28	C6 ->C28	(mg/kg)	(mg/kg)
		(feet BGS)		mg/kg	mg/kg	mg/kg		
	RRAL					1000		250
3/16/10	SB-6	45	0 4				986	
3/16/10	SB-6	50	02				1,086	
3/16/10	SB-6	55	0.7				1,090	
3/16/10	SB-6	60	07				1,098	*
3/16/10	SB-6	65	0 4				1,875	
3/16/10	SB-6	70					1,091	
3/16/10	SB-6	75					602	
3/16/10	SB-6	80		<10 0	<100	<20 0	556	512
3/16/10	MW-I	5	0 4				592	
3/16/10	MW-1	10	0.3	<10 0	<100	<20 0	1,073	1,380
3/16/10	MW-1	15	07				352	
3/16/10	MW-1	20	1.4				303	
3/16/10	MW-1	25	10				306	
3/16/10	MW-1	30	11			*****	262	
3/16/10	MW-l	35	0 8				455	
3/16/10	MW-1	40	03	***			424	
3/16/10	MW-1	45	06				302	
3/16/10	MW-1	50	0 8				226	
3/16/10	MW-1	55	0 7				192	
3/16/10	MW-1	60	0.8				211	
3/16/10	MW-1	65	0.8				174	
3/16/10	MW-I	70	10	<100	<100	<20 0	115	48
3/17/10	SB-7	5	06	<100	<100	<20 0	1,468	1,950
3/17/10	SB-7	10	04				1,197	
3/17/10	SB-7	15	0 3				449	
3/17/10	SB-7	20	0 4	<100	<100	<20 0	206	32
3/17/10	SB-8	5	16				253	
3/17/10	SB-8	10	12	<10 0	<10 0	<20 0	1,131	1,870
3/17/10	SB-8	15	09				773	
3/17/10	SB-8	20	0 4				556	
3/17/10	SB-8	25	1 4				441	
3/17/10	SB-8	30	09				469	
3/17/10	SB-8	35	0 8				524	
3/17/10	SB-8	40	06		****		391	
3/17/10	SB-8	45	1.8				320	
3/17/10	SB-8	50	13		•		264	
3/17/10	SB-8	55	0.8	<100	<10 0	<20 0	154	64

Notes Samples analyzed by Cardinal Laboratories, Hobbs, New Mexico

1. BGS Depth in feet below ground surface

2 mg/kg
 3 GRO
 4 DRO
 Milligrams per kilogram
 Gasoline Range Organics
 Diesel Range Organics

APPENDIX A

LABORATORY DATA AND CHAIN OF CUSTODY DOCUMENTATION



ANALYTICAL RESULTS FOR RICE OPERATING COMPANY ATTN: HACK CONDER 122 WEST TAYLOR HOBBS, NM 88240

FAX TO: (575) 397-1471

Receiving Date: 11/19/09
Reporting Date: 11/23/09
Project Number: NOT GIVEN

Project Name: JUSTIS P-2 LEAK Project Location: NOT GIVEN

Analysis Date: 11/23/09 Sampling Date: 11/17/09 Sample Type: SOIL

Sample Condition: COOL & INTACT

Sample Received By: ML

Analyzed By: HM

		CI ⁻
LAB NO.	SAMPLE ID	(mg/kg)
H18761-1	VERTICAL 1 1'	3,520
H18761-2	VERTICAL 1 2'	4,200
H18761-3	VERTICAL 1 7'	2,000
Quality Contro	The same and the s	500
True Value Q	С	500
% Recovery		100
Polative Perc	ent Difference	< 0.1

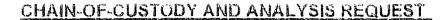
Note: Analyses performed on 1:4 w:v aqueous extracts.

METHOD: Standard Methods

Chemist

Date 11/24/07

4500-CIB





» ARDINAL LABORATORIES

101 East Mariand, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603 (505) 393-2326 FAX (505) 393-2376 (325) 673-7001 FAX (325)673-7020

Company Name	RICE OPERATION	16	ere silverpusi	rd. The state of the	,	***************************************	BI	LL TO	energia de la companya de la company	Before the American	o to promote de la	grásofición es a .	in mercentan di s	ANA	YSI	SRE	QUE	ST	BZE WELLINA	Carolina	774.e275 tot
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city: 17/	OBEC State: N	y'l Zip:	Ft.	40	<u>At</u>	tn:	-	angle of the specific and speci													
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FOR LAB USE CIVILY		١		IATRIX	T	PRES	ERV.	SAMPLI	NG	Ø)											
l.ab I.D.	Sample I.D.	(G)RAE OR (C)OMF # CONTAINERS	GROUNDWATER WASTEWATER	SOIL	SLUDGE	ACID/BASE	OTHER.	DATE	TIME	OHEW											
14187601-1	VERTICAL L L'	61		/			/	11/17/0	EHU.				·· •• ••••••					with the foreign time.		Mandrin sujundipana	do gast 40.0001 1909.0
-2	VARTICALI 2'	61					,	11/17/09	8:45	1									, ,		
	VERTICALI I' VERTICALI Z' VERTICALI 7'	G_L		<i>V</i>			-	11/17/02	9:30		14 M#14 A	est et	m,,,, ,	~	,	14			16.00 6 8		
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Sampler - UPS	- Bus - Other:			Intac Yes ☐ No ☐	Yes	11		ilalishi 1	J.F	300	U15	6	γlo	?5U)d - 0	co	\		u no amenya is	denn soko a stora	

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



ANALYTICAL RESULTS FOR RICE OPERATING COMPANY

ATTN: HACK CONDER 122 WEST TAYLOR HOBBS, NM 88240 FAX TO: (575) 397-1471

Receiving Date: 11/19/09

Reporting Date: 11/23/09
Project Number: NOT GIVEN

Project Name: JUSTIS P-2 LEAK

Project Location: NOT GIVEN

Analysis Date: 11/23/09

Sampling Date: 11/17/09

Sample Type: SOIL

Sample Condition: COOL & INTACT

Sample Received By: ML

Analyzed By: HM

		CI
LAB NO.	SAMPLE ID	(mg/kg)
H18762-1	VERTICAL 2 1'	1,360
H18762-2	VERTICAL 2 2'	1,780
H18762-3	VERTICAL 2 7'	1,470
	Constitution of the consti	
Quality Contro	1	500
True Value Q0		500
% Recovery		100
Relative Perce	ent Difference	< 0.1

METHOD: Standard Methods 4500-Cl'B

Note: Analyses performed on 1:4 w:v aqueous extracts.

Chemis

Date

11/24/09



ARDINAL LABORATORIES

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

Company Name	Company Name: PICE SPANDO: Project Wanager: MACA COLLANDO Address: 122 CANALOG						BILL TO								ANALYSIS REQUEST										
Project Wanager	While Lie	1.12(E				, , ,	P.	0. #:			no la nell'ambriggo pe se		Del Station of the State of the												
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GILVE 1/30	ilsier	State: NY 21	p:	ET	1.1	位.	At	tn:					*****												
Phone #:	732174	Fax #:				1000	Ad	ldres	S:	****		***	• ***												
Project#:	ere a company of the	Project Owner:					Cit	ty:					mert on m												
Project Name:	1000115 J	e Z LEAD		at below #	·		Sta	ate:		Zip			entra berengenia												
Project Location	1;	No. 1 Prince 1				A managements	Ph	one	#:		y-mp. 140, 17			1.3											
Sampler Name:	Tilly C	Witting.	878 S. 6 7840.	pede, toxus	- better at	****		x #:			and the same of th	LONG MAIL	SIGNADA SINASI SINASI	1.3											
FOR LAB USE CMIY		ū			MA	rix	7	PRE	SERV	4	SAMPL	ING		6.1	i	\		1							
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Lab LD.	Sample I.i	D. 80	# CONTAINERS	MA	WASTEWATER SOIL	i		SE	ನ			İ		1.											
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		GRAE	3	GROUNDWATER	SOIL	OIL	S E	ACID/BASE	OTHER	נ	DATE		TIME		nave cracus sea	- CERTAIN CO.	- The second	-					41. variosis and 24.	n againm neadhna mhe	
H13762-1	VERTICAL 2 VORTICAL 2 VERTICAL 2	L' G	- 1		17				1	11/	17/09		0.40		and beamers as			**********							
-2 -3	VORTICALE	2' 6	-]							144	7109	1	045	16										, yakan — —	
-3.	UERRICHL 2	<i>J</i> G	- \			-	.		1.	111/	7/01.	12	420									,		43 7	
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111/		Date: 17-19-09 F	li Li	// -	/	Ċ	الممري	K	1	9		F	ax Resul	t:	□ Ye	s []	No	Add'I		- 14. A.			*		
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ANALYTICAL RESULTS FOR RICE OPERATING COMPANY ATTN: HACK CONDER 122 WEST TAYLOR HOBBS, NM 88240 FAX TO: (575) 397-1471

Receiving Date: 11/19/09

Reporting Date: 11/23/09

Project Number: NOT GIVEN
Project Name: JUSTIS P-2 LF

Project Name: JUSTIS P-2 LEAK Project Location: NOT GIVEN

Analysis Date: 11/23/09

Sampling Date: 11/17/09

Sample Type: SOIL

Sample Condition: COOL & INTACT

Sample Received By: ML

Analyzed By: HM

		CI
LAB NO.	SAMPLE ID	(mg/kg)

H18763-1	VERTICAL 3 1'	336
H18763-2	VERTICAL 3 4'	832
H18763-3	VERTICAL 3 7'	544
	The second secon	
Name of the state	THE COLUMN TWO IS NOT THE OWNER OF THE PROPERTY OF THE PROPERT	
	The same the same and the same to the same	
Quality Contro	l	500
True Value Q	C	500
% Recovery		100
Dalatica Dara	ent Difference	< 0.1

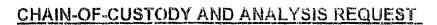
METHOD: Standard Methods 4500-CIB

Note: Analyses performed on 1:4 w:v aqueous extracts.

Chemist/

Date

11/24/09





Tell East Marland, Hopbs, NW 88240 2111 Beechwood, Abilene, TX 79603 (505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

Company Name	: BICC OP	CATINIE	ANDRON SOME SAME	-parameter	* 10144 * 4454 * 4454 * 445				B	LL	70					donatra ess.	or the branches as	ANA	LYSI	S RE	QUE	ST			
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Project Name:	JUSH'S. Y	2 2 11/14	14	,			St	ate:		Zip	1								- -						
Project Location		,			. , .	n synaptime lydine	PI	one	#:		تسعيد ومارا	. yau h ·													
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Lab I.D.	Sample I.	D.	9	Z I	2 8	l lu		ASE						**											
			S) (G) RAB OR	j# CONTAINERS	GROUNDWATER WASTEWATER	OIL SOIL	皇	D.	ICE / CC					$^{\prime}$											
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[†] Cardinal cannot accept verbal changes. Please tax written changes to 505-393-2476



ANALYTICAL RESULTS FOR RICE OPERATING COMPANY ATTN: HACK CONDER 122 W. TAYLOR HOBBS, NM 88240

Receiving Date: 03/16/10 Reporting Date: 04/28/10**

Project Number: NOT GIVEN

Project Name: JUSTIS P-2 LEAK AND JUNCTION BOX

Project Location: JUSTIS P-2 LEAK AND JUNCTION BOX Analyzed By: AB/HM/SJ

Sampling Date: 03/15/10 Sample Type: SOIL

Sample Condition: COOL & INTACT

Sample Received By: CK

GRO DRO

 (C_6-C_{10}) (> $C_{10}-C_{28}$) CI*

(mg/kg) (mg/kg) (mg/kg)

LAB NUMBER SAMPLE ID

ANALYSIS D	DATE	03/19/10	03/19/10	03/16/10
			· · · · · · · · · · · · · · · · · · ·	
H19448-1	SB-2 @ 65'	<10.0	<10.0	3,520
H19448-2	SB-2 @ 80'	<10.0	<10.0	672
H19448-3	SB-3 @ 35'	<10.0	<1,0.0	1,800
H19448-4	SB-3 @ 75'	<10.0	<10.0	176
H19448-5	SB-4 @ 10'	<10.0	<10.0	752
H19448-6	SB-4 @ 20'	<10.0	<10.0	112
H19448-7	SB-5 @ 5'	<10.0	<10.0	1,460
H19448-8	SB-5 @ 20' **	<10.0	<10.0	32
Quality Conti	rol	538	577	510
True Value C	iC .	500	500	500
% Recovery		108	115	102
Relative Pero	cent Difference	<0.1	15.5	2.0

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; CI: Std. Methods 4500-CIB

Reported on wet weight.

**REVISED REPORT

^{*}Analyses performed on 1:4 w:v aqueous extracts.



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603

Company Name	race operating company								:	BI	LL TO	1901-1449 1901-1449					MAL	YSIS.	RE	QUES	ST		
Project Manage	Pr: Hack Conder							P. O. i	# <i>:</i>														
Address: 122								Com	pany	/:							S					İ	
City: Hobbs	State: NM	Zip	: 88	1240)			Attn:									o						
Phone #: 393-								Addr	ess:								Ę.					1	
Project #:	Project Owne							City:			,			Σ		_	A/S						
	Justis P-2 leak and junction box							State	•		Zip:		es	2		TPH	JIS						
	n: Justis P-2 leak and junction be		······					hon			ш.р.		Chlorides	801	BTEX		Cations/Anions						
	Lara Weinheimer	<u> </u>						ax #					₫		\ <u>\</u>	Texas	င္မ						
FOR LAB USE ONLY	Laid Weithichile	T	Т	Г	MA	TRIX	_		RESE	RV.	SAMPLI	NG	5	TPH	"	e e							
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	GROUNDWATER	WASTEWATER SOIL	OIL	SLUDGE	OTHER: ACID/BASF:	ICE / COOL	ОТНЕК:	DATE	TIME		<u> </u>			Complete						
H19448-1	SB-2 @ 65'		1		1				_		3/15/10	9:57	1	✓					***************************************				
-2	SB-2 @ 80'		1		✓						3/15/10	10:04	1	1									
-3	SB-3 @ 35'		1		✓						3/15/10	10:34	1	1									 <u> </u>
- 4	SB-3 @ 75'	L	1	L	✓						3/15/10	11:02	<u> </u>	1							ļ		 <u> </u>
5	SB-4 @ 10 ⁴	_	1	L	✓	_					3/15/10	1:40	1	1	<u> </u>								
6	SB-4 @ 20'	_	1	L	✓	<u> </u>				<u> </u>	3/15/10	1:49	1	1									 <u> </u>
7	SB-5 @ 5 '	_	1		✓	<u> </u>			_		3/15/10	2:09	<u> </u>	/									<u> </u>
8	SB-5 @ 20'	1_	1	_	✓	L		_ _	1	1_	3/15/10	2:17	/	✓									ļ
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	nd Oamages. Cardinal's Babdiny and client's exclusive remedy for	<u></u>		1									<u> </u>										

affiliates or successory offiling out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date:	Received By:	Phone Result: Yes No Add'l Phone #:
	3-15-10		Fax Result: 🔘 Yes 🗵 No Add'l Fax #:
L. Weinheimer	Time: 4151	compare -	REMARKS:
Relinquished By:		Received By/	email results
	7/6/10 Time:	Celallen	Hconder@riceswd.com; jpurvis@riceswd.com;
Delivered By: (Circle One)		Sample Condition CHECKED BY:	
Sampler = UPS - Bus - Other:		Cool Intact (Iditials)	Lweinheimer@riceswd.com

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



ANALYTICAL RESULTS FOR RICE OPERATING COMPANY ATTN: HACK CONDER 122 W. TAYLOR HOBBS, NM 88240

Receiving Date: 03/17/10 Reporting Date: 03/22/10

Sampling Date: 03/16/10 Sample Type: SOIL

Project Number: NOT GIVEN

Sample Condition: COOL & INTACT

Project Name: JUSTIS P-2 LEAK AND JUNCTION BOX Project Location: JUSTIS P-2 LEAK AND JUNCTION BOX Analyzed By: AB/HM

Sample Received By: JH

GRO DRO

 $(C_{6}-C_{10})$ (> $C_{10}-C_{28}$)

CI*

LAR NUMBER SAMPLE ID

LAB NUIVIBE	R SAMPLE ID	(mg/kg)	(mg/kg)	(mg/kg)
ANALYSIS D	DATE	03/20/10	03/20/10	03/18/10
H19466-1	SB-6 @ 35'	<10.0	<10.0	1,650
H19466-2	SB-6 @ 80'	<10.0	<10.0	512
H19466-3	MW-1 @ 10'	<10.0	<10.0	1,380
H19466-4	MW-1 @ 70'	<10.0	<10.0	48

<10.0	<10.0	512
<10.0	<10.0	1,380
<10.0	<10.0	48
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
536	558	510
500	500	500
107	112	102
1.7	6.6	<0.1
	<10.0 <10.0 536 500 107	<10.0 <10.0 536 558 500 500 107 112

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; CI: Std. Methods 4500-CIB

Reported on wet/weight.

^{*}Analyses performed on 1:4 w:v aqueous extracts.

ARDINAL LABORATORIES

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name	Rice Operating Company							.5.4Ct.	. , 1712			LTO	::::::::::::::::::::::::::::::::::::::					ANAL	YSIS	RE	QUE	51			
Project Manage	r: Hack Conder						[P. 0	. #:																
Address: 122	West Taylor							Cor	npa	ny:								<u>S</u>							
City: Hobbs	State: NM	Zip	: 88	240			_/	4tt:	1:									6	1						
Phone #: 393-9	9174 Fax #: 397-14	471						Ado	ires	s:								اج							
Project #:	Project Owne	r:						City	<i>ı</i> :						Σ		I	1/8							
Project Name: .	Justis P-2 leak and junction box							Sta	te:		Z	ip:		Chlorides	15	×	0	6							
Project Location	n: Justis P-2 leak and junction b	ох						Pho	ne	#:				i	801	BTEX	S	aţ.							
Sampler Name:	Lara Weinheimer						ı	ax	#:					일	$\frac{\omega}{\tau}$	BI	x	Ö							
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WAS LEWATER SOIL					ICE / COOL		SAMPLI	NG TIME	C	TPH		Texas TPH	Complete Cations/Anions							
H19466-1	SB-6 @ 35'		1		1					1		3/16/10	01:26	\	1										
	SB-6 @ 80'		-		✓				,	/		3/16/10	02:00	1	✓										
-3	MW-1 @ 10'		1		✓				,	/		3/16/10	02:28	1	✓										
-4	MW-1 @ 70'		1		✓			_	,	/	:	3/16/10	03:01	1	✓										
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analyses. All claims includir service. In no event shall C affiliates or successors arisin	d Damages. Cardinal's liability and clent's exclusive remedy for ag those for negligence and any other cause whatseever shall be ardinal be liable for incidental or consequental damages, including gout of or related to the performance of services hereunder by the Data.	deemed g withou Cardinal,	l waive t limita regan	d unless tion, but dess of	s made in sinces inte whether s	writin rrupt	g and re ions, los	eceiv	ed by (use, ar	Cordina loss of	el with	in 30 days after its incurred by c	r completion of th lient, its subsidiar sons or otherwis	e applicaties ies e.	l• □ Ye:	. 57	No	A et al 1 5	hans						
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† Cardinal cannot accept verbal changes. Please fax written changes to 505-39342476

NEED SAMPLES BACK, PLEASE



ANALYTICAL RESULTS FOR RICE OPERATING COMPANY ATTN: HACK CONDER 122 W. TAYLOR HOBBS, NM 88240

Receiving Date: 03/18/10 Sampling Date: 03/17/10 Reporting Date: 03/22/10 Sample Type: SOIL

Project Number: NOT GIVEN Sample Condition: COOL & INTACT

Project Name: JUSTIS P-2 LEAK AND JUNCTION BOX Sample Received By: JH Project Location: JUSTIS P-2 LEAK AND JUNCTION BOX Analyzed By: AB/SJ

GRO DRO $(C_6\text{-}C_{10}) \ (>C_{10}\text{-}C_{28}) \quad \text{CI*}$ LAB NUMBER SAMPLE ID $(\text{mg/kg}) \ (\text{mg/kg}) \ (\text{mg/kg})$

ANALYSIS DATE	03/20/10	03/20/10	03/19/10
H19470-1 SB-7 @ 5'	<10.0	<10.0	1,950
H19470-2 SB-7 @ 20'	<10.0	<10.0	32
H19470-3 SB-8 @ 10'	<10.0	<10.0	1,870
H19470-4 SB-8 @ 55'	<10.0	<10.0	64
			·- ···-
Quality Control	511	521	500
True Value QC	500	500	500
% Recovery	102	104	100
Relative Percent Difference	1.1	3.6	2.0

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; CIT: Std. Methods 4500-CITB *Analyses performed on 1:4 w:v aqueous extracts.

Reported on wet weight.

Chemist

Date



ARDINAL LABORATORIES

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

Company Name	Rice Operating Company										LL TO						ANAL	.YSIS	RE	QUE	ST		
Project Manage	r: Hack Conder						_	.O. #															
Address: 122							c	omp	any	:							ည						
City: Hobbs		Zip	: 882	240			Α	ttn:					İ				ō						
Phone #: 393-9	9174 Fax #: 397-14	71					Α	ddre	ss:				i .				Ę						
Project #:	Project Owner	:					С	ity:					.	Σ		ェ	1/8						
Project Name: .	Justis P-2 leak and junction box						s	tate:			Zip:		ě	15	×	٩	5						
Project Location	ı: Justis P-2 leak and junction bo	X					Р	hone	#:				Chlorides	801	BTEX	Texas TPH	<u>;</u>						
Sampler Name:	Lara Weinheimer						F	ax #:					[음		BT	x	Ü					ŀ	
FOR LAB USE ONLY			П		MAT	RIX		PR	ESE	RV.	SAMPLI	NG	O	ТРН	_	<u>(a)</u>	te						
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	GROUNDWATER	SOIL	Oil	SLUDGE OTHER .	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME				•	Complete Cations/Anions						
H19470-1	SB-7 @ 5'		1		1				1		3/17/10	08:44	✓_	✓									
-7	SB-7 @ 20'		1		1				1		3/17/10	08:54	✓	1									
- 3	SB-8 @ 10'		1		V				1		3/17/10	09:36	1	1									
_4	SB-8 @ 55'		1		1				1		3/17/10	10:13	✓	1									
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Relinquished By:	Date: Recei	ved By:		Phone Result:	☐ Yes	Z No	Add'l Phone #:
FICE	3-17-10			Fax Result:	☐ Yes	☑ No	Add'i Fax #:
L/. Weinheimer	Time:			REMARKS:			
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Delivered By: (Circle One)	-11	Sample Condition	CHECKED BY:	Hconder@	yricesv	vd.con	n; jpurvis@riceswd.com;
2011/01/02 27/7/01/01/01/01/07	U		/ (Initials)	Lweinhein	oor@ri	COSWIN	com
Sampler - UPS - Bus - Other:		Cool Intact		LWeillielli	ner win	CGSWG	.com
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[†] Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476





ANALYTICAL RESULTS FOR RICE OPERATING COMPANY ATTN: HACK CONDER 112 WEST TAYLOR HOBBS, NM 88240

FAX TO: (575) 397-1471

Receiving Date: 04/13/10 Reporting Date: 04/14/10

Project Number: NOT GIVEN

Project Name: JUSTIS P-2 VENT & LEAK

Project Location: T25S-R37E-SEC2 P ~ LEA COUNTY, NM

Sampling Date: 04/11/10 Sample Type: WATER

Sample Condition: COOL & INTACT

Sample Received By: CK

Analyzed By: CK/HM

		CI ⁻	SO₄	TDS
LAB NO.	SAMPLE ID	(mg/L)	(mg/L)	(mg/L)
Analysis Date:		04/14/10	04/14/10	04/13/10
H19663-1	MONITOR WELL #1	760	90.7	1,740

Quality Control		500	38.7	NR
True Value QC		500	40.0	NR
% Recovery		100	96.7	NR
Relative Percer	nt Difference	< 0.1	17.0	8.5
METHOD: Standa	ard Methods, EPA	4500-CIB	375.4	160.1

Not accredited for Chloride, Sulfate and TDS.

H19663 RICE

Date



ANALYTICAL RESULTS FOR RICE OPERATING COMPANY ATTN: HACK CONDER 112 W. TAYLOR HOBBS, NM 88240 FAX TO: (575) 397-1471

Receiving Date: 04/13/10 Reporting Date: 04/14/10

Project Number: NOT GIVEN

Project Name: JUSTIS P-2 VENT & LEAK Project Location: T25S-R37E-SEC2 P~ LEA CO., NM Sampling Date: 04/11/10 Sample Type: WATER

Sample Condition: COOL & INTACT

Sample Received By: CK

Analyzed By: ZL

LAB NUMBE SAMPLE ID	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLENES (mg/L)
ANALYSIS DATE	04/14/10	04/14/10	04/14/10	04/14/10
H19663-1 MONITOR WELL #1	<0.001	<0.001	<0.001	<0.003
Quality Control	0.056	0.055	0.055	. 0.163
True Value QC	0.050	0.050	0.050	0.150
% Recovery	112	110	110	109
Relative Percent Difference	2.2	2.2	2.2	2.3

METHOD: EPA SW-846 8021B

TEXAS NELAP CERTIFICATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE,

AND TOTAL XYLENES:

Page 1 of 1

101 East Mariand - Hobbs, New Mexico 88200 Tel (575) 392-3226 Tel (575) 393-3226	2	T ₁	J.	abor		atories,	E.	S		Inc.				さ	\$ <u> </u>	CHAIN-OF-CUSTODY AND LAB Order ID #	ᇢ	STC	۵	AND	AN AN	ANALYSIS	Sis	ğ	REQUEST	 		
Company Name: RICE Operating Company	8 4	BILL TO Company: RICE Operating	Sol	Company:	, -	yaeamo	,		₽Ŏ#			 					1 S	LYS	ANALYSIS REQUEST	ğ	JES							
Project Manager:			<u> </u>	Address.		9		(Street, City, Zip)	Ž O	Zio)		~				ષ્ટ	ircle	δ ö	(Circle or Specify Method No.)	Meth	ğ	∵						-
Hack Conder	72	122 W Taylor Street ~ Hobbs, New Mexico 88240	ylor St	reet ~	Hobbs	New	Mexico	3 8824	9	ì																		
Address: (Street, City, Zip)			Ą	Phone#:					Fax#:			T										·						
122 W Taylor Street ~ Hobbs, New Mexico 88240	-	(575) 393-9174	193-6	1174					(57	5)397	(575)397-1471				7.00													
Phone #: (575) 393-9174	Fax#: (575)397-1471	97-14	17			\	1							(38)	2/8010													
Project #: Project Name: Justis P-2 Vent & Leak	eak		\	1		1	1					T		O) babr)9 6H 6											· · · · · ·		
Project Location: T25S-R37E-Sec2 P ~ Lea County - New Mexico	Mexico	1	12-j	ampler S		, eg	Rozan	nne John	hnson Ova	1 (575)6. Hornel	Rozanne Johnson (575)631-9310 rozanne@valornet com	T		5 Exte	Pb Se					52		-		(50		-	nrs	
	V		K	A TRIX	*	<u>_</u>	PRESERVATIVE METHOD	SERVAT	TIVE		SAMPLING	l (o		001XT	O PO E				72			R				sp	24 HO	
LAB#		NE GOS	4		 	(40)	 	<u> </u>	(340)	 		Z09/E	Z09/8	/ 9001X	8 aA gA	3 sA gA		səp	a/80828				tnetn			yed Soll	~ əmiT	
(LAB USE)	(G) 10 de1	# CONTER	MATER SOIL	ЯІА	SCUDGE	HCL (2 40ml)	OSH [®] N HNO ³	OS ² H	ICE (1-1Üler 1	NONE (2010	TIME	ITBE 80211	31'EX 8021E	70758 HAT	Total Metals Total Metals	TCLP Metals TCLP Volatifi	TCLP Semi /	TCLP Pestici	GC/WS AND	GC/MS Semi	PCB's 8082/	Pesticides 8 BOD, TSS, p	OD enutaioM	Cations (Ct, 5	Sulfates	Total Dissolv Chlorides	DruonA muT	
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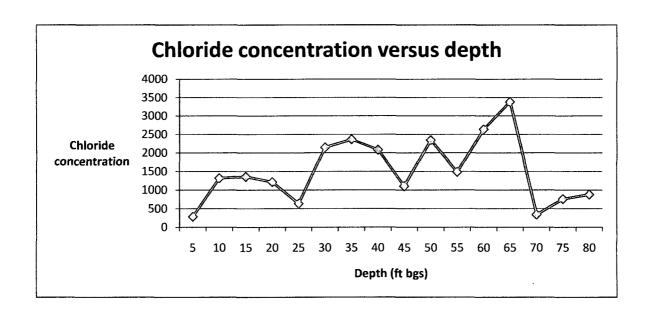
APPENDIX B

SOIL BORING AND MONITORING WELL LOGS

ogger:		Cindy C		Ç SBa		-DATING	_
Oriller:	-	Harrison & 0		\$104 \$000 \$000 \$000	OSE OF	ERATING	DAIDAY.
Consulta	nt:	Cindy C	rain				
Orilling N		Air rota	ary	M15.1 3174		BINCE 195	
Start Dat		3/15/20					
		3/15/20		0 15 30 eff 50 150 F441 587	Project Name	\•	Well ID:
End Date				ing through 20 ft. All others were	Justis jct. P-		SB-2
Comme				ing through 20 ft. All others were former junction box site.	Location:		2 T25S R37E
rom cu	ttings. Lo				Lat: 32°9'21.3		
	TD -	• 80 ft	tea by: L	ara Weinheimer GW = 77 ft	Long: 103°7'3		County: Lea State: NM
	- טו	OU II		GVV - / / IL	LUIIG. 100 / 3	1 T VV	Ctate. IVIVI
Depth (feet)	chloride fie tests (ppn	t t	PID	Description	Lithology	Bore	Construction
				0 - 2.5 ft			1
				SILTY SAND; VERY FINE TO FIND SAND			
				light red, poorly sorted, dry, no odor			
5	288		0.7	2.5 - 12 ft			
<u> </u>	200	 	0.7	0.44.04.15			
				CALICHE			
				pinkish-white, dry, no odor			
	<u>-</u>						
10	1322		0.8				
]					
			†				
			ļ				[]]
15	1362		0.5				
			T	12 - 28 ft			
			 	12 - 20 11			
				SILTY SAND; FINE TO MEDIUM SAND			
			1	red, poorly sorted, dry, no odor			
20	1220		0.8	ica, poorly sorted, dry, no odor			
			1				
	<u> </u>	 	†				[[[
			<u> </u>				
25	638		0.7		63.3		
		1	<u> </u>				
			<u> </u>				
30	2150		0.3	28 - 37 ft	200		
30	2100		0.5				
				SILTY SAND; FINE SAND; SANDSTONE			
				tan, moderately well sorted, dry, no odor			
	-	-	-				
35	2365		0.9				
					: I	0000000	
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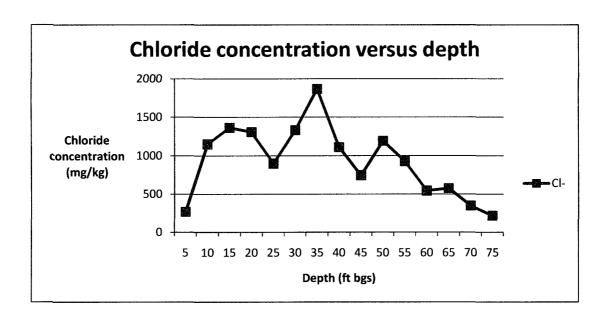
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Depth (feet)	chloride field tests (ppm)	LAB	PID	Description	Lithology	Bore Construction
40	2084		0.9			
	<u>.</u>			37 - 80 ft		bentonite
45	1108		0.8	SILTY SAND; FINE SAND		seal
				light to dark red, well sorted, loose, dry, no odor		
50	2347		0.9			
55	1485		0.3			
60	2639		0.3			
		0				
65	3385	CI- 3520	0.4			
		GRO <10.0				
		DRO <10.0				
70	341		0.2			
75	762		0.1		mp. = - 2.24	
80	880	CI- 672	0			
		GRO <10.0				
		DRO <10.0				



Logger:		Cindy C	rain	sas o				
	— н	arrison & 0		\$B\$		OPE	R	ATING COMPANY
Driller:		Inc. Drill	ling	SS SS SS SS SS SS SS SS SS SS SS SS SS		CICIE		NO TY
		Cindy Ci	rain	<i> </i>		4	I	
Consulta	ant:	Ciriuy Ci	Ialli	261 384	1			CE 1955
Drilling I	Viethod:	Air rota	ary					
Start Dat	te:	3/15/20	10	\$ 15 .33 mb 06 120				
End Date	3·	3/15/20	10	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Pro	ject Name:		Well ID:
Comm		olit spoor	samp	ling through 20 ft. All others were		istis jct. P-2		
				ormer junction box site.				P sec. 2 T25S R37E
	g			ara Weinheimer		:: 32°9'21.4		
	TD =		-	GW = 77 ft	Lo	ng: 103°7'39	9.92	27" W State: NM
Depth (feet)	chloride field tests (ppm)		PID	Description		Lithology		Bore Construction
	tests (ppm)			0 - 2 ft				
				SILTY SAND; VERY FINE TO FIND SAND				
				light red, poorly sorted, dry, no odor				
				2.5 - 11.5 ft				
5	269	 	 					
			1	CALICHE				
				pinkish-white, dry, no odor				
	 	1						
10	1151						i	
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			1		1	NICOTAL PROPERTY		
15	1365							
		-	ļ					
			Ī	11.5 - 28.5 ft			ı	
		 	ļ				İ	
20	1308		.	SILTY SAND; FINE TO MEDIUM SAND				
				red, poorly sorted, dry, no odor				
			<u> </u>					
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25	899							
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30	1332	Ì						
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						1		V/////////////////////////////////////

Depth (feet)	chloride field tests (ppm)	LAB	PID	Description	Lithology	Bore Construction
	:			28.5 - 37 ft		
35	1865	CI- 1800		SILTY SAND; FINE SAND; SANDSTONE		
		GRO <10.0		tan, moderately well sorted, dry, no odor		
		DRO <10.0				bentonite
40	1111				:	seal
				37 - 53 ft		
45	746			SILTY SAND; FINE SAND		
				light red, well sorted, loose, dry, no odor		
50	1192					
55	928					
				53 - 75 ft		
60	545			FINE SAND light tan to light red, well sorted, loose, dry,		
				no odor		
65	577					
70	348					
		à				
75	217	CI- 176 GRO				
		<10.0 DRO				
		<10.0)



Consultant:

Drilling Method:
Start Date:

Orindy Crain

Cindy Crain

Air rotary

3/15/2010

Air 3/15/2010

Air 3/15/2010

Air 3/15/2010



Comments: Split spoon sampling through 20 ft. Located 118 ft SE of former junction box site.

Drafted by: Lara Weinheimer

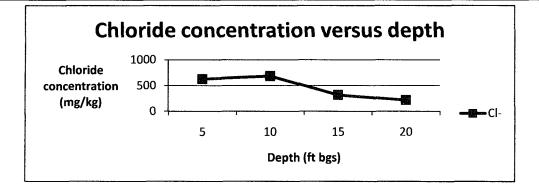
TD = 20 ft GW = 77 ft

Project Name:Justis jct. P-2 and leak

Well ID:

Justis jct. P-2 and leak SB-4 **Location:** UL/P sec. 2 T25S R37E **Lat:** 32°9′20.832″N **County:** Lea

	TD = 2	0 ft		GW = 77 ft	Long: 103°7'38.486" W State: NM			86" W State: NM
Depth (feet)	chloride field tests (ppm)	LAB	PID	Description		Lithology		Bore Construction
				0 - 2 ft				
				SILTY SAND; VERY FINE TO FIND SAND		· -		
				light red, poorly sorted, dry, no odor				
5	627		0.3	2 - 9 ft				
				CALICHE				
				pinkish-white, dry, no odor				
10	685	CI- 752	0					
		GRO <10.0						bentonite
		DRO <10.0		9 - 20 ft				seal
15	318		0	SILTY SAND; FINE TO MEDIUM SAND				
				red, poorly sorted, dry, no odor				
		_						
20	220	CI- 112	0					
		GRO <10.0	-					
		DRO <10.0						



Cindy Crain Logger: Harrison & Cooper, Inc. Drilling Driller: Cindy Crain Consultant: Drilling Method: Air rotary 3/15/2010 Start Date: 3/15/2010 End Date:



Comments: Split spoon sampling through 20 ft.

Located 20 ft W of former junction box site.

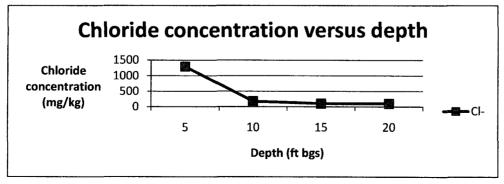
Drafted by: Lara Weinheimer

GW = 77 ft TD = 20 ft

Project Name: Well ID: Justis jct. P-2 and leak SB-5

Location: UL/P sec. 2 T25S R37E **Lat:** 32°9'21.464"N County: Lea Long: 103°7'39.836" W State: NM

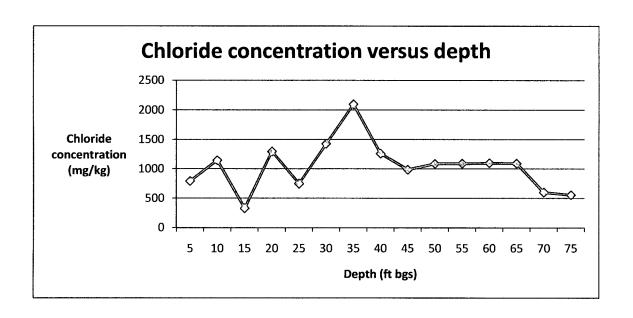
	1D - 2011				 iig. Too 7 o	o v Ctate. Mil
Depth (feet)	chloride field tests (ppm)	LAB	PID	Description	Lithology	Bore Construction
_				0 - 1.5 ft		
				SILTY SAND; VERY FINE TO FINE SAND		
				tan, poorly sorted, dry, no odor		
5_	1291	CI- 1460	0.7	1.5 - 14 ft		
		GRO <10.0		CALICHE		
		DRO <10.0		pinkish-white, dry, no odor	į	
10	181		1			
						bentonite
_						seal
15	107		0.5			
				14 - 25 ft		
				SILTY SAND, FINE TO MEDIUM SAND		
20	116	CI- 32	0.1	red, poorly sorted, dry, no odor		
		GRO <10.0				
		DRO <10.0				



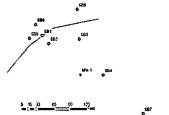
			<u> </u>					
Logger:		Cindy		\$81				
Driller:		Harrison & Inc. D		mbs cms cms cms cms		QUE OPER	ATIN	G COMPANY
Consulta		Cindy		, MK1 , 524			VDE 1	955
Drilling N	Method:	Air ro	otary					
Start Dat	te:	3/16/	2010	8 85 10 10 <u>30</u> 120				
End Date	e:	3/16/	2010	=1 = 1 ===============================	Pro	oject Name:		Well ID:
Comm	ents:	Split spo	on samp	ling through 5, 10, and 20 ft. All] J	ustis jct. P-2 a	nd lea	k SB-6
others t	from cuttii	ngs. Loc	ated 20	ft N of former junction box site.				c. 2 T25S R37E
			afted by: L	ara Weinheimer		t: 32°9'21.672		County: Lea
	TD	= 80 ft		GW = 77 ft	Lo	ng: 103°7'39.7	72" W	State: NM
Depth (feet)	chloride fi tests (pp		3 PID	Description		Lithology	Во	re Construction
				0 - 1.5 ft				\
				SILTY SAND; VERY FINE TO FINE SAND				
				tan, poorly sorted, dry, no odor				
5	792		0.4	1.5 - 12 ft				
		- 1		CALICHE	Ì			
				pinkısh-white, dry, no odor				
10	1147		0.6					
15	330		0.6					
				12 - 27 ft				
				SILTY SAND; FINE TO MEDIUM SAND		4.7		
20	1298		0.3	red, poorly sorted, dry, no odor			1	
25	748		0.2					
	:							
30	1427		0.4	27 - 38 ft				
				SILTY SAND; FINE SAND; SANDSTONE				
		CI-		tan, moderately well sorted, dry, no odor				
35	2097	1650	0.3					
		LGRO) I		1			9999 1 II

GRO <10.0 DRO <10.0

Depth (feet)	chloride field tests (ppm)	LAB	AB PID Description Lithology		Bore Construction			
40	1260		0.2					
45	986		0.4	38 - 63 ft SILTY SAND, FINE TO MEDIUM SAND red, poorly sorted, dry, no odor		bentonite		
50	1086		0.2					
55	1090		0.7					
60	1098		0.7					
65	1875		0.4	63 - 70 ft SILTY SAND; MEDIUM SAND light brown, moderately well sorted, dry, no				
70	1091			gravelly at 68 - 70 ft 70 - 80 ft				
75	602			FINE SAND red, well sorted, loose, dry, no odor				
80	556	CI- 512 GRO <10.0						
		DRO <10.0				1		



Cindy Crain Logger: Harrison & Cooper, Inc. Drilling Driller: Cindy Crain Consultant: Drilling Method: Air rotary 3/17/2010 Start Date:





End Date: Comments: Split spoon sampling through 20 ft. Located 207 ft SE of former junction box site.

3/17/2010

Drafted by: Lara Weinheimer

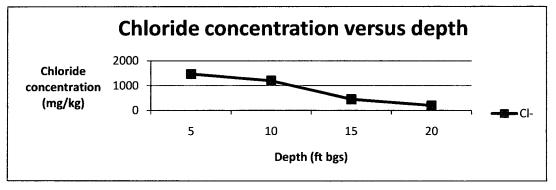
GW = 77 ftTD = 20 ft

Project Name: Well ID: Justis jct. P-2 and leak

SB-7

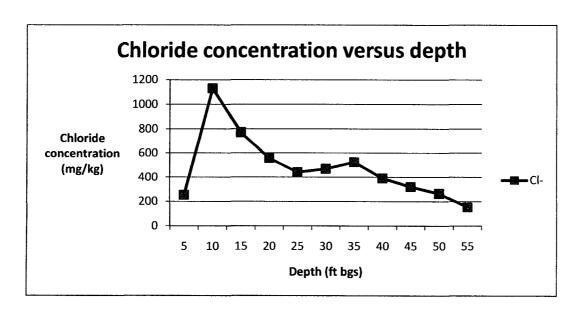
Location: UL/P sec. 2 T25S R37E **Lat:** 32°9'20.198"N County: Lea Long: 103°7'37.769" W State: NM

	1D - 20 IL			OVV - 11 IL	Long. 100 / 07:100 W Otate: MW				
Depth (feet)	chloride field tests (ppm)	LAB	PID	Description	Lithology	Bore Construction			
				0 - 1 ft					
		-		SILTY SAND, VERY FINE TO FINE SAND					
				light brown, poorly sorted, dry, no odor					
5	1468	CI- 1950	0.6	1 - 14.5 ft					
		GRO <10.0		CALICHE					
		DRO <10.0		pinkish-white, dry, no odor					
10	1197		0.4						
						bentonite			
						seal			
15	449		0.3						
				14.5 - 20 ft					
				SILTY SAND, FINE TO MEDIUM SAND	The state of the s				
20	206	CI- 32	0.4	red, poorly sorted, dry, no odor	2028				
		GRO <10.0							
		DRO <10 0							

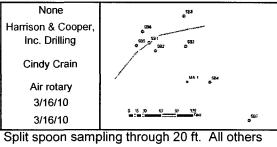


Logger:		Cindy C	rain	. SEES	Г				
		Harrison &	Cooper,	6 TO 4		OPE	RAT	ING C	OM
Driller:		Inc Dril	ling	833 - 533 -		QICE OPE			27/2
Consulta	ant:	Cindy C	rain	MAY1 SEA				1955	
Drilling N	Method:	Air rota	агу	• •					
Start Dat	te:	3/17/20	010	0 33 30 16 90 122	L_		_		
End Date	e:	3/17/20	010	#1 #1 #1 #1 #1 #1 #1 #1 #1 #1 #1 #1 #1 #	Pro	ject Name:		W	/ell ID:
Comme	ents:	Split spoor	n samp	ing through 20 ft. All				SB-8	
others f	from cuttir			ft NE of former junction box site.	Location: UL/P sec. 2 T25S R37				Γ25S R37E
ĺ			ted by: L	ara Weinheimer		: 32°9'21.9		C	ounty: Lea
	וטו	= 55 ft		GW = 77 ft	LO	ng: 103°7'38	3.958	· vv S	tate: NM
Depth (feet)	chloride fi tests (ppi	1	PID	Description		Lithology	ı	Bore Co	onstruction
	, , ,			0 - 1 ft	П	145			\
			↓	5 / K] }
				SILTY SAND; VERY FINE TO FINE SAND					
		_	 	links having manufactured day as a d		,			
			<u> </u>	light brown, poorly sorted, dry, no odor]				
	252		1.0	1 - 14 ft					
5	253		1.6						
				CALICHE					
				pinkish-white, dry, no odor					
<u> </u>		CI-	 						
10	1131	1870	1.2						
		GRO							
	ļ	<10.0 DRO	 		1		11		
		<10.0							
					1	NA PROPERTY			
15	773		0.9						
			[- 11		
			1	14 - 33 ft					
				14 - 55 11					
20	556		0.4	SILTY SAND; FINE TO MEDIUM SAND					
	""		† 	red, poorly sorted, dry, no odor					
	ļ			rea, poorly sortea, ary, no odor					
		1							
		- 	<u> </u>						
25	441		1.4						
									bentonite
			<u> </u>) bentonite
30	469		0.9						seal
		1	1						
			<u> </u>		↓	443 EST.			
L	L	L	1			ı L			I I

Depth (feet)	chloride field tests (ppm)	LAB	PID	Description	Lithology	Bore Construction			
35_	524		0.8						
				33 - 47 ft					
				SILTY SAND; FINE SAND; SANDSTONE					
40_	391		0.6	tan, moderately well sorted, dry, no odor					
45	320		1.8	\					
50	264		1.3	47 - 55 ft					
				SILTY SAND; FINE TO MEDIUM SAND					
				red, poorly sorted, dry, no odor					
55	154	CI- 64	0.8						
		GRO <10.0							
		DRO <10.0							



Logger:	None
Driller:	Harrison & Cooper, Inc. Drilling
Consultant:	Cindy Crain
Drilling Method:	Air rotary
Start Date:	3/16/10
End Date:	3/16/10
Comments:	Split spoon samp





Project Name:

Well ID:

Justis jct. P-2 and leak

<u>MW-1</u>

Location:

UL/P sec. 2 T25S R37E

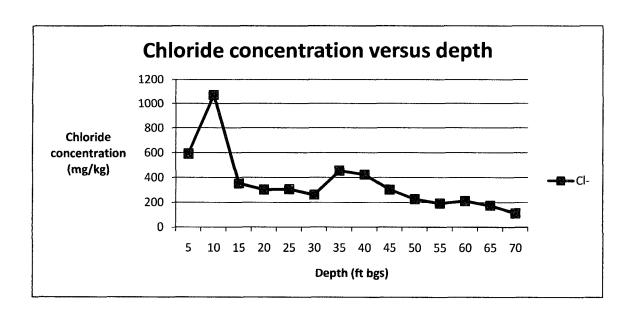
Lat: N32°9'20.84" Long: W103°7'38.898" County: LEA State: NM

TD =	87	ft	GW	= 7	77	ft

from cuttings. Located 90 ft SE of former junction box site.

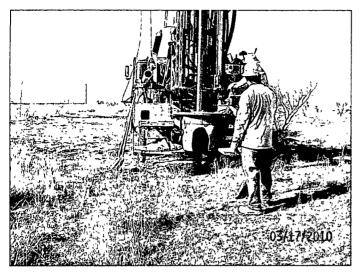
				-,' ', ', ', ', ', ', ', ', ', ', ', ', '										
Depth (feet)	chloride field tests (ppm)	LAB	PID	Description	Lithology	Well Construction								
				0 - 1 ft			2 x 2 ft							
				SILTY SAND, VERY FINE TO FINE SAND			concrete pad							
				light brown, poorly sorted, dry, no odor	200									
5	592		0.4	1 - 14 ft			on surface							
				CALICHE										
				pinkish-white, dry, no odor										
10	1073	Cl- 1380	0.3											
		GRO												
		<10.0 DRO												
		<10.0			CHAIN AND AND AND AND AND AND AND AND AND AN									
15	352		0.7											
						ي								
				14 - 34 ft		&								
20	303		1.4	SILTY SAND; FINE TO MEDIUM SAND		in diameter PVC								
			_	red, poorly sorted, dry, no odor		iam								
						<u>=</u>								
25	306		1			2								
							bentonite							
							seal							
30	262		1.1											
35	455		0.8											
	-			34 - 44 ft		e								
				SILTY SAND; FINE SAND, SANDSTONE										
40	424		0.3	tan, moderately well sorted, dry, no odor										
45	302		0.6											
					11.5	_								

Depth (feet)	chloride field tests (ppm)	LAB	PID	Description	Lithology	Well Construction	
				44 - 53 ft			
50	226		0.8	SILTY SAND; FINE SAND			
				red, well sorted, loose, dry, no odor			
55	192		0.7	53 - 62 ft			
				SILTY SAND; MEDIUM SAND	2.20		
				light brown, moderately well sorted, dry,	i rest		
60	211		0.8	no odor, slightly gravelly at 60 - 62 ft		-	
						\square \square !	
65	174		0.8	62 - 70 ft			
				SILTY SAND; FINE SAND			
				red, well sorted, loose, dry, no odor			
70	115	CI- 48	1			The state of the s	
		GRO <10.0					
		DRO					
	ļ <u></u>	<10.0				sand pack	
75	 						
				NO SAMPLES TAKEN			
80							
85							
						screen = 0.01"	



APPENDIX C

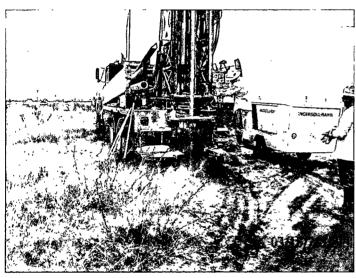
PHOTOGRAPHS



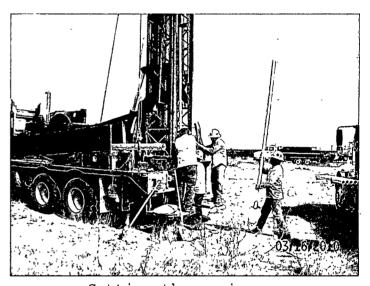
Drilling soil bores



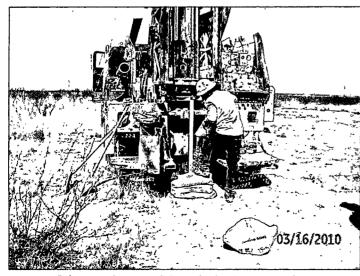
Plugging the soil bore in total with bentonite



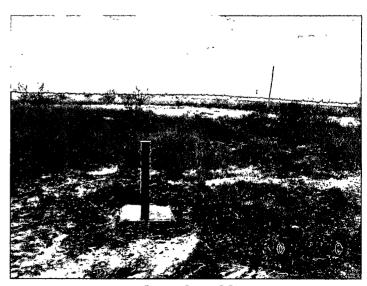
Drilling MW-1



Setting the casing



Sealing the well with bentonite



Completed well