1R - 426-124

GENERAL CORRESPONDENCE

YEAR(S):

2007

CERTIFIED MAIL
RETURN RECIEPT NO. 7099 3400 0017 1737 2152

December 26, 2007

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

RE: **INVESTIGATION & CHARACTERIZATION PLAN**
BD Jct. P-30 Site
T21S-R37E-Section 30, Unit Letter P
IR-426-124

Mr. Hansen:

RICE Operating Company (ROC) has retained Trident Environmental to address potential environmental concerns at the above-referenced site. ROC is the service provider (agent) for the Blinebry-Drinkard (BD) SWD 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 Partners, who provide all operating capital on a percentage ownership/usage basis. Environmental projects of this magnitude require System Partner AFE approval and work begins as funds are received. In general, project funding is not forthcoming until NMOCD approves the work plan. Therefore, your timely review of this submission is requested.

For all environmental projects, ROC will choose a path forward that:

- protects public health,
- provides the greatest net environmental benefit,
- complies with NMOCD Rules, and
- is supported by good science.

Each site shall have three submissions or a combination of:

1. This Investigation and Characterization Plan (ICP) is a proposal for data gathering and site characterization and assessment.

2. Upon evaluating the data and results from this ICP, a recommended remedy will be submitted in a Corrective Action Plan (CAP).

3. Finally, after implementing the remedy, a closure report with final documentation will be submitted.

BACKGROUND

The Jct. P-30 site is located at township 21 south, range 37 east, section 30, unit letter P approximately two miles west of Eunice, NM as shown on the attached Site Location Map (Figure 1). According to the Lea County Tax Assessor's Office, the land is owned by Nymeyer Properties. Land in the site area is primarily utilized for crude oil production and pasture land for cattle grazing.

Groundwater in the site area occurs within the High Plains aquifer under water table (unconfined) conditions (Hart & McAda, 1985) at a depth of approximately 95 feet bgs. The saturated portion of the aquifer is estimated to be 50 ft thick at the site (Nicholson and Clebsch, 1961).

PREVIOUS WORK

The P-30 junction box was rebuilt at a location approximately 30 feet to the south of its former location as part of the Pipeline Replacement/Upgrade Program. Between June 12 and June 21, 2006, a 30 feet wide by 30 feet long area was excavated to a depth of 12 feet below ground surface (bgs). During the course of excavation activities, soil samples were collected at one-foot intervals to a depth of 12 feet bgs. All soil samples were tested for chloride content using field-adapted Method 9253 (QP-03) and headspace readings were recorded using a Mini-RAE Model 76 photoionization detector (PID). Figures 2 and 3 depict the soil sample locations and provide a summary of the field chloride tests, PID readings, and laboratory analytical results. Chloride levels and PID readings did not conclusively decline vertically within the perimeter of the excavation.

Following the characterization of the soil, the excavated soil was blended and returned to the excavation up to a depth of 6 feet bgs. A 1-foot thick compacted clay barrier was installed to prevent potential downward migration of any residual contaminants and the remaining soil was placed above the clay. An identification plate was placed on the surface to mark the location of the former junction box and the clay barrier.

Notice of potential groundwater impact was sent to the NMOCD on October 13, 2006. A Junction Box Disclosure Report (attached) was submitted to the OCD with the 2006 annual reports.

RECOMMENDATION FOR FURTHER ACTIONS

The replacement of the junction box has minimized the threat of additional impact from the vadose zone, however further investigation and characterization of the site is necessary to delineate the vadose zone below twelve feet and evaluate the potential for groundwater impact. The additional assessment is also necessary to assist ROC in selecting the appropriate soil and/or groundwater remedy.

Task 1 *Evaluate Concentrations of Constituents of Concern in the Vadose Zone*

Subsurface soil samples for characterization of the lateral and vertical extent of hydrocarbon- and chloride-impacted soil will be collected at a maximum of 5-foot intervals using a drilling rig in accordance with the procedures explained in QP-02, QP-03, and QP-07 (attached). Soil samples will be field-tested for chloride content using the titration method. If there are indications of hydrocarbon-impact, samples will also be collected for headspace analysis using an organic vapor meter (OVM), which will be calibrated to assume a benzene response factor. Select samples with OVM headspace readings above 100 ppm will also be analyzed

for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8021B, and gas and diesel range organics (GRO and DRO) using EPA Method 8015 to determine TPH concentrations.

The following concentrations of analytes will be used to delineate the lateral and vertical extent of impact to the vadose zone:

- 100 ppm OVM, and/or 10 mg/kg benzene and 50 mg/kg BTEX
- 1,000 ppm chloride

Task 2 *Evaluate Concentrations of Constituents of Concern in the Groundwater*

If we detect evidence of groundwater impact, one monitoring well will be placed in the area with the greatest potential for groundwater impact, in accordance with EPA and industry standards and developed by bailing with a rig or hand bailer, or pumping with a submersible pump to remove fine-grained sediment disturbed during drilling and to ensure collection of representative samples. If data suggest ground water impairment two quarters of ground water monitoring will be conducted to confirm any initial result. If groundwater impact is confirmed, additional monitoring wells may be installed to determine the local groundwater gradient direction and lateral extent of groundwater impact. Groundwater samples will be collected in accordance with procedures explained in QP-04 and QP-05 (attached), and analyzed for BTEX, major ions, and total dissolved solids (TDS).

The information gathered from tasks 1 and 2 will be evaluated and utilized to design a soil and/or ground water remedy if needed. The remedy that offers the greatest environmental benefit while causing the least environmental impairment will be selected. Such recommendations and findings will be presented to NMOCD in a subsequent Corrective Action Plan (CAP). When evaluating any proposed remedy or investigative work, ROC will confirm that there is a reasonable relationship between the benefits created by the proposed remedy or assessment and the economic and social costs.

We appreciate the opportunity to work with you on this project. Please feel free to call me at 432-638-8740 or Kristin Pope at 505-393-9174, if you have any questions.

Sincerely,

Gilbert J. Van Deventer, REM, PG
Trident Environmental - Project Manager

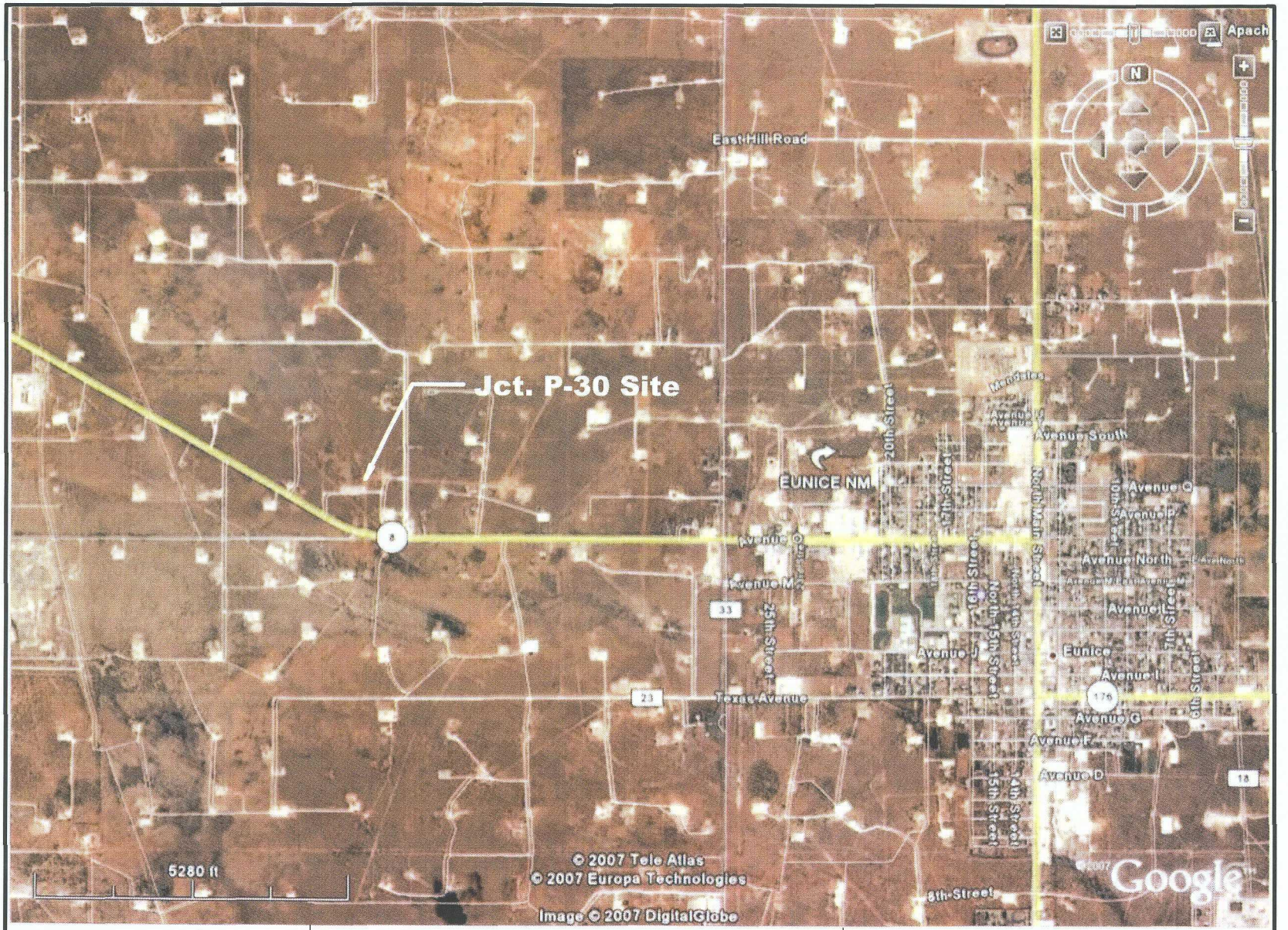
cc: CDH, JSC, KFP, file

enclosures: site location and sampling maps, disclosure report, photos, and sampling procedures

Site Location Map

And

Soil Sampling Maps



TRIDENT ENVIRONMENTAL

BD Jct. P-30 Site

T21S - R37E - Section 30, Unit P

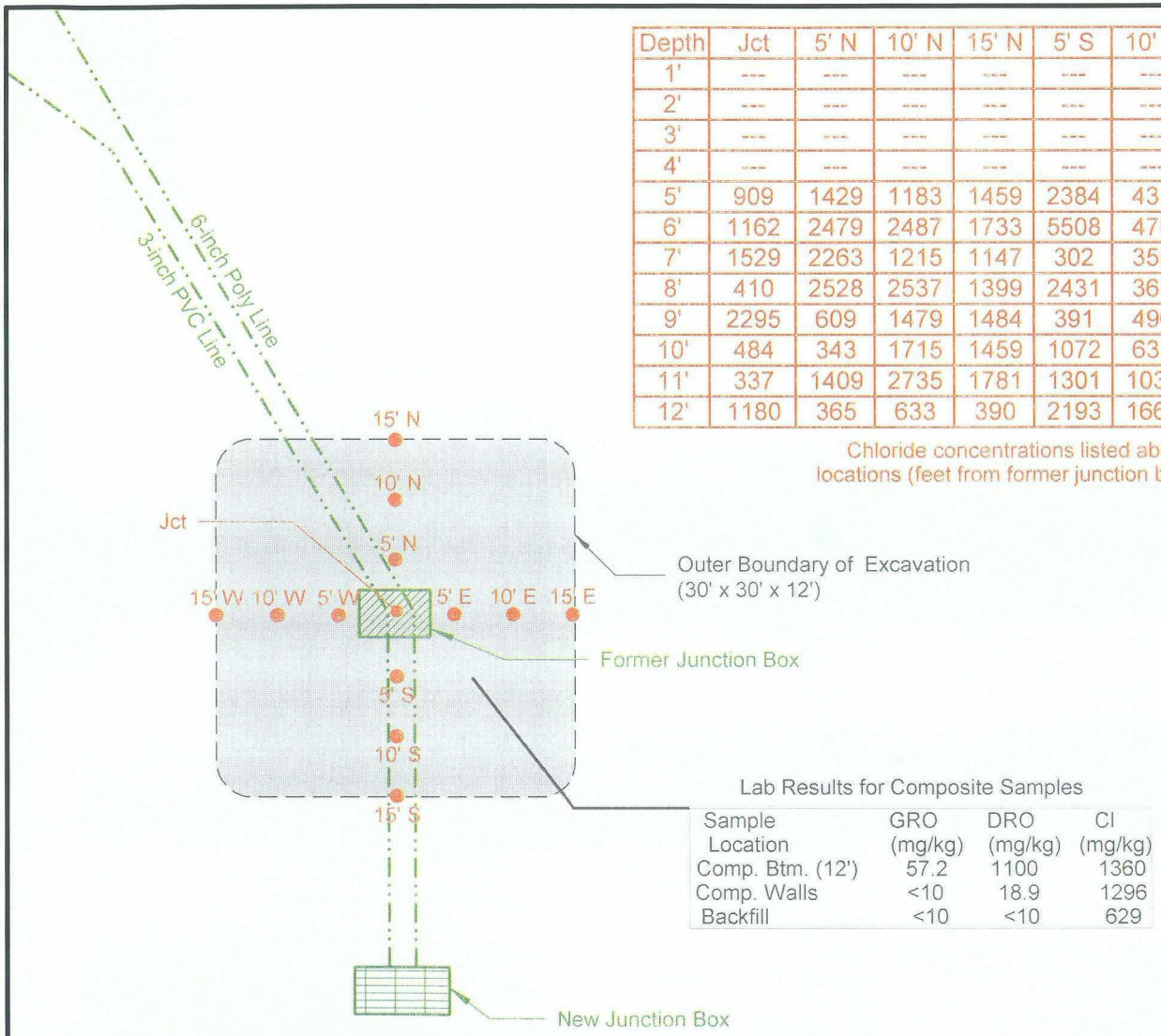
RICE *Operating Company*

FIGURE 1

SITE LOCATION MAP

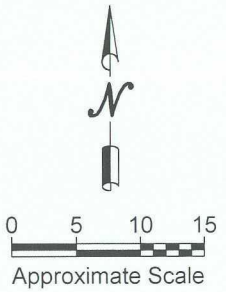
Depth	Jct	5' N	10' N	15' N	5' S	10' S	15' S	5' E	10' E	15' E	5' W	10' W	15' W
1'	---	---	---	---	---	---	---	---	---	516	---	---	---
2'	---	---	---	---	---	---	---	---	---	314	---	---	---
3'	---	---	---	---	---	---	1419	---	---	404	---	---	---
4'	---	---	---	---	---	---	2343	---	---	383	---	---	---
5'	909	1429	1183	1459	2384	431	2351	1144	1462	631	---	920	872
6'	1162	2479	2487	1733	5508	470	404	1187	358	823	2092	1195	298
7'	1529	2263	1215	1147	302	350	579	379	437	666	1171	2271	303
8'	410	2528	2537	1399	2431	363	1246	1775	596	1159	1123	292	448
9'	2295	609	1479	1484	391	496	2087	2654	1378	1655	331	2008	1304
10'	484	343	1715	1459	1072	631	2364	1120	1054	1393	648	1424	2311
11'	337	1409	2735	1781	1301	1036	3978	1132	589	796	1094	1949	1453
12'	1180	365	633	390	2193	1660	3905	1207	1337	983	1845	958	1709

Chloride concentrations listed above in parts per million (ppm) at specified locations (feet from former junction box) and depths (feet below ground surface).



Lab Results for Composite Samples

Sample Location	GRO (mg/kg)	DRO (mg/kg)	Cl (mg/kg)
Comp. Btm. (12')	57.2	1100	1360
Comp. Walls	<10	18.9	1296
Backfill	<10	<10	629



Soil Samples Collected on June 12 - 22, 2006

TRIDENT ENVIRONMENTAL

BD Jct. P-30 Site

T21S - R37E - Section 30, Unit P

RICE Operating Company

FIGURE 2

SOIL SAMPLE RESULTS

Junction Box Disclosure Report

RICE OPERATING COMPANY
JUNCTION BOX **DISCLOSURE*** REPORT

BOX LOCATION

SWD SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE	COUNTY	BOX DIMENSIONS - FEET		
							Length	Width	Depth
BD	jct. P-30	P	30	21S	37E	Lea	moved 30 ft south		

LAND TYPE: BLM _____ STATE _____ FEE LANDOWNER Nymeyer Property OTHER _____

Depth to Groundwater 99 feet NMOCD SITE ASSESSMENT RANKING SCORE: 20**

Date Started 6/12/2006 Date Completed 8/24/2006 NMOCD Witness no

Soil Excavated 400 cubic yards Excavation Length 30 Width 30 Depth 12 feet

Soil Disposed 0 cubic yards Offsite Facility n/a Location n/a

FINAL ANALYTICAL RESULTS: **Sample Date** 6/22/2006 **Sample Depth** 12 ft

5-point composite sample of bottom and 4-point composite sample of excavation sidewalls. TPH, BTEX, and chloride laboratory test results completed by using an approved laboratory and testing procedures pursuant to NMOCD guidelines.

Sample Location	Benzene mg/kg	Toluene mg/kg	Ethyl Benzene mg/kg	Total Xylenes mg/kg	GRO mg/kg	DRO mg/kg	Chlorides mg/kg
4-WALL COMP.	PID = 13.6				<10.0	18.9	1296
BOTTOM COMP.	<0.005	<0.005	<0.005	0.021	57.2	1100	1360
BACKFILL	PID = 9.7				<10.0	<10.0	629

General Description of Remedial Action:

This junction box was addressed with the pipeline replacement/upgrade program. This old junction box was replaced with a new, watertight box 30 ft south of the former. After the lumber was removed from the old box, the site was delineated using a backhoe while soil samples were collected at regular intervals creating a 30 x 30 x 12-ft-deep excavation. Chloride field tests and PID detections were measured on each soil sample. Trends of decline were not established with the chloride concentrations and PID detections yielded elevated concentrations, especially at the bottom of the excavation. Composite samples were collected for laboratory analysis and the excavated soil was blended on site and then backfilled to 6 ft BGS. At 6 ft, a clay barrier was installed and the remaining excavated soil was backfilled on top and contoured to the surrounding surface to divert rainwater. An identification plate was placed on the surface to mark the location of the former jct. box for future environmental considerations and the presence of clay below. NMOCD was notified of potential groundwater impact at this site on 10/13/2006.

ADDITIONAL EVALUATION IS *HIGH* PRIORITY

enclosures: photos, lab results, PID field screenings, chloride graph. BTEX study, profile

CHLORIDE FIELD TESTS

LOCATION	DEPTH (ft)	ppm
15 ft SOUTH of junction	3	1419
	4	2343
	5	2351
	6	404
	7	579
	8	1246
	9	2087
	10	2364
	11	3978
	12	2905
4-wall comp.	n/a	1155
bottom comp.	12	1086
backfill comp.	n/a	869

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SITE SUPERVISOR Darnell Mitchell SIGNATURE Darnell Mitchell COMPANY RICE Operating Company

REPORT ASSEMBLED BY Kristin Farris Pope SIGNATURE Kristin Farris Pope

DATE 10/19/2006 TITLE Project Scientist

** This site is a "DISCLOSURE." It will be placed on a prioritized list of similar sites for further consideration.*

** An inactive non-domestic water well is located 580 ft NW of this site.

BD jct. P-30

undisturbed junction box 4/30/2003

beginning delineation at former box site (new box also shown) June 2006

30 x 30 x 12-ft-deep excavation

backfilling excavation

installing clay at 6 ft

completing backfill 8/24/2006

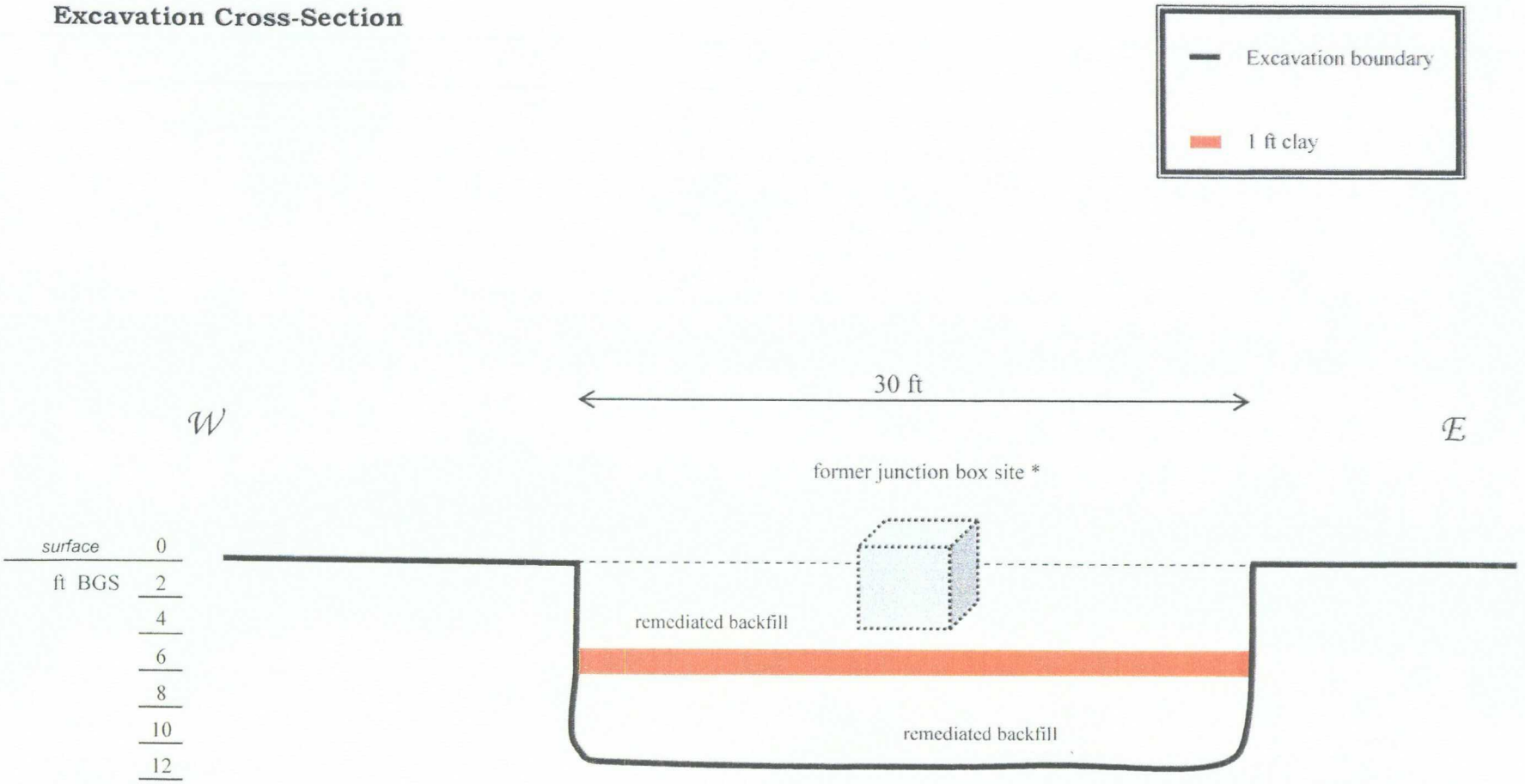
seeding disturbed surface 9/7/2006

clay identification plate

BD jct. P-30

30 x 30 x 12-ft-deep

Excavation Cross-Section



* The junction box was replaced 30 ft south from this site.

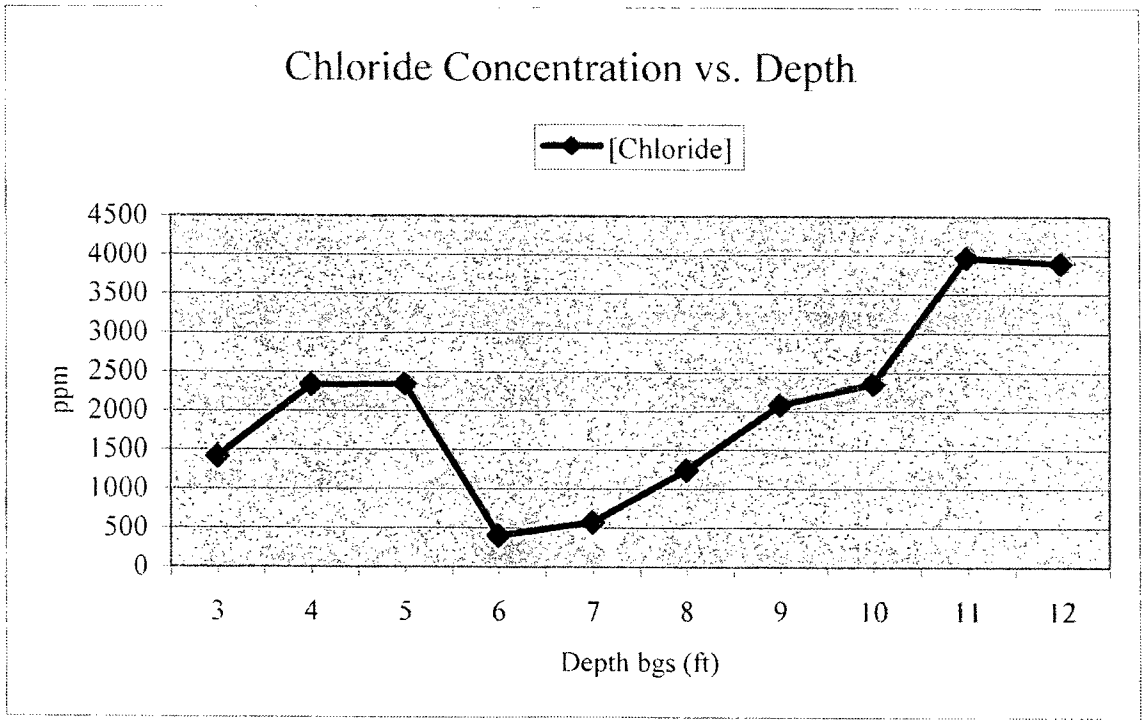
BD jct. P-30

unit 'P', Sec. 30, T21S, R37E

15 ft SOUTH of junction

Depth bgs (ft)	[Cl⁻] ppm
3	1419
4	2343
5	2351
6	404
7	579
8	1246
9	2087
10	2364
11	3978
12	3905

Groundwater = 99 ft



CARDINAL LABORATORIES

PHONE (325) 673-7001 · 3111 BEECHWOOD · ABILENE, TX 79603
PHONE (505) 393-2326 · 101 E. MARLAND · HOBBS, NM 88240

ANALYTICAL RESULTS FOR
RICE OPERATING CO.
ATTN: ROY R. RASCON
122 W. TAYLOR
HOBBS, NM 88240
FAX TO: (505) 397-1471

Receiving Date: 06/26/06
Reporting Date: 06/29/06
Project Number: NOT GIVEN
Project Name: BD JCT P-30
Project Location: NOT GIVEN

Sampling Date: 06/22/06
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: BC/HM

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)	Cl* (mg/Kg)
ANALYSIS DATE		06/28/06	06/28/06	06/28/06
H11282-1	BTTM 5 PT COMP. @12'	57.2	1100	1360
H11282-7	4 WALL COMP. 30'x30'	<10.0	18.9	1296
H11282-8	BLENDED BACKFILL	<10.0	<10.0	629
Quality Control		744	767	990
True Value QC		800	800	1000
% Recovery		93.0	95.9	99.0
Relative Percent Difference		5.2	2.8	0.0

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

Chemist

6/29/06
Date

H11282A

CARDINAL LABORATORIES

PHONE (325) 673-7001 · 2111 BEECHWOOD · ABILENE, TX 79603
PHONE (505) 393-2326 · 101 E. MARLAND · HOBBS, NM 88240

ANALYTICAL RESULTS FOR
RICE OPERATING CO.
ATTN: ROY R. RASCON
122 W. TAYLOR
HOBBS, NM 88240
FAX TO: (505) 397-1471

Receiving Date: 06/26/06
Reporting Date: 06/29/06
Project Number: NOT GIVEN
Project Name: BD JCT P-30
Project Location: NOT GIVEN

Sampling Date: 06/22/06
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: BC

FIELD LAB

LAB NUMBE	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE		06/27/06	06/27/06	06/27/06	06/27/06
H11282-1	BTTM 5 PT COMP. @12'	<0.005	<0.005	<0.005	0.021
H11282C	COMPOSITE OF BTTM #1, #2, #3, #4, #5	<0.005	<0.005	<0.005	0.035
Quality Control		0.102	0.100	0.106	0.309
True Value QC		0.100	0.100	0.100	0.300
% Recovery		102	99.9	106	103
Relative Percent Difference		1.7	1.6	7.2	2.5

METHOD: EPA SW-846 8260

Chemist

6-29-06
Date

H11282B

CARDINAL LABORATORIES, INC.

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

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page ____ of ____

Company Name:	RICE OPER. CO.	BILL TO	
Project Manager:	Roy R. RASCON	P.O. #:	
Address:	122 W. TAYLOR	Company:	
City:	Hobbs, State: NM Zip: 88240	Attn:	
Phone #:	393-9174 Fax #: 397-1471	Address:	
Project #:	Project Owner:	City:	
Project Name:	BD JCT P-30	State: Zip:	
Project Location:		Phone #:	
Sampler Name:	DARNELL Mitchell	Fax #:	

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	Cl-	8015 M	BTEX	ANALYSIS REQUEST
H11252-1	BTTM SPT Comp. @ 12'	C	1			✓					✓		6-22-06	1105A	✓	✓	✓	
-2	BTTM #1	G	1			✓					✓		6-22-06	1035 A				
-3	#2	G	1			✓					✓		6-22-06	1042 A				
-4	#3	G	1			✓					✓		6-22-06	1045 A				
-5	#4	G	1			✓					✓		6-22-06	1052 A				
-6	#5	G	1			✓					✓		6-22-06	1100 A				
-7	4 WALL Comp. 30'x30'	C	1			✓					✓		6-22-06	200 P	✓	✓		
-8	Blended Backfill	C	1			✓					✓		6-22-06	230 P	✓	✓		

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising 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.

Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished:	Darnell Mitchell	Date: 6-26-06 Time: 5 PM	Received By:
Relinquished By:		Date: 6/26/06 Time: 5:00	Received By: (Lab Staff) Burgess A Cook

Delivered By: (Circle One)
(Sampler) - UPS - Bus - Other:

Sample Condition: Temp, °C	Intact?	Checked By: (Initials)
Cool	☒ Yes ☐ No	

Phone Result:	☐ Yes	☐ No
Fax Result:	☐ Yes	☐ No

REMARKS: Comp. BTTM. #1, 2, 3, 4, 5 In Lab 4
Run BTEX
E-Mail Results to
RRascon@RICESWD.Com

† Cardinal cannot accept verbal changes. Please fax written changes to (325) 673-7020.

2006 BTEX Study

Revised Junction Box Upgrade Plan (2003)

System: BD
Site: jct. P-30
Date: 6/22/2006
Sampler: Darnell Mitchell
Laboratory: Cardinal Laboratorie

Location	Component	PID reading (ppm)	FIELD COMPOSITE (mg/kg)			
			Benzene	Toluene	Ethyl Benzene	Total Xylenes
bottom composite at 12 ft BGS	1	4000	<0.005	<0.005	<0.005	0.021
	2	3500				
	3	3940				
	4	0.1				
	5	0.0				
			LAB COMPOSITE (mg/kg)			
			<0.005	<0.005	<0.005	0.035

Field PID tests <100 ppm are considered final for BTEX. If PID is >100 ppm, the components of the BTEX composite sample will be collected individually and will be composited under laboratory conditions to prevent excessive volatilization. A 15-box, 30-sample study will be made to compare field-compositing with lab-compositing BTEX samples. Composite components are collected in a skewed 'W' pattern.

RICE OPERATING COMPANY

122 West Taylor Hobbs, NM 88240
Phone: (505) 393-9174 Fax: (505) 397-1471

VOC FIELD TEST REPORT FORM

PID METER READING & CALIBRATION

CAL.	X	MODEL: PGM 761S	SERIAL NO: 104412
MODEL		MODEL: PGM 761S	SERIAL NO: 104490
NO.		MODEL: PGM 760	SERIAL NO: 110-12365

LOT NO: 05-2895 — GAS COMPOSITION: ISOBUTYLENE 100PPM / AIR: BALANCE
FILL DATE: 7-19-05 — EXP. DATE: 7-19-07
ACCURACY: +/- 2% — METER READING ACCURACY: 100.2

SYSTEM	JUNCTION	UNIT	SECTION	TOWNSHIP	RANGE
B.D	Jct P-30	P	30	T-21S	R-37E

4 wall Point Samples And 4 wall Composit Sample — Backfill Sample

SAMPLE	PID RESULTS	SAMPLE	PID RESULTS
1 wall	2.7		
2 wall	4.9		
3 wall	8.3		
4 wall	4.1		
4 wall Composit	13.6		
Backfill	9.7		

I verify that I have calibrated the above instrument in accordance to the manufacure operation manual.

SIGNATURE: Darrel Mitchell — DATE: 6-22-06

RICE *Operating Company*
Quality Procedures

QP-02: Procedure for Obtaining Soil Samples for Transportation to a Lab

QP-03: Sampling and Testing Protocol for Chloride Titration

QP-04: Development of Cased Water-Monitoring Wells

QP-05: Procedure for Obtaining Water Samples (Cased Wells)

QP-07: Sampling and Testing Protocol for VOC in Soil

Rice Operating Company

Quality Procedure

Procedure for Obtaining
Soil Samples for Transportation to a Laboratory

1.0 Purpose

This procedure outlines the methods to be employed when obtaining soil samples to be taken to a laboratory for analysis.

2.0 Scope

This procedure is to be used when collecting soil samples intended for ultimate transfer to a testing laboratory.

3.0 Preliminary

3.1 Obtain sterile sampling containers from the testing laboratory designated to conduct analyses of the soil. The shipment should include a Certificate of Compliance from the manufacturer of the collection bottle or vial and a Serial Number for the lot of containers. Retain this Certificate for future documentation purposes.

3.2 If collecting TPH, BTEX, RCRA 8 metals, cation /anions or O&G, the sample jar may be a clear 4 oz. container with Teflon lid. If collecting PAH's, use an amber 4 oz. container.

4.0 Chain of Custody

4.1 Prepare a Sample Plan. The plan will list the number, location and designation of each planned sample and the individual tests to be performed on the sample. The sampler will check the list against the available inventory of appropriate sample collection bottles to insure against shortage.

4.2 Transfer the data to the Laboratory Chain of Custody Form. Complete all sections of the form except those that relate to the time of delivery of the samples to the laboratory.

4.3 Pre-label the sample collection jars. Include all requested information except time of collection. (Use a fine point Sharpie to insure that the ink remains on the label.) Affix the labels to the jars.

5.0 Sampling Procedure

5.1. Do not touch the soil with your bare hands. Use new latex gloves with each sample to help minimize any cross-contamination.

5.2. Go to the sampling point with the sample container. If not analyzing for ions or metals, use a trowel to obtain the soil.

5.3. Pack the soil tightly into the container leaving the top slightly domed. Screw the lid down tightly. Enter the time of collection onto the sample collection jar label.

5.4. Place the sample directly on ice for transport to the laboratory if required.

5.5. Complete the Chain of Custody form to include the collection times for each sample. Deliver all samples to the laboratory.

6.0 Documentation

6.1 The testing laboratory shall provide the following minimum information:

a. Project and sample name.
b. Signed copy of the original Chain of Custody Form including the time the sample was received by the lab.
c. Results of the requested analyses
d. Test Methods employed
e. Quality Control methods and results

Rice Operating Company

QUALITY PROCEDURE

Sampling and Testing Protocol Chloride Titration Using .282 Normal Silver Nitrate Solution

1.0 Purpose

This procedure is to be used to determine the concentration of chloride in soil.

2.0 Scope

This procedure is to be used as the standard field measurement for soil chloride concentrations.

3.0 Sample Collection and Preparation

3.1 Collect at least 80 grams of soil from the sample collection point. Take care to insure that the sample is representative of the general background to include visible concentrations of hydrocarbons and soil types. If necessary, prepare a composite sample for soils obtained at several points in the sample area. Take care to insure that no loose vegetation, rocks or liquids are included in the sample(s).

3.2 The soil sample(s) shall be immediately inserted into a one-quart or larger polyethylene freezer bag. Care should be taken to insure that no cross-contamination occurs between the soil sample and the collection tools or sample processing equipment.

3.3 The sealed sample bag should be massaged to break up any clods.

4.0 Sample Preparation

4.1 Tare a clean glass vial having a minimum 40 ml capacity. Add at least 10 grams of the soil sample and record the weight.

4.2 Add at least 10 grams of reverse osmosis water to the soil sample and shake for 20 seconds.

4.3 Allow the sample to set for a period of 5 minutes or until the separation of soil and water.

4.4 Carefully pour the free liquid extract from the sample through a paper filter into a clean plastic cup if necessary.

5.0 Titration Procedure

5.1 Using a graduated pipette, remove 10 ml extract and dispense into a clean plastic cup.

5.2 Add 2-3 drops potassium chromate (K_2CrO_4) to mixture.

5.3 If the sample contains any sulfides (hydrogen or iron sulfides are common to oilfield soil samples) add 2-3 drops of hydrogen peroxide (H_2O_2) to mixture.

5.4 Using a 1 ml pipette, carefully add .282 normal silver nitrate (one drop at a time) to the sample while constantly agitating it. Stop adding silver nitrate when the solution begins to change from yellow to red. Be consistent with endpoint recognition.

5.5 Record the ml of silver nitrate used.

6.0 Calculation

To obtain the chloride concentration, insert measured data into the following formula:

$$\frac{.282 \times 35{,}450 \times \text{ml } AgNO_3}{\text{ml water extract}} \times \frac{\text{grams of water in mixture}}{\text{grams of soil in mixture}}$$

Using Step 5.0, determine the chloride concentration of the RO water used to mix with the soil sample. Record this concentration and subtract it from the formula results to find the net chloride in the soil sample.

Record all results on the delineation form.

Rice Operating Company

Quality Procedure
Development of Cased Water-Monitoring Wells

1.0 Purpose

This procedure outlines the methods to be employed to develop cased monitoring wells.

2.0 Scope

This procedure shall be used for developed, cased water monitoring wells. It is not to be used for standing water samples such as ponds or streams.

3.0 Sample Collection and Preparation

3.1 Prior to development, the static water level and height of the water column within the well casing will be measured with the use of an electric D.C. probe or a steel engineer's tape and water sensitive paste.

3.2 All measurements will be recorded within a field log notebook.

3.3 All equipment used to measure the static water level will be decontaminated after each use by means of Liquinox, a phosphate free laboratory detergent, and water to reduce the possibility of cross-contamination. The volume of water in each well casing will be calculated.

4.0 Purging

4.1 Wells will be purged by using a 2" decontaminated submersible pump or dedicated one liter Teflon bailer. Wells should be purged until the pH and conductivity are stabilized and the turbidity has been reduced to the greatest extent possible.

4.2 If a submersible is used the pump will be decontaminated prior to use by scrubbing the outside surface of tubing and wiring with a Liquinox water mixture, pumping a Liquinox-water mixture through the pump, and a final flush with fresh water.

5.0 Water Disposal

5.1 All purge and decontamination water will be temporarily stored within a portable tank to be later disposed of in an appropriate manner.

6.0 Records

6.1 Rice Operating Company will record the amount of water removed from the well during development procedures. The purge volume will be reported to the appropriate regulatory authority when filing the closure report.

Rice Operating Company

Quality Procedure

Procedure for Obtaining Water Samples (Cased Wells) Using One Liter Bailer

1.0 Purpose

This procedure outlines the methods to be employed in obtaining water samples from cased monitoring wells.

2.0 Scope

This procedure shall be used for developed, cased water monitoring wells. It is not to be used for standing water samples such as ponds or streams.

3.0 Preliminary

3.1 Obtain sterile sampling containers from the testing laboratory designated to conduct analyses of the water. The shipment should include a Certificate of Compliance from the manufacturer of the collection bottle or vial and a Serial Number for the lot of containers. Retain this Certificate for future documentation purposes.

3.2 The following table shall be used to select the appropriate sampling container, preservative method and holding times for the various elements and compounds to be analyzed.

Compound to be Analyzed	Sample Container Size	Sample Container Description	Cap Requirements	Preservative	Maximum Hold Time
BTEX	40 ml	VOA Container	Teflon Lined	HCl	7 days
TPH	1 liter	clear glass	Teflon Lined	HCl	28 days
PAH	1 liter	amber glass	Teflon Lined	Ice	7 days
Cation/Anion	1 liter	clear glass	Teflon Lined	None	48 Hrs
Metals	1 liter	HD polyethylene	Any Plastic	Ice/HNO_3	28 Days
TDS	300 ml	clear glass	Any Plastic	Ice	7 Days

4.0 Chain of Custody

4.1 Prepare a Sample Plan. The plan will list the well identification and the individual tests to be performed at that location. The sampler will check the list against the available inventory of appropriate sample collection bottles to insure against shortage.

4.2 Transfer the data to the Laboratory Chain of Custody Form. Complete all sections of the form except those that relate to the time of delivery of the samples to the laboratory.

4.3 Pre-label the sample collection jars. Include all requested information except time of collection. (Use a fine point Sharpie to insure that the ink remains on the label). Affix the labels to the jars.

5.0 Bailing Procedure

5.1 Identify the well from the sites schematics. Place pre-labeled jar(s) next to the well. Remove the plastic cap from the well bore by first lifting the metal lever and then unscrewing the entire assembly.

5.2 Using a dedicated one liter Teflon bailer, purge a minimum of three well volumes. Place the water in storage container for transport to a ROC disposal facility.

5.3 Take care to insure that the bailing device and string do not become cross-contaminated. A clean pair of rubber gloves should be used when handling either the retrieval string or bailer. The retrieval string should not be allowed to come into contact with the ground.

6.0 Sampling Procedure

6.1 Once the well has been bailed in accordance with 5.2 of this procedure, a sample may be decanted into the appropriate sample collection jar directly from the bailer. The collection jar should be filled to the brim. Once the jar is sealed, turn the jar over to detect any bubbles that may be present. Add additional water to remove all bubbles from the sample container.

6.2 Note the time of collection on the sample jar with a fine Sharpie.

6.3 Place the sample directly on ice for transport to the laboratory. The preceding table shows the maximum hold times between collection and testing for the various analyses.

6.4 Complete the Chain of Custody form to include the collection times for each sample. Deliver all samples to the laboratory.

7.0 Documentation

7.1 The testing laboratory shall provide the following minimum information:

A. Project and sample name.
B. Signed copy of the original Chain of Custody Form including the time the sample was received by the lab.
C. Results of the requested analyses
D. Test Methods employed
E. Quality Control methods and results

Calculation for Determining the Minimum Bailing Volume for Monitor Wells
Formula $V = (\pi r^2 h)$
2" well [V/231=gal] X 3 = Purge Volume

V=Volume
π=pi
r=inside radius of the well bore
h=maximum height of well bore in water table

Example:

π	r^2	h(in)	V(cu.in)	V(gal)	X 3 Volumes	Actual
3.1416	1	180	565.488	2.448	7.34 gal	>10 gal

Rice Operating Company

QUALITY PROCEDURE
Sampling and Testing Protocol for VOC in Soil

1.0 Purpose

This procedure is to be used to determine the concentrations of Volatile Organic Compounds in soils.

2.0 Scope

This procedure is to be used as the standard field measurement for soil VOC concentrations. It is not to be used as a substitute for full spectrographic speciation of organic compounds.

3.0 Procedure

3.1 Sample Collection and Preparation

3.1.1 Collect at least 500 g. of soil from the sample collection point. Take care to insure that the sample is representative of the general background to include visible concentrations of hydrocarbons and soil types. If necessary, prepare a composite sample of soils obtained at several points in the sample area. Take care to insure that no loose vegetation, rocks or liquids are included in the sample(s).

3.1.2 The soil sample(s) shall be immediately inserted into a one-quart or larger polyethylene freezer bag and sealed. When sealed, the bag should contain a nearly equal space between the soil sample and trapped air. Record the sample name and the time that the sample was collected on the Field Analytical Report Form.

3.1.3 The sealed samples shall be allowed to set for a minimum of five minutes at a temperature of between 10-15 Celsius, (59-77 ^{0}F). The sample temperatures may be adjusted by cooling the sample in ice, or by heating the sample within a generally controlled environment such as the inside of a vehicle. The samples should not be placed directly on heated surfaces or placed in direct heat sources such as lamps or heater vents.

3.1.4 The sealed sample bag should be massaged to break up any clods, and to provide the soil sample with as much exposed surface area as practically possible.

3.2 Sampling Procedure

3.2.1 The instrument to be used in conducting VOC concentration testing shall be an Environmental Instruments 13471 OVM / Datalogger or a similar PID-type instrument. (Device will be identified on VOC Field Test Report Form.) Prior to use, the instrument shall be zeroed-out in accordance with the appropriate maintenance and calibration procedure outlined in the instrument operation manual. The PID device will be calibrated each day it's used.

3.2.2 Carefully open one end of the collection bag and insert the probe tip into the bag taking care that the probe tip not touch the soil sample or the sidewalls of the bag.

3.2.3 Set the instrument to retain the highest result reading value. Record the reading onto the Field Test Report Form.

3.2.4 If the instrument provides a reading exceeding 100 ppm, proceed to conduct BTEX Speciation in accordance with **QP-02 and QP-06. If the reading is 100 ppm or less, NMOCD BTEX guideline has been met and no further testing for BTEX is necessary. File the Field Test Report Form in the project file.**

4.0 Clean-up

After testing, the soil samples shall be returned to the sampling location, and the bags collected for off-site disposal. **IN NO CASE SHALL THE SAME BAG BE USED TWICE. EACH SAMPLE CONTAINER MUST BE DISCARDED AFTER EACH USE.**

Gil Van Deventer

From: "Gil Van Deventer" <gilbertvandeventer@suddenlink.net>
"Hansen, Edward J., EMNRD" <edwardj.hansen@state.nm.us>
"Scott Curtis" <scurtis@riceswd.com>; "Kristin Pope" <kpope@riceswd.com>; "Wayne Price" <wayne.price@state.nm.us>
Sent: Wednesday, December 26, 2007 1:40 PM
Attach: P-30 ICP.pdf
Subject: Investigation & Characterization Plan - BD Jct. P-30 Site

Attention: Edward Hansen, New Mexico Oil Conservation Division - Environmental Bureau

Subject: Investigation & Characterization Plan

Site Name: BD Jct. P-30 Site

Site Location: T21S-R37E-Section 30, Unit Letter P

Site Agent: RICE Operating Company

Hello Edward:

Trident Environmental is pleased to submit the attached abbreviated version of the *Investigation & Characterization Plan* (ICP) for the above-referenced site. One complete hard copy and one copy on compact disk is being sent via USPS Certified Mail (# 7099 3400 0017 1737 2152).

Thank you for your consideration of this ICP. If you have any questions, please contact me at 432-638-8740, or Kristin Pope at ROC, 505-393-9174.

Sincerely,
Gilbert J. Van Deventer, PG, REM
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