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Generic
REPORTS

DATE:

2010

RICE Operating Company
122 West Taylor • Hobbs, New Mexico 88240
Phone: (575) 393-9174 • Fax: (575) 397-1471

March 30, 2011

Mr. Edward Hansen
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

RE: JUNCTION BOX UPGRADE REPORT for 2010
VACUUM SWD SYSTEM
Lea County, New Mexico

Mr. Hansen:

Rice Operating Company (ROC) takes this opportunity to submit the Junction Box Upgrade results for the year 2010. Enclosed is a list of the completed junction boxes and their respective closure/disclosure dates. These boxes are located in the Vacuum Salt Water Disposal (SWD) System.

ROC completed 14 junction boxes in 2010. Vacuum System Partners have decided to abandon the Vacuum SWD System. In 2011, junction boxes will continue to be evaluated with the objective of abandonment of the system.

Enclosed are the 2008 results (17 sites evaluated with 22 sampling locations) from the PID/BTEX study described in the NMOCD-approved Revised Junction Box Upgrade Work Plan (July 16, 2003). A third-party analysis, conducted by Peter Galusky, Jr. Ph.D. of Texerra, concluded from the data collected thus far that field-composited values tend to produce slightly higher BTEX numbers above the point at which BTEX concentrations become significant. This is likely due to the fact that BTEX is volatile and quickly biodegradable. This analysis was submitted to NMOCD on March 12, 2009. An appropriate number of sample sites could not be obtained to conduct a 2010 BTEX comparison analysis. Peter Galusky, Jr. Ph.D. of Texerra also compared ROC's 2010 chloride field tests to chloride laboratory analyses; the analysis is also enclosed. The study of this data continues to validate the accuracy of the chloride field tests employed by ROC.

ROC is the service provider (agent) for the Vacuum 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 Parties, who provide all operating capital on a percentage ownership/usage basis.

Upgrade/closure projects of this magnitude require System Party AFE approval and work beings as funds are received. The Vacuum SWD System has been abandoned.

Thank you for your consideration of this Junction Box Upgrade Report for 2010.

RICE OPERATING COMPANY

Hack Conder
Environmental Manager

enclosures as stated

cc: SC, file, Mr. Larry Hill
NMOCD, District I Office
1625 N. French Drive
Hobbs, NM 88240

Rice Operating Company
Vacuum SWD System Junction Box Upgrade Project
2010 Completed Boxes

		Legal Description							
	Jct Box Name	Unit	Sec	T	R	Completion Date	OCD Assessment Score	Report Status	Case Number
1	K-33 EOL	K	33	17	35	4/27/2010	10	Closure	
2	Jct. L-29	L	29	17	35	6/22/2010	10	Closure	
3	B-5-1 EOL	B	5	18	35	6/21/2010	10	Closure	
4	B-5-2 EOL	B	5	18	35	6/21/2010	10	Closure	
5	J-32 EOL	J	32	17	35	6/17/2010	10	Disclosure	
6	E-31 EOL	E	31	17	35	4/27/2010	20*	Closure	
7	K-30 EOL	K	30	17	35	4/19/2010	10	Closure	
8	Jct. C-27	C	27	17	35	3/19/2010	20	Closure	
9	E-25 EOL	E	25	17	35	4/26/2010	20	Closure	
10	K-26 EOL	K	26	17	35	4/22/2010	20	Closure	
11	I-3 EOL	I	3	18	35	3/23/2010	20	Closure	
12	M-31 EOL	M	31	17	35	10/25/2010	10	Closure	
13	I-29 EOL	I	29	17	35	6/29/2010	10	Closure	
14	J-33 EOL	J	33	17	35	9/2/2010	20	Closure	

L. Peter Galusky, Jr. Ph.D., P.G.
Texerra

505 N Big Spring, Suite 404 Midland, Texas 79701
Tel: 432-634-9257 E-mail: lpg@texerra.com

March 10th, 2009

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

Re: Comparison of Field versus Lab Compositing of BTEX soil samples
Rice Operating Company, Junction Box Upgrade Work Plan

Sent via Certified Mail w/ Return Receipt No. 7006 0100 0001 2438 3944

Dear Mr. Jones:

On behalf of Rice Operating Company (ROC) I am submitting the attached comparison and analysis of field versus laboratory soil compositing for soil BTEX samples. This is to address the question of whether it is better to mix multiple samples in the field or to do so in the laboratory in order to produce a composite, representative sample for analysis. This work was undertaken in support of ROC's Junction Box Upgrade Work Plan to ensure the quality of their field analysis program.

In brief, this work indicates that field compositing of soil samples generally gives rise to *slightly* higher BTEX values than does laboratory compositing of multiple samples. This is presumably due to the likelihood that field compositing and packaging of soil samples better preserves sample integrity. It would therefore appear that field compositing would represent the better method of procuring soil samples for subsequent analysis of BTEX.

Please call me if you have any questions or wish to discuss any of the details of this study.

ROC is the service provider (agent) for various Salt Water Disposal Systems (SWDs) and has no ownership of any portion of pipeline, well or facility. The SWD Systems that ROC operates are owned by a consortium of oil producers, System Partners, who provide all operating capital on a percentage ownership/usage basis.

Sincerely,

L. Peter Galusky, Jr. Ph.D.
Principal

Copy: Rice Operating Company,
Edward Hansen (NMOCD) sent certified mail w/ return receipt
No. 7006 0100 0001 2438 3937
Attachment: As noted, above.

Rice Operating Company
Comparison of Field Compositing versus Laboratory Compositing of Soil BTEX Samples[1]

The careful mixing of multiple soil samples is critical in order to produce a representative, composite sample from a respective study area (such as a excavation face or bottom). Field technicians typically take four or five "grab" samples from excavation walls and/or bottom and send each of these to a laboratory for analysis of the composite, or mixed, sample. It would be far simpler, however, to composite such samples in the field. This study was undertaken to determine if field compositing produced results substantially different than laboratory compositing for the analysis of BTEX. Data were provided by Rice Operating Company encompassing 22 sampling locations over the period of 2004 through 2008.

A comparison of lab-composited soil samples versus field-composited soil samples revealed a close correspondence for total BTEX between the two methods (Figure 1).

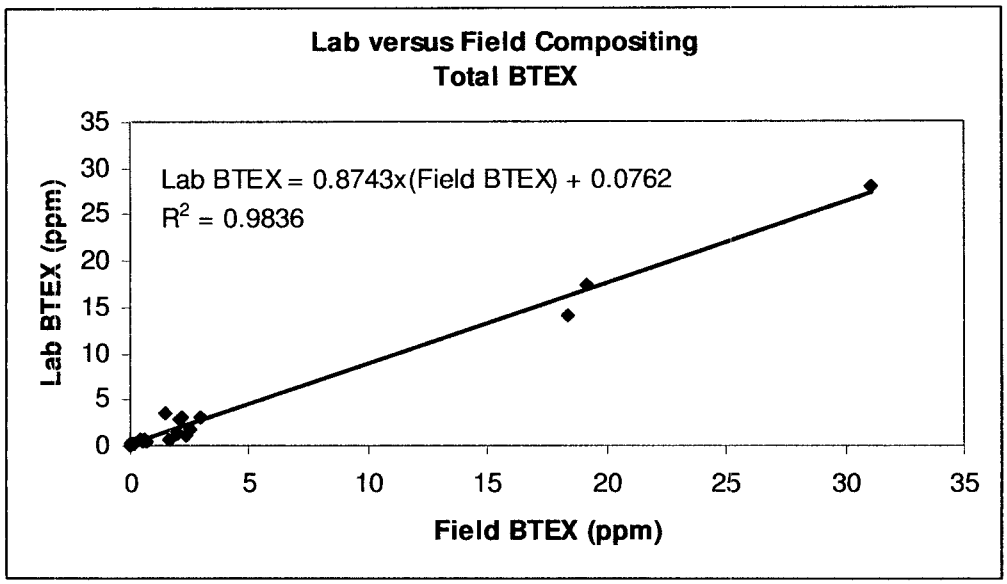

Figure 1 - Laboratory versus field-composited soil samples analyzed for BTEX.

The high R^2 value (0.9836) of the best-fit statistical regression line indicates a high degree of reliability in using the field-compositing method over the range of values observed. Below a "field-composited BTEX" value of 0.61 ppm the "lab-composited BTEX" values are slightly lower. However, above a field-composited BTEX value of 0.61 the lab-composited values run slightly lower. In other words, the field-composited values tended to produce slightly higher BTEX numbers above the point at which BTEX concentrations become significant.

There is a reason for this. BTEX is volatile and quickly biodegradable. The compositing and "packaging" of soil samples in the field minimize the handling and aeration that occur in the laboratory. Thus, field-composited soil samples lose less BTEX to evaporation and/or biodegradation prior to laboratory analysis. In other words, the field compositing and packaging of soil samples better preserves sample integrity, and for this reasons would appear to represent the better method of procuring soil samples for subsequent analysis of BTEX.

[1] Prepared 03-12-09 by L. Peter Galusky, Jr. of Texerra.

L. Peter Galusky, Jr. Ph.D., P.G.
Texerra

75 Wuthering Heights Drive
Colorado Springs, CO 80921
Tel: 719-339-6791
E-mail: lpg@texerra.com

March 29th, 2011

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: Comparison of 2010 Laboratory versus Field Measured Soil Chloride Values
Rice Operating Company, Junction Box Upgrade Work Plan

Sent via Certified Mail w/ Return Receipt No. 7006 0100 0001 2438 4095

Mr. Hansen:

On behalf of Rice Operating Company (ROC) I am submitting the attached comparison and analysis of 2010 laboratory versus field measured soil chloride values. This work was undertaken in support of ROC's Junction Box Upgrade Work Plan to ensure the quality of their field analysis program.

In brief, this work indicates that Rice's 2010 field chloride measurement efforts provided reliable and accurate estimates of the laboratory measured values.

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

Please call me if you have any questions or wish to discuss this study.

Sincerely,

L. Peter Galusky, Jr. Ph.D.
Principal

Copy: Rice Operating Company
Attachment: As noted, above.

Rice Operating Company
Comparison of Laboratory to Field Measured Soil Chloride Concentrations
Based upon 2010 Field Data[1]

A representative sample of 193 pairs of laboratory versus field measured soil chloride values was compared to determine how well field measurements matched laboratory measurements. It is assumed that laboratory measurements better represent the "true" values due to the controlled environment that a laboratory provides. A simple plot of the laboratory versus field measured soil chloride values is given below (Figure 1).

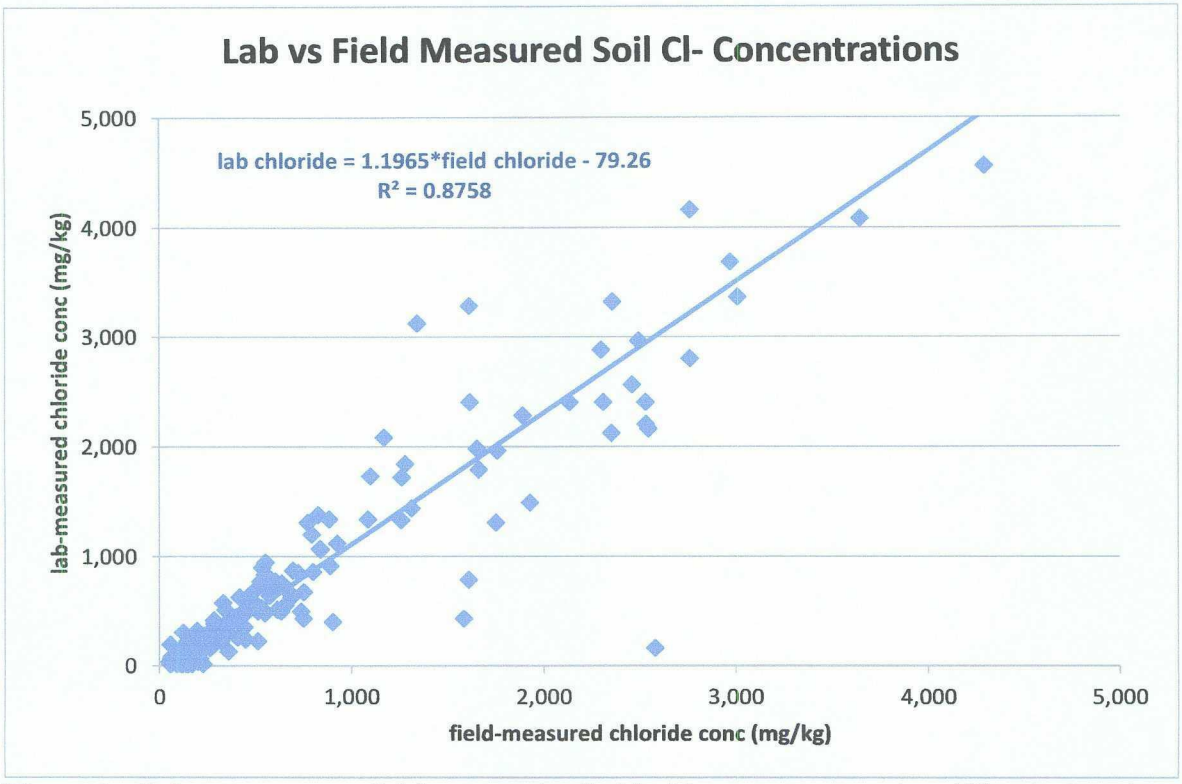

Figure 1 – Laboratory versus field measured soil chloride measurements (n = 193 paired sets).

A straight line fits the data well, and the reasonably high R^2 value (0.88), indicates that field measurements are highly reliable (repeatable and consistent) over a wide range of field-measured soil chloride concentrations. The best-fit regression equation illustrates that field-measure chloride values will somewhat overestimate the laboratory values up to a field-measured value of approximately 662 ppm. At substantially higher chloride concentrations, field-measured values will slightly underestimate the laboratory values.

Field measured values are slightly lower than (but w/in 10% of) laboratory values for extremely high (2,000 to 5,000 ppm) soil chloride concentrations, but are higher than laboratory values for low (< 250) soil chloride concentration. Taken together this comparison indicates that Rice's 2010 field chloride measurement efforts provided reliable and reasonably conservative estimates of the true (laboratory measured) values.

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[1] Prepared on 03-28-11 by L. Peter Galusky, Jr. of Texerra.

Junction Box Upgrade Progam Closure/Disclosure Submissions for 2010

Updated 3-30-11

										Closures	Disclosures
BD											
Closure	26									26	
Disclosure	14										14
EME											
Closure	39									39	
Disclosure	1										1
Vacuum											
Closure	13									13	
Disclosure	1										1
Justis											
Closure											
Disclosure	1									5	3
Hobbs											
Closure	5										
Total	**100**									**83**	**19**