NM1 - __9___

MONITORING REPORT

YEAR(S):

__2010 - 2012_

Memorandum

To: Glenn vonGonten

From: Robyn Miller

Date: 1/31/2012

Re: Sunco Well

Enclosed are the 2011 4th Quarter Sample Results for Permit NM1-9 and the Annual Class I Well Report for 2011. All the appendices and these two documents are on the enclosed flash drive.

If you have any questions, please let me know. I may be reached at 432.571.7116.

Key® Energy Services

2011 4th Quarter Sample Results For On-Site Landfarm

Key Energy Services, LLC

Permit NM1-9

January 31, 2012

Submitted to:

Glenn vonGonten-Acting Bureau Chief
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Submitted by:

Daniel K. Gibson
Corporate Environmental Director
Key Energy Services LLC
6 Desta Drive Suite 4300
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January 31, 2012

Summary of Analytical Results:

This report presents the 4th quarter sampling analytical results for landfarm cells #1 and #2. Appendix A contains chain-of-custody forms, field notes with pertinent information, sample locations, and selected photos. The sampling was conducted pursuant to a sampling plan submitted to OCD on December 30, 2011 and approved by OCD on January 9, 2012. Appendix B contains the sampling plan and approval.

Laboratory data for the Treatment Zone (TZ) cells (#1) and (#2) reported concentrations for TPH by Method 418.1 of 4,370 mg/kg and 2,570 mg/kg, Chlorides of 100 mg/kg and 430 mg/kg respectfully, and TPH (Method 8015m GRO/DRO) of "ND" for both cells, and BTEX (8021) of "ND" for both cells.

Laboratory data for the Vadoze Zone (VZ) samples for cells (#1) and (#2) reported concentrations for TPH by Method 418.1 of 12.8 mg/kg and 12.8 mg/kg, Chlorides of 10 mg/kg and 240 mg/kg respectfully, and TPH (Method 8015m GRO/DRO) of "ND" for both cells, and BTEX (8021) of "ND" for both cells.

The Vadose Zone samples also included values for "General Chemistry" and WQCC metals which are contained in Appendix A. Values were checked and compared to on-site background levels. The results revealed that constituents of concern were either within the background range, or statistically close to the background.

Please note that no additional material has been added to the landfarm for over a year. Key has sold this facility to Agua Moss, LLC and is in the process of transferring the permits for this facility to Agua Moss.

If you have any questions please do not hesitate to call me at 432-571-7536 or email dgibson@keyenergy.com.

Sincerely yours,

Daniel K. Gibson
Corporate Environmental Director
Key Energy Services, LLC

Appendix A

- Analytical Results with Chain-of-Custody
- Field Notes
- Photos

Appendix B

- Sample Plan
- OCD Approval

Appendix A

- Analytical Results with Chain-of-Custody
- Field Notes
- Photos

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EPA METHOD 8015 Modified
Nonhalogenated Volatile
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #1-TZ	Date Reported:	01-11-12
Laboratory Number:	60778	Date Sampled:	01-10-12
Chain of Custody No:	12869	Date Received:	01-10-12
Sample Matrix:	Soil	Date Extracted:	01-10-12
Preservative:	Cool	Date Analyzed:	01-11-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Key NMI-9 Landfarm Cell #1

Analyst

Review

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EPA METHOD 8015 Modified
Nonhalogenated Volatile
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #1-3-VZ-3'	Date Reported:	01-11-12
Laboratory Number:	60779	Date Sampled:	01-10-12
Chain of Custody No:	12869	Date Received:	01-10-12
Sample Matrix:	Soil	Date Extracted:	01-10-12
Preservative:	Cool	Date Analyzed:	01-11-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste; SW-846, USEPA, December 1996.

Comments: Key NMI-9 Landfarm Cell #1

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EPA Method 8015 Modified

Nonhalogenated Volatile Organics

Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	01-11-12 QA/QC	Date Reported:	01-12-12
Laboratory Number:	60762	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	01-11-12
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	40919	9.996E+02	1.000E+03	0.04%	0 - 15%
Diesel Range C10 - C28	40919	9.996E+02	1.000E+03	0.04%	0 - 15%

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	0.8	0.2
Diesel Range C10 - C28	0.9	0.1

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Range
Gasoline Range C5 - C10	ND	ND	0.00%	0 - 30%
Diesel Range C10 - C28	ND	ND	0.00%	0 - 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	ND	250	283	113%	75 - 125%
Diesel Range C10 - C28	ND	250	233	93.3%	75 - 125%

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste,

SW-846, USEPA, December 1996.

Comments: QA/QC for Samples 60762-60763 and 60776-60780

Analyst

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #1-3-VZ-3'	Date Reported:	01-12-12
Laboratory Number:	60779	Date Sampled:	01-10-12
Chain of Custody:	12869	Date Received:	01-10-12
Sample Matrix:	Soil	Date Analyzed:	01-11-12
Preservative:	Cool	Date Extracted:	01-10-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	10.0
Toluene	ND	10.0
Ethylbenzene	ND	10.0
p,m-Xylene	ND	10.0
o-Xylene	ND	10.0
Total BTEX	ND	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	91.6 %
	1,4-difluorobenzene	99.1 %
	Bromochlorobenzene	96.4 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Key NMI-9 Landfarm Cell #1

Analyst

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	0111BBLK QA/QC	Date Reported:	01-11-12
Laboratory Number:	60780	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	01-11-12
Condition:	N/A	Analysis:	BTEX
		Dilution:	10

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	1.5963E+007	1.5995E+007	0.2%	ND	1.0
Toluene	1.6492E+007	1.6525E+007	0.2%	ND	1.0
Ethylbenzene	1.4751E+007	1.4780E+007	0.2%	ND	1.0
p,m-Xylene	3.8120E+007	3.8196E+007	0.2%	ND	1.0
o-Xylene	1.3792E+007	1.3819E+007	0.2%	ND	1.0

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	182	187	2.8%	0 - 30%	10.0
Toluene	3,400	3,460	1.8%	0 - 30%	10.0
Ethylbenzene	709	719	1.5%	0 - 30%	10.0
p,m-Xylene	5,770	5,760	0.2%	0 - 30%	10.0
o-Xylene	1,710	1,760	2.9%	0 - 30%	10.0

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	182	500	708	104%	39 - 150
Toluene	3,400	500	3,900	100%	46 - 148
Ethylbenzene	709	500	1,330	110%	32 - 160
p,m-Xylene	5,770	1000	6,570	97.0%	46 - 148
o-Xylene	1,710	500	2,300	104%	46 - 148

ND - Parameter not detected at the stated detection limit.

Dilution: Spike and spiked sample concentration represent a dilution proportional to sample dilution.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for Samples 60763, 60777, 60779 and 60780

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #1- TZ	Date Reported:	01-11-12
Laboratory Number:	60778	Date Sampled:	01-10-12
Chain of Custody No:	12869	Date Received:	01-10-12
Sample Matrix:	Soil	Date Extracted:	01-11-12
Preservative:	Cool	Date Analyzed:	01-11-12
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	4,370	6.4

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key NMI-9 Landfarm Cell #1**

Analyst

Review

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #1-3-VZ-3'	Date Reported:	01-11-12
Laboratory Number:	60779	Date Sampled:	01-10-12
Chain of Custody No:	12869	Date Received:	01-10-12
Sample Matrix:	Soil	Date Extracted:	01-11-12
Preservative:	Cool	Date Analyzed:	01-11-12
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	12.8	6.4

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable. Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key NMI-9 Landfarm Cell #1**

Analyst

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	QA/QC	Date Reported:	01-11-12
Laboratory Number:	01-11-TPH.QA/QC 60763	Date Sampled:	N/A
Sample Matrix:	Freon-113	Date Analyzed:	01-11-12
Preservative:	N/A	Date Extracted:	01-11-12
Condition:	N/A	Analysis Needed:	TPH

Calibration	I-Cal Date	C-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
	11-16-11	01-11-12	1,610	1,720	6.84%	+/- 10%

Blank Conc. (mg/Kg)	Concentration	Detection Limit
TPH	ND	6.4

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
TPH	462	353	23.6%	+/- 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept Range
TPH	462	2,000	2,630	107%	80 - 120%

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **QA/QC for Samples 60763, 60776-60779**

Analyst

Review

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #1- TZ	Date Reported:	01-11-12
Lab ID#:	60778	Date Sampled:	01-10-12
Sample Matrix:	Soil	Date Received:	01-10-11
Preservative:	Cool	Date Analyzed:	01-11-12
Condition:	Intact	Chain of Custody:	12869

Parameter	Concentration (mg/Kg)
Total Chloride	**100**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key NMI-9 Landfarm Cell #1**

Analyst

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TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #1-3-VZ-3'	Date Reported:	01/12/12
Laboratory Number:	60779	Date Sampled:	01/10/12
Chain of Custody:	12869	Date Received:	01/10/12
Sample Matrix:	Soil	Date Analyzed:	01/11/12
Preservative:	Cool	Date Digested:	01/11/12
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	1.40	0.01
Aluminum	1,840	0.01
Barium	54.5	0.01
Boron	1.11	0.01
Cadmium	ND	0.01
Chromium	0.69	0.01
Cobalt	1.14	0.01
Copper	11.8	0.01
Iron	2,020	0.01
Lead	2.37	0.01
Manganese	65.2	0.01
Molybdenum	0.15	0.01
Mercury	ND	0.01
Nickel	13.1	0.01
Selenium	0.04	0.01
Silver	1.73	0.01
Zinc	7.04	0.01

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Key NMI-9 Landfarm Cell #1**

Analyst

Review

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TRACE METAL ANALYSIS
Quality Control / Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	01-11-TM QA/QC	Date Reported:	01/12/12
Laboratory Number:	60777	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Analysis Requested:	Trace Metals	Date Analyzed:	01/11/12
Condition:	N/A	Date Digested:	01/11/12

Blank & Duplicate Conc. (mg/Kg)	Instrument Blank (mg/Kg)	Method Blank	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Arsenic	ND	ND	0.01	1.58	1.62	2.47%	0% - 30%
Aluminum	ND	ND	0.01	2380	2410	1.26%	0% - 30%
Barium	ND	ND	0.01	83.6	83.5	0.11%	0% - 30%
Boron	ND	ND	0.01	2.03	2.01	1.23%	0% - 30%
Cadmium	ND	ND	0.01	0.02	0.02	0.00%	0% - 30%
Chromium	ND	ND	0.01	1.40	1.65	18.3%	0% - 30%
Cobalt	ND	ND	0.01	1.60	1.64	2.25%	0% - 30%
Copper	ND	ND	0.01	17.1	17.0	0.18%	0% - 30%
Iron	ND	ND	0.01	3090	3080	0.32%	0% - 30%
Lead	ND	ND	0.01	2.99	3.03	1.34%	0% - 30%
Manganese	ND	ND	0.01	72.4	70.3	2.89%	0% - 30%
Molybdenum	ND	ND	0.01	0.08	0.08	0.00%	0% - 30%
Mercury	ND	ND	0.01	ND	ND	0.00%	0% - 30%
Nickel	ND	ND	0.01	21.0	20.7	1.38%	0% - 30%
Selenium	ND	ND	0.01	ND	ND	0.00%	0% - 30%
Silver	ND	ND	0.01	1.64	1.75	6.33%	0% - 30%
Zinc	ND	ND	0.01	10.2	10.2	0.00%	0% - 30%

Spike Conc. (mg/Kg)	Spike Added	Sample	Spiked Sample	Percent Recovery	Acceptance Range
Arsenic	2.50	1.58	3.47	85.0%	80% - 120%
Aluminum	2.50	2,380	2,240	94.0%	80% - 120%
Barium	5.00	83.6	83.2	93.9%	80% - 120%
Boron	5.00	2.03	6.15	87.4%	80% - 120%
Cadmium	2.50	0.02	2.02	80.2%	80% - 120%
Chromium	5.00	1.40	5.44	85.1%	80% - 120%
Cobalt	2.50	1.60	3.30	80.5%	80% - 120%
Copper	5.00	17.1	19.6	88.8%	80% - 120%
Iron	2.50	3,090	2,880	93.1%	80% - 120%
Lead	5.00	2.99	6.95	87.0%	80% - 120%
Manganese	2.50	72.4	63.4	84.7%	80% - 120%
Molybdenum	1.00	0.08	0.86	80.1%	80% - 120%
Mercury	1.00	ND	0.93	92.6%	80% - 120%
Nickel	5.00	21.0	24.1	92.5%	80% - 120%
Selenium	1.00	ND	0.83	83.1%	80% - 120%
Silver	1.00	1.64	2.21	83.5%	80% - 120%
Zinc	5.00	10.2	13.3	87.6%	80% - 120%

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.
Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: QA/QC for Samples 60777, 60779, 60752, 60762.

Analyst

Review

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CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #1-3-VZ-3'	Date Reported:	01-12-12
Laboratory Number:	60779	Date Sampled:	01-10-12
Chain of Custody:	12869	Date Received:	01-10-12
Sample Matrix:	Soil Extract	Date Analyzed:	01-10-12
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	10.0	s.u.		
Conductivity @ 25° C	748	umhos/cm		
Total Dissolved Solids @ 180C	480	mg/L		
Total Dissolved Solids (Calc)	560	mg/L		
SAR	8.20	ratio		
Total Alkalinity as CaCO3	520	mg/L		
Total Hardness as CaCO3	86.1	mg/L		
Bicarbonate as CaCO3	520	mg/L	8.5	meq/L
Carbonate as CaCO3	< 0.01	mg/L	0.000	meq/L
Hydroxide as CaCO3	< 0.01	mg/L	0.001	meq/L
Nitrate Nitrogen	0.30	mg/L	0.005	meq/L
Nitrite Nitrogen	< 0.01	mg/L	0.000	meq/L
Chloride	10.0	mg/L	0	meq/L
Fluoride	0.630	mg/L	0.033	meq/L
Phosphate	3.40	mg/L	0.107	meq/L
Sulfate	25.5	mg/L	0.53	meq/L
Iron	16.8	mg/L	0.602	meq/L
Calcium	14.6	mg/L	1	meq/L
Magnesium	12.1	mg/L	1	meq/L
Potassium	6.38	mg/L	0.2	meq/L
Sodium	175	mg/L	8	meq/L
Cations			9	meq/L
Anions			9	meq/L
Cation/Anion Difference			0.00%	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Key NMI-9 Landfarm Cell #1**

Analyst

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Water Analysis

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #1-3-VZ-3'	Date Reported:	01-12-12
Laboratory Number:	60779	Date Sampled:	01-10-12
Sample Matrix:	Soil Extract	Date Received:	01-10-12
Preservative:	Cool	Date Analyzed:	01-12-12
Condition:	Intact	Chain of Custody:	12869

Parameter	Analytical Result	Units
Cyanide (total)	ND	mg/L

Reference: U.S.E.P.A., Method 335.3 Cyanide, Total.

Comments: **Key NMI-9 Landfarm Cell #1**

Analyst

Review

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CHAIN OF CUSTODY RECORD

Client:	Project Name / Location:
KEY Energy	KEY NM-9 LANDFARM CELL #1
Client Address: [illegible]	**Sampler Name:** Lester Wayne Price Jr.
Client Phone No.: 505-715-2209	**Client No.:** KEY Energy 92065-0013

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative HgCl₂	Preservative HCl	Preservative Ice	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals (Dissolved + Fluoride)	Cation / Anion (Geochem)	RCI	TCLP with H/P	PAH	TPH (418.1)	CHLORIDE	CN			Sample Cool	Sample Intact
CELL#1-TZ	1/10/12	1:50 PM	60778	(Soil) Solid Sludge Aqueous	1-4oz			X	X								X	X				✓	✓
CELL#1-3-1Z-3'	1/10/12	2:23 PM	60779	(Soil) Solid Sludge Aqueous	2-4oz			X	X	X		X	X				X	X	X			✓	✓
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			

Handwritten notes written sideways in the table: RCRA 8 Metals column: "Cu, Fe, Zn, Mn, Al, Co, Ni, U, B"; Cation / Anion column: "KEY Wayne"; RCI column: "TC 1/12/12".

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Lester Wayne Price Jr.	1/10/12	3:15PM	Alanna Zoppi	1/10/12	3:15pm
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

RUSH

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EPA METHOD 8015 Modified
Nonhalogenated Volatile
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #2-TZ	Date Reported:	01-11-12
Laboratory Number:	60776	Date Sampled:	01-10-12
Chain of Custody No:	12868	Date Received:	01-10-12
Sample Matrix:	Soil	Date Extracted:	01-10-12
Preservative:	Cool	Date Analyzed:	01-11-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key NMI-9 Landfarm Cell #2**

Analyst

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EPA METHOD 8015 Modified
Nonhalogenated Volatile
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #2S-5-VZ-3'	Date Reported:	01-11-12
Laboratory Number:	60777	Date Sampled:	01-10-12
Chain of Custody No:	12868	Date Received:	01-10-12
Sample Matrix:	Soil	Date Extracted:	01-10-12
Preservative:	Cool	Date Analyzed:	01-11-12
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	ND	0.2
Diesel Range (C10 - C28)	ND	0.1
Total Petroleum Hydrocarbons	ND	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Key NMI-9 Landfarm Cell #2

Analyst

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EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	01-11-12 QA/QC	Date Reported:	01-12-12
Laboratory Number:	60762	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	01-11-12
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	40919	9.996E+02	1.000E+03	0.04%	0 - 15%
Diesel Range C10 - C28	40919	9.996E+02	1.000E+03	0.04%	0 - 15%

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	0.8	0.2
Diesel Range C10 - C28	0.9	0.1

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Range
Gasoline Range C5 - C10	ND	ND	0.00%	0 - 30%
Diesel Range C10 - C28	ND	ND	0.00%	0 - 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	ND	250	283	113%	75 - 125%
Diesel Range C10 - C28	ND	250	233	93.3%	75 - 125%

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste,

SW-846, USEPA, December 1996.

Comments: QA/QC for Samples 60762-60763 and 60776-60780

Analyst

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #2S-5-VZ-3'	Date Reported:	01-12-12
Laboratory Number:	60777	Date Sampled:	01-10-12
Chain of Custody:	12868	Date Received:	01-10-12
Sample Matrix:	Soil	Date Analyzed:	01-11-12
Preservative:	Cool	Date Extracted:	01-10-12
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	10.0
Toluene	ND	10.0
Ethylbenzene	ND	10.0
p,m-Xylene	ND	10.0
o-Xylene	ND	10.0
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	94.7 %
	1,4-difluorobenzene	102 %
	Bromochlorobenzene	96.1 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: Key NMI-9 Landfarm Cell #2

Analyst

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	0111BBLK QA/QC	Date Reported:	01-11-12
Laboratory Number:	60780	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	01-11-12
Condition:	N/A	Analysis:	BTEX
		Dilution:	10

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	1.5963E+007	1.5995E+007	0.2%	ND	1.0
Toluene	1.6492E+007	1.6525E+007	0.2%	ND	1.0
Ethylbenzene	1.4751E+007	1.4780E+007	0.2%	ND	1.0
p,m-Xylene	3.8120E+007	3.8196E+007	0.2%	ND	1.0
o-Xylene	1.3792E+007	1.3819E+007	0.2%	ND	1.0

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	182	187	2.8%	0 - 30%	10.0
Toluene	3,400	3,460	1.8%	0 - 30%	10.0
Ethylbenzene	709	719	1.5%	0 - 30%	10.0
p,m-Xylene	5,770	5,760	0.2%	0 - 30%	10.0
o-Xylene	1,710	1,760	2.9%	0 - 30%	10.0

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	182	500	708	104%	39 - 150
Toluene	3,400	500	3,900	100%	46 - 148
Ethylbenzene	709	500	1,330	110%	32 - 160
p,m-Xylene	5,770	1000	6,570	97.0%	46 - 148
o-Xylene	1,710	500	2,300	104%	46 - 148

ND - Parameter not detected at the stated detection limit.

Dilution: Spike and spiked sample concentration represent a dilution proportional to sample dilution.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for Samples 60763, 60777, 60779 and 60780

Analyst

Review

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TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #2S-5-VZ-3'	Date Reported:	01/12/12
Laboratory Number:	60777	Date Sampled:	01/10/12
Chain of Custody:	12868	Date Received:	01/10/12
Sample Matrix:	Soil	Date Analyzed:	01/11/12
Preservative:	Cool .	Date Digested:	01/11/12
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	1.58	0.01
Aluminum	2,380	0.01
Barium	83.6	0.01
Boron	2.03	0.01
Cadmium	0.020	0.01
Chromium	1.40	0.01
Cobalt	1.60	0.01
Copper	17.1	0.01
Iron	3,090	0.01
Lead	2.99	0.01
Manganese	72.4	0.01
Molybdenum	0.08	0.01
Mercury	ND	0.01
Nickel	21.0	0.01
Selenium	ND	0.01
Silver	1.64	0.01
Zinc	10.2	0.01

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Key NMI-9 Landfarm Cell #2**

Analyst

Review

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TRACE METAL ANALYSIS
Quality Control / Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	01-11-TM QA/QC	Date Reported:	01/12/12
Laboratory Number:	60777	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Analysis Requested:	Trace Metals	Date Analyzed:	01/11/12
Condition:	N/A	Date Digested:	01/11/12

Blank & Duplicate Conc. (mg/Kg)	Instrument Blank (mg/Kg)	Method Blank	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Arsenic	ND	ND	0.01	1.58	1.62	2.47%	0% - 30%
Aluminum	ND	ND	0.01	2380	2410	1.26%	0% - 30%
Barium	ND	ND	0.01	83.6	83.5	0.11%	0% - 30%
Boron	ND	ND	0.01	2.03	2.01	1.23%	0% - 30%
Cadmium	ND	ND	0.01	0.02	0.02	0.00%	0% - 30%
Chromium	ND	ND	0.01	1.40	1.65	18.3%	0% - 30%
Cobalt	ND	ND	0.01	1.60	1.64	2.25%	0% - 30%
Copper	ND	ND	0.01	17.1	17.0	0.18%	0% - 30%
Iron	ND	ND	0.01	3090	3080	0.32%	0% - 30%
Lead	ND	ND	0.01	2.99	3.03	1.34%	0% - 30%
Manganese	ND	ND	0.01	72.4	70.3	2.69%	0% - 30%
Molybdenum	ND	ND	0.01	0.08	0.08	0.00%	0% - 30%
Mercury	ND	ND	0.01	ND	ND	0.00%	0% - 30%
Nickel	ND	ND	0.01	21.0	20.7	1.38%	0% - 30%
Selenium	ND	ND	0.01	ND	ND	0.00%	0% - 30%
Silver	ND	ND	0.01	1.64	1.75	6.33%	0% - 30%
Zinc	ND	ND	0.01	10.2	10.2	0.00%	0% - 30%

Spike Conc. (mg/Kg)	Spike Added	Sample	Spiked Sample	Percent Recovery	Acceptance Range
Arsenic	2.50	1.58	3.47	85.0%	80% - 120%
Aluminum	2.50	2,380	2,240	94.0%	80% - 120%
Barium	5.00	83.6	83.2	93.9%	80% - 120%
Boron	5.00	2.03	6.15	87.4%	80% - 120%
Cadmium	2.50	0.02	2.02	80.2%	80% - 120%
Chromium	5.00	1.40	5.44	85.1%	80% - 120%
Cobalt	2.50	1.60	3.30	80.5%	80% - 120%
Copper	5.00	17.1	19.6	88.8%	80% - 120%
Iron	2.50	3,090	2,880	93.1%	80% - 120%
Lead	5.00	2.99	6.95	87.0%	80% - 120%
Manganese	2.50	72.4	63.4	84.7%	80% - 120%
Molybdenum	1.00	0.08	0.86	80.1%	80% - 120%
Mercury	1.00	ND	0.93	92.6%	80% - 120%
Nickel	5.00	21.0	24.1	92.5%	80% - 120%
Selenium	1.00	ND	0.83	83.1%	80% - 120%
Silver	1.00	1.64	2.21	83.5%	80% - 120%
Zinc	5.00	10.2	13.3	87.6%	80% - 120%

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.
Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: QA/QC for Samples 60777, 60779, 60752, 60762.

Review

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CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #2S-5-VZ-3'	Date Reported:	01-12-12
Laboratory Number:	60777	Date Sampled:	01-10-12
Chain of Custody:	12868	Date Received:	01-10-12
Sample Matrix:	Soil Extract	Date Analyzed:	01-10-12
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	8.88	s.u.		
Conductivity @ 25° C	764	umhos/cm		
Total Dissolved Solids @ 180C	1,000	mg/L		
Total Dissolved Solids (Calc)	680	mg/L		
SAR	10.2	ratio		
Total Alkalinity as CaCO3	80.0	mg/L		
Total Hardness as CaCO3	85.0	mg/L		
Bicarbonate as CaCO3	80.0	mg/L	1.3	meq/L
Carbonate as CaCO3	< 0.01	mg/L	0.000	meq/L
Hydroxide as CaCO3	< 0.01	mg/L	0.001	meq/L
Nitrate Nitrogen	0.200	mg/L	0.003	meq/L
Nitrite Nitrogen	0.011	mg/L	0.000	meq/L
Chloride	240	mg/L	7	meq/L
Fluoride	1.19	mg/L	0.063	meq/L
Phosphate	0.100	mg/L	0.003	meq/L
Sulfate	145	mg/L	3.02	meq/L
Iron	0.578	mg/L	0.021	meq/L
Calcium	13.7	mg/L	1	meq/L
Magnesium	12.4	mg/L	1	meq/L
Potassium	2.38	mg/L	0.1	meq/L
Sodium	216	mg/L	9	meq/L
Cations			11	meq/L
Anions			11	meq/L
Cation/Anion Difference			0.00%	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments Key NMI-9 Landfarm Cell #2

Analyst

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #2- TZ	Date Reported:	01-10-12
Laboratory Number:	60776	Date Sampled:	01-10-12
Chain of Custody No:	12868	Date Received:	01-10-12
Sample Matrix:	Soil	Date Extracted:	01-11-12
Preservative:	Cool	Date Analyzed:	01-11-12
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	2,570	64.2

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key NMI-9 Landfarm Cell #2**

Analyst

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #2S-5-VZ-3'	Date Reported:	01-10-12
Laboratory Number:	60777	Date Sampled:	01-10-12
Chain of Custody No:	12868	Date Received:	01-10-12
Sample Matrix:	Soil	Date Extracted:	01-11-12
Preservative:	Cool	Date Analyzed:	01-11-12
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	12.8	6.4

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key NMI-9 Landfarm Cell #2**

Analyst

Review

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	QA/QC	Date Reported:	01-11-12
Laboratory Number:	01-11-TPH.QA/QC 60763	Date Sampled:	N/A
Sample Matrix:	Freon-113	Date Analyzed:	01-11-12
Preservative:	N/A	Date Extracted:	01-11-12
Condition:	N/A	Analysis Needed:	TPH

Calibration	I-Cal Date	C-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
	11-16-11	01-11-12	1,610	1,720	6.84%	+/- 10%

Blank Conc. (mg/Kg)	Concentration	Detection Limit
TPH	ND	6.4

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
TPH	462	353	23.6%	+/- 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept Range
TPH	462	2,000	2,630	107%	80 - 120%

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: QA/QC for Samples 60763, 60776-60779

Analyst

Review

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #2- TZ	Date Reported:	01-11-12
Lab ID#:	60776	Date Sampled:	01-10-12
Sample Matrix:	Soil	Date Received:	01-10-11
Preservative:	Cool	Date Analyzed:	01-11-12
Condition:	Intact	Chain of Custody:	12868

Parameter	Concentration (mg/Kg)
Total Chloride	430

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key NMI-9 Landfarm Cell #2**

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Analytical Laboratory

Water Analysis

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell #2S-5-VZ-3'	Date Reported:	01-12-12
Laboratory Number:	60777	Date Sampled:	01-10-12
Sample Matrix:	Soil Extract	Date Received:	01-10-12
Preservative:	Cool	Date Analyzed:	01-12-12
Condition:	Intact	Chain of Custody:	12868

Parameter	Analytical Result	Units
Cyanide (total)	0.001	mg/L

Reference: U.S.E.P.A., Method 335.3 Cyanide, Total.

Comments: Key NMI-9 Landfarm Cell #2

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 Ph (505) 632-0615 Fx (505) 632-1865
Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301 Ph (970) 259-0615 Fr (800) 362-1879
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CHAIN OF CUSTODY RECORD

Client: KEY Energy	Project Name / Location: KEY [illegible] Landfarm Cell #2
Client Address: Wayne price 77 [illegible]	Sampler Name: Lester Wayne Price Jr.
Client Phone No.: 505-715-2809	Client No.: KEY Energy 92065-0013

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative [illegible]	Preservative HCl	Preservative [illegible]	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals + [illegible]	Cation / Anion - [illegible]	RCI	TCLP with H/P	PAH	TPH (418.1)	CHLORIDE	Cl⁻			Sample Cool	Sample Intact
CELL #2- TZ	1/10/12	2:16 PM	60776	(Soil) Sludge Solid Aqueous	1-4oz			X	X								X	X				✓	✓
CELL #2 9-5-12-3	1/10/12	1:30 PM	60777	(Soil) Sludge Solid Aqueous	2-4oz			X	X	X		X	X				X	X	X			✓	✓
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			

Cu, Fe, Zn, Mn, Al, Cr, Mg, Ni, B
per [illegible] TC 1/12/12

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Lester Wayne Price Jr.	1/10/12	3:15 AM	[signature]	1/10/12	3:15 pm
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

RUSH

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DATE: JAN 10 2012 4th QTR SAMPLING FOR 2011 KEY LANDFARM NM1-9

WIND: CALM

TEMP: 40-50°F

SKY: MOSTLY CLEAR - [illegible]

SAFETY MEETING: [illegible], JIM, GARY HIGGINS, [illegible]

LAGMA MASS

PHOTOS - YES

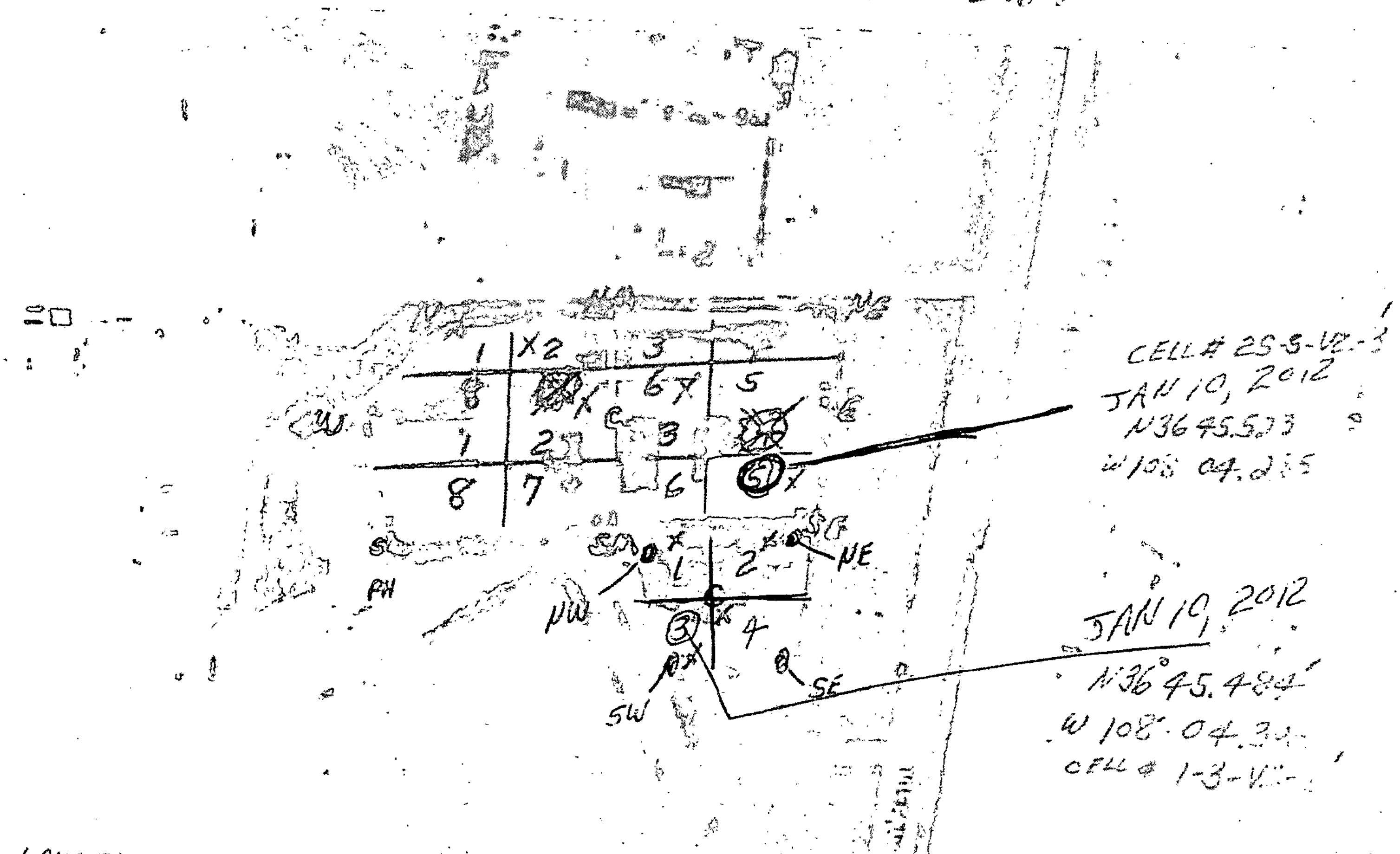
TZ - DISCRETE LOCATIONS ___ X

⊗ - [illegible] DISREGARDED

GPS - SEE BELOW

COC CROSS REF: TRACE [illegible]

ENVIR TECH - 12869



LANDFARM [illegible] LAT/LONG LOCATIONS (ACTIVE PART - INSIDE BERMS) CELL #2

#2 CENTER -	N 36 - 45.535	W 108 - 4.321
" SOUTH WEST (SW) -	N 36 - 45.507	W 108 - 4.386
" SOUTH MIDDLE (SM)	N 3[illegible] - 45.517	W 108 - 4.318
" SOUTH EAST (SE)	N 36 - 45.517	W 108 - 4.273
" EAST (E)	N 36 - 45.539	W 1[illegible] - 4.267
" NORTH EAST (NE)	N 36 - 45.557	W [illegible] - 4.266
" NORTH MIDDLE (NM) -	N 36 - 45.557	W [illegible] - 4.323
" NORTH WEST (NW) -	N 36 - 45.553	W [illegible] - 4.375
" WEST (W) -	N 36 - 45.532	W 108 - 4.393
PUMPHOUSE (PH)	N 36 - 45.491	W 108 - 4.392

CELL #1 - CENTER N36-45.494 W108 04.222

SW - N36 45.483 W108 04.308

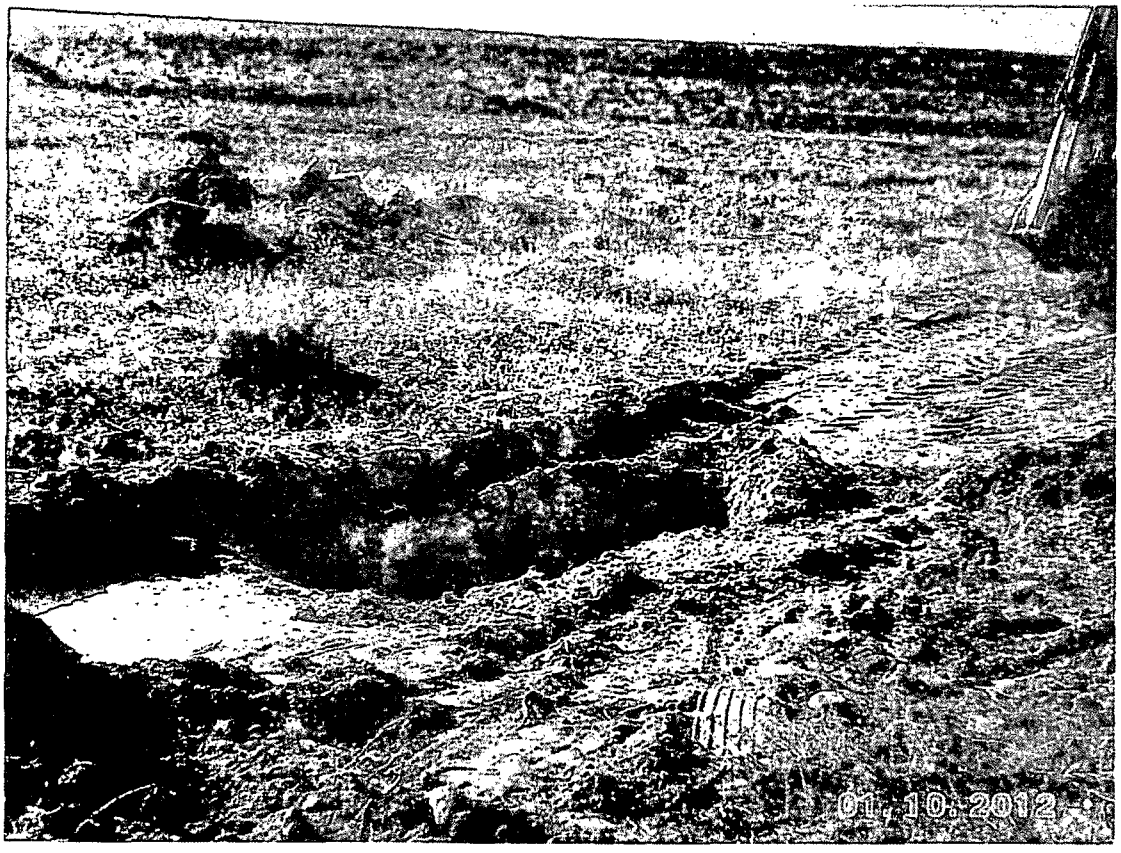
SE - N36 45.481 W108 04.242

NE - N36 45.509 W108 04.276

NW - N36-45.505' W108° 04.326

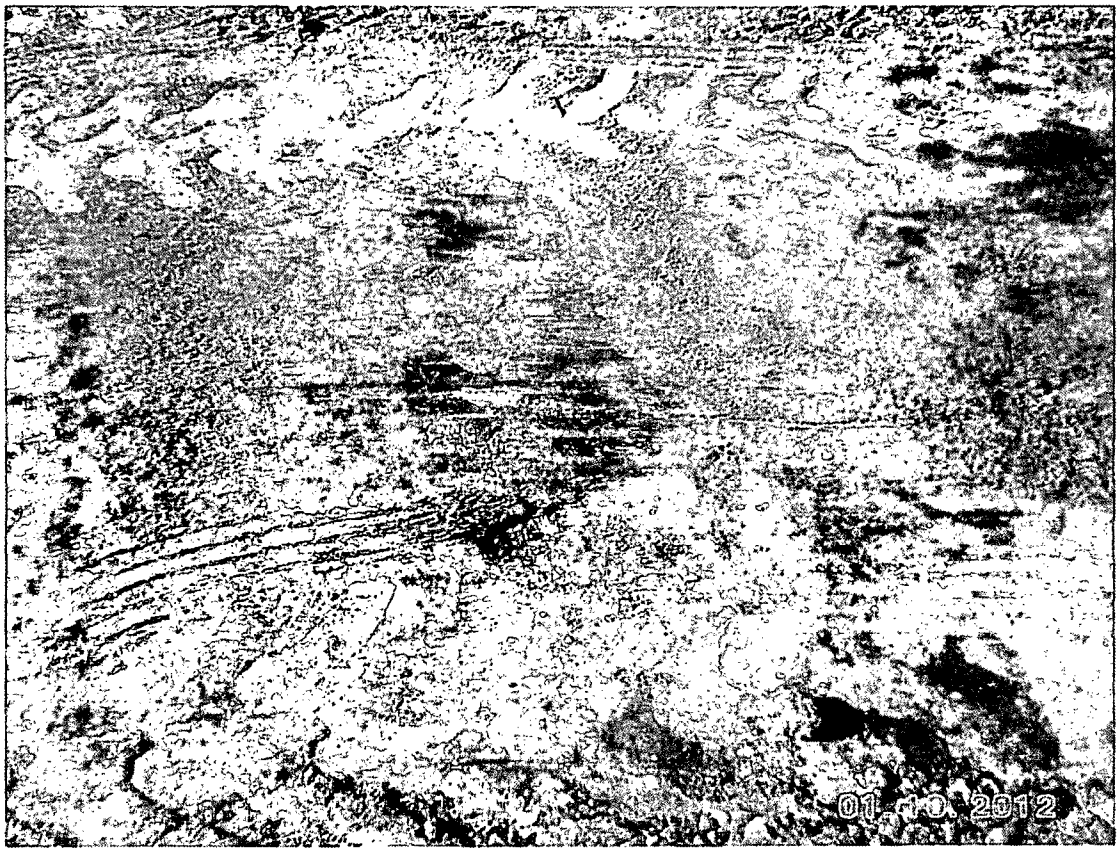
Key Energy NM1-9 Landfarm
2011 4th QTR Sampling Event
Jan 10, 2012 Photos Documentation

Tailgate Safety Meeting



Cell #1 SW corner sample labeled Cell#1-3-VZ-3'. Background shows dyke of unlined pond.

Landfarm Cell #2 looking west. Sample location for vadoze zone labeled 2S-5-3'. Noted some stained soil found about 12-14" below current surface. Material was removed and spread out in landfarm for remediation.



Stained soil as mentioned above.

Appendix B

- Sample Plan
- OCD Approval

From: wayne price <wayneprice77@earthlink.net>
Subject: **Re: NM1-9 Landfarm Sampling**
Date: January 2, 2012 4:33:42 PM MST
To: brad.a.jones@state.nm.us, Glenn.VonGonten@state.nm.us
Cc: EMNRD Bailey Jami <Jami.bailey@state.nm.us>, daniel.sanchez@state.nm.us, Jim Davis <jdaguamoss@hotmail.com>, Dan Gibson <dgibson@keyenergy.com>

We plan on sampling on Tuesday Jan 10, 2012.

On Dec 30, 2011, at 2:58 PM, wayne price wrote:

> Dear Brad and Glenn:
>
> Key Energy has requested I meet with the new Operator (Agua Moss) and perform the fourth quarter sampling event. I want to make sure we are meeting the OCD's minimum standards for sampling the existing landfarm.
>
> *Pursuant to the relative new Part 36 rule, the current existing permit NM1-9, and OCD's June 30, 2011 clarification letter to all operators explaining the* agency's position on the required sampling. I have put together a recommended 4 th quarter sampling plan that includes the following:
>
> Treatment Zone Monitoring for each cell (i.e. Cell #1 and #2)
>
> Cell #1-Collect one composite soil sample from 4 discrete samples collected in the top 6 inches of the treatment zone. The samples shall be analyzed for TPH (8015 M), TPH 418.1, and Chlorides (300.1).
> Cell #2- Same as Cell #1.
>
> Vadose Zone Monitoring for each cell (i.e. Cell #1 and #2)
>
> Cell #1- Collect one(1) random soil sample from 2-3 feet below the bottom of the native ground surface. The samples shall be analyzed for BTEX (8021), TPH (8015 M), TPH 418.1, Chlorides (300.1), major cations/anions
> (i.e General Chemistry) and WQCC metals. The metals will include, Arsenic, Banum, Cadmium, Cyanide, Fluoride, Lead, Total Mercury, Selenium, Silver, Copper, Iron, Manganese, Zinc, Aluminum, Boron, Cobalt, Molybdenum, and
> Nickel. Uranium will not be ran unless required by OCD.
>
> Cell #2: Same as Cell #1.
>
> Random will be determined by "Out of Hat" drawing. Cell #1 (one acre) will be divided into 4 grids, Cell #2 (4 acres) will be divided into 16 grids. All sampling will be conducted pursuant to generally acceptable EPA procedures, methods and pursuant to OCD rules and regulations.
>
> *The results will be submitted to OCD and Agua Moss within one month after analysis is complete. Since Key Energy is responsible for the fourth* quarter analysis, a release response notification pursuant to 19.15.36.15.E.5
> will be made by reporting (flagging) if any constituents of (BTEX, TPH, CL) exceeds the PQL or background.
>
> If applicable, if a release has been detected pursuant to the rule. Key Energy respectfully requests a delay in requiring an immediately collection and analyzing a minimum of four randomly selected, independent samples for TPH, BTEX, Chlorides, and the constituents listed in Subsection A and B of 20.6.2.3103 (WQCC), until Agua Moss has an opportunity to meet with OCD to determine a path forward for their facility. Most likely Agua Moss will be the operator of record by the time the analytical report is submitted, and thus they will most likely want the opportunity to discuss this issue with OCD.
>
> Therefore, Key Energy has two request for approval.
>
> 1. Is the above described sampling program approved, as is, or with conditions; and
> 2 Key is requesting a delay from the part of the release rule i.e. 19.15.36.15.E.5. (if applicable) that requires immediate action if a release has been detected and a possible action plan submittal.
>
> We know you are very busy this time of year, but we feel we need OCD in the loop from the "get go" to help Agua Moss start off on the right foot with the agency. We are sampling at the end of next week, so an expedited response to our request will be most appreciated! A simple yes or no, or with conditions will suffice due to the limited time you have to evaluate. Also, any disclaimer you feel necessary is in order.
>
> Have a Happy New Year!

"VonGonten, Glenn, EMNRD" <Glenn.VonGonten@state.nm.us>
RE: NM1-9 Landfarm Sampling
January 9, 2012 2:25:39 PM MST
wayne price <wayneprice77@earthlink.net>
"Sanchez, Daniel J., EMNRD" <daniel.sanchez@state.nm.us>, "Gerholt, Gabrielle, EMNRD" <Gabrielle.Gerholt@state.nm.us>

Wayne,

Your proposed sampling protocols, schedule, and analytical methods are hereby approved, including the metals in the vadose zone. Please note the permit requirement to backfill boreholes, sample points, etc.

OCD cannot approve Key's request to delay complying with the release requirements of Part 36 if Key determines that a release has occurred. Key and the new operators may approach OCD with an alternate proposal when the results are obtained.

Please contact me if you have any questions.

Glenn

From: wayne price [mailto:wayneprice77@earthlink.net]
Sent: Friday, December 30, 2011 2:59 PM
To: Jones, Brad A., EMNRD; VonGonten, Glenn, EMNRD; Bailey, Jami, EMNRD; Sanchez, Daniel J., EMNRD
Cc: jdaguamoss@hotmail.com; Dan Gibson
Subject: NM1-9 Landfarm Sampling

Dear Brad and Glenn:

Key Energy has requested I meet with the new Operator (Agua Moss) and perform the fourth quarter sampling event. I want to make sure we are meeting the OCD's minimum standards for sampling the existing landfarm.

Pursuant to the relative new Part 36 rule, the current existing permit NM1-9, and OCD's June 30, 2011 clarification letter to all operators explaining the agency's position on the required sampling, I have put together a recommended 4 th quarter sampling plan that includes the following:

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Cell #2- Same as Cell #1.

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Cell #2: Same as Cell #1.

Random will be determined by "Out of Hat" drawing. Cell #1 (one acre) will be divided into 4 grids, Cell #2 (4 acres) will be divided into 16 grids. All sampling will be conducted pursuant to generally acceptable EPA procedures, methods and pursuant to OCD rules and regulations.

The results will be submitted to OCD and Agua Moss within one month after analysis is complete. Since Key Energy is responsible for the fourth quarter analysis, a release response notification pursuant to 19.15.36.15.E.5

will be made by reporting (flagging) if any constituents of (BTEX, TPH, CL) exceeds the PQL or background.

If applicable, if a release has been detected pursuant to the rule, Key Energy respectfully requests a delay in requiring an immediately collection and analyzing a minimum of four randomly selected, independent samples for TPH, BTEX, Chlorides, and the constituents listed in Subsection A and B of 20.6.2.3103 (WQCC), until Agua Moss has an opportunity to meet with OCD to determine a path forward for their facility. Most likely Agua Moss will be the operator of record by the time the analytical report is submitted, and thus they will most likely want the opportunity to discuss this issue with OCD.

Therefore, Key Energy has two request for approval.

1. Is the above described sampling program approved, as is, or with conditions; and
2. Key is requesting a delay from the part of the release rule i.e. 19.15.36.15.E.5, (if applicable) that requires immediate action if a release has been detected and a possible action plan submittal.

We know you are very busy this time of year, but we feel we need OCD in the loop from the "get go" to help Agua Moss start off on the right foot with the agency. We are sampling at the end of next week, so an expedited response to our request will be most appreciated! A simple yes or no, or with conditions will suffice due to the limited time you have to evaluate. Also, any disclaimer you feel necessary is in order.

Have a Happy New Year!

Jones, Brad A., EMNRD

From: wayne price [wayneprice77@earthlink.net]
Sent: Friday, April 01, 2011 8:49 AM
To: Jones, Brad A., EMNRD
Cc: Dan Gibson
Subject: Key Farmington Landfarm NM-9
Attachments: 2010 4th QTR Landfarm Results NM-9 copy.pdf; 2010 4th QTR sample points copy.pdf

Good Morning Brad,

Please find attached the 4th quarter sampling results and a sample point plot plan showing where the samples were taken. The samples were collected pursuant to the action and reponse plan submitted to the OCD in October of 2010.

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Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2A-1-VZ-5'	Date Reported:	02-25-11
Laboratory Number:	57321	Date Sampled:	02-24-11
Chain of Custody No:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Extracted:	02-25-11
Preservative:	Cool	Date Analyzed:	02-25-11
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

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Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2B-3-VZ-5'	Date Reported:	02-25-11
Laboratory Number:	57322	Date Sampled:	02-24-11
Chain of Custody No:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Extracted:	02-25-11
Preservative:	Cool	Date Analyzed:	02-25-11
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2C-6-VZ-5'	Date Reported:	02-25-11
Laboratory Number:	57323	Date Sampled:	02-24-11
Chain of Custody No:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Extracted:	02-25-11
Preservative:	Cool	Date Analyzed:	02-25-11
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2D-2-VZ-5'	Date Reported:	02-26-11
Laboratory Number:	57324	Date Sampled:	02-24-11
Chain of Custody No:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Extracted:	02-25-11
Preservative:	Cool	Date Analyzed:	02-25-11
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2A-TZ	Date Reported:	02-26-11
Laboratory Number:	57325	Date Sampled:	02-24-11
Chain of Custody No:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Extracted:	02-25-11
Preservative:	Cool	Date Analyzed:	02-25-11
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**5.8**	**0.2**
Diesel Range (C10 - C28)	**11.4**	**0.1**
Total Petroleum Hydrocarbons	**17.2**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2B-TZ	Date Reported:	02-26-11
Laboratory Number:	57326	Date Sampled:	02-24-11
Chain of Custody No:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Extracted:	02-25-11
Preservative:	Cool	Date Analyzed:	02-25-11
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**5.9**	**0.2**
Diesel Range (C10 - C28)	**16.5**	**0.1**
Total Petroleum Hydrocarbons	**22.4**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2C-TZ	Date Reported:	02-26-11
Laboratory Number:	57327	Date Sampled:	02-24-11
Chain of Custody No:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Extracted:	02-25-11
Preservative:	Cool	Date Analyzed:	02-25-11
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**4.3**	**0.2**
Diesel Range (C10 - C28)	**6.8**	**0.1**
Total Petroleum Hydrocarbons	**11.1**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2D-TZ	Date Reported:	02-26-11
Laboratory Number:	57328	Date Sampled:	02-24-11
Chain of Custody No:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Extracted:	02-25-11
Preservative:	Cool	Date Analyzed:	02-25-11
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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Analytical Laboratory

EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	02-25-11 QA/QC	Date Reported:	02-25-11
Laboratory Number:	57315	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	02-25-11
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	02-25-11	9.9960E+002	1.0000E+003	0.04%	0 - 15%
Diesel Range C10 - C28	02-25-11	9.9960E+002	1.0000E+003	0.04%	0 - 15%

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	ND	0.2
Diesel Range C10 - C28	ND	0.1

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
Gasoline Range C5 - C10	ND	ND	0.0%	0 - 30%
Diesel Range C10 - C28	ND	ND	0.0%	0 - 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	ND	250	254	102%	75 - 125%
Diesel Range C10 - C28	ND	250	255	102%	75 - 125%

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 57315-57328, 57291-57293**

Analyst

Review

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2A-1-VZ-5'	Date Reported:	02-25-11
Laboratory Number:	57321	Date Sampled:	02-24-11
Chain of Custody:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Analyzed:	02-25-11
Preservative:	Cool	Date Extracted:	02-25-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**22.2**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**22.2**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**92.2 %**
	1,4-difluorobenzene	**93.2 %**
	Bromochlorobenzene	**90.5 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2B-3-VZ-5'	Date Reported:	02-25-11
Laboratory Number:	57322	Date Sampled:	02-24-11
Chain of Custody:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Analyzed:	02-25-11
Preservative:	Cool	Date Extracted:	02-25-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**106 %**
	1,4-difluorobenzene	**91.5 %**
	Bromochlorobenzene	**98.9 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2C-6-VZ-5'	Date Reported:	02-25-11
Laboratory Number:	57323	Date Sampled:	02-24-11
Chain of Custody:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Analyzed:	02-25-11
Preservative:	Cool	Date Extracted:	02-25-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**1.5**	**1.0**
p,m-Xylene	**25.0**	**1.2**
o-Xylene	**2.1**	**0.9**
Total BTEX	**28.6**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**113 %**
	1,4-difluorobenzene	**108 %**
	Bromochlorobenzene	**104 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2D-2-VZ-5'	Date Reported:	02-25-11
Laboratory Number:	57324	Date Sampled:	02-24-11
Chain of Custody:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Analyzed:	02-25-11
Preservative:	Cool	Date Extracted:	02-25-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**103 %**
	1,4-difluorobenzene	**87.8 %**
	Bromochlorobenzene	**101 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2A-TZ	Date Reported:	02-25-11
Laboratory Number:	57325	Date Sampled:	02-24-11
Chain of Custody:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Analyzed:	02-25-11
Preservative:	Cool	Date Extracted:	02-25-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**105 %**
	1,4-difluorobenzene	**86.4 %**
	Bromochlorobenzene	**97.2 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2B-TZ	Date Reported:	02-25-11
Laboratory Number:	57326	Date Sampled:	02-24-11
Chain of Custody:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Analyzed:	02-25-11
Preservative:	Cool	Date Extracted:	02-25-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**95.4 %**
	1,4-difluorobenzene	**93.7 %**
	Bromochlorobenzene	**95.9 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	0225BBLK QA/QC	Date Reported:	02-25-11
Laboratory Number:	57315	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	02-25-11
Condition:	N/A	Analysis:	BTEX
		Dilution:	10

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff: Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	1.4101E+005	1.4129E+005	0.2%	ND	0.1
Toluene	1.4303E+005	1.4332E+005	0.2%	ND	0.1
Ethylbenzene	1.2437E+005	1.2462E+005	0.2%	ND	0.1
p,m-Xylene	2.8746E+005	2.8803E+005	0.2%	ND	0.1
o-Xylene	1.1856E+005	1.1879E+005	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	ND	ND	0.0%	0 - 30%	0.9
Toluene	ND	ND	0.0%	0 - 30%	1.0
Ethylbenzene	ND	ND	0.0%	0 - 30%	1.0
p,m-Xylene	ND	ND	0.0%	0 - 30%	1.2
o-Xylene	ND	ND	0.0%	0 - 30%	0.9

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	500	423	84.6%	39 - 150
Toluene	ND	500	525	105%	46 - 148
Ethylbenzene	ND	500	439	87.8%	32 - 160
p,m-Xylene	ND	1000	1,020	102%	46 - 148
o-Xylene	ND	500	433	86.6%	46 - 148

ND - Parameter not detected at the stated detection limit.

Dilution: Spike and spiked sample concentration represent a dilution proportional to sample dilution.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photolonization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for Samples 57315, 57321-57326, 57291-57293

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	CELL-2C-TZ	Date Reported:	02-25-11
Laboratory Number:	57327	Date Sampled:	02-24-11
Chain of Custody:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Analyzed:	02-25-11
Preservative:	Cool	Date Extracted:	02-25-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**99.3 %**
	1,4-difluorobenzene	**108 %**
	Bromochlorobenzene	**89.1 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	CELL-2D-TZ	Date Reported:	02-25-11
Laboratory Number:	57328	Date Sampled:	02-24-11
Chain of Custody:	11227	Date Received:	02-24-11
Sample Matrix:	Soil	Date Analyzed:	02-25-11
Preservative:	Cool	Date Extracted:	02-25-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**107 %**
	1,4-difluorobenzene	**114 %**
	Bromochlorobenzene	**105 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	0225BBLK QA/QC	Date Reported:	02-25-11
Laboratory Number:	57317	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	02-25-11
Condition:	N/A	Analysis:	BTEX
		Dilution:	10

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	4.2789E+006	4.2875E+006	0.2%	ND	0.1
Toluene	1.2882E+006	1.2908E+006	0.2%	ND	0.1
Ethylbenzene	9.8101E+005	9.8298E+005	0.2%	ND	0.1
p,m-Xylene	2.1486E+006	2.1529E+006	0.2%	ND	0.1
o-Xylene	7.9345E+005	7.9504E+005	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	ND	ND	0.0%	0 - 30%	0.9
Toluene	161	168	4.3%	0 - 30%	1.0
Ethylbenzene	14.9	14.4	3.4%	0 - 30%	1.0
p,m-Xylene	1,300	1,380	6.2%	0 - 30%	1.2
o-Xylene	111	116	4.2%	0 - 30%	0.9

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	500	528	106%	39 - 150
Toluene	161	500	682	103%	46 - 148
Ethylbenzene	14.9	500	512	99.5%	32 - 160
p,m-Xylene	1,300	1000	2,380	103%	46 - 148
o-Xylene	111	500	658	108%	46 - 148

ND - Parameter not detected at the stated detection limit.

Dilution: Spike and spiked sample concentration represent a dilution proportional to sample dilution.

References:
Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for Samples 57317, 57319-57320, 57327-57328, 57275, 57277

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TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2A-1-VZ-5'	Date Reported:	03/03/11
Laboratory Number:	57321	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Analyzed:	02/28/11
Preservative:	Cool	Date Digested:	02/28/11
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	**1.91**	**0.01**
Aluminum	**4920**	**0.01**
Barium	**202**	**0.01**
Cadmium	**0.30**	**0.01**
Chromium	**3.55**	**0.01**
Cobalt	**2.56**	**0.01**
Copper	**6.08**	**0.01**
Iron	**4100**	**0.01**
Lead	**4.79**	**0.01**
Manganese	**193**	**0.01**
Molybdenum	**0.08**	**0.01**
Mercury	**ND**	**0.01**
Nickel	**4.18**	**0.01**
Selenium	**0.05**	**0.01**
Silver	**ND**	**0.01**
Zinc	**17.1**	**0.01**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

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TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2B-3-VZ-5'	Date Reported:	03/03/11
Laboratory Number:	57322	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Analyzed:	02/28/11
Preservative:	Cool	Date Digested:	02/28/11
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	**2.08**	**0.01**
Aluminum	**5850**	**0.01**
Barium	**234**	**0.01**
Cadmium	**0.33**	**0.01**
Chromium	**3.91**	**0.01**
Cobalt	**2.80**	**0.01**
Copper	**7.01**	**0.01**
Iron	**4670**	**0.01**
Lead	**4.68**	**0.01**
Manganese	**192**	**0.01**
Molybdenum	**0.06**	**0.01**
Mercury	**ND**	**0.01**
Nickel	**4.89**	**0.01**
Selenium	**0.09**	**0.01**
Silver	**ND**	**0.01**
Zinc	**19.0**	**0.01**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

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TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2C-6-VZ-5'	Date Reported:	03/03/11
Laboratory Number:	57323	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Analyzed:	02/28/11
Preservative:	Cool	Date Digested:	02/28/11
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	**0.92**	**0.01**
Aluminum	**1250**	**0.01**
Barium	**56.5**	**0.01**
Cadmium	**0.11**	**0.01**
Chromium	**0.72**	**0.01**
Cobalt	**1.33**	**0.01**
Copper	**1.15**	**0.01**
Iron	**1710**	**0.01**
Lead	**2.07**	**0.01**
Manganese	**141**	**0.01**
Molybdenum	**0.29**	**0.01**
Mercury	**ND**	**0.01**
Nickel	**1.24**	**0.01**
Selenium	**0.08**	**0.01**
Silver	**ND**	**0.01**
Zinc	**5.55**	**0.01**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

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TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2D-2-VZ-5'	Date Reported:	03/03/11
Laboratory Number:	57324	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Analyzed:	02/28/11
Preservative:	Cool	Date Digested:	02/28/11
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	**2.31**	**0.01**
Aluminum	**2540**	**0.01**
Barium	**291**	**0.01**
Cadmium	**0.12**	**0.01**
Chromium	**1.23**	**0.01**
Cobalt	**1.82**	**0.01**
Copper	**1.79**	**0.01**
Iron	**1910**	**0.01**
Lead	**2.38**	**0.01**
Manganese	**145**	**0.01**
Molybdenum	**0.27**	**0.01**
Mercury	**ND**	**0.01**
Nickel	**1.99**	**0.01**
Selenium	**ND**	**0.01**
Silver	**ND**	**0.01**
Zinc	**6.47**	**0.01**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2A-TZ	Date Reported:	03/03/11
Laboratory Number:	57325	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Analyzed:	02/28/11
Preservative:	Cool	Date Digested:	02/28/11
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	**2.31**	**0.01**
Aluminum	**3630**	**0.01**
Barium	**947**	**0.01**
Cadmium	**0.63**	**0.01**
Chromium	**8.16**	**0.01**
Cobalt	**2.34**	**0.01**
Copper	**20.0**	**0.01**
Iron	**7200**	**0.01**
Lead	**12.6**	**0.01**
Manganese	**267**	**0.01**
Molybdenum	**0.86**	**0.01**
Mercury	**1.07**	**0.01**
Nickel	**5.37**	**0.01**
Selenium	**0.24**	**0.01**
Silver	**ND**	**0.01**
Zinc	**71.4**	**0.01**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

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TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2B-TZ	Date Reported:	03/03/11
Laboratory Number:	57326	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Analyzed:	02/28/11
Preservative:	Cool	Date Digested:	02/28/11
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	**2.49**	**0.01**
Aluminum	**3980**	**0.01**
Barium	**1030**	**0.01**
Cadmium	**0.53**	**0.01**
Chromium	**8.54**	**0.01**
Cobalt	**2.43**	**0.01**
Copper	**19.1**	**0.01**
Iron	**6960**	**0.01**
Lead	**13.0**	**0.01**
Manganese	**266**	**0.01**
Molybdenum	**0.78**	**0.01**
Mercury	**0.94**	**0.01**
Nickel	**5.20**	**0.01**
Selenium	**1.63**	**0.01**
Silver	**ND**	**0.01**
Zinc	**81.0**	**0.01**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

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Comments: **Key Farmington NM1-9 Land Farm**

Analyst

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TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2C-TZ	Date Reported:	03/03/11
Laboratory Number:	57327	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Analyzed:	02/28/11
Preservative:	Cool	Date Digested:	02/28/11
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	**2.26**	**0.01**
Aluminum	**3700**	**0.01**
Barium	**971**	**0.01**
Cadmium	**0.43**	**0.01**
Chromium	**7.20**	**0.01**
Cobalt	**2.14**	**0.01**
Copper	**14.8**	**0.01**
Iron	**5900**	**0.01**
Lead	**10.5**	**0.01**
Manganese	**196**	**0.01**
Molybdenum	**0.69**	**0.01**
Mercury	**0.49**	**0.01**
Nickel	**4.52**	**0.01**
Selenium	**0.15**	**0.01**
Silver	**ND**	**0.01**
Zinc	**44.0**	**0.01**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

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TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2D-TZ	Date Reported:	03/03/11
Laboratory Number:	57328	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Analyzed:	02/28/11
Preservative:	Cool	Date Digested:	02/28/11
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	**1.92**	**0.01**
Aluminum	**2980**	**0.01**
Barium	**470**	**0.01**
Cadmium	**0.29**	**0.01**
Chromium	**3.65**	**0.01**
Cobalt	**1.95**	**0.01**
Copper	**7.96**	**0.01**
Iron	**3720**	**0.01**
Lead	**9.13**	**0.01**
Manganese	**162**	**0.01**
Molybdenum	**0.45**	**0.01**
Mercury	**0.07**	**0.01**
Nickel	**3.63**	**0.01**
Selenium	**0.03**	**0.01**
Silver	**ND**	**0.01**
Zinc	**26.0**	**0.01**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

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TRACE METAL ANALYSIS
Quality Control / Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	02-28 TM QA/QC	Date Reported:	03/03/11
Laboratory Number:	57323	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Analysis Requested:	Trace Metals	Date Analyzed:	02/28/11
Condition:	N/A	Date Digested:	02/28/11

Blank & Duplicate Conc. (mg/Kg)	Instrument Blank (mg/Kg)	Method Blank	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Arsenic	ND	ND	0.01	0.92	0.91	0.5%	0% - 30%
Aluminum	ND	ND	0.01	1,250	1,260	0.8%	0% - 30%
Barium	ND	ND	0.01	56.5	56.4	0.2%	0% - 30%
Cadmium	ND	ND	0.01	0.11	0.11	0.0%	0% - 30%
Chromium	ND	ND	0.01	0.72	0.73	0.4%	0% - 30%
Cobalt	ND	ND	0.01	1.33	1.32	0.4%	0% - 30%
Copper	ND	ND	0.01	1.15	1.16	1.0%	0% - 30%
Iron	ND	ND	0.01	1,710	1,700	0.6%	0% - 30%
Lead	ND	ND	0.01	2.07	2.06	0.2%	0% - 30%
Manganese	ND	ND	0.01	141	140	0.6%	0% - 30%
Molybdenum	ND	ND	0.01	0.29	0.29	0.0%	0% - 30%
Mercury	ND	ND	0.01	ND	ND	0.0%	0% - 30%
Nickel	ND	ND	0.01	1.24	1.24	0.0%	0% - 30%
Selenium	ND	ND	0.01	0.08	0.08	0.0%	0% - 30%
Silver	ND	ND	0.01	ND	ND	0.0%	0% - 30%
Zinc	ND	ND	0.01	5.55	5.53	0.4%	0% - 30%

Spike Conc. (mg/Kg)	Spike Added	Sample	Spiked Sample	Percent Recovery	Acceptance Range
Arsenic	2.50	0.92	3.23	94.5%	80% - 120%
Aluminum	2.50	1,250	1,180	94.2%	80% - 120%
Barium	5.00	56.5	58.4	94.9%	80% - 120%
Cadmium	2.50	0.11	2.40	92.1%	80% - 120%
Chromium	5.00	0.72	5.51	96.2%	80% - 120%
Cobalt	2.50	1.33	3.46	90.6%	80% - 120%
Copper	5.00	1.15	6.03	98.1%	80% - 120%
Iron	2.50	1,710	1,540	89.9%	80% - 120%
Lead	5.00	2.07	6.35	89.9%	80% - 120%
Manganese	2.50	141	135	94.0%	80% - 120%
Molybdenum	1.00	0.29	1.19	92.2%	80% - 120%
Mercury	1.00	ND	0.88	88.4%	80% - 120%
Nickel	5.00	1.24	5.64	90.4%	80% - 120%
Selenium	1.00	0.08	1.01	93.8%	80% - 120%
Silver	1.00	ND	0.97	97.4%	80% - 120%
Zinc	5.00	5.55	10.1	95.4%	80% - 120%

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.
Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 57321-57328**

Analyst

Review

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CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2A-1-VZ-5'	Date Reported:	03/03/11
Laboratory Number:	57321	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil Extract	Date Extracted:	02/25/11
Preservative:	Cool	Date Analyzed:	02/28/11
Condition:	Intact		

Parameter	Analytical Result	Units		Units
pH	**7.66**	s.u.		
Conductivity @ 25° C	**501**	umhos/cm		
Total Dissolved Solids @ 180C	**276**	mg/L		
Total Dissolved Solids (Calc)	**288**	mg/L		
SAR	**1.50**	ratio		
Total Alkalinity as CaCO3	**100**	mg/L		
Total Hardness as CaCO3	**151**	mg/L		
Bicarbonate as HCO3	**100**	mg/L	1.64	meq/L
Carbonate as CO3	**< 0.01**	mg/L	0.00	meq/L
Hydroxide as OH	**< 0.01**	mg/L	0.00	meq/L
Nitrate Nitrogen	**4.29**	mg/L	0.07	meq/L
Nitrite Nitrogen	**0.012**	mg/L	0.00	meq/L
Chloride	**82.0**	mg/L	2.31	meq/L
Fluoride	**1.89**	mg/L	0.10	meq/L
Phosphate	**4.70**	mg/L	0.15	meq/L
Sulfate	**35.0**	mg/L	0.73	meq/L
Iron	**0.321**	mg/L	0.01	meq/L
Calcium	**39.8**	mg/L	1.99	meq/L
Magnesium	**12.6**	mg/L	1.04	meq/L
Potassium	**5.14**	mg/L	0.13	meq/L
Sodium	**42.1**	mg/L	1.83	meq/L
Cations			5.00	meq/L
Anions			5.00	meq/L
Cation/Anion Difference			**0.00%**	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Key Farmington NM1-9 Land Farm**

Analyst

Review

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CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2B-3-VZ-5'	Date Reported:	03/03/11
Laboratory Number:	57322	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil Extract	Date Extracted:	02/25/11
Preservative:	Cool	Date Analyzed:	02/28/11
Condition:	Intact		

Parameter	Analytical Result	Units		Units
pH	**7.41**	s.u.		
Conductivity @ 25° C	**1,320**	umhos/cm		
Total Dissolved Solids @ 180C	**744**	mg/L		
Total Dissolved Solids (Calc)	**807**	mg/L		
SAR	**3.00**	ratio		
Total Alkalinity as CaCO3	**104**	mg/L		
Total Hardness as CaCO3	**399**	mg/L		
Bicarbonate as HCO3	**104**	mg/L	1.70	meq/L
Carbonate as CO3	**< 0.01**	mg/L	0.00	meq/L
Hydroxide as OH	**< 0.01**	mg/L	0.00	meq/L
Nitrate Nitrogen	**4.71**	mg/L	0.076	meq/L
Nitrite Nitrogen	**0.020**	mg/L	0.00	meq/L
Chloride	**356**	mg/L	10.03	meq/L
Fluoride	**1.72**	mg/L	0.090	meq/L
Phosphate	**4.55**	mg/L	0.144	meq/L
Sulfate	**99.5**	mg/L	2.07	meq/L
Iron	**0.206**	mg/L	0.007	meq/L
Calcium	**96.6**	mg/L	4.82	meq/L
Magnesium	**38.4**	mg/L	3.16	meq/L
Potassium	**3.91**	mg/L	0.100	meq/L
Sodium	**139**	mg/L	6.03	meq/L
Cations			14.1	meq/L
Anions			14.1	meq/L
Cation/Anion Difference			**0.00%**	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Key Farmington NM1-9 Land Farm**

Analyst

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CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2C-6-VZ-5'	Date Reported:	03/03/11
Laboratory Number:	57323	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil Extract	Date Extracted:	02/25/11
Preservative:	Cool	Date Analyzed:	02/28/11
Condition:	Intact		

Parameter	Analytical Result	Units		Units
pH	**9.56**	s.u.		
Conductivity @ 25° C	**393**	umhos/cm		
Total Dissolved Solids @ 180C	**256**	mg/L		
Total Dissolved Solids (Calc)	**252**	mg/L		
SAR	**4.30**	ratio		
Total Alkalinity as CaCO3	**108**	mg/L		
Total Hardness as CaCO3	**44.2**	mg/L		
Bicarbonate as HCO3	**108**	mg/L	1.77	meq/L
Carbonate as CO3	**< 0.01**	mg/L	0.00	meq/L
Hydroxide as OH	**< 0.01**	mg/L	0.00	meq/L
Nitrate Nitrogen	**4.22**	mg/L	0.068	meq/L
Nitrite Nitrogen	**0.093**	mg/L	0.00	meq/L
Chloride	**40.5**	mg/L	1.14	meq/L
Fluoride	**2.85**	mg/L	0.150	meq/L
Phosphate	**4.73**	mg/L	0.150	meq/L
Sulfate	**47.2**	mg/L	0.983	meq/L
Iron	**9.07**	mg/L	0.325	meq/L
Calcium	**8.19**	mg/L	0.409	meq/L
Magnesium	**5.80**	mg/L	0.477	meq/L
Potassium	**6.62**	mg/L	0.169	meq/L
Sodium	**66.4**	mg/L	2.89	meq/L
Cations			4.27	meq/L
Anions			4.27	meq/L
Cation/Anion Difference			**0.00%**	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Key Farmington NM1-9 Land Farm**

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CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2D-2-VZ-5'	Date Reported:	03/03/11
Laboratory Number:	57324	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil Extract	Date Extracted:	02/25/11
Preservative:	Cool	Date Analyzed:	02/28/11
Condition:	Intact		

Parameter	Analytical Result	Units		Units
pH	**8.48**	s.u.		
Conductivity @ 25° C	**1,390**	umhos/cm		
Total Dissolved Solids @ 180C	**832**	mg/L		
Total Dissolved Solids (Calc)	**943**	mg/L		
SAR	**8.90**	ratio		
Total Alkalinity as CaCO3	**90.0**	mg/L		
Total Hardness as CaCO3	**168**	mg/L		
Bicarbonate as HCO3	**90.0**	mg/L	1.48	meq/L
Carbonate as CO3	**< 0.01**	mg/L	0.00	meq/L
Hydroxide as OH	**< 0.01**	mg/L	0.00	meq/L
Nitrate Nitrogen	**4.46**	mg/L	0.072	meq/L
Nitrite Nitrogen	**0.010**	mg/L	0.00	meq/L
Chloride	**195**	mg/L	5.49	meq/L
Fluoride	**6.25**	mg/L	0.329	meq/L
Phosphate	**4.66**	mg/L	0.147	meq/L
Sulfate	**358**	mg/L	7.46	meq/L
Iron	**0.063**	mg/L	0.00	meq/L
Calcium	**28.3**	mg/L	1.41	meq/L
Magnesium	**23.8**	mg/L	1.96	meq/L
Potassium	**2.86**	mg/L	0.073	meq/L
Sodium	**265**	mg/L	11.53	meq/L
Cations			15.0	meq/L
Anions			15.0	meq/L
Cation/Anion Difference			**0.00%**	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Key Farmington NM1-9 Land Farm**

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CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2A-TZ	Date Reported:	03/03/11
Laboratory Number:	57325	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil Extract	Date Extracted:	02/25/11
Preservative:	Cool	Date Analyzed:	02/28/11
Condition:	Intact		

Parameter	Analytical Result	Units		Units
pH	**7.38**	s.u.		
Conductivity @ 25° C	**1,460**	umhos/cm		
Total Dissolved Solids @ 180C	**1,070**	mg/L		
Total Dissolved Solids (Calc)	**1,020**	mg/L		
SAR	**4.60**	ratio		
Total Alkalinity as CaCO3	**124**	mg/L		
Total Hardness as CaCO3	**358**	mg/L		
Bicarbonate as HCO3	**124**	mg/L	2.03	meq/L
Carbonate as CO3	**< 0.01**	mg/L	0.00	meq/L
Hydroxide as OH	**< 0.01**	mg/L	0.00	meq/L
Nitrate Nitrogen	**4.33**	mg/L	0.070	meq/L
Nitrite Nitrogen	**< 0.01**	mg/L	0.00	meq/L
Chloride	**238**	mg/L	6.72	meq/L
Fluoride	**2.80**	mg/L	0.147	meq/L
Phosphate	**5.06**	mg/L	0.160	meq/L
Sulfate	**345**	mg/L	7.18	meq/L
Iron	**0.079**	mg/L	0.00	meq/L
Calcium	**102**	mg/L	5.10	meq/L
Magnesium	**25.1**	mg/L	2.06	meq/L
Potassium	**20.2**	mg/L	0.517	meq/L
Sodium	**198**	mg/L	8.63	meq/L
Cations			16.3	meq/L
Anions			16.3	meq/L
Cation/Anion Difference			**0.00%**	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Key Farmington NM1-9 Land Farm**

Analyst

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CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2B-TZ	Date Reported:	03/03/11
Laboratory Number:	57326	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil Extract	Date Extracted:	02/25/11
Preservative:	Cool	Date Analyzed:	02/28/11
Condition:	Intact		

Parameter	Analytical Result	Units		Units
pH	**7.32**	s.u.		
Conductivity @ 25° C	**1,590**	umhos/cm		
Total Dissolved Solids @ 180C	**1,110**	mg/L		
Total Dissolved Solids (Calc)	**1,080**	mg/L		
SAR	**5.30**	ratio		
Total Alkalinity as CaCO3	**118**	mg/L		
Total Hardness as CaCO3	**357**	mg/L		
Bicarbonate as HCO3	**118**	mg/L	1.93	meq/L
Carbonate as CO3	**< 0.01**	mg/L	0.00	meq/L
Hydroxide as OH	**< 0.01**	mg/L	0.00	meq/L
Nitrate Nitrogen	**4.39**	mg/L	0.071	meq/L
Nitrite Nitrogen	**< 0.01**	mg/L	0.00	meq/L
Chloride	**285**	mg/L	8.05	meq/L
Fluoride	**2.93**	mg/L	0.154	meq/L
Phosphate	**4.85**	mg/L	0.153	meq/L
Sulfate	**343**	mg/L	7.14	meq/L
Iron	**0.097**	mg/L	0.00	meq/L
Calcium	**99.6**	mg/L	4.97	meq/L
Magnesium	**26.5**	mg/L	2.18	meq/L
Potassium	**11.1**	mg/L	0.284	meq/L
Sodium	**232**	mg/L	10.1	meq/L
Cations			17.5	meq/L
Anions			17.5	meq/L
Cation/Anion Difference			**0.00%**	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Key Farmington NM1-9 Land Farm**

Analyst

Review

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CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2C-TZ	Date Reported:	03/03/11
Laboratory Number:	57327	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil Extract	Date Extracted:	02/25/11
Preservative:	Cool	Date Analyzed:	02/28/11
Condition:	Intact		

Parameter	Analytical Result	Units		Units
pH	**7.52**	s.u.		
Conductivity @ 25° C	**2,440**	umhos/cm		
Total Dissolved Solids @ 180C	**1,430**	mg/L		
Total Dissolved Solids (Calc)	**1,510**	mg/L		
SAR	**6.60**	ratio		
Total Alkalinity as CaCO3	**70.0**	mg/L		
Total Hardness as CaCO3	**480**	mg/L		
Bicarbonate as HCO3	**70.0**	mg/L	1.15	meq/L
Carbonate as CO3	**< 0.01**	mg/L	0.00	meq/L
Hydroxide as OH	**< 0.01**	mg/L	0.00	meq/L
Nitrate Nitrogen	**42.3**	mg/L	0.682	meq/L
Nitrite Nitrogen	**0.010**	mg/L	0.00	meq/L
Chloride	**350**	mg/L	9.9	meq/L
Fluoride	**16.1**	mg/L	0.845	meq/L
Phosphate	**46.2**	mg/L	1.46	meq/L
Sulfate	**500**	mg/L	10.4	meq/L
Iron	**0.083**	mg/L	0.00	meq/L
Calcium	**142**	mg/L	7.09	meq/L
Magnesium	**30.6**	mg/L	2.52	meq/L
Potassium	**9.94**	mg/L	0.254	meq/L
Sodium	**335**	mg/L	14.6	meq/L
Cations			24.4	meq/L
Anions			24.4	meq/L
Cation/Anion Difference			**0.00%**	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Key Farmington NM1-9 Land Farm**

Analyst

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CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2D-TZ	Date Reported:	03/03/11
Laboratory Number:	57328	Date Sampled:	02/24/11
Chain of Custody:	11227	Date Received:	02/24/11
Sample Matrix:	Soil Extract	Date Extracted:	02/25/11
Preservative:	Cool	Date Analyzed:	02/28/11
Condition:	Intact		

Parameter	Analytical Result	Units		Units
pH	**8.72**	s.u.		
Conductivity @ 25° C	**382**	umhos/cm		
Total Dissolved Solids @ 180C	**218**	mg/L		
Total Dissolved Solids (Calc)	**236**	mg/L		
SAR	**3.90**	ratio		
Total Alkalinity as CaCO3	**102**	mg/L		
Total Hardness as CaCO3	**48.9**	mg/L		
Bicarbonate as HCO3	**102**	mg/L	1.67	meq/L
Carbonate as CO3	**< 0.01**	mg/L	0.00	meq/L
Hydroxide as OH	**< 0.01**	mg/L	0.00	meq/L
Nitrate Nitrogen	**4.22**	mg/L	0.07	meq/L
Nitrite Nitrogen	**< 0.01**	mg/L	0.00	meq/L
Chloride	**22.2**	mg/L	0.63	meq/L
Fluoride	**5.25**	mg/L	0.28	meq/L
Phosphate	**4.60**	mg/L	0.15	meq/L
Sulfate	**55.6**	mg/L	1.16	meq/L
Iron	**5.64**	mg/L	0.20	meq/L
Calcium	**15.0**	mg/L	0.75	meq/L
Magnesium	**2.78**	mg/L	0.23	meq/L
Potassium	**2.16**	mg/L	0.06	meq/L
Sodium	**62.3**	mg/L	2.71	meq/L
Cations			3.95	meq/L
Anions			3.95	meq/L
Cation/Anion Difference			**0.00%**	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments **Key Farmington NM1-9 Land Farm**

Analyst

Review

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2A-1-VZ-5'	Date Reported:	03/01/11
Laboratory Number:	57321	Date Sampled:	02/24/11
Chain of Custody No:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Extracted:	03/01/11
Preservative:	Cool	Date Analyzed:	03/01/11
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**999**	**6.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2B-3-VZ-5'	Date Reported:	03/01/11
Laboratory Number:	57322	Date Sampled:	02/24/11
Chain of Custody No:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Extracted:	03/01/11
Preservative:	Cool	Date Analyzed:	03/01/11
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**480**	**6.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2C-6-VZ-5'	Date Reported:	03/01/11
Laboratory Number:	57323	Date Sampled:	02/24/11
Chain of Custody No:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Extracted:	03/01/11
Preservative:	Cool	Date Analyzed:	03/01/11
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**45.3**	**6.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2D-2-VZ-5'	Date Reported:	03/01/11
Laboratory Number:	57324	Date Sampled:	02/24/11
Chain of Custody No:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Extracted:	03/01/11
Preservative:	Cool	Date Analyzed:	03/01/11
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**26.6**	**6.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2A-TZ	Date Reported:	03/01/11
Laboratory Number:	57325	Date Sampled:	02/24/11
Chain of Custody No:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Extracted:	03/01/11
Preservative:	Cool	Date Analyzed:	03/01/11
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**10,800**	**6.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2B-TZ	Date Reported:	03/01/11
Laboratory Number:	57326	Date Sampled:	02/24/11
Chain of Custody No:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Extracted:	03/01/11
Preservative:	Cool	Date Analyzed:	03/01/11
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**12,000**	**6.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2C-TZ	Date Reported:	03/01/11
Laboratory Number:	57327	Date Sampled:	02/24/11
Chain of Custody No:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Extracted:	03/01/11
Preservative:	Cool	Date Analyzed:	03/01/11
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**14,000**	**6.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2D-TZ	Date Reported:	03/01/11
Laboratory Number:	57328	Date Sampled:	02/24/11
Chain of Custody No:	11227	Date Received:	02/24/11
Sample Matrix:	Soil	Date Extracted:	03/01/11
Preservative:	Cool	Date Analyzed:	03/01/11
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**4,060**	**6.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NM1-9 Land Farm**

Analyst

Review

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	QA/QC	Date Reported:	03/01/11
Laboratory Number:	03-01-TPH.QA/QC 57321	Date Sampled:	N/A
Sample Matrix:	Freon-113	Date Analyzed:	03/01/11
Preservative:	N/A	Date Extracted:	03/01/11
Condition:	N/A	Analysis Needed:	TPH

Calibration	I-Cal Date	C-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
	03/01/11	03/01/11	1,660	1,720	3.6%	+/- 10%

Blank Conc. (mg/Kg)	Concentration	Detection Limit
TPH	ND	6.7

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
TPH	999	932	6.7%	+/- 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept Range
TPH	999	2,000	2,930	97.7%	80 - 120%

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **QA/QC for Samples 57321-57328**

Analyst

Review

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CHAIN OF CUSTODY RECORD

11227

Client:	Project Name / Location:
KEY ENERGY	KEY FARMING TON NM1-9 LANDFARM
Client Address:	Sampler Name: WAYNE PRICE / PRICE LLC
5651 US HWY 64 87401	
Client Phone No.:	Client No.: 98065-0013
1-505-715-2809	

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative: $HgCl_2$	Preservative: HCl	Preservative: Ice	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals + WQCC (SEE LIST)	Cation / Anion (GEN CHEM)	RCI	TCLP with H/P	PAH	TPH (418.1)	CHLORIDE	WQCC METALS			Sample Cool	Sample Intact
CELL-2A-1-VZ-5'	2/24/11	13:53	57321	Soil Solid / Sludge Aqueous	2-4oz			X	X	X		X	X				X						Y	Y
CELL-2B-3-VZ-5'	"	14:07	57322	Soil Solid / Sludge Aqueous	"			X	X	X		X	X				X							
CELL-2C-VZ-5'	"	14:18	57323	Soil Solid / Sludge Aqueous	"			X	X	X		X	X				X		Cd, Ni					
CELL-2D-2-VZ-5'	"	14:28	57324	Soil Solid / Sludge Aqueous	"			X	X	X		X	X				X							
CELL-2A-TZ	"	14:38	57325	Soil Solid / Sludge Aqueous	"			X	X	X		X	X				X							
CELL-2B-TZ	"	14:43	57326	Soil Solid / Sludge Aqueous	"			X	X	X		X	X				X							
CELL-2C-TZ	"	14:48	57327	Soil Solid / Sludge Aqueous	"			X	X	X		X	X				X							
CELL-2D-TZ	"	14:50	57328	Soil Solid / Sludge Aqueous	"			X	X	X		X	X				X		Cd, Fe, Zn, Mn, Al, Cd, Mo, Ni					
				Soil Solid / Sludge Aqueous																				
				Soil Solid / Sludge Aqueous																				

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
WAYNE PRICE JR.	2/24/11	15:26	Wayne Price Jr.	2/24/11	15:26
Wayne Price Jr	2/24/11	15:36		2/24/11	15:34
Relinquished by: (Signature)			Received by: (Signature)		

RUSH

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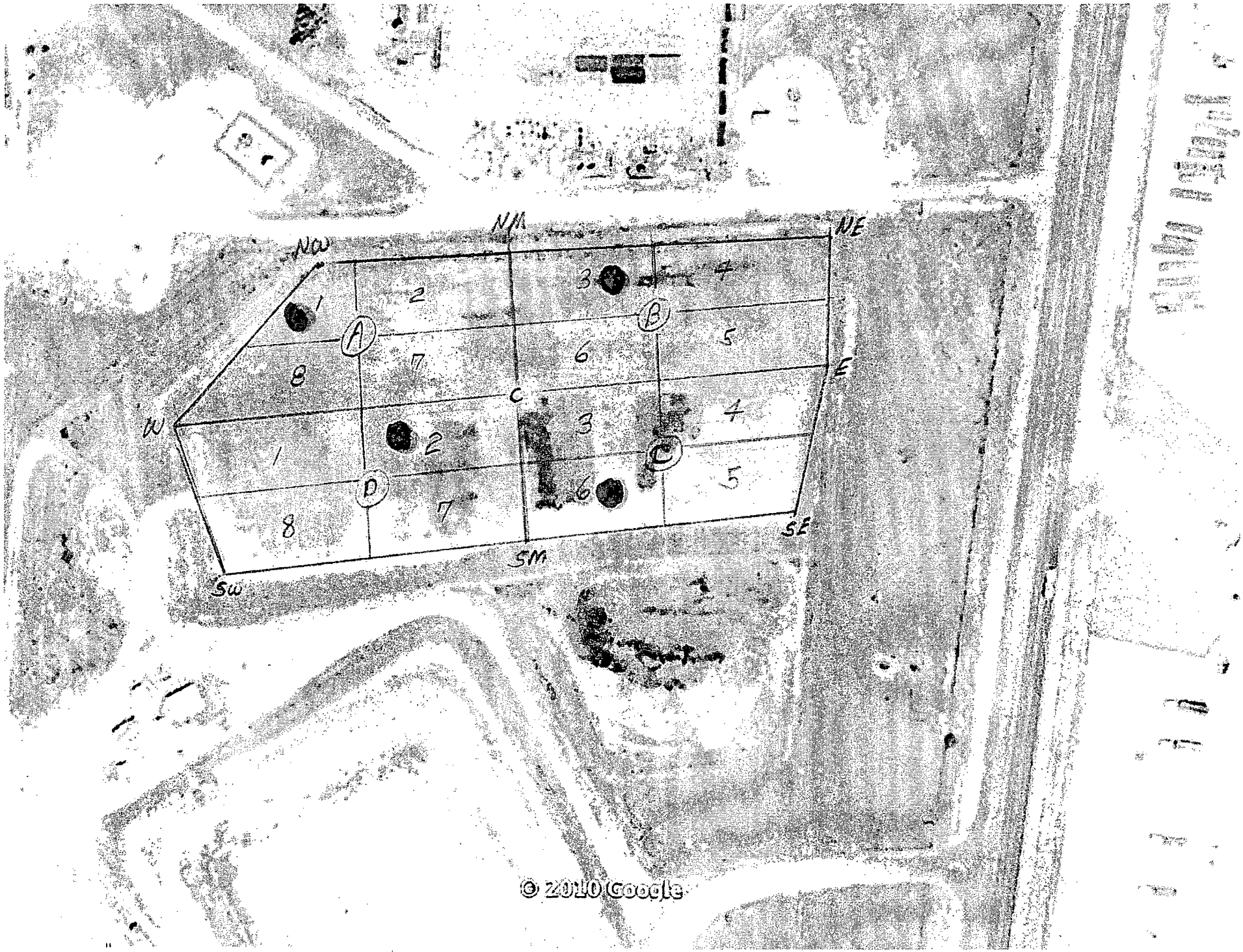
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October 28, 2010

Mr. Daniel Sanchez
UIC Director
State of New Mexico
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

VIA EMAIL AND US MAIL

Subject: Key Farmington-NM-01-0009 Landfarm 3rd quarter sampling and response plan

Dear Mr. Sanchez:

Pursuant to conversations with Mr. Brad Jones, Key Energy Services, LLC has been requested to submit an amendment to the recently submitted landfarm action plan. Mr. Jones has indicated to Key that pursuant to the rule, a response plan is required. While Key does not totally agree with this assessment and does not believe a release has occurred, in the spirit of cooperation, please find below Key's amended plan. Also included in this correspondence are the results of the 2010 third quarter sampling results.

The "Landfarm Recommendations" included in correspondence dated September 9, 2010 should be considered to be Landfarm Commitments and Response Action Plan. This response action plan addresses changes in the landfarm operation to prevent contamination and a plan for remediation.

- Perform the 3rd quarter sampling event as scheduled: Two soil samples were collected from the vadose zone in Cell #2. The north and south portions of the cell were subdivided into 8 sections. Two randomly selected areas (one each in the north and south portions) were sampled at a depth of approximately 5 feet below grade. A map of the Cell # 2 grid, along with a summary table of results, and the laboratory analytical report is attached.

- To mitigate vadose zone concerns, Key will continue to excavate those areas of concern and bring them to the surface to be aggressively tilled and remediated. Key is aggressively remediating the treatment zone soils. Key has tilled the landfarm almost every day and will continue to do so.

- Key has not or will not add any more soils to the treatment cells.

- As part of the release response, Key will perform a comprehensive sampling event in the 4th quarter as outlined below after which Key will meet with OCD to determine a path forward.

The 3rd quarter results show definite progress in our actions as of to date.

The 4th quarter sampling will consist of the following:

Treatment Zone Sampling: (Cell #2 only at this time)

Cell #2 will be quartered into quads A, B, C & D with one composite sample collected from each quad consisting of 4 discrete samples for each composite and analyzed for TPH (Methods 418.1 & 8015 (GRO and DRO)), Chlorides, BTEX and WQCC metals.

Vadose Zone Sampling: (Cell #2 only at this time)

Cell #2 will be quartered into quads A, B, C & D, with each quad further sub-divided into 4 separate quads A1-4, B1-4, C1-4 and D1-4. A random sample will be collected from each major quad at approximately 4-5 feet below the original ground surface. Each sample will be analyzed for TPH (Methods 418.1 & 8015 (GRO and DRO)), Chlorides, BTEX and WQCC metals.

Key anticipates the landfarm soil in both the treatment zone and vadose zone will be remediated to acceptable standards in due time. We also want to point out that the constituents found are at such low levels the possibility of groundwater contamination or public health issues from the landfarm is unlikely.

Key fully intends to meet its responsibilities at the Sunco facility. We do not believe there are substantive differences that cannot be resolved through continued discussion. Please contact me at 432-571-7536 if you have questions or concerns regarding this information.

Sincerely,

Daniel K. Gibson, P.G.
Corporate Environmental Director

cc:

Mr. Brad Jones
State of New Mexico
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

Mr. Glenn VonGonten
State of New Mexico
1220 S. St. Francis Drive
Santa Fe, New Mexico 87505

Mr. Wayne Price
Price LLC
312 Encantado Ridge CT NE
Rio Rancho, New Mexico 87124

Mr. Loren Molleur

Attachments

Key Energy Services, LLC
Surface Waste Management Facility
Sunco Disposal Facility
Permit NM-01-0009
SW/4 NW/4 of Section 2, Township 29 North, Range 12 West, NMPM
San Juan County, New Mexico

Location	Sample Date		BTEX						TPH	TPH			Chloride
			EPA 8021B						EPA 418.1	EPA 8015m			EPA 4500B
			Benzene	Toluene	Ethylbenzene	p,m-Xylenes	o-Xylene	Total BTEX	Total TPH	GRO C-5 - C-10	DRO C-10 - C-35	Total TPH	Total Chloride
OCD Landfarm Closure Limits			0.2	---	---	---		50	2500	---	---	1000	1000
2N-VZ-1-7	10/8/2010		<0.0009	<0.001	<0.001	<0.0012	**0.0015**	**0.0015**	**51.3**	<0.2	<0.1	<0.2	**240**
2S-VZ-1-4	10/8/2010		<0.0009	<0.001	<0.001	<0.0012	**0.0022**	**0.0022**	**50.0**	<0.2	<0.1	<0.2	**65**

1) *OCD Rule 53.G Specific Requirements Applicable to Landfarms, Treatment zone closure performance standards*
2) *Results in mg/Kg.*
3) *Results above detection limit indicated by bold font.*


N1
N2
N3
N4
N5
N6
N7
N8
S1
S2
S3
S4
S5
S6
S7
S8
N

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell 2N-VZ-1-7	Date Reported:	10-08-10
Lab ID#:	56115	Date Sampled:	10-07-10
Sample Matrix:	Soil	Date Received:	10-07-10
Preservative:	Cool	Date Analyzed:	10-08-10
Condition:	Intact	Chain of Custody:	9948

Parameter	Concentration (mg/Kg)
Total Chloride	**240**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farmington NM 1-9 Land Farm**

Analyst

Review

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EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell 2N-VZ-1-7	Date Reported:	10-11-10
Laboratory Number:	56115	Date Sampled:	10-07-10
Chain of Custody No:	9948	Date Received:	10-07-10
Sample Matrix:	Soil	Date Extracted:	10-08-10
Preservative:	Cool	Date Analyzed:	10-08-10
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**51.3**	**39.4**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NM 1-9 Land Farm**

Analyst

Review

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell 2N-VZ-1-7	Date Reported:	10-11-10
Laboratory Number:	56115	Date Sampled:	10-07-10
Chain of Custody:	9948	Date Received:	10-07-10
Sample Matrix:	Soil	Date Analyzed:	10-11-10
Preservative:	Cool	Date Extracted:	10-08-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**1.5**	**0.9**
Total BTEX	**1.5**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**102 %**
	1,4-difluorobenzene	**92.9 %**
	Bromochlorobenzene	**103 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM 1-9 Land Farm**

Analyst

Review

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell 2N-VZ-1-7	Date Reported:	10-11-10
Laboratory Number:	56115	Date Sampled:	10-07-10
Chain of Custody No:	9948	Date Received:	10-07-10
Sample Matrix:	Soil	Date Extracted:	10-08-10
Preservative:	Cool	Date Analyzed:	10-11-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM 1-9 Land Farm**

Analyst

Review

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell 2S-VZ-1-4	Date Reported:	10-08-10
Lab ID#:	56116	Date Sampled:	10-07-10
Sample Matrix:	Soil	Date Received:	10-07-10
Preservative:	Cool	Date Analyzed:	10-08-10
Condition:	Intact	Chain of Custody:	9948

Parameter	Concentration (mg/Kg)
Total Chloride	**65**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farmington NM 1-9 Land Farm**

Analyst

Review

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell 2S-VZ-1-4	Date Reported:	10-11-10
Laboratory Number:	56116	Date Sampled:	10-07-10
Chain of Custody No:	9948	Date Received:	10-07-10
Sample Matrix:	Soil	Date Extracted:	10-08-10
Preservative:	Cool	Date Analyzed:	10-08-10
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**50.0**	**39.4**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NM 1-9 Land Farm**

Analyst

Review

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell 2S-VZ-1-4	Date Reported:	10-11-10
Laboratory Number:	56116	Date Sampled:	10-07-10
Chain of Custody:	9948	Date Received:	10-07-10
Sample Matrix:	Soil	Date Analyzed:	10-11-10
Preservative:	Cool	Date Extracted:	10-08-11
Condition:	Intact	Analysis Requested:	BTEX
		Dilution:	10

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**2.2**	**0.9**
Total BTEX	**2.2**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**97.0 %**
	1,4-difluorobenzene	**105 %**
	Bromochlorobenzene	**105 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM 1-9 Land Farm**

Analyst

Review

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell 2S-VZ-1-4	Date Reported:	10-11-10
Laboratory Number:	56116	Date Sampled:	10-07-10
Chain of Custody No:	9948	Date Received:	10-07-10
Sample Matrix:	Soil	Date Extracted:	10-08-10
Preservative:	Cool	Date Analyzed:	10-11-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NM 1-9 Land Farm**

Analyst

Review

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EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	10-11-10 QA/QC	Date Reported:	10-11-10
Laboratory Number:	56109	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	10-11-10
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF	C-Cal RF	% Difference	Accept. Range
Gasoline Range C5 - C10	10-11-10	9.9960E+002	1.0000E+003	**0.04%**	**0 - 15%**
Diesel Range C10 - C28	10-11-10	9.9960E+002	1.0000E+003	**0.04%**	**0 - 15%**

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	**ND**	**0.2**
Diesel Range C10 - C28	**ND**	**0.1**

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
Gasoline Range C5 - C10	**ND**	**ND**	**0.0%**	**0 - 30%**
Diesel Range C10 - C28	**ND**	**ND**	**0.0%**	**0 - 30%**

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	**ND**	**250**	**232**	**92.7%**	**75 - 125%**
Diesel Range C10 - C28	**ND**	**250**	**240**	**96.0%**	**75 - 125%**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 56109, 56113, 56115-56116, 56122**

Analyst

Review

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EPA METHOD 418.1
TOTAL PETROLEUM HYROCARBONS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	QA/QC	Date Reported:	10-11-10
Laboratory Number:	10-08-TPH.QA/QC 56113	Date Sampled:	N/A
Sample Matrix:	Freon-113	Date Analyzed:	10-08-10
Preservative:	N/A	Date Extracted:	10-08-10
Condition:	N/A	Analysis Needed:	TPH

Calibration	I-Cal Date	C-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
	10-05-10	10-08-10	1,640	1,690	3.0%	+/- 10%

Blank Conc. (mg/Kg)	Concentration	Detection Limit
TPH	ND	39.4

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
TPH	73.6	74.9	1.8%	+/- 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept Range
TPH	73.6	2,000	1,710	82.5%	80 - 120%

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **QA/QC for Samples 56113, 56115-56116**

Analyst

Review

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	1011BBLK QA/QC	Date Reported:	10-11-10
Laboratory Number:	56120	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	10-11-10
Condition:	N/A	Analysis:	BTEX
		Dilution:	10

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range: 0 - 15%	Blank Conc	Detect. Limit
Benzene	3.6566E+005	3.6639E+005	0.2%	ND	0.1
Toluene	4.3456E+005	4.3543E+005	0.2%	ND	0.1
Ethylbenzene	3.9461E+005	3.9540E+005	0.2%	ND	0.1
p,m-Xylene	9.3605E+005	9.3793E+005	0.2%	ND	0.1
o-Xylene	3.5110E+005	3.5181E+005	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range:	Detect. Limit
Benzene	ND	ND	0.0%	0 - 30%	0.9
Toluene	3.6	3.5	2.8%	0 - 30%	1.0
Ethylbenzene	ND	ND	0.0%	0 - 30%	1.0
p,m-Xylene	276	292	5.9%	0 - 30%	1.2
o-Xylene	82.5	81.4	1.3%	0 - 30%	0.9

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	500	585	117%	39 - 150
Toluene	3.6	500	554	110%	46 - 148
Ethylbenzene	ND	500	592	118%	32 - 160
p,m-Xylene	276	1000	1,510	118%	46 - 148
o-Xylene	82.5	500	663	114%	46 - 148

ND - Parameter not detected at the stated detection limit.

Dilution: Spike and spiked sample concentration represent a dilution proportional to sample dilution.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: QA/QC for Samples 56109, 56113, 56115-56116, 56118, 56120-56122

Analyst

Review

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CHAIN OF COSTODY RECORD

09948

Client: KEY ENERGY	Project Name / Location: KEY FARMINGTON NM1-9 LANDFARM
Client Address: 5651 US HWY 64 87401	Sampler Name: WAYNE PRICE PRICE LLC
Client Phone No.: 1-505-715-2809	Client No.: 98065-0013

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative $HgCl_2$	Preservative HCl	Preservative ICE	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	PAH	TPH (418.1)	CHLORIDE				Sample Cool	Sample Intact
CELL 2N-VZ-1-17	10-7-10	1:47P	56115	(Soil) Solid Sludge Aqueous	1/4oz			✓	X	X							X	X				Y	Y
CELL 2S-VZ-1-4	10-7-10	2:12P	56116	(Soil) Solid Sludge Aqueous	1/4oz			✓	X	X							X	X				Y	Y
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
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				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Wayne Price	10-7-10	3:00PM	[signature]	10/07/10	3:00PM
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

TZ = TREATMENT ZONE S = SOUTH
VZ = VADOSE ZONE N = NORTH

SEE ATTACHED-LANDFARM PLOT PLAN 09948 FOR VZ SAMPLE LOCATIONS

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Meeting Agenda:

Parties: OCD and Key Energy

Date: August 24, 2010

RECEIVED OCD
2010 AUG 24 P 4:27

Reference: NM1-9 Pond and Landfarm

Subject: Draft Plan

The following is a draft plan to continue the process of deciding the future operations of the NM1-9 Key Farmington Surface Waste Management Facility:

Background:

In March 2009, OCD issued Key an approval to investigate a possible pond leak, and to take the opportunity to clean out the solids/sludge in the pond and associated treating facility.

The plan included setting several ABT's near the injection well for temporary storage of incoming fluids. That system is still in place to date. The approval did not have an expiration date.

Key recognizes that the temporary system is just that, temporary. The business climate during the recent recession had basically put any large expenditures on hold. Key feels that since the pond and all of the treatment tanks have been emptied and cleaned, any substantial environmental threat is basically negated.

Key has submitted draft closure plans, at the request of OCD, in order to understand the ramifications of such closure and obtain guidance from OCD.

However, Key has not officially submitted an official closure plan as it feels that some parts of the facility may still be useful and needs clarification from OCD on the ramifications of the new rule part 36.

Draft Action Plan:

I. Meet with OCD and brainstorm on the possible scenarios of closing or operating part, or all of the facility.

   A. Topics may include using the existing liner as secondary containment for the treating system.
   B. Closing or continued using the landfarm.
   C. Latest landfarm analysis.
   D. Burying landfarm soils on site.
   E. Remediation of the landfarm soils.
   F. Closure standards for the landfarm.
   G. Continue to operate as is until business climate improves.

II. Provide OCD a decision within 60 days on which route Key intends to take.

III. Continue working with OCD until an agreeable path forward is approved.

Key Energy Farmington Permit NM1-9

Landfarm Sample Report

2nd Quarter 2010

August 20, 2010

To: Dan Gibson-Key Energy Corporate Environmental Manager
Loren Molleur- Key Energy Sr. Director Fluids Management Div.

From: Wayne Price- Price LLC

Date: August 20, 2010

Subject: Key Farmington NM1-9

Landfarm Sample Report 2nd. qtr.

Introduction:

Please find enclosed a copy of the 2nd qtr landfarm sample results for your review. The report consists of a Sample Results Matrix Table, Sampling Periods & Analysis Sheet, Sample Field Notes Plot Plan, Landfarm Sampling/Safety Plan, Photos and the Laboratory Results with Chain of Custodies and QA/QC documentation.

The permitted landfarm consists of two cells, cell #1 (one acre), and cell #2 (four acres). Cell #1 has been inactive for years and may have never been used and presently has vegetation growing in it.

Cell # 2 is the active cell and currently has not been filled to capacity. There are areas in Cell #2 that have never been used. In order to obtain good representative samples, it was decided to divide cell #2 into two sections, South and North. Treatment zone samples were taken from each active section as four discrete samples were collected from surface to 6 inches deep and composited in a stainless steel bowl, and transferred to clean jars and placed on ice. The south and north section samples were labeled Cell-2S-TZ and Cell-2N-TZ respectfully.

Vadose samples were collected with a backhoe at depths from 3-4 feet deep. At each sample location the treatment zone soil was scraped away to decrease the chance of cross contamination. Sample jars were filled directly out of the bucket and placed on ice.

Random sample locations were determine by using a "out -of–the- hat" drawing method for the south and north active sections that were divided into grids, 18 for the south and 16 for the north. Please refer to the attached plot plan, which shows where the vadose samples were actually collected and provides a cross reference to the chain-of-custody sample ID's.

Previously, soil taken from grid #7 Cell-2N formed a dirt pile located in the far SW part of Cell-2S. 12 discrete samples were collected from the dirt pile. A clean

shovel was used to dig two to three feet into the pile at six locations and 6 surface samples were taken, all composited into one sample.

Findings:

The "treatment zone" results ranged from 49,500 mg/kg to 86,800 mg/kg for TPH (418.1), 19.1 mg/kg to128 mg/kg for TPH (8015 GRO/DRO), non-detect to 48.5 ug/kg for BTEX (8021), and 165mg/kg to 265 mg/kg for Chlorides.

"Vadose Zone" results ranged from 23.6 mg/kg to 11,100 mg/kg for TPH (418.1), non-detect for all TPH (8015 GRO/DRO), non-detect for all BTEX (8021), and 5 mg/kg to 410 mg/kg for Chlorides.

The "dirt pile" results were 27,800 mg/kg for TPH (418.1), 1.3 mg/kg for TPH (8015 GRO/DRO), 11.2 ug/kg for BTEX (8021), and 400 mg/kg for Chlorides.

During the vadose zone sampling, oily stained soil with moderate hydrocarbon odors were observed just below the surface to one to two feet deep in grid areas; Cell-2S-VZ-1-7, 2N-VZ-2-5, 2N-VZ-2-4, and 2N-VZ-2-14. Photos attached.

Conclusions:

The two "treatment zone" sampling results showed high levels for aliphatic hydrocarbons TPH (418.1), and during the sampling event four areas were discovered that had un-remediated soils. The chlorides are very low with an average of 215 mg/kg.

The "vadose zone" results reveal that most of the aromatic hydrocarbons are mostly non-detect, except samples Cell-2S-VZ-4 (grid #18) and Cell-2N-VZ-3 (grid #4) which showed slightly elevated levels of GRO/DRO 4.4 mg/kg to 28.8 mg/kg.

The vadose zone did show levels of aliphatic hydrocarbons ranging from 23.6 mg/kg to 11,100 mg/kg of TPH (418.1) with an average of 2647 mg/kg.

The chlorides in the vadose averaged 196 mg/kg well below the WQCC groundwater standard of 250 mg/l.

Recommendations and Immediate Actions:

The "vadose zone" should be given additional time for natural bio-remediated to occur. It is not recommend at this time to attempt to remove these soils as the un-remediated soils from the surface may cross contaminate the vadose zone.

The chlorides in both the treatment and vadose zone are at such low levels that no risk to the environment would be anticipated.

The treatment of the un-remediated soils and dirt pile have began and are being taken to the surface, spread out and tilled aggressively until acceptable levels are obtained.

Future Use or Closure of the Landfarm:

Recommend Key meet with agency i.e. OCD to seek an acceptable path forward.

Sample Results Matrix Table for 2nd QTR 2010

Sample ID:	Date:	Sample Matrix		Chlorides Total mg/kg	TPH 418.1 Total mg/kg	TPH 8015 Total mg/kg	BTEX 8021 GRO mg/kg	BTEX 8021 DRO mg/kg	BTEX 8021 Total ug/kg	Benzene ug/kg	Toluene ug/kg	Ethyl-Ben ug/kg	M-P,Xylene ug/kg	O-Xylene ug/kg
Treatment Zone-TZ														
Cell-2S-TZ	"7/14/2010"	Soil		265	86,800	19.1	7.9	11.2	ND	ND	ND	ND	ND	ND
Cell-2N-TZ	"7/14/2010"	Soil		165	49,500	128	28.3	99.7	48.5	6.2	7.9	8.1	14.9	11.4
			Average	***215***	***68,150***									
Vadose Zone-VZ														
Cell-2S-VZ-1	"7/14/2010"	Soil*		175	117	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cell-2S-VZ-2	"7/14/2010"	Soil		375	23.6	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cell-2S-VZ-3	"7/14/2010"	Soil		410	2730	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cell-2S-VZ-4	"7/14/2010"	Soil		130	6650	4.4	2.1	2.3	ND	ND	ND	ND	ND	ND
Cell-2N-VZ-1	"7/14/2010"	Soil		5	347	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cell-2N-VZ-2	"7/14/2010"	Soil*		55	51.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cell-2N-VZ-3	"7/14/2010"	Soil*		235	11,100	25.8	8.3	17.5	ND	ND	ND	ND	ND	ND
Cell-2N-VZ-4	"7/14/2010"	Soil*		180	158	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Average	***196***	***2647***									
Dirt Pile	"7/14/2010"	Soil*		400	27,800	1.3	ND	1.3	11.2	ND	ND	ND	6.1	5.1

Notes and Comments See Sample Field Notes below for sample collection location grids.
Example: Cell-2N-VZ-1 was collected from the North half of Cell #2 in grid #7.

>Soil* these areas were noted to have dark stained soils with moderate hydrocarbon odors approximately 1-2 feet deep in places. See attached photos

>Cell-2S is South half of Cell #2
>Cell-2N is North half of Cell #2

>Cell #1 not sampled out of service for several years

>Treatment Zone samples were 1 composite from 4 discrete samples
>Vadose Zone samples were randomly selected using "out of the hat number draw" for grids- sample taken between 3-4 feet below the treatment zone-
>Dirt Pile sample was 1 composite from 12 discrete samples

>Background Samples not yet established

Highligthed cells requires action Action: ***More aggressive tilling***

Key Energy Farmington Permit NM1-9 Landfarm Sample Report-2nd Quarter 2010

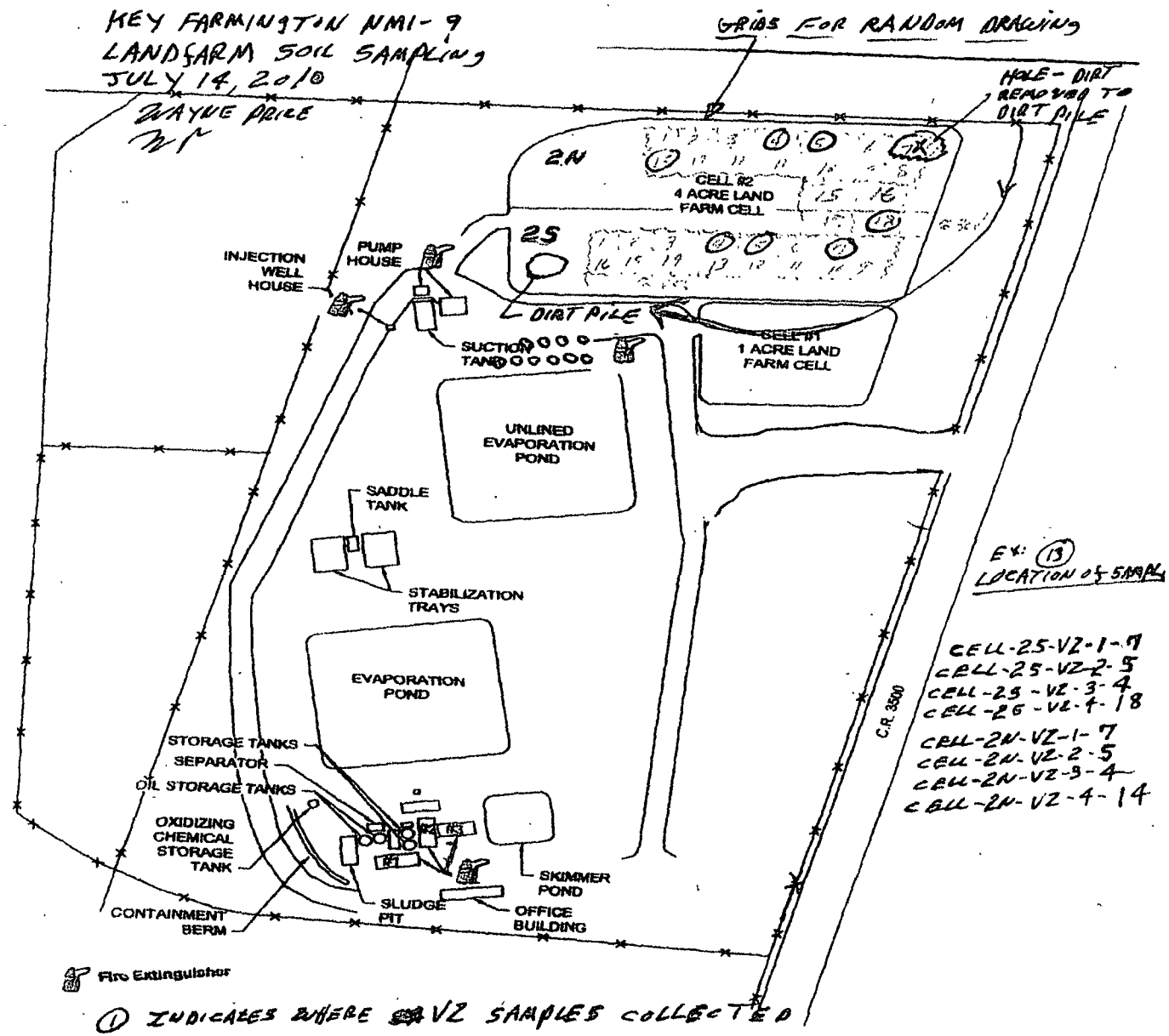
Rule 711/Part 36 Required Sampling Periods & Analysis

Sample Frequency	1st Qtr	2nd Qtr	3 rd Qtr	4th Qtr	5-years
	Analysis	*Analysis*	*Analysis*	*Analysis*	*Analysis*
Permit 711 requirements					
Treatment Zone	NA	NA		NA	NA
Vadose Zone- 1 random sample /cell 2-3 ft below bottom of treatment zone	TPH/BTEX	TPH/BTEX	TPH/BTEX	TPH/BTEX/Gen Chem/WQCC metals	NA
Part 36 requirements					
Treatment Zone-one composite from 4 discrete sample		TPH/Cl		TPH/Cl	
Vadose Zone- 4 random samples per cell 3-4 ft below bottom of treatment zone		TPH/BTEX/Cl		TPH/BTEX/Cl	WQCC 3103 A&B

Notes: TPH is both 418.1 and 8015m GRO/DRO) BTEX is 8021 Cl (Chloride) is 300.1 Gen Chem is Major Cations/Anions, Ph, TDS.

Sample Field Notes and Photos

KEY FARMINGTON NM1-9
LANDFARM SOIL SAMPLING
JULY 14, 2010
WAYNE PRICE
NP



EX: (13)
LOCATION OF SAMPL

CELL-25-VZ-1-9
CELL-25-VZ-2-5
CELL-25-VZ-3-4
CELL-25-VZ-4-18

CELL-2N-VZ-1-7
CELL-2N-VZ-2-5
CELL-2N-VZ-3-4
CELL-2N-VZ-4-14

(1) INDICATES WHERE VZ SAMPLES COLLECTED
VD - VADOSE ZONE 3-4 ft DEEP
PLOT-PLAN ATTACH TO C-O-C # 09944

09944

7-14-10

Key Energy Services NM1-9 SWM Landfarm Sampling and Safety Plan: (SEMI-ANNUAL)+ (QUARTERLY)

Date: July 14, 2010 C-O-C # 09944

Objective:

Collect soil samples pursuant to requirements of the NMOCD old rule 711 and Part 36 permit requirements.

Procedure and protocol:

All samples will be collected and analyzed per approved EPA methods. QA/QC will be performed in the field, transport, delivery and analyzing of the samples.

Standard Industry sampling SOP's and protocols will be used in equipment cleaning, personal protection, sample containers, prevention of cross-contamination, and proper preservation, etc.

Sampling personal will have previous experience in collecting EPA type samples. On-the-job training will be conducted during this exercise for Key and other employees responsible for future sample collection.

Landfarm description:

Landfarm cell #2 is divided in two sections, the south and north sections. In the past these samples have been labeled Cell #1 and Cell #2. The south samples will be labeled cell 2-S, and the north samples will be labeled cell 2-N. Landfarm cell #1 is an old inactive cell.

Sample description, type and locations:

Vadose Zone Sampling:

The existing permit condition per the rule 711 requires Treatment Zone Sampling (which is actually vadose zone) a minimum of one random soil sample to be collected per cell (<5ac) quarterly and analyzed for TPH(418.1 or 8015m) and BTEX (8020) to be collected 2-3 feet below the landfarm native ground surface.

The relative new rule part 36 for landfarms requires that vadose zone sampling be a minimum of four random soil samples collected per cell (<5 ac) semi-annually and analyzed for TPH(418.1, 8015m DRO/GRO), BTEX (8020), and Chlorides (EPA 300.1) to be collected 3-4 feet below the landfarm original ground surface.

7-19-10

In order to satisfy both permit conditions, the following vadose samples will be collected and analyzed for the following constituents:

Cell #2-S- 4 random selected points, 3-4 feet deep, analyzed for TPH 418.1, 8015m DRO/GRO, BTEX (8021), Chlorides 300.1.
Cell #2-N 4 random selected points, 3-4 feet deep, Analyzed same as cell #2-S.

Treatment Zone Sampling:

Part 36 also requires semi-annual sampling of the treated soil (Treatment Zone). One composite soil sample consisting of 4 discrete soil samples must be collected and analyzed for TPH (418.1 or 8015m DRO/GRO) and Chlorides EPA 300.1.

In order to satisfy both permit conditions, the following treatment zone soil samples will be collected and analyzed for the following constituents:

Cell #2-S- 1 composite soil sample consisting of 4 discrete soil samples collected from the treatment zone surface to approximately one foot deep and analyzed for TPH 418.1, 8015m DRO/GRO, Chlorides 300.1.
Cell #2-N 1 composite soil sample consisting of 4 discrete soil samples collected from the treatment zone surface to approximately one foot deep and analyzed for TPH 418.1, 8015m DRO/GRO, Chlorides 300.1.

Selected Sampling:

Located in the SW corner of Cell #2-S is a dirt pile that was taken from the NE corner of Cell #2-N, as it was considered to be high in Chlorides. This pile will be sampled to determine the current status:

Dirt Pile will be sampled by taking 12 random selected samples and composite into one and will be analyzed for TPH 418.1, 8015m DRO/GRO, BTEX (8021), Chlorides 300.1.

Note: Random sample selection will be determined in the field using a simple "out of the hat" drawing. 4 samples will be drawn from ~~16~~ 18 equal areas from each cell. See attached plot plan.

7-19-10

Safety Plan:

An on-site tailgate safety meeting will be conducted by the Key Personal describing on-site hazards.

Price LLC will include any safety issues concerning sampling.

Note all Hazards: WIND "CALM" TEMP 70°F - 95°F

MOVING TRUCKS, BACK-HOLE WILL BE SHUT DOWN FOR SAMPLE COLLECTION
HAND SIGNALS, SNAKES, ANTS, BEE'S, WASP, INSECTS,

Sign-off: Attending:

WAYNE PRICE
M. PRICE
STEVE WILSON SW
HC PUTMAN
NEIL ALLEN

Below-Photo of Cell-2N-VZ-2 shows oily stained dirt about one foot under surface.

Below-Photo of Cell-2N-VZ-3 shows oily stained dirt about one foot under surface.

Below-Photo of Cell-2N-VZ-4 shows oily stained dirt about one foot under surface.

Key Energy Farmington Permit NM1-9

Landfarm Sample Report

2nd Quarter 2010

August 20, 2010

To: Dan Gibson-Key Energy Corporate Environmental Manager
Loren Molleur- Key Energy Sr. Director Fluids Management Div.

From: Wayne Price- Price LLC

Date: August 20, 2010

Subject: Key Farmington NM1-9

Landfarm Sample Report 2nd. qtr.

Introduction:

Please find enclosed a copy of the 2nd qtr landfarm sample results for your review. The report consists of a Sample Results Matrix Table, Sampling Periods & Analysis Sheet, Sample Field Notes Plot Plan, Landfarm Sampling/Safety Plan, Photos and the Laboratory Results with Chain of Custodies and QA/QC documentation.

The permitted landfarm consists of two cells, cell #1 (one acre), and cell #2 (four acres). Cell #1 has been inactive for years and may have never been used and presently has vegetation growing in it.

Cell # 2 is the active cell and currently has not been filled to capacity. There are areas in Cell #2 that have never been used. In order to obtain good representative samples, it was decided to divide cell #2 into two sections, South and North. Treatment zone samples were taken from each active section as four discrete samples were collected from surface to 6 inches deep and composited in a stainless steel bowl, and transferred to clean jars and placed on ice. The south and north section samples were labeled Cell-2S-TZ and Cell-2N-TZ respectfully.

Vadose samples were collected with a backhoe at depths from 3-4 feet deep. At each sample location the treatment zone soil was scraped away to decrease the chance of cross contamination. Sample jars were filled directly out of the bucket and placed on ice.

Random sample locations were determine by using a "out -of–the- hat" drawing method for the south and north active sections that were divided into grids, 18 for the south and 16 for the north. Please refer to the attached plot plan, which shows where the vadose samples were actually collected and provides a cross reference to the chain-of-custody sample ID's.

Previously, soil taken from grid #7 Cell-2N formed a dirt pile located in the far SW part of Cell-2S. 12 discrete samples were collected from the dirt pile. A clean

shovel was used to dig two to three feet into the pile at six locations and 6 surface samples were taken, all composited into one sample.

Findings:

The "treatment zone" results ranged from 49,500 mg/kg to 86,800 mg/kg for TPH (418.1), 19.1 mg/kg to128 mg/kg for TPH (8015 GRO/DRO), non-detect to 48.5 ug/kg for BTEX (8021), and 165mg/kg to 265 mg/kg for Chlorides.

"Vadose Zone" results ranged from 23.6 mg/kg to 11,100 mg/kg for TPH (418.1), non-detect for all TPH (8015 GRO/DRO), non-detect for all BTEX (8021), and 5 mg/kg to 410 mg/kg for Chlorides.

The "dirt pile" results were 27,800 mg/kg for TPH (418.1), 1.3 mg/kg for TPH (8015 GRO/DRO), 11.2 ug/kg for BTEX (8021), and 400 mg/kg for Chlorides.

During the vadose zone sampling, oily stained soil with moderate hydrocarbon odors were observed just below the surface to one to two feet deep in grid areas; Cell-2S-VZ-1-7, 2N-VZ-2-5, 2N-VZ-2-4, and 2N-VZ-2-14. Photos attached.

Conclusions:

The two "treatment zone" sampling results showed high levels for aliphatic hydrocarbons TPH (418.1), and during the sampling event four areas were discovered that had un-remediated soils. The chlorides are very low with an average of 215 mg/kg.

The "vadose zone" results reveal that most of the aromatic hydrocarbons are mostly non-detect, except samples Cell-2S-VZ-4 (grid #18) and Cell-2N-VZ-3 (grid #4) which showed slightly elevated levels of GRO/DRO 4.4 mg/kg to 28.8 mg/kg.

The vadose zone did show levels of aliphatic hydrocarbons ranging from 23.6 mg/kg to 11,100 mg/kg of TPH (418.1) with an average of 2647 mg/kg.

The chlorides in the vadose averaged 196 mg/kg well below the WQCC groundwater standard of 250 mg/l.

Recommendations and Immediate Actions:

The "vadose zone" should be given additional time for natural bio-remediated to occur. It is not recommend at this time to attempt to remove these soils as the un-remediated soils from the surface may cross contaminate the vadose zone.

The chlorides in both the treatment and vadose zone are at such low levels that no risk to the environment would be anticipated.

The treatment of the un-remediated soils and dirt pile have began and are being taken to the surface, spread out and tilled aggressively until acceptable levels are obtained.

Future Use or Closure of the Landfarm:

Recommend Key meet with agency i.e. OCD to seek an acceptable path forward.

Sample Results Matrix Table for 2nd QTR 2010

Sample ID:	Date:	Sample Matrix		Chlorides Total mg/kg	TPH 418.1 Total mg/kg	TPH 8015 Total mg/kg	BTEX 8021 GRO mg/kg	BTEX 8021 DRO mg/kg	BTEX 8021 Total ug/kg	Benzene ug/kg	Toluene ug/kg	Ethyl-Ben ug/kg	M-P,Xylene ug/kg	O-Xylene ug/kg
Treatment Zone-TZ														
Cell-2S-TZ	"7/14/2010"	Soil		265	86,800	19.1	7.9	11.2	ND	ND	ND	ND	ND	ND
Cell-2N-TZ	"7/14/2010"	Soil		165	49,500	128	28.3	99.7	48.5	6.2	7.9	8.1	14.9	11.4
			Average	***215***	***68,150***									
Vadose Zone-VZ														
Cell-2S-VZ-1	"7/14/2010"	Soil*		175	117	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cell-2S-VZ-2	"7/14/2010"	Soil		375	23.6	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cell-2S-VZ-3	"7/14/2010"	Soil		410	2730	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cell-2S-VZ-4	"7/14/2010"	Soil		130	6650	4.4	2.1	2.3	ND	ND	ND	ND	ND	ND
Cell-2N-VZ-1	"7/14/2010"	Soil		5	347	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cell-2N-VZ-2	"7/14/2010"	Soil*		55	51.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cell-2N-VZ-3	"7/14/2010"	Soil*		235	11,100	25.8	8.3	17.5	ND	ND	ND	ND	ND	ND
Cell-2N-VZ-4	"7/14/2010"	Soil*		180	158	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Average	***196***	***2647***									
Dirt Pile	"7/14/2010"	Soil*		400	27,800	1.3	ND	1.3	11.2	ND	ND	ND	6.1	5.1

Notes and Comments See Sample Field Notes below for sample collection location grids.
Example: Cell-2N-VZ-1 was collected from the North half of Cell #2 in grid #7.

>Soil* these areas were noted to have dark stained soils with moderate hydrocarbon odors approximately 1-2 feet deep in places. See attached photos

>Cell-2S is South half of Cell #2
>Cell-2N is North half of Cell #2

>Cell #1 not sampled out of service for several years

>Treatment Zone samples were 1 composite from 4 discrete samples
>Vadose Zone samples were randomly selected using "out of the hat number draw" for grids- sample taken between 3-4 feet below the treatment zone-
>Dirt Pile sample was 1 composite from 12 discrete samples

>Background Samples not yet established

Highligthed cells requires action Action: ***More aggressive tilling***

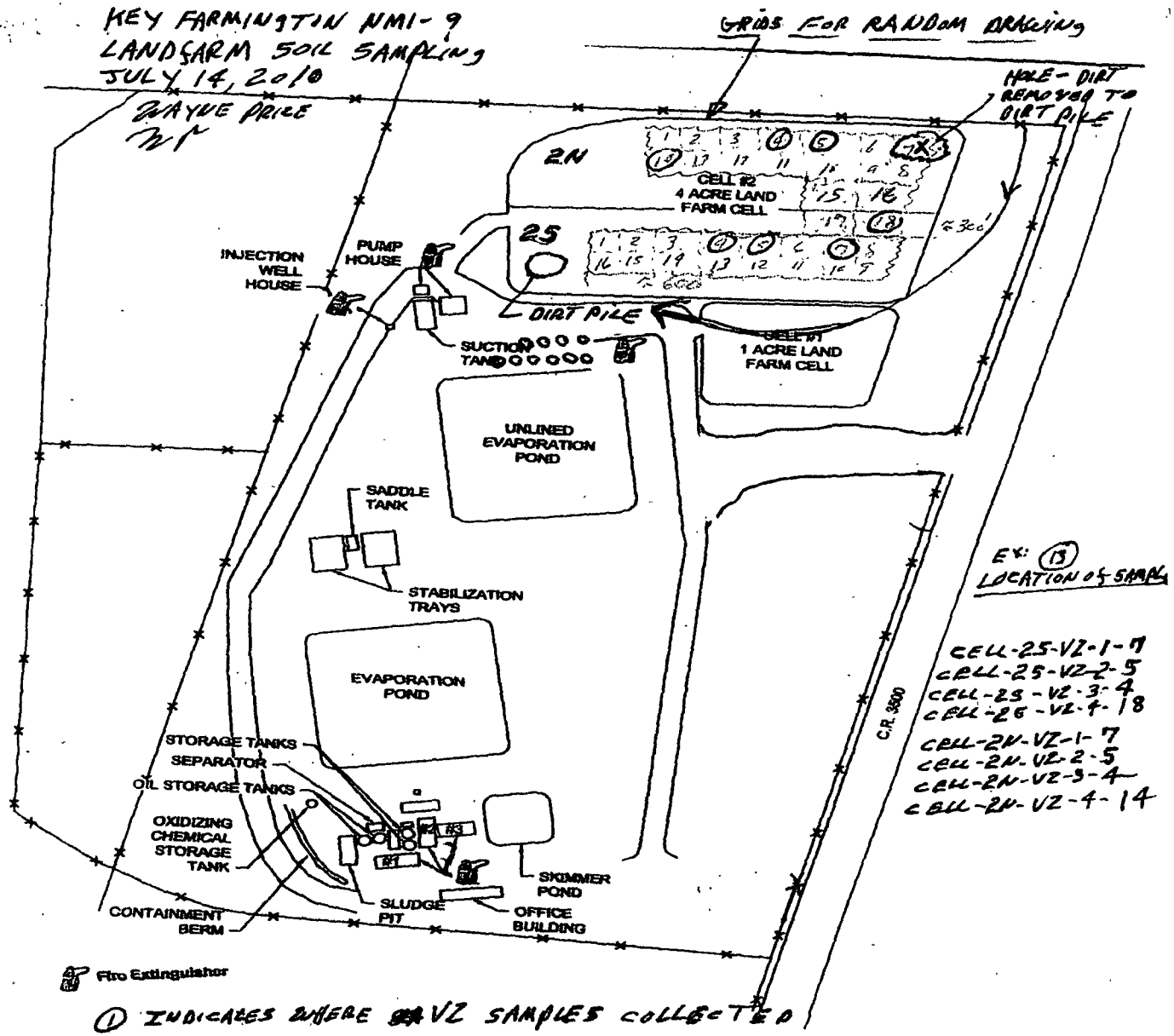
Key Energy Farmington Permit NM1-9 Landfarm Sample Report-2nd Quarter 2010

Rule 711/Part 36 Required Sampling Periods & Analysis

Sample Frequency	1st Qtr	2nd Qtr	3 rd Qtr	4th Qtr	5-years
	Analysis	*Analysis*	*Analysis*	*Analysis*	*Analysis*
Permit 711 requirements					
Treatment Zone	NA	NA		NA	NA
Vadose Zone- 1 random sample /cell 2-3 ft below bottom of treatment zone	TPH/BTEX	TPH/BTEX	TPH/BTEX	TPH/BTEX/Gen Chem/WQCC metals	NA
Part 36 requirements					
Treatment Zone-one composite from 4 discrete sample		TPH/Cl		TPH/Cl	
Vadose Zone- 4 random samples per cell 3-4 ft below bottom of treatment zone		TPH/BTEX/Cl		TPH/BTEX/Cl	WQCC 3103 A&B

Notes: TPH is both 418.1 and 8015m GRO/DRO) BTEX is 8021 Cl (Chloride) is 300.1 Gen Chem is Major Cations/Anions, Ph, TDS,

KEY FARMINGTON NM1-9
LANDFARM SOIL SAMPLING
JULY 14, 2010
WAYNE PRICE



EX: (13) LOCATION OF SAMPLE

CELL-25-VZ-1-7
CELL-25-VZ-2-5
CELL-25-VZ-3-4
CELL-25-VZ-4-18

CELL-2N-VZ-1-7
CELL-2N-VZ-2-5
CELL-2N-VZ-3-4
CELL-2N-VZ-4-14

(1) INDICATES WHERE VZ SAMPLES COLLECTED
VD - VADOSE ZONE 3-4 ft DEEP
PLOT-PLAN ATTACH TO C-O-C # 09944

09944

Key Energy Services NM1-9 SWM
Landfarm Sampling and Safety Plan: (SEMI-ANNUAL)+ (QUARTERLY)

Date: July 14, 2010 C-O-C # 09944

Objective:

Collect soil samples pursuant to requirements of the NMOCD old rule 711 and Part 36 permit requirements.

Procedure and protocol:

All samples will be collected and analyzed per approved EPA methods. QA/QC will be performed in the field, transport, delivery and analyzing of the samples.

Standard Industry sampling SOP's and protocols will be used in equipment cleaning, personal protection, sample containers, prevention of cross-contamination, and proper preservation, etc.

Sampling personal will have previous experience in collecting EPA type samples. On-the-job training will be conducted during this exercise for Key and other employees responsible for future sample collection.

Landfarm description:

Landfarm cell #2 is divided in two sections, the south and north sections. In the past these samples have been labeled Cell #1 and Cell #2. The south samples will be labeled cell 2-S, and the north samples will be labeled cell 2-N. Landfarm cell #1 is an old inactive cell.

Sample description, type and locations:

Vadose Zone Sampling:

The existing permit condition per the rule 711 requires Treatment Zone Sampling (which is actually vadose zone) a minimum of one random soil sample to be collected per cell (<5ac) quarterly and analyzed for TPH(418.1 or 8015m) and BTEX (8020) to be collected 2-3 feet below the landfarm native ground surface.

The relative new rule part 36 for landfarms requires that vadose zone sampling be a minimum of four random soil samples collected per cell (<5 ac) semi-annually and analyzed for TPH(418.1, 8015m DRO/GRO), BTEX (8020), and Chlorides (EPA 300.1) to be collected 3-4 feet below the landfarm original ground surface.

7-14-10

In order to satisfy both permit conditions, the following vadose samples will be collected and analyzed for the following constituents:

Cell #2-S- 4 random selected points, 3-4 feet deep, analyzed for TPH 418.1, 8015m DRO/GRO, BTEX (8021), Chlorides 300.1.
Cell #2-N 4 random selected points, 3-4 feet deep, Analyzed same as cell #2-S.

Treatment Zone Sampling:

Part 36 also requires semi-annual sampling of the treated soil (Treatment Zone). One composite soil sample consisting of 4 discrete soil samples must be collected and analyzed for TPH (418.1 or 8015m DRO/GRO) and Chlorides EPA 300.1.

In order to satisfy both permit conditions, the following treatment zone soil samples will be collected and analyzed for the following constituents:

Cell #2-S- 1 composite soil sample consisting of 4 discrete soil samples collected from the treatment zone surface to approximately one foot deep and analyzed for TPH 418.1, 8015m DRO/GRO, Chlorides 300.1.
Cell #2-N 1 composite soil sample consisting of 4 discrete soil samples collected from the treatment zone surface to approximately one foot deep and analyzed for TPH 418.1, 8015m DRO/GRO, Chlorides 300.1.

Selected Sampling.

Located in the SW corner of Cell #2-S is a dirt pile that was taken from the NE corner of Cell #2-N, as it was considered to be high in Chlorides. This pile will be sampled to determine the current status:

Dirt Pile will be sampled by taking 12 random selected samples and composite into one and will be analyzed for TPH 418.1, 8015m DRO/GRO, BTEX (8021), Chlorides 300.1.

Note: Random sample selection will be determined in the field using a simple "out of the hat" drawing. 4 samples will be drawn from ~~16~~ 18 equal areas from each cell. See attached plot plan.

7-19-10

Safety Plan:

An on-site tailgate safety meeting will be conducted by the Key Personal describing on-site hazards.

Price LLC will include any safety issues concerning sampling.

Note all Hazards: WIND "CALM" TEMP 90°F-95°F

MOVING TRUCKS, BACK-HOLE WILL BE SHUT DOWN FOR SAMPLE COLLECTION
HAND SIGNALS, SNAKES, ANTS, BEES, WASP, INSECTS,

Sign-off: Attending:

WAYNE PRICE
M. PRICE
STEVE WILSON SW
HC PUTMAN
NEIL ALLEN

Below-Photo of Cell-2N-VZ-2 shows oily stained dirt about one foot under surface.

Below-Photo of Cell-2N-VZ-3 shows oily stained dirt about one foot under surface.

Below-Photo of Cell-2N-VZ-4 shows oily stained dirt about one foot under surface.

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-TZ	Date Reported:	07-19-10
Laboratory Number:	55146	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-14-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**7.9**	**0.2**
Diesel Range (C10 - C28)	**11.2**	**0.1**
Total Petroleum Hydrocarbons	**19.1**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

Analyst

Review

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-TZ	Date Reported:	07-19-10
Laboratory Number:	55147	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-14-10
Preservative:	Cool	Date Analyzed:	07-19-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**28.3**	**0.2**
Diesel Range (C10 - C28)	**99.7**	**0.1**
Total Petroleum Hydrocarbons	**128**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

Analyst

Review

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-1	Date Reported:	07-19-10
Laboratory Number:	55148	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-14-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

Analyst

Review

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-2	Date Reported:	07-19-10
Laboratory Number:	55149	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-14-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

Analyst

Review

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-3	Date Reported:	07-19-10
Laboratory Number:	55150	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-14-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

Analyst

Review

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-4	Date Reported:	07-19-10
Laboratory Number:	55151	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	[illegible]
Preservative:	Cool	Date Analyzed:	
Condition:	Intact	Analysis Requested:	

fixed Sample ID Cell-2S- to Cell-2S-

Parameter	Concentration (mg/Kg)	
Gasoline Range (C5 - C10)	**2.1**	**0.2**
Diesel Range (C10 - C28)	**2.3**	**0.1**
Total Petroleum Hydrocarbons	**4.4**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

Analyst

Review

envirotech
Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-1	Date Reported:	07-19-10
Laboratory Number:	55152	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-14-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-2	Date Reported:	07-19-10
Laboratory Number:	55153	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-14-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-3	Date Reported:	07-19-10
Laboratory Number:	55154	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-14-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**8.3**	**0.2**
Diesel Range (C10 - C28)	**17.5**	**0.1**
Total Petroleum Hydrocarbons	**25.8**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-4	Date Reported:	07-19-10
Laboratory Number:	55155	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-14-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	07-15-10 QA/QC	Date Reported:	07-19-10
Laboratory Number:	55148	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	07-15-10
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	05-07-07	9.9960E+002	1.0000E+003	**0.04%**	**0 - 15%**
Diesel Range C10 - C28	05-07-07	9.9960E+002	1.0000E+003	**0.04%**	**0 - 15%**

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	**ND**	**0.2**
Diesel Range C10 - C28	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	**0.2**

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
Gasoline Range C5 - C10	**ND**	**ND**	**0.0%**	**0 - 30%**
Diesel Range C10 - C28	**ND**	**ND**	**0.0%**	**0 - 30%**

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	**ND**	**250**	**252**	**101%**	**75 - 125%**
Diesel Range C10 - C28	**ND**	**250**	**252**	**101%**	**75 - 125%**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 55146, 55148-55155**

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EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	07-19-10 QA/QC	Date Reported:	07-19-10
Laboratory Number:	55172	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	07-19-10
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	05-07-07	9.9960E+002	1.0000E+003	**0.04%**	**0 - 15%**
Diesel Range C10 - C28	05-07-07	9.9960E+002	1.0000E+003	**0.04%**	**0 - 15%**

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	**ND**	**0.2**
Diesel Range C10 - C28	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	**0.2**

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
Gasoline Range C5 - C10	**ND**	**ND**	**0.0%**	**0 - 30%**
Diesel Range C10 - C28	**8.4**	**8.3**	**1.2%**	**0 - 30%**

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	**ND**	**250**	**250**	**99.9%**	**75 - 125%**
Diesel Range C10 - C28	**8.4**	**250**	**273**	**106%**	**75 - 125%**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 55147; 55172-55173; 55179-55180; 55189**

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-1	Date Reported:	07-19-10
Laboratory Number:	55148	Date Sampled:	07-14-10
Chain of Custody:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Analyzed:	07-15-10
Preservative:	Cool	Date Extracted:	07-14-10
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**100 %**
	1,4-difluorobenzene	**100 %**
	Bromochlorobenzene	**100 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

Analyst

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-3	Date Reported:	07-19-10
Laboratory Number:	55150	Date Sampled:	07-14-10
Chain of Custody:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Analyzed:	07-15-10
Preservative:	Cool	Date Extracted:	07-14-10
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**100 %**
	1,4-difluorobenzene	**100 %**
	Bromochlorobenzene	**100 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-4	Date Reported:	07-19-10
Laboratory Number:	55151	Date Sampled:	07-14-10
Chain of Custody:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Analyzed:	07-15-10
Preservative:	Cool	Date Extracted:	07-14-10
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**100 %**
	1,4-difluorobenzene	**100 %**
	Bromochlorobenzene	**100 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-1	Date Reported:	07-19-10
Laboratory Number:	55152	Date Sampled:	07-14-10
Chain of Custody:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Analyzed:	07-15-10
Preservative:	Cool	Date Extracted:	07-14-10
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	ND	0.9
Toluene	ND	1.0
Ethylbenzene	ND	1.0
p,m-Xylene	ND	1.2
o-Xylene	ND	0.9
Total BTEX	ND	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**100 %**
	1,4-difluorobenzene	**100 %**
	Bromochlorobenzene	**100 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-2	Date Reported:	07-19-10
Laboratory Number:	55153	Date Sampled:	07-14-10
Chain of Custody:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Analyzed:	07-15-10
Preservative:	Cool	Date Extracted:	07-14-10
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**100 %**
	1,4-difluorobenzene	**100 %**
	Bromochlorobenzene	**100 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-3	Date Reported:	07-19-10
Laboratory Number:	55154	Date Sampled:	07-14-10
Chain of Custody:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Analyzed:	07-15-10
Preservative:	Cool	Date Extracted:	07-14-10
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**100 %**
	1,4-difluorobenzene	**100 %**
	Bromochlorobenzene	**100 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	0715BBLK QA/QC	Date Reported:	07-19-10
Laboratory Number:	55148	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	07-15-10
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	8.2897E+006	8.3063E+006	0.2%	ND	0.1
Toluene	6.6921E+006	6.7056E+006	0.2%	ND	0.1
Ethylbenzene	4.8308E+006	4.8405E+006	0.2%	ND	0.1
p,m-Xylene	1.2135E+007	1.2159E+007	0.2%	ND	0.1
o-Xylene	4.2395E+006	4.2480E+006	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	ND	ND	0.0%	0 - 30%	0.9
Toluene	ND	ND	0.0%	0 - 30%	1.0
Ethylbenzene	ND	ND	0.0%	0 - 30%	1.0
p,m-Xylene	ND	ND	0.0%	0 - 30%	1.2
o-Xylene	ND	ND	0.0%	0 - 30%	0.9

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	50.0	50.3	101%	39 - 150
Toluene	ND	50.0	50.7	101%	46 - 148
Ethylbenzene	ND	50.0	50.6	101%	32 - 160
p,m-Xylene	ND	100	100	99.7%	46 - 148
o-Xylene	ND	50.0	49.4	98.8%	46 - 148

ND - Parameter not detected at the stated detection limit.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996

Comments: QA/QC for Samples 55148-55155

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EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-TZ	Date Reported:	07-19-10
Laboratory Number:	55146	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-15-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**86,800**	**443**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-TZ	Date Reported:	07-19-10
Laboratory Number:	55147	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-15-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**49,500**	**177**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-1	Date Reported:	07-19-10
Laboratory Number:	55148	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-15-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**117**	**17.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-2	Date Reported:	07-19-10
Laboratory Number:	55149	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-15-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**23.6**	**17.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-3	Date Reported:	07-19-10
Laboratory Number:	55150	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-15-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**2,730**	**17.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-4	Date Reported:	07-19-10
Laboratory Number:	55151	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-15-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**6,650**	**17.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-1	Date Reported:	07-19-10
Laboratory Number:	55152	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-15-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**347**	**17.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

Analyst

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EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-2	Date Reported:	07-19-10
Laboratory Number:	55153	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-15-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**51.7**	**17.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-3	Date Reported:	07-19-10
Laboratory Number:	55154	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-15-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**11,100**	**177**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-4	Date Reported:	07-19-10
Laboratory Number:	55155	Date Sampled:	07-14-10
Chain of Custody No:	9944	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-15-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**158**	**17.7**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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EPA METHOD 418.1
TOTAL PETROLEUM HYROCARBONS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	QA/QC	Date Reported:	07-19-10
Laboratory Number:	06-15-TPH.QA/QC 55149	Date Sampled:	N/A
Sample Matrix:	Freon-113	Date Analyzed:	07-15-10
Preservative:	N/A	Date Extracted:	07-15-10
Condition:	N/A	Analysis Needed:	TPH

Calibration	I-Cal Date	C-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
	07-15-10	07-15-10	1,846	1,770	4.1%	+/- 10%

Blank Conc. (mg/Kg)	Concentration	Detection Limit
TPH	ND	17.7

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
TPH	23.6	25.1	6.4%	+/- 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept Range
TPH	23.6	2,000	1,850	91.4%	80 - 120%

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **QA/QC for Samples 55146-55155**

Analyst

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-TZ	Date Reported:	07-19-10
Lab ID#:	55146	Date Sampled:	07-14-10
Sample Matrix:	Soil	Date Received:	07-14-10
Preservative:	Cool	Date Analyzed:	07-16-10
Condition:	Intact	Chain of Custody:	9944

Parameter	Concentration (mg/Kg)
Total Chloride	**265**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

Analyst

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-TZ	Date Reported:	07-19-10
Lab ID#:	55147	Date Sampled:	07-14-10
Sample Matrix:	Soil	Date Received:	07-14-10
Preservative:	Cool	Date Analyzed:	07-16-10
Condition:	Intact	Chain of Custody:	9944

Parameter	Concentration (mg/Kg)
Total Chloride	165

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

Analyst

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-1	Date Reported:	07-19-10
Lab ID#:	55148	Date Sampled:	07-14-10
Sample Matrix:	Soil	Date Received:	07-14-10
Preservative:	Cool	Date Analyzed:	07-16-10
Condition:	Intact	Chain of Custody:	9944

Parameter	Concentration (mg/Kg)
Total Chloride	**175**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-2	Date Reported:	07-19-10
Lab ID#:	55149	Date Sampled:	07-14-10
Sample Matrix:	Soil	Date Received:	07-14-10
Preservative:	Cool	Date Analyzed:	07-16-10
Condition:	Intact	Chain of Custody:	9944

Parameter	Concentration (mg/Kg)
Total Chloride	**375**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-3	Date Reported:	07-19-10
Lab ID#:	55150	Date Sampled:	07-14-10
Sample Matrix:	Soil	Date Received:	07-14-10
Preservative:	Cool	Date Analyzed:	07-16-10
Condition:	Intact	Chain of Custody:	9944

Parameter	Concentration (mg/Kg)
Total Chloride	**410**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2S-VZ-4	Date Reported:	07-19-10
Lab ID#:	55151	Date Sampled:	07-14-10
Sample Matrix:	Soil	Date Received:	07-14-10
Preservative:	Cool	Date Analyzed:	07-16-10
Condition:	Intact	Chain of Custody:	9944

Parameter	Concentration (mg/Kg)
Total Chloride	**130**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-1	Date Reported:	07-19-10
Lab ID#:	55152	Date Sampled:	07-14-10
Sample Matrix:	Soil	Date Received:	07-14-10
Preservative:	Cool	Date Analyzed:	07-16-10
Condition:	Intact	Chain of Custody:	9944

Parameter	Concentration (mg/Kg)
Total Chloride	5

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

Analyst

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-2	Date Reported:	07-19-10
Lab ID#:	55153	Date Sampled:	07-14-10
Sample Matrix:	Soil	Date Received:	07-14-10
Preservative:	Cool	Date Analyzed:	07-16-10
Condition:	Intact	Chain of Custody:	9944

Parameter	Concentration (mg/Kg)
Total Chloride	55

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

Analyst

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-3	Date Reported:	07-19-10
Lab ID#:	55154	Date Sampled:	07-14-10
Sample Matrix:	Soil	Date Received:	07-14-10
Preservative:	Cool	Date Analyzed:	07-16-10
Condition:	Intact	Chain of Custody:	9944

Parameter	Concentration (mg/Kg)
Total Chloride	**235**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

Analyst

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Cell-2N-VZ-4	Date Reported:	07-19-10
Lab ID#:	55155	Date Sampled:	07-14-10
Sample Matrix:	Soil	Date Received:	07-14-10
Preservative:	Cool	Date Analyzed:	07-16-10
Condition:	Intact	Chain of Custody:	9944

Parameter	Concentration (mg/Kg)
Total Chloride	**180**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farmington NMI-9 Land Farm**
TZ=Treatment Zone; VZ=Vadose Zone; S=South; N=North

Analyst

Review

CHAIN OF CUSTODY RECORD

U7744

ent: KEY ENERGY	Project Name / Location: KEY FARMINGTON NM1-9 LANDFARM
ent Address: 51 US Hwy 64 87401	Sampler Name: WAYNE PRICE — PRICELLC
ent Phone No.: 505-715-2809	Client No.: 98065-0013

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative: $HgCl_2$	HCl	Ice	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	PAH	TPH (418.1)	CHLORIDE				Sample Cool	Sample Intact
LL-2S-TZ	7-14-10	10:14 AM	55146	Soil / Solid / Sludge / Aqueous	4oz -2-			X	X	●							X	X				✓	✓
LL2N-TZ	"	10:27 AM	55147	Soil / Solid / Sludge / Aqueous	4oz -2-			X	X	●							X	X				✓	✓
L-2S-VZ-1	"	10:49 AM	55148	Soil / Solid / Sludge / Aqueous	11			X	X	X							X	X				✓	✓
L-2S-VZ-2	"	12:23 PM	55149	Soil / Solid / Sludge / Aqueous	11			X	X	X							X	X				✓	✓
L-2S-VZ-3	"	12:38 PM	55150	Soil / Solid / Sludge / Aqueous	11			X	X	X							X	X				✓	✓
L-2S-VZ-4	"	12:54 PM	55151	Soil / Solid / Sludge / Aqueous	11			X	X	X							X	X				✓	✓
L-2N-VZ-1	"	1:02 PM	55152	Soil / Solid / Sludge / Aqueous	11			X	X	X							X	X				✓	✓
L-2N-VZ-2	"	1:23 PM	55153	Soil / Solid / Sludge / Aqueous	11			X	X	X							X	X				✓	✓
L-2N-VZ-3	"	1:43 PM	55154	Soil / Solid / Sludge / Aqueous	11			X	X	X							X	X				✓	✓
L-2N-VZ-4	"	1:58 PM	55155	Soil / Solid / Sludge / Aqueous	11			X	X	X							X	X				✓	✓

	Date	Time		Date	Time
nquished by: (Signature) WAYNE PRICE	7-14-10	2:15 PM	Received by: (Signature)	7/14/10	1415
nquished by: (Signature)			Received by: (Signature)		
nquished by: (Signature)			Received by: (Signature)		

Z = TREATMENT ZONE
Z = VADOSE ZONE
S = SOUTH
N = NORTH

● - NOT SELECTED

SEE ATTACHED - LANDFARM PLOT PLAN 09944 FOR VZ SAMPLE LOCATIONS

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Dirt Pile	Date Reported:	07-15-10
Laboratory Number:	55156	Date Sampled:	07-14-10
Chain of Custody No:	9945	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-14-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**1.3**	**0.1**
Total Petroleum Hydrocarbons	**1.3**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**

Analyst

Review

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EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	07-15-10 QA/QC	Date Reported:	07-15-10
Laboratory Number:	55143	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	07-15-10
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
Gasoline Range C5 - C10	05-07-07	9.9960E+002	1.0000E+003	**0.04%**	**0 - 15%**
Diesel Range C10 - C28	05-07-07	9.9960E+002	1.0000E+003	**0.04%**	**0 - 15%**

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	**ND**	**0.2**
Diesel Range C10 - C28	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	**0.2**

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
Gasoline Range C5 - C10	**ND**	**ND**	**0.0%**	**0 - 30%**
Diesel Range C10 - C28	**ND**	**ND**	**0.0%**	**0 - 30%**

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	**ND**	**250**	**255**	**102%**	**75 - 125%**
Diesel Range C10 - C28	**ND**	**250**	**252**	**101%**	**75 - 125%**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 55141, 55143-55145 and 55156**

Analyst

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Dirt Pile	Date Reported:	07-15-10
Laboratory Number:	55156	Date Sampled:	07-14-10
Chain of Custody:	9945	Date Received:	07-14-10
Sample Matrix:	Soil	Date Analyzed:	07-15-10
Preservative:	Cool	Date Extracted:	07-14-10
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**6.1**	**1.2**
o-Xylene	**5.1**	**0.9**
Total BTEX	**11.2**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**100 %**
	1,4-difluorobenzene	**100 %**
	Bromochlorobenzene	**100 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Key Farmington NMI-9 Land Farm**

Analyst

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	0715BBLK QA/QC	Date Reported:	07-15-10
Laboratory Number:	55143	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	07-15-10
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc.	Detect. Limit
Benzene	7.9583E+005	7.9742E+005	0.2%	ND	0.1
Toluene	8.7319E+005	8.7494E+005	0.2%	ND	0.1
Ethylbenzene	7.8172E+005	7.8329E+005	0.2%	ND	0.1
p,m-Xylene	1.8923E+006	1.8961E+006	0.2%	ND	0.1
o-Xylene	6.6287E+005	6.6420E+005	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	ND	ND	0.0%	0 - 30%	0.9
Toluene	ND	ND	0.0%	0 - 30%	1.0
Ethylbenzene	ND	ND	0.0%	0 - 30%	1.0
p,m-Xylene	2.2	2.0	9.1%	0 - 30%	1.2
o-Xylene	5.1	5.1	0.0%	0 - 30%	0.9

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	50.0	50.2	100%	39 - 150
Toluene	ND	50.0	49.5	99.0%	46 - 148
Ethylbenzene	ND	50.0	49.4	98.8%	32 - 160
p,m-Xylene	2.2	100	99.1	98.9%	46 - 148
o-Xylene	5.1	50.0	50.0	99.0%	46 - 148

ND - Parameter not detected at the stated detection limit.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **QA/QC for Samples 55141-55143 and 55156**

Analyst

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EPA METHOD 418.1
TOTAL PETROLEUM
HYDROCARBONS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Dirt Pile	Date Reported:	07-15-10
Laboratory Number:	55156	Date Sampled:	07-14-10
Chain of Custody No:	9945	Date Received:	07-14-10
Sample Matrix:	Soil	Date Extracted:	07-15-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Analysis Needed:	TPH-418.1

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	**27,800**	**151**

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **Key Farmington NMI-9 Land Farm**

Analyst

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EPA METHOD 418.1
TOTAL PETROLEUM HYROCARBONS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	QA/QC	Date Reported:	07-15-10
Laboratory Number:	07-15-TPH.QA/QC 55156	Date Sampled:	N/A
Sample Matrix:	Freon-113	Date Analyzed:	07-15-10
Preservative:	N/A	Date Extracted:	07-15-10
Condition:	N/A	Analysis Needed:	TPH

Calibration	I-Cal Date	C-Cal Date	I-Cal RF:	C-Cal RF:	% Difference	Accept. Range
	06-30-10	07-15-10	1,716	1,770	3.1%	+/- 10%

Blank Conc. (mg/Kg)	Concentration	Detection Limit
TPH	ND	15.1

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
TPH	27,800	23,400	15.8%	+/- 30%

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept Range
TPH	27,800	2,000	24,700	82.9%	80 - 120%

ND = Parameter not detected at the stated detection limit.

References: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No. 4551, 1978.

Comments: **QA/QC for Samples 55156, 55141, 55143 and 55159**

Analyst

Review

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Dirt Pile	Date Reported:	07-15-10
Lab ID#:	55156	Date Sampled:	07-14-10
Sample Matrix:	Soil	Date Received:	07-14-10
Preservative:	Cool	Date Analyzed:	07-15-10
Condition:	Intact	Chain of Custody:	9945

Parameter	Concentration (mg/Kg)
Total Chloride	**400**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Key Farmington NMI-9 Land Farm**

Analyst

Review

CHAIN OF CUSTODY RECORD

0994845 TTD

Client: KEY ENERGY	Project Name / Location: KEY FARMINGTON NM1-9 LANDFARM	ANALYSIS / PARAMETERS
Client Address: 5651 US HWY 64 87401	Sampler Name: WAYNE PRICE - PRICE LLC	
Client Phone No.: 505-715-2809	Client No.: 98065 - 0013	

Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative HgCl₂	Preservative HCl	Preservative Ice	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	PAH	TPH (418.1)	CHLORIDE			Sample Cool	Sample Intact
RT PILE	7-14-10	11:10 AM	55156	(Soil) Sludge Solid Aqueous	4 oz 2			X	X	X							X	X			✓	✓
				Soil Sludge Solid Aqueous																		
				Soil Sludge Solid Aqueous																		
				Soil Sludge Solid Aqueous																		
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				Soil Sludge Solid Aqueous																		

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
WAYNE PRICE [signature]	7-14-10	2:15 pm	[signature]	7/14/10	1415
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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Analytical Laboratory

5796 US Highway 64 • Farmington, NM 87401 • 505-632-0615 • lab@envirotech-inc.com

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HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, April 22, 2010

Christine Walters
Envirotech
5796 US Highway 64
Farmington, NM 87401
TEL: (505) 632-0615
FAX (505) 632-1865

RE: Key Energy

Order No.: 1004278

Dear Christine Walters:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 4/14/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901
AZ license # AZ0682
ORELAP Lab # NM100001
Texas Lab# T104704424-08-TX

4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109
505.345.3975 ■ Fax 505.345.4107
www.hallenvironmental.com

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Analytical Laboratory

EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy Serv.	Project #:	98065-0013
Sample ID:	Sample #1 Top	Date Reported:	04-23-10
Laboratory Number:	53755	Date Sampled:	04-19-10
Chain of Custody No:	9118	Date Received:	04-19-10
Sample Matrix:	Soil	Date Extracted:	04-21-10
Preservative:	Cool	Date Analyzed:	04-22-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**144**	**0.1**
Total Petroleum Hydrocarbons	**144**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Sunco SWD #1**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy Serv.	Project #:	98065-0013
Sample ID:	Sample #2 Top	Date Reported:	04-23-10
Laboratory Number:	53756	Date Sampled:	04-19-10
Chain of Custody No:	9118	Date Received:	04-19-10
Sample Matrix:	Soil	Date Extracted:	04-21-10
Preservative:	Cool	Date Analyzed:	04-22-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**222**	**0.1**
Total Petroleum Hydrocarbons	**222**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Sunco SWD #1**

Analyst

Review

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy Serv.	Project #:	98065-0013
Sample ID:	Sample #1 Bottom	Date Reported:	04-23-10
Laboratory Number:	53757	Date Sampled:	04-19-10
Chain of Custody No:	9118	Date Received:	04-19-10
Sample Matrix:	Soil	Date Extracted:	04-21-10
Preservative:	Cool	Date Analyzed:	04-22-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**74.6**	**0.1**
Total Petroleum Hydrocarbons	**74.6**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Sunco SWD #1**

Analyst

Review

)hway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy Serv.	Project #:	98065-0013
Sample ID:	Sample #2 Bottom	Date Reported:	04-23-10
Laboratory Number:	53758	Date Sampled:	04-19-10
Chain of Custody No:	9118	Date Received:	04-19-10
Sample Matrix:	Soil	Date Extracted:	04-21-10
Preservative:	Cool	Date Analyzed:	04-22-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**ND**	**0.2**
Diesel Range (C10 - C28)	**185**	**0.1**
Total Petroleum Hydrocarbons	**185**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Sunco SWD #1**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 Ph.(505)632-0615 Fr (800)362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

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EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	04-22-10 QA/QC	Date Reported:	04-23-10
Laboratory Number:	53755	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	04-22-10
Condition:	N/A	Analysis Requested:	TPH

Gasoline Range C5 - C10	05-07-07	1.1049E+003	1.1054E+003	**0.04%**	**0 - 15%**
Diesel Range C10 - C28	05-07-07	1.1095E+003	1.1100E+003	**0.04%**	**0 - 15%**

Gasoline Range C5 - C10	**ND**	**0.2**
Diesel Range C10 - C28	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	**0.2**

Gasoline Range C5 - C10	**ND**	**ND**	**0.0%**	**0 - 30%**
Diesel Range C10 - C28	**144**	**139**	**3.4%**	**0 - 30%**

Gasoline Range C5 - C10	**ND**	**250**	**248**	**99.2%**	**75 - 125%**
Diesel Range C10 - C28	**144**	**250**	**391**	**99.2%**	**75 - 125%**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 53755 - 53758 and 53774 - 53779.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505)632-0615 Fr (800)362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy Serv.	Project #:	98065-0013
Sample ID:	Sample #1 Bottom	Date Reported:	04-23-10
Laboratory Number:	53757	Date Sampled:	04-19-10
Chain of Custody:	9118	Date Received:	04-19-10
Sample Matrix:	Soil	Date Analyzed:	04-22-10
Preservative:	Cool	Date Extracted:	04-21-10
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**83.4 %**
	1,4-difluorobenzene	**78.9 %**
	Bromochlorobenzene	**80.9 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Sunco SWD #1**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy Serv.	Project #:	98065-0013
Sample ID:	Sample #2 Bottom	Date Reported:	04-23-10
Laboratory Number:	53758	Date Sampled:	04-19-10
Chain of Custody:	9118	Date Received:	04-19-10
Sample Matrix:	Soil	Date Analyzed:	04-22-10
Preservative:	Cool	Date Extracted:	04-21-10
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**ND**	**0.9**
Toluene	**ND**	**1.0**
Ethylbenzene	**ND**	**1.0**
p,m-Xylene	**ND**	**1.2**
o-Xylene	**ND**	**0.9**
Total BTEX	**ND**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**82.4 %**
	1,4-difluorobenzene	**82.9 %**
	Bromochlorobenzene	**79.4 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Sunco SWD #1**

Analyst

Review

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID:	04-22-BTEX QA/QC	Date Reported:	04-23-10
Laboratory Number:	53757	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	04-22-10
Condition:	N/A	Analysis:	BTEX

Benzene	1.4266E+005	1.4295E+005	0.2%	ND	0.1
Toluene	1.2613E+006	1.2638E+006	0.2%	ND	0.1
Ethylbenzene	1.2057E+006	1.2081E+006	0.2%	ND	0.1
p,m-Xylene	1.0690E+006	1.0712E+006	0.2%	ND	0.1
o-Xylene	2.6876E+006	2.6930E+006	0.2%	ND	0.1

Benzene	ND	ND	0.0%	0 - 30%	0.9
Toluene	ND	ND	0.0%	0 - 30%	1.0
Ethylbenzene	ND	ND	0.0%	0 - 30%	1.0
p,m-Xylene	ND	ND	0.0%	0 - 30%	1.2
o-Xylene	ND	ND	0.0%	0 - 30%	0.9

Benzene	ND	50.0	38.4	76.7%	39 - 150
Toluene	ND	50.0	44.9	89.8%	46 - 148
Ethylbenzene	ND	50.0	45.1	90.2%	32 - 160
p,m-Xylene	ND	100	84.5	84.5%	46 - 148
o-Xylene	ND	50.0	44.4	88.8%	46 - 148

ND - Parameter not detected at the stated detection limit.

References. Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **QA/QC for Samples 53755 - 53758 and 53774 - 53779.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

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Analytical Laboratory

Chloride

Client:	Key Energy Serv.	Project #:	98065-0013
Sample ID:	Sample #1 Top	Date Reported:	04-23-10
Lab ID#:	53755	Date Sampled:	04-19-10
Sample Matrix:	Soil	Date Received:	04-19-10
Preservative:	Cool	Date Analyzed:	04-22-10
Condition:	Intact	Chain of Custody:	9118

Parameter	Concentration (mg/Kg)
Total Chloride	**120**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Sunco SWD #1**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

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Analytical Laboratory

Chloride

Client:	Key Energy Serv.	Project #:	98065-0013
Sample ID:	Sample #2 Top	Date Reported:	04-23-10
Lab ID#:	53756	Date Sampled:	04-19-10
Sample Matrix:	Soil	Date Received:	04-19-10
Preservative:	Cool	Date Analyzed:	04-22-10
Condition:	Intact	Chain of Custody:	9118

Parameter	Concentration (mg/Kg)
Total Chloride	**195**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Sunco SWD #1**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

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Chloride

Client:	Key Energy Serv.	Project #:	98065-0013
Sample ID:	Sample #1 Bottom	Date Reported:	04-23-10
Lab ID#:	53757	Date Sampled:	04-19-10
Sample Matrix:	Soil	Date Received:	04-19-10
Preservative:	Cool	Date Analyzed:	04-22-10
Condition:	Intact	Chain of Custody:	9118

Parameter	Concentration (mg/Kg)
Total Chloride	**115**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Sunco SWD #1**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

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Chloride

Client:	Key Energy Serv.	Project #:	98065-0013
Sample ID:	Sample #2 Bottom	Date Reported:	04-23-10
Lab ID#:	53758	Date Sampled:	04-19-10
Sample Matrix:	Soil	Date Received:	04-19-10
Preservative:	Cool	Date Analyzed:	04-22-10
Condition:	Intact	Chain of Custody:	9118

Parameter	Concentration (mg/Kg)
Total Chloride	**165**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Sunco SWD #1**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

CHAIN OF CUSTODY RECORD

02118

Client:	Project Name / Location:
Key Energy Serv.	Seneca SWD #1
Client Address:	Sampler Name:
	Nick Allen
Client Phone No.:	Client No.:
505-486-2010	98065-0013

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No	Sample Matrix	No./Volume of Containers	Preservative	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	PAH	TPH (418.1)	CHLORIDE			Sample Cool	Sample Intact
Sample #1 Top	4/16/10	11:30	53755	Soil Solid Sludge Aqueous	1-4oz		✓	✓	✓							✓			✓	✓
Sample #2 Top	4/16/10	11:35	53756	Soil Solid Sludge Aqueous	1		✓	✓	✓							✓			✓	✓
Sample #1 Bottom	1	11:30	53757	Soil Solid Sludge Aqueous	1		✓	✓								✓			✓	✓
Sample #2 Bottom	1	11:35	53758	Soil Solid Sludge Aqueous	1		✓	✓								✓			✓	✓
				Soil Solid Sludge Aqueous																
				Soil Solid Sludge Aqueous																
				Soil Solid Sludge Aqueous																
				Soil Solid Sludge Aqueous																
				Soil Solid Sludge Aqueous																
				Soil Solid Sludge Aqueous																

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nick Allen	4/16/10	12:15		4/19/10	12:15 pm
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Friday, April 16, 2010

Christine Walters
Envirotech
5796 US Highway 64
Farmington, NM 87401

TEL: (505) 632-0615
FAX (505) 632-1865

RE: Key Energy

Order No.: 1004248

Dear Christine Walters:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 4/13/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901
AZ license # AZ0682
ORELAP Lab # NM100001
Texas Lab# T104704424-08-TX

Hall Environmental Analysis Laboratory, Inc.

Date: *16-Apr-10*

CLIENT: Envirotech
Client Sample ID: 53668-SWD
Lab Order: 1004248
Collection Date: 4/12/2010 2:30:00 PM
Project: Key Energy
Date Received: 4/13/2010
Lab ID: 1004248-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Acenaphthylene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Aniline	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Anthracene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Azobenzene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Benz(a)anthracene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Benzo(a)pyrene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Benzo(b)fluoranthene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Benzo(g,h,i)perylene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Benzo(k)fluoranthene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Benzoic acid	ND	100		µg/L	1	4/14/2010 5:53:58 PM
Benzyl alcohol	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Bis(2-chloroethoxy)methane	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Bis(2-chloroethyl)ether	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Bis(2-chloroisopropyl)ether	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Bis(2-ethylhexyl)phthalate	1300	250		µg/L	5	4/15/2010 3:40:10 PM
4-Bromophenyl phenyl ether	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Butyl benzyl phthalate	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Carbazole	ND	50		µg/L	1	4/14/2010 5:53:58 PM
4-Chloro-3-methylphenol	ND	50		µg/L	1	4/14/2010 5:53:58 PM
4-Chloroaniline	ND	50		µg/L	1	4/14/2010 5:53:58 PM
2-Chloronaphthalene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
2-Chlorophenol	ND	50		µg/L	1	4/14/2010 5:53:58 PM
4-Chlorophenyl phenyl ether	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Chrysene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Di-n-butyl phthalate	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Di-n-octyl phthalate	1600	250		µg/L	5	4/15/2010 3:40:10 PM
Dibenz(a,h)anthracene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Dibenzofuran	ND	50		µg/L	1	4/14/2010 5:53:58 PM
1,2-Dichlorobenzene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
1,3-Dichlorobenzene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
1,4-Dichlorobenzene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
3,3'-Dichlorobenzidine	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Diethyl phthalate	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Dimethyl phthalate	ND	50		µg/L	1	4/14/2010 5:53:58 PM
2,4-Dichlorophenol	ND	100		µg/L	1	4/14/2010 5:53:58 PM
2,4-Dimethylphenol	ND	50		µg/L	1	4/14/2010 5:53:58 PM
4,6-Dinitro-2-methylphenol	ND	100		µg/L	1	4/14/2010 5:53:58 PM
2,4-Dinitrophenol	ND	100		µg/L	1	4/14/2010 5:53:58 PM
2,4-Dinitrotoluene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
2,6-Dinitrotoluene	ND	50		µg/L	1	4/14/2010 5:53:58 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *16-Apr-10*

CLIENT: Envirotech
Client Sample ID: 53668-SWD
Lab Order: 1004248
Collection Date: 4/12/2010 2:30:00 PM
Project: Key Energy
Date Received: 4/13/2010
Lab ID: 1004248-01
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Fluoranthene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Fluorene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Hexachlorobenzene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Hexachlorobutadiene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Hexachlorocyclopentadiene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Hexachloroethane	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Indeno(1,2,3-cd)pyrene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Isophorone	ND	50		µg/L	1	4/14/2010 5:53:58 PM
2-Methylnaphthalene	290	50		µg/L	1	4/14/2010 5:53:58 PM
2-Methylphenol	94	50		µg/L	1	4/14/2010 5:53:58 PM
3+4-Methylphenol	69	50		µg/L	1	4/14/2010 5:53:58 PM
N-Nitrosodi-n-propylamine	ND	50		µg/L	1	4/14/2010 5:53:58 PM
N-Nitrosodimethylamine	ND	50		µg/L	1	4/14/2010 5:53:58 PM
N-Nitrosodiphenylamine	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Naphthalene	220	50		µg/L	1	4/14/2010 5:53:58 PM
2-Nitroaniline	ND	50		µg/L	1	4/14/2010 5:53:58 PM
3-Nitroaniline	ND	50		µg/L	1	4/14/2010 5:53:58 PM
4-Nitroaniline	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Nitrobenzene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
2-Nitrophenol	ND	50		µg/L	1	4/14/2010 5:53:58 PM
4-Nitrophenol	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Pentachlorophenol	ND	100		µg/L	1	4/14/2010 5:53:58 PM
Phenanthrene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Phenol	95	50		µg/L	1	4/14/2010 5:53:58 PM
Pyrene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Pyridine	ND	50		µg/L	1	4/14/2010 5:53:58 PM
1,2,4-Trichlorobenzene	ND	50		µg/L	1	4/14/2010 5:53:58 PM
2,4,5-Trichlorophenol	ND	50		µg/L	1	4/14/2010 5:53:58 PM
2,4,6-Trichlorophenol	ND	50		µg/L	1	4/14/2010 5:53:58 PM
Surr: 2,4,6-Tribromophenol	74.2	16.6-150		%REC	1	4/14/2010 5:53:58 PM
Surr: 2-Fluorobiphenyl	71.6	19.6-134		%REC	1	4/14/2010 5:53:58 PM
Surr: 2-Fluorophenol	34.1	9.54-113		%REC	1	4/14/2010 5:53:58 PM
Surr: 4-Terphenyl-d14	88.6	22.7-145		%REC	1	4/14/2010 5:53:58 PM
Surr: Nitrobenzene-d5	66.6	14.6-134		%REC	1	4/14/2010 5:53:58 PM
Surr: Phenol-d5	41.5	10.7-80.3		%REC	1	4/14/2010 5:53:58 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- B Analyte detected in the associated Method Blank
- E Estimated value
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- MCL Maximum Contaminant Level
- NC Non-Chlorinated
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitation Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *16-Apr-10*

QA/QC SUMMARY REPORT

Client: Envirotech
Project: Key Energy

Work Order: 1004248

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Method: EPA Method 8270C: Semivolatiles

Sample ID: mb-21933 MBLK Batch ID: 21933 Analysis Date 4/15/2010 3:09:36 PM

Analyte	Result	Units	PQL
Acenaphthene	ND	µg/L	10
Acenaphthylene	ND	µg/L	10
Aniline	ND	µg/L	10
Anthracene	ND	µg/L	10
Azobenzene	ND	µg/L	10
Benz(a)anthracene	ND	µg/L	10
Benzo(a)pyrene	ND	µg/L	10
Benzo(b)fluoranthene	ND	µg/L	10
Benzo(g,h,i)perylene	ND	µg/L	10
Benzo(k)fluoranthene	ND	µg/L	10
Benzoic acid	ND	µg/L	20
Benzyl alcohol	ND	µg/L	10
Bis(2-chloroethoxy)methane	ND	µg/L	10
Bis(2-chloroethyl)ether	ND	µg/L	10
Bis(2-chloroisopropyl)ether	ND	µg/L	10
Bis(2-ethylhexyl)phthalate	ND	µg/L	10
4-Bromophenyl phenyl ether	ND	µg/L	10
Butyl benzyl phthalate	ND	µg/L	10
Carbazole	ND	µg/L	10
4-Chloro-3-methylphenol	ND	µg/L	10
4-Chloroaniline	ND	µg/L	10
2-Chloronaphthalene	ND	µg/L	10
2-Chlorophenol	ND	µg/L	10
4-Chlorophenyl phenyl ether	ND	µg/L	10
Chrysene	ND	µg/L	10
Di-n-butyl phthalate	ND	µg/L	10
Di-n-octyl phthalate	ND	µg/L	10
Dibenz(a,h)anthracene	ND	µg/L	10
Dibenzofuran	ND	µg/L	10
1,2-Dichlorobenzene	ND	µg/L	10
1,3-Dichlorobenzene	ND	µg/L	10
1,4-Dichlorobenzene	ND	µg/L	10
3,3´-Dichlorobenzidine	ND	µg/L	10
Diethyl phthalate	ND	µg/L	10
Dimethyl phthalate	ND	µg/L	10
2,4-Dichlorophenol	ND	µg/L	20
2,4-Dimethylphenol	ND	µg/L	10
4,6-Dinitro-2-methylphenol	ND	µg/L	20
2,4-Dinitrophenol	ND	µg/L	20
2,4-Dinitrotoluene	ND	µg/L	10
2,6-Dinitrotoluene	ND	µg/L	10
Fluoranthene	ND	µg/L	10
Fluorene	ND	µg/L	10
Hexachlorobenzene	ND	µg/L	10

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	NC	Non-Chlorinated
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Envirotech
Project: Key Energy

Work Order: 1004248

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8270C: Semivolatiles											
Sample ID: mb-21933		*MBLK*				**Batch ID: 21933**		**Analysis Date: 4/15/2010 3:09:36 PM**			
Hexachlorobutadiene	ND	µg/L	10								
Hexachlorocyclopentadiene	ND	µg/L	10								
Hexachloroethane	ND	µg/L	10								
Indeno(1,2,3-cd)pyrene	ND	µg/L	10								
Isophorone	ND	µg/L	10								
2-Methylnaphthalene	ND	µg/L	10								
2-Methylphenol	ND	µg/L	10								
3+4-Methylphenol	ND	µg/L	10								
N-Nitrosodi-n-propylamine	ND	µg/L	10								
N-Nitrosodimethylamine	ND	µg/L	10								
N-Nitrosodiphenylamine	ND	µg/L	10								
Naphthalene	ND	µg/L	10								
2-Nitroaniline	ND	µg/L	10								
3-Nitroaniline	ND	µg/L	10								
4-Nitroaniline	ND	µg/L	10								
Nitrobenzene	ND	µg/L	10								
2-Nitrophenol	ND	µg/L	10								
4-Nitrophenol	ND	µg/L	10								
Pentachlorophenol	ND	µg/L	20								
Phenanthrene	ND	µg/L	10								
Phenol	ND	µg/L	10								
Pyrene	ND	µg/L	10								
Pyridine	ND	µg/L	10								
1,2,4-Trichlorobenzene	ND	µg/L	10								
2,4,5-Trichlorophenol	ND	µg/L	10								
2,4,6-Trichlorophenol	ND	µg/L	10								
Sample ID: lcs-21933		*LCS*				**Batch ID: 21933**		**Analysis Date: 4/14/2010 2:51:29 PM**			
Acenaphthene	78.54	µg/L	10	100	0	78.5	33.2	88.1			
4-Chloro-3-methylphenol	139.7	µg/L	10	200	0	69.9	26.5	101			
2-Chlorophenol	131.5	µg/L	10	200	0	65.8	27.5	88.7			
1,4-Dichlorobenzene	65.76	µg/L	10	100	0	65.8	27.2	74.1			
2,4-Dinitrotoluene	80.48	µg/L	10	100	0	80.5	32.6	107			
N-Nitrosodi-n-propylamine	65.90	µg/L	10	100	0	65.9	27.1	98.3			
4-Nitrophenol	96.68	µg/L	10	200	0	48.3	6.78	74.7			
Pentachlorophenol	156.8	µg/L	20	200	0	78.4	14.8	113			
Phenol	72.32	µg/L	10	200	0	36.2	17	53.4			
Pyrene	70.36	µg/L	10	100	0	70.4	27	96.3			
1,2,4-Trichlorobenzene	64.76	µg/L	10	100	0	64.8	30	77.9			
Sample ID: lcsd-21933		*LCSD*				**Batch ID: 21933**		**Analysis Date: 4/14/2010 3:21:44 PM**			
Acenaphthene	79.58	µg/L	10	100	0	79.6	33.2	88.1	1.32	30.5	
4-Chloro-3-methylphenol	149.9	µg/L	10	200	0	74.9	26.5	101	7.00	28.6	
2-Chlorophenol	137.1	µg/L	10	200	0	68.6	27.5	88.7	4.17	107	
1,4-Dichlorobenzene	56.12	µg/L	10	100	0	56.1	27.2	74.1	15.8	62.1	
2,4-Dinitrotoluene	83.52	µg/L	10	100	0	83.5	32.6	107	3.71	14.7	

Qualifiers:

- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Envirotech
Project: Key Energy

Work Order: 1004248

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8270C: Semivolatiles						**Batch ID: 21933**		**Analysis Date: 4/14/2010 3:21:44 PM**			
Sample ID: lcsd-21933		*LCSD*									
N-Nitrosodi-n-propylamine	63.66	µg/L	10	100	0	63.7	27.1	96.3	3.46	30.3	
4-Nitrophenol	96 12	µg/L	10	200	0	48.1	6.78	74.7	0.581	36.3	
Pentachlorophenol	157 2	µg/L	20	200	0	78.6	14.8	113	0.255	49	
Phenol	71.74	µg/L	10	200	0	35.9	17	53.4	0.805	52.4	
Pyrene	73.54	µg/L	10	100	0	73.5	27	96.3	4.42	16.3	
1,2,4-Trichlorobenzene	66.52	µg/L	10	100	0	66.5	30	77.9	2.68	36.4	

Qualifiers:

- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name ENVIROTECH

Date Received: 4/13/2010

Work Order Number 1004248

Received by: TLS

Sample ID labels checked by: TS (Initials)

Checklist completed by: _____ (Signature) 4/13/10 (Date)

Matrix:

Carrier name: Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		Number of preserved bottles checked for pH:
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	*<2 >12 unless noted below.*
Container/Temp Blank temperature?	**6.6°**	*<6° C Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: Envirotech

Address: 5796 US HWY 64
Farmington, NM 87401

Phone #: 505 632-0615

email ~~or Fax#~~: cwalters@envirotech-inc.com

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time: ☒ Standard ☐ Rush

Project Name: Key Energy

Project #: 98065-0013

Project Manager: Christine Walters

Sampler: Neil Allen

[redacted]

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1004248	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8260)	8310 (PNA or PAH)	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
4/12/10	1430	53668-SWD	1 Liter 2 Ambers	COOL	1											X					

Date:	Time:	Relinquished by:	Received by:
4/12/10	1715	[signature]	[signature] 4/13/10 1208
Date:	Time:	Relinquished by:	Received by:

Remarks: PO # 14848

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

envirotech
Analytical Laboratory

RECEIVED OCD

2010 APR 28 P 1:09

TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	SWD	Date Reported:	04-13-10
Laboratory Number:	53668	Date Sampled:	04-12-10
Chain of Custody:	9069	Date Received:	04-12-10
Sample Matrix:	Aqueous	Date Analyzed:	04-13-10
Preservative:	Cool	Date Digested:	04-13-10
Condition:	Intact	Analysis Needed:	RCRA Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Barium	**8.23**	**0.001**
Cadmium	**ND**	**0.001**
Chromium	**0.146**	**0.001**
Lead	**0.006**	**0.001**
Selenium	**0.003**	**0.001**
Silver	**0.026**	**0.001**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectroscopy, SW-846, USEPA, December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, August 24, 1998.

Comments: **Sunco SWD #1**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS
Quality Control /
Quality Assurance Report

Client:	QA/QC	Project #:	QA/QC
Sample ID:	04-12 TM QA/AC	Date Reported:	04-13-10
Laboratory Number:	53668	Date Sampled:	N/A
Sample Matrix	Aqueous	Date Received.	N/A
Analysis Requested:	RCRA Metals	Date Analyzed:	04-13-10
Condition:	N/A	Date Digested:	04-13-10

Blank / Duplicate Analysis	Instrument Blank (mg/Kg)	Method Blank	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Barium	**ND**	**ND**	**0.001**	**8.23**	**8.66**	**5.2%**	**0% - 30%**
Cadmium	**ND**	**ND**	**0.001**	**ND**	**ND**	**0.0%**	**0% - 30%**
Chromium	**ND**	**ND**	**0.001**	**0.146**	**0.149**	**2.0%**	**0% - 30%**
Lead	**ND**	**ND**	**0.001**	**0.006**	**0.005**	**16.4%**	**0% - 30%**
Selenium	**ND**	**ND**	**0.001**	**0.003**	**0.002**	**28.6%**	**0% - 30%**
Silver	**ND**	**ND**	**0.001**	**0.026**	**0.029**	**10.9%**	**0% - 30%**

Barium	**0.500**	**8.23**	**8.97**	**103%**	**80% - 120%**
Cadmium	**0.250**	**ND**	**0.242**	**96.7%**	**80% - 120%**
Chromium	**0.500**	**0.146**	**0.680**	**105%**	**80% - 120%**
Lead	**0.500**	**0.006**	**0.471**	**93.1%**	**80% - 120%**
Selenium	**0.100**	**0.003**	**0.084**	**81.7%**	**80% - 120%**
Silver	**0.100**	**0.026**	**0.141**	**112%**	**80% - 120%**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 53668.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

TOTAL MERCURY ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	SWD	Date Reported:	04-13-10
Laboratory Number:	53668	Date Sampled:	04-12-10
Chain of Custody:	9069	Date Received:	04-12-10
Sample Matrix:	Aqueous	Date Analyzed:	04-13-10
Condition:	Cool & Intact	Date Digested:	04-13-10
		Analysis Needed:	Total Mercury

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Mercury	**0.09**	**0.02**

ND - Parameter not detected at the stated detection limit.

References: Method 7470A, Mercury in Liquid Waste (Manual Cold-Vapor Technique). SW-846, USEPA, December 1996.

Comments: **Sunco SWD #1**

Analyst

Review

5 Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

Total Mercury Analysis
Quality Control /
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	04-13-Hg QA/QC	Date Reported:	04-13-10
Laboratory Number:	53668	Date Sampled:	N/A
Sample Matrix:	Aqueous	Date Received:	N/A
Analysis Requested:	Total Mercury	Date Analyzed:	04-13-10
Condition:	N/A	Date Digested:	04-13-10

Blank & Duplicate Conc. (ug/L)	Instrument Blank (ug/L)	Method Blank (ug/L)	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Mercury	**ND**	**ND**	**0.02**	**0.09**	**0.08**	**11.1%**	**0% - 30%**

Spike Conc. (ug/L)	Spike Added	Sample	Spiked Sample	Percent Recovery	Acceptance Range
Mercury	**10.0**	**0.09**	**8.26**	**81.8%**	**80% - 120%**

ND - Parameter not detected at the stated detection limit.

References: Method 7470A, Mercury in Liquid Waste (Manual Cold-Vapor Technique). SW-846, USEPA, December 1996.

Comments: **QA/QC for Sample 53668.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	SWD	Date Reported:	04-14-10
Laboratory Number:	53668	Date Sampled:	04-12-10
Chain of Custody:	9069	Date Received:	04-12-10
Sample Matrix:	Aqueous	Date Analyzed:	04-13-10
Preservative:	Cool		
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	**8.38**	s.u.		
Conductivity @ 25° C	**17,600**	umhos/cm		
Total Dissolved Solids @ 180C	**10,800**	mg/L		
Total Dissolved Solids (Calc)	**10,830**	mg/L		
SAR	**50.6**	ratio		
Total Alkalinity as CaCO3	**1,340**	mg/L		
Total Hardness as CaCO3	**969**	mg/L		
Bicarbonate as CaCO3	**1,340**	mg/L	21.96	meq/L
Carbonate as CaCO3	**<0.1**	mg/L	0.00	meq/L
Hydroxide as CaCO3	**<0.1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**0.900**	mg/L	0.01	meq/L
Nitrite Nitrogen	**0.037**	mg/L	0.00	meq/L
Chloride	**4,850**	mg/L	136.82	meq/L
Fluoride	**2.06**	mg/L	0.11	meq/L
Phosphate	**2.94**	mg/L	0.09	meq/L
Sulfate	**1,020**	mg/L	21.24	meq/L
Iron	**1.65**	mg/L	0.06	meq/L
Calcium	**362**	mg/L	18.06	meq/L
Magnesium	**15.5**	mg/L	1.28	meq/L
Potassium	**142**	mg/L	3.63	meq/L
Sodium	**3,620**	mg/L	157.47	meq/L
Cations			180.44	meq/L
Anions			180.23	meq/L
Cation/Anion Difference			**0.12%**	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Sunco SWD #1**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

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Analytical Laboratory

SUSPECTED HAZARDOUS WASTE ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	SWD	Date Reported:	04-14-10
Lab ID#:	53668	Date Sampled:	04-12-10
Sample Matrix:	Aqueous	Date Received:	04-12-10
Preservative:	Cool	Date Analyzed:	04-14-10
Condition:	Intact	Chain of Custody:	9069

Parameter	Result	
IGNITABILITY:	**Negative**	
CORROSIVITY:	**Negative**	**pH = 8.33**
REACTIVITY:	**Negative**	

RCRA Hazardous Waste Criteria

Parameter	Hazardous Waste Criterion
IGNITABILITY:	Characteristic of Ignitability as defined by 40 CFR, Subpart C, Sec. 261.21. *(i.e. Sample ignition upon direct contact with flame or flash point < 60° C.)*
CORROSIVITY:	Characteristic of Corrosivity as defined by 40 CFR, Subpart C, Sec. 261.22. *(i.e. pH less than or equal to 2.0 or pH greater than or equal to 12.5)*
REACTIVITY:	Characteristic of Reactivity as defined by 40 CFR, Subpart C, Sec. 261.23. *(i.e. Violent reaction with water, strong base, strong acid, or the generation of Sulfide or Cyanide gases at STP with pH between 2.0 and 12.5)*

Reference: 40 CFR part 261 Subpart C sections 261.21 - 261.23, July 1, 1992.

Comments: **Sunco SWD #1**

Analyst

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EPA Method 8260B
Volatile Organic Compounds by GC/MS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	SWD	Date Reported:	04-13-10
Chain of Custody:	9069	Date Sampled:	04-12-10
Laboratory Number:	53668	Date Received:	04-12-10
Sample Matrix:	Aqueous	Date Analyzed:	04-12-10
Preservative:		Analysis Requested:	8260 VOC
Condition:	Cool and Intact		

Parameter	Concentration (ug/L)	Units	Det. Limit	Dilution Factor
Benzene	667	(ug/L)	1.0	10
Toluene	5,140	(ug/L)	1.0	100
Ethylbenzene	887	(ug/L)	1.0	10
Xylenes, Total	3,520	(ug/L)	1.0	100
Methyl tert-butyl ether (MTBE)	ND	(ug/L)	1.0	1
1,2,4-Trimethylbenzene	760	(ug/L)	1.0	10
1,3,5-Trimethylbenzene	1,060	(ug/L)	1.0	10
1,2-Dichloroethane (EDC)	18.8	(ug/L)	1.0	1
1,2-Dibromoethane (EDB)	ND	(ug/L)	1.0	1
Naphthalene	178	(ug/L)	1.0	1
1-Methylnaphthalene	83.0	(ug/L)	2.0	1
2-Methylnaphthalene	ND	(ug/L)	2.0	1
Bromobenzene	88.4	(ug/L)	1.0	1
Bromochloromethane	ND	(ug/L)	1.0	1
Bromodichloromethane	ND	(ug/L)	1.0	1
Bromoform	ND	(ug/L)	1.0	1
Bromomethane	ND	(ug/L)	1.0	1
Carbon Tetrachloride	ND	(ug/L)	1.0	1
Chlorobenzene	ND	(ug/L)	1.0	1
Chloroethane	ND	(ug/L)	2.0	1
Chloroform	ND	(ug/L)	1.0	1
Chloromethane	ND	(ug/L)	1.0	1
2-Chlorotoluene	ND	(ug/L)	1.0	1
4-Chlorotoluene	ND	(ug/L)	1.0	1
cis-1,2-Dichloroethene	ND	(ug/L)	1.0	1
cis-1,3-Dichloropropene	ND	(ug/L)	1.0	1
1,2-Dibromo-3-chloropropane	ND	(ug/L)	2.0	1
Dibromochloromethane	ND	(ug/L)	1.0	1
Dibromoethane	ND	(ug/L)	2.0	1
1,2-Dichlorobenzene	ND	(ug/L)	1.0	1
1,3-Dichlorobenzene	ND	(ug/L)	1.0	1
1,4-Dichlorobenzene	ND	(ug/L)	1.0	1
Dichlorodifluoromethane	ND	(ug/L)	1.0	1
1,1-Dichloroethane	ND	(ug/L)	1.0	1
1,1-Dichloroethene	ND	(ug/L)	1.0	1
1,2-Dichloropropane	ND	(ug/L)	1.0	1
1,3-Dichloropropane	ND	(ug/L)	1.0	1
2,2-Dichloropropane	ND	(ug/L)	1.0	1

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EPA Method 8260B
Volatile Organic Compounds by GC/MS

Client: Key Energy
Sample ID: SWD
Laboratory Number: 53668

Parameter	Concentration (ug/L)	Units	Det. Limit	Dilution Factor
1,1-Dichloropropene	ND	(ug/L)	1.0	1
Hexachlorobutadiene	ND	(ug/L)	1.0	1
Isopropylbenzene	745	(ug/L)	1.0	10
4-Isopropyltoluene	97.3	(ug/L)	1.0	1
Methylene Chloride	ND	(ug/L)	3.0	1
n-Butylbenzene	ND	(ug/L)	1.0	1
n-Propylbenzene	183	(ug/L)	1.0	1
sec-Butylbenzene	ND	(ug/L)	1.0	1
Styrene	2,206	(ug/L)	1.0	10
tert-Butylbenzene	ND	(ug/L)	1.0	1
Tetrachloroethene (PCE)	ND	(ug/L)	1.0	1
1,1,1,2-Tetrachloroethane	ND	(ug/L)	1.0	1
1,1,2,2-Tetrachloroethane	ND	(ug/L)	1.0	1
trans-1,2-Dichloroethene	ND	(ug/L)	1.0	1
trans-1,3-Dichloropropene	ND	(ug/L)	1.0	1
Trichloroethene (TCE)	ND	(ug/L)	1.0	1
Trichlorofluoromethane	ND	(ug/L)	1.0	1
1,2,3-Trichlorobenzene	ND	(ug/L)	1.0	1
1,2,4-Trichlorobenzene	ND	(ug/L)	1.0	1
1,1,1-Trichloroethane	ND	(ug/L)	1.0	1
1,1,2-Trichloroethane	ND	(ug/L)	1.0	1
1,2,3-Trichloropropane	ND	(ug/L)	2.0	1
Vinyl Chloride	ND	(ug/L)	2.0	1

Surrogates:			Rec. Limits	
Dibromofluoromethane	105	% Recovery	78.6-115	1
1,2-Dichloroethane-d4	97.2	% Recovery	74.6-123	1
Toluene-d8	106	% Recovery	84.2-115	1
4-Bromofluorobenzene	103	% Recovery	78.6-115	1

ND = Parameter not detected at the stated detection limit.

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.
Method 8260,Volatile Organic Compounds by Gas Chromatography / Mass Spectrometry,Test Methods for Evaluating Solid Waste,SW-846, USEPA, July 1992

Comments: **Sunco SWD #1**

Analyst

Review

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QUALITY ASSURANCE / QUALITY CONTROL

DOCUMENTATION

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Analytical Laboratory

EPA Method 8260B
Volatile Organic Compounds by GC/MS
Daily Calibration Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Daily Calibration	Date Reported:	04-13-10
Laboratory Number:	0412V	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	04-12-10
Condition:	N/A	Analysis Requested:	8260 VOC

Parameter	Concentration (ug/L)	Result	% Recovered	% Recovery Limits
Benzene	100	96.0	96.0	80 - 120
Toluene	100	98.1	98.1	80 - 120
Ethylbenzene	100	90.3	90.3	80 - 120
Xylenes, Total	100	104	104	80 - 120
Methyl tert-butyl ether (MTBE)	100	84.3	84.3	80 - 120
1,2,4-Trimethylbenzene	100	85.1	85.1	80 - 120
1,3,5-Trimethylbenzene	100	88.6	88.6	80 - 120
1,2-Dichloroethane (EDC)	100	88.6	88.6	80 - 120
1,2-Dibromoethane (EDB)	100	96.5	96.5	80 - 120
Naphthalene	100	89.1	89.1	80 - 120
1-Methylnaphthalene	100	94.7	94.7	80 - 120
2-Methylnaphthalene	100	105	105	80 - 120
Bromobenzene	100	86.1	86.1	80 - 120
Bromochloromethane	100	87.6	87.6	80 - 120
Bromodichloromethane	100	84.1	84.1	80 - 120
Bromoform	100	85.5	85.5	80 - 120
Bromomethane	100	94.7	94.7	80 - 120
Carbon Tetrachloride	100	85.5	85.5	80 - 120
Chlorobenzene	100	93.2	93.2	80 - 120
Chloroethane	100	90.3	90.3	80 - 120
Chloroform	100	84.7	84.7	80 - 120
Chloromethane	100	100	100	80 - 120
2-Chlorotoluene	100	85.5	85.5	80 - 120
4-Chlorotoluene	100	86.2	86.2	80 - 120
cis-1,2-Dichloroethene	100	96.8	96.8	80 - 120
cis-1,3-Dichloropropene	100	90.6	90.6	80 - 120
1,2-Dibromo-3-chloropropane	100	96.9	96.9	80 - 120
Dibromochloromethane	100	87.8	87.8	80 - 120
Dibromoethane	100	94.3	94.3	80 - 120
1,2-Dichlorobenzene	100	95.6	95.6	80 - 120
1,3-Dichlorobenzene	100	96.4	96.4	80 - 120
1,4-Dichlorobenzene	100	97.7	97.7	80 - 120
Dichlorodifluoromethane	100	87.5	87.5	80 - 120
1,1-Dichloroethane	100	88.4	88.4	80 - 120
1,1-Dichloroethene	100	93.9	93.9	80 - 120
1,2-Dichloropropane	100	95.7	95.7	80 - 120
1,3-Dichloropropane	100	85.0	85.0	80 - 120
2,2-Dichloropropane	100	83.5	83.5	80 - 120

EPA Method 8260B
Volatile Organic Compounds by GC/MS
Quality Assurance Report

Client: QA/QC
Sample ID: Daily Calibration
Laboratory Number: 0412V

Parameter	Concentration (ug/L)	Result	% Recovered	% Recovery Limits
1,1-Dichloropropene	100	84.0	84.0	80 - 120
Hexachlorobutadiene	100	89.1	89.1	80 - 120
Isopropylbenzene	100	94.7	94.7	80 - 120
4-Isopropyltoluene	100	105.5	105.5	80 - 120
Methylene Chloride	100	101.2	101.2	80 - 120
n-Butylbenzene	100	91.6	91.6	80 - 120
n-Propylbenzene	100	92.0	92.0	80 - 120
sec-Butylbenzene	100	88.6	88.6	80 - 120
Styrene	100	86.9	86.9	80 - 120
tert-Butylbenzene	100	89.8	89.8	80 - 120
Tetrachloroethene (PCE)	100	97.7	97.7	80 - 120
1,1,1,2-Tetrachloroethane	100	84.7	84.7	80 - 120
1,1,2,2-Tetrachloroethane	100	91.0	91.0	80 - 120
trans-1,2-Dichloroethene	100	91.3	91.3	80 - 120
trans-1,3-Dichloropropene	100	82.4	82.4	80 - 120
Trichloroethene (TCE)	100	85.3	85.3	80 - 120
Trichlorofluoromethane	100	84.6	84.6	80 - 120
1,2,3-Trichlorobenzene	100	95.2	95.2	80 - 120
1,2,4-Trichlorobenzene	100	94.7	94.7	80 - 120
1,1,1-Trichloroethane	100	85.0	85.0	80 - 120
1,1,2-Trichloroethane	100	83.7	83.7	80 - 120
1,2,3-Trichloropropane	100	85.9	85.9	80 - 120
Vinyl Chloride	100	86.3	86.3	80 - 120

Surrogates:			Rec. Limits
Dibromofluoromethane	101	% Recovery	78.6-115
1,2-Dichloroethane-d4	106	% Recovery	74.6-123
Toluene-d8	89.3	% Recovery	84.2-115
4-Bromofluorobenzene	93.0	% Recovery	78.6-115

ND = Parameter not detected at the stated detection limit.

References. Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.
Method 8260,Volatile Organic Compounds by Gas Chromatography / Mass Spectrometry,Test Methods for Evaluating Solid Waste,SW-846, USEPA, July 1992

Comments: **QA/QC for Samples 53637 and 53668.**

Analyst

Christine M Waeters
Review

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Analytical Laboratory

EPA Method 8260B
Volatile Organic Compounds by GC/MS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Blank	Date Reported:	04-13-10
Laboratory Number:	0412VBLK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	04-12-10
Condition:	N/A	Analysis Requested:	8260 VOC

Parameter	Concentration (ug/L)	Units	Det. Limit	Dilution Factor
Benzene	ND	(ug/L)	1.0	1
Toluene	ND	(ug/L)	1.0	1
Ethylbenzene	ND	(ug/L)	1.0	1
Xylenes, Total	ND	(ug/L)	1.0	1
Methyl tert-butyl ether (MTBE)	ND	(ug/L)	1.0	1
1,2,4-Trimethylbenzene	ND	(ug/L)	1.0	1
1,3,5-Trimethylbenzene	ND	(ug/L)	1.0	1
1,2-Dichloroethane (EDC)	ND	(ug/L)	1.0	1
1,2-Dibromoethane (EDB)	ND	(ug/L)	1.0	1
Naphthalene	ND	(ug/L)	1.0	1
1-Methylnaphthalene	ND	(ug/L)	2.0	1
2-Methylnaphthalene	ND	(ug/L)	2.0	1
Bromobenzene	ND	(ug/L)	1.0	1
Bromochloromethane	ND	(ug/L)	1.0	1
Bromodichloromethane	ND	(ug/L)	1.0	1
Bromoform	ND	(ug/L)	1.0	1
Bromomethane	ND	(ug/L)	1.0	1
Carbon Tetrachloride	ND	(ug/L)	1.0	1
Chlorobenzene	ND	(ug/L)	1.0	1
Chloroethane	ND	(ug/L)	2.0	1
Chloroform	ND	(ug/L)	1.0	1
Chloromethane	ND	(ug/L)	1.0	1
2-Chlorotoluene	ND	(ug/L)	1.0	1
4-Chlorotoluene	ND	(ug/L)	1.0	1
cis-1,2-Dichloroethene	ND	(ug/L)	1.0	1
cis-1,3-Dichloropropene	ND	(ug/L)	1.0	1
1,2-Dibromo-3-chloropropane	ND	(ug/L)	2.0	1
Dibromochloromethane	ND	(ug/L)	1.0	1
Dibromoethane	ND	(ug/L)	2.0	1
1,2-Dichlorobenzene	ND	(ug/L)	1.0	1
1,3-Dichlorobenzene	ND	(ug/L)	1.0	1
1,4-Dichlorobenzene	ND	(ug/L)	1.0	1
Dichlorodifluoromethane	ND	(ug/L)	1.0	1
1,1-Dichloroethane	ND	(ug/L)	1.0	1
1,1-Dichloroethene	ND	(ug/L)	1.0	1
1,2-Dichloropropane	ND	(ug/L)	1.0	1
1,3-Dichloropropane	ND	(ug/L)	1.0	1
2,2-Dichloropropane	ND	(ug/L)	1.0	1

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EPA Method 8260B
Volatile Organic Compounds by GC/MS
Quality Assurance Report

Client: QA/QC
Sample ID: Blank
Laboratory Number: 0412VBLK

Parameter	Concentration (ug/L)	Units	Det. Limit	Dilution Factor
1,1-Dichloropropene	ND	(ug/L)	1.0	1
Hexachlorobutadiene	ND	(ug/L)	1.0	1
Isopropylbenzene	ND	(ug/L)	1.0	1
4-Isopropyltoluene	ND	(ug/L)	1.0	1
Methylene Chloride	ND	(ug/L)	1.0	1
n-Butylbenzene	ND	(ug/L)	1.0	1
n-Propylbenzene	ND	(ug/L)	1.0	1
sec-Butylbenzene	ND	(ug/L)	1.0	1
Styrene	ND	(ug/L)	1.0	1
tert-Butylbenzene	ND	(ug/L)	1.0	1
Tetrachloroethene (PCE)	ND	(ug/L)	1.0	1
1,1,1,2-Tetrachloroethane	ND	(ug/L)	1.0	1
1,1,2,2-Tetrachloroethane	ND	(ug/L)	1.0	1
trans-1,2-Dichloroethene	ND	(ug/L)	1.0	1
trans-1,3-Dichloropropene	ND	(ug/L)	1.0	1
Trichloroethene (TCE)	ND	(ug/L)	1.0	1
Trichlorofluoromethane	ND	(ug/L)	1.0	1
1,2,3-Trichlorobenzene	ND	(ug/L)	1.0	1
1,2,4-Trichlorobenzene	ND	(ug/L)	1.0	1
1,1,1-Trichloroethane	ND	(ug/L)	1.0	1
1,1,2-Trichloroethane	ND	(ug/L)	1.0	1
1,2,3-Trichloropropane	ND	(ug/L)	2.0	1
Vinyl Chloride	ND	(ug/L)	2.0	1

Surrogates:			Rec. Limits	
Dibromofluoromethane	78.9	% Recovery	78.6-115	1
1,2-Dichloroethane-d4	89.4	% Recovery	74.6-123	1
Toluene-d8	94.6	% Recovery	84.2-115	1
4-Bromofluorobenzene	95.9	% Recovery	78.6-115	1

ND = Parameter not detected at the stated detection limit.

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.
Method 8260,Volatile Organic Compounds by Gas Chromatography / Mass Spectrometry,Test Methods for Evaluating Solid Waste,SW-846, USEPA, July 1992

Comments: **QA/QC for Samples 53637 and 53668.**

Analyst

Review

envirotech
Analytical Laboratory

EPA Method 8260B
Volatile Organic Compounds by GC/MS
Quality Assurance Report

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Spikes	Date Reported:	04-13-10
Laboratory Number:	04-12-VOA--53637	Date Sampled:	N/A
Sample Matrix:	Aqueous	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	04-12-10
Condition:	N/A	Analysis Requested:	8260 VOC

Spike Analyte	Units: ug/L Sample	Added	Result	%Recovery	Recovery Limits	Det. Limit
Benzene	330	100.0	385	89.6%	85.3 - 120	1.0
Toluene	1,800	100.0	2,090	110%	73 - 123	1.0
Chlorobenzene	ND	100.0	103	103%	84.7 - 119	1.0
1,1-Dichloroethene	ND	100.0	100	100%	83.4 - 122	1.0
Trichloroethene (TCE)	ND	100.0	98	98.4%	76.1 - 126	1.0

Spike Duplicate Analyte	Units: ug/L Sample	Added	Result	%Recovery	Recovery Limits	Det. Limit
Benzene	330	100.0	358	83.3%	85.3 - 120	1.0
Toluene	1,800	100.0	1,950	103%	73 - 123	1.0
Chlorobenzene	ND	100.0	96	95.8%	84.7 - 119	1.0
1,1-Dichloroethene	ND	100.0	96	95.9%	83.4 - 122	1.0
Trichloroethene (TCE)	ND	100.0	88	88.1%	76.1 - 126	1.0

ND = Parameter not detected at the stated detection limit.

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.
Method 8260,Volatile Organic Compounds by Gas Chromatography / Mass Spectrometry,Test Methods for Evaluating Solid Waste,SW-846, USEPA, July 1992

Comments: **QA/QC for Samples 53637 and 53668.**

Analyst

Review

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CHAIN OF CUSTODY RECORD

09069

Client: Key Energy	Project Name / Location: Sunco SWD #1
Client Address:	Sampler Name: Neil Allen
Client Phone No.: 486-2010	Client No.: 98065-0013

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative $HgCl_2$	Preservative HCl	Preservative	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	PAH	TPH (418.1)	CHLORIDE	8270	Hg	As	Sample Cool	Sample Intact
SWD	4/12/10	14:30	53668	Soil Sludge Solid Aqueous (circled: Aqueous)	7 2L ambers 1 500L 2 Vials 1 125 1 250						X	X	X	X					X	X	X	Y	Y
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
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				Soil Sludge Solid Aqueous																			

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	4/12/10	2:55	[signature]	4/12/10	14:55
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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Analytical Laboratory

5796 US Highway 64 • Farmington, NM 87401 • 505-632-0615 • lab@envirotech-inc.com

Hall Environmental Analysis Laboratory, Inc.

Date: *22-Apr-10*

CLIENT:	Envirotech	**Client Sample ID:**	53668-SWD
Lab Order:	1004278	**Collection Date:**	4/12/2010 2:30:00 PM
Project:	Key Energy	**Date Received:**	4/14/2010
Lab ID:	1004278-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 200.8: METALS						Analyst: **TES**
Arsenic	0.0039	0.0025		mg/L	2.5	4/20/2010 2:49:28 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Envirotech
Project: Key Energy **Work Order:** 1004278

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA 200.8: Metals											
Sample ID: MB-21976		*MBLK*				**Batch ID: 21976**		**Analysis Date: 4/20/2010 2:26:04 PM**			
Arsenic	ND	mg/L	0.0025								
Sample ID: LLLCS-21976		*LCS*				Batch ID: 21976		Analysis Date: 4/20/2010 2:31:38 PM			
Arsenic	0.05223	mg/L	0.0025	0.05	0	104	80	120			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	NC	Non-Chlorinated
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name ENVIROTECH | Date Received: 4/14/2010

Work Order Number 1004278 | Received by: ARS

Checklist completed by: [signature] Signature 4.14.10 Date | Sample ID labels checked by: [initials] Initials

Matrix: | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	
Container/Temp Blank temperature?	3.6°	<6° C Acceptable If given sufficient time to cool.		

Number of preserved bottles checked for pH: 1

(<2) >12 unless noted below.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: Envirotech

Address: 5796 US Hwy 64
Farmington, NM 87401

Phone #: (505-632-0615

email or Fax#: cwalters@envirotech

QA/QC Package:
- ☐ Standard ☐ Level 4 (Full Validation)
- ☐ Other
- ☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ **Rush**

Project Name: Key Energy

Project #: 98065-0013

Project Manager: Christine Walters

Sampler: Neil Allen

On Ice: Yes No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1004278
4/12/10	14:30	53668-SWD	Plastic 125 mL	HNO_3	-1

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8260)	8310 (PNA or PAH)	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	~~Arsenic (7060)~~	~~6020 ICPMS~~	200.7 ICPMS			Air Bubbles (Y or N)
											X					

Date:	Time:	Relinquished by:	Received by:
4/13/10	16:30	Kari Thompson	9:20 4/14/10
Date:	Time:	Relinquished by:	Received by:

Remarks:
~~*Arsenic analysis using atomic absorption (EPA method 7060)~~
Decided on EPA method ~~6020~~ 200.8 [illegible] speaking with client [illegible] 4-14-10
PO# 14861

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

09069

CHAIN OF CUSTODY RECORD

Client: Key Energy	Project Name / Location: Sunco SWD #1
Client Address:	Sampler Name: Neil Allen
Client Phone No.: 486-2010	Client No.: 98065-0013

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative $HgCl_2$	Preservative HCl	Preservative	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals (6 written over 8)	Cation / Anion	RCI	TCLP with H/P	PAH	TPH (418.1)	CHLORIDE	8270	Hg	As	Sample Cool	Sample Intact
SWD	4/12/10	14:30	53668	Soil Sludge Solid (Aqueous)	7 2L ambers, 1 500L, 2 Vials, 1 125, 1 250						X	X	X	X					X	X	X	Y	Y
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			
				Soil Sludge Solid Aqueous																			

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Neil Allen	4/12/10	2:55	Brandon [illegible]	4/12/10	14:55
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

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CATION / ANION ANALYSIS

RECEIVED
2010 FEB 9 PM 1 51

Client	Key Energy	Project #:	98065-0013
Sample ID:	Lot #1 4'	Date Reported:	01-29-10
Laboratory Number:	53011	Date Sampled:	01-26-10
Chain-of-Custody:	8688	Date Received:	01-26-10
Sample Matrix:	Soil Extract	Date Extracted:	01-27-10
Preservative:	Cool	Date Analyzed:	01-28-10
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	7.43	s.u.		
Conductivity @ 25° C	2,350	umhos/cm		
Total Dissolved Solids @ 180C	1,720	mg/L		
Total Dissolved Solids (Calc)	1,624	mg/L		
SAR	15.8	ratio		
Total Alkalinity as CaCO3	130	mg/L		
Total Hardness as CaCO3	179	mg/L		
Bicarbonate as HCO3	130	mg/L	2.13	meq/L
Carbonate as CO3	<0.1	mg/L	0.00	meq/L
Hydroxide as OH	<0.1	mg/L	0.00	meq/L
Nitrate Nitrogen	0.700	mg/L	0.01	meq/L
Nitrite Nitrogen	0.033	mg/L	0.00	meq/L
Chloride	520	mg/L	14.67	meq/L
Fluoride	1.34	mg/L	0.07	meq/L
Phosphate	3.30	mg/L	0.10	meq/L
Sulfate	423	mg/L	8.81	meq/L
Iron	0.079	mg/L	0.00	meq/L
Calcium	63.0	mg/L	3.14	meq/L
Magnesium	5.19	mg/L	0.43	meq/L
Potassium	43.1	mg/L	1.10	meq/L
Sodium	485	mg/L	21.10	meq/L
Cations			25.77	meq/L
Anions			25.79	meq/L
Cation/Anion Difference			0.08%	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

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CATION / ANION ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Lot #2 3.5'	Date Reported:	01-29-10
Laboratory Number:	53013	Date Sampled:	01-26-10
Chain of Custody:	8688	Date Received:	01-26-10
Sample Matrix:	Soil Extract	Date Extracted:	01-27-10
Preservative:	Cool	Date Analyzed:	01-28-10
Condition:	Intact		

Parameter	Analytical Result	Units		
pH	**7.78**	s.u.		
Conductivity @ 25° C	**1,330**	umhos/cm		
Total Dissolved Solids @ 180C	**830**	mg/L		
Total Dissolved Solids (Calc)	**790**	mg/L		
SAR	**15.9**	ratio		
Total Alkalinity as CaCO3	**80.0**	mg/L		
Total Hardness as CaCO3	**54.8**	mg/L		
Bicarbonate as HCO3	**80.0**	mg/L	1.31	meq/L
Carbonate as CO3	**<0.1**	mg/L	0.00	meq/L
Hydroxide as OH	**<0.1**	mg/L	0.00	meq/L
Nitrate Nitrogen	**0.300**	mg/L	0.00	meq/L
Nitrite Nitrogen	**0.012**	mg/L	0.00	meq/L
Chloride	**310**	mg/L	8.75	meq/L
Fluoride	**1.58**	mg/L	0.08	meq/L
Phosphate	**1.40**	mg/L	0.04	meq/L
Sulfate	**134**	mg/L	2.79	meq/L
Iron	**0.119**	mg/L	0.00	meq/L
Calcium	**15.8**	mg/L	0.79	meq/L
Magnesium	**3.74**	mg/L	0.31	meq/L
Potassium	**4.41**	mg/L	0.11	meq/L
Sodium	**270**	mg/L	11.75	meq/L
Cations			12.96	meq/L
Anions			12.98	meq/L
Cation/Anion Difference			**0.16%**	

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm**

Analyst

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Lot #1 6"	Date Reported:	01-28-10
Lab ID#:	53012	Date Sampled:	01-26-10
Sample Matrix:	Soil	Date Received:	01-26-10
Preservative:	Cool	Date Analyzed:	01-27-10
Condition:	Intact	Chain of Custody:	8688

Parameter	Concentration (mg/Kg)
Total Chloride	**730**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm**

Analyst

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Chloride

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Lot #2 6"	Date Reported:	01-28-10
Lab ID#:	53014	Date Sampled:	01-26-10
Sample Matrix:	Soil	Date Received:	01-26-10
Preservative:	Cool	Date Analyzed:	01-27-10
Condition:	Intact	Chain of Custody:	8688

Parameter	Concentration (mg/Kg)
Total Chloride	**495**

Reference: U.S.E.P.A., 4500B, "Methods for Chemical Analysis of Water and Wastes", 1983.
Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: **Landfarm**

Analyst

Review

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Lot #1 4'	Date Reported:	01-28-10
Laboratory Number:	53011	Date Sampled:	01-26-10
Chain of Custody No:	8688	Date Received:	01-26-10
Sample Matrix:	Soil	Date Extracted:	01-26-10
Preservative:	Cool	Date Analyzed:	01-27-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**4.4**	**0.2**
Diesel Range (C10 - C28)	**256**	**0.1**
Total Petroleum Hydrocarbons	**260**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm**

Analyst

Review

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Lot #1 6"	Date Reported:	01-28-10
Laboratory Number:	53012	Date Sampled:	01-26-10
Chain of Custody No:	8688	Date Received:	01-26-10
Sample Matrix:	Soil	Date Extracted:	01-26-10
Preservative:	Cool	Date Analyzed:	01-27-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**65.5**	**0.2**
Diesel Range (C10 - C28)	**2,010**	**0.1**
Total Petroleum Hydrocarbons	**2,080**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm**

Analyst

Review

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Lot #2 3.5'	Date Reported:	01-28-10
Laboratory Number:	53013	Date Sampled:	01-26-10
Chain of Custody No:	8688	Date Received:	01-26-10
Sample Matrix:	Soil	Date Extracted:	01-26-10
Preservative:	Cool	Date Analyzed:	01-27-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**5.6**	**0.2**
Diesel Range (C10 - C28)	**424**	**0.1**
Total Petroleum Hydrocarbons	**430**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm**

Analyst

Review

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EPA METHOD 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Lot #2 6"	Date Reported:	01-28-10
Laboratory Number:	53014	Date Sampled:	01-26-10
Chain of Custody No:	8688	Date Received:	01-26-10
Sample Matrix:	Soil	Date Extracted:	01-26-10
Preservative:	Cool	Date Analyzed:	01-27-10
Condition:	Intact	Analysis Requested:	8015 TPH

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Gasoline Range (C5 - C10)	**30.9**	**0.2**
Diesel Range (C10 - C28)	**749**	**0.1**
Total Petroleum Hydrocarbons	**780**	**0.2**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm**

Analyst

Review

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EPA Method 8015 Modified
Nonhalogenated Volatile Organics
Total Petroleum Hydrocarbons

Quality Assurance Report

Client.	QA/QC	Project #:	N/A
Sample ID:	01-27-10 QA/QC	Date Reported:	01-28-10
Laboratory Number:	53008	Date Sampled:	N/A
Sample Matrix:	Methylene Chloride	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	01-27-10
Condition:	N/A	Analysis Requested:	TPH

	I-Cal Date	I-Cal RF	C-Cal RF	% Difference	Accept. Range
Gasoline Range C5 - C10	05-07-07	1.0313E+003	1.0317E+003	**0.04%**	**0 - 15%**
Diesel Range C10 - C28	05-07-07	9.3230E+002	9.3268E+002	**0.04%**	**0 - 15%**

Blank Conc. (mg/L - mg/Kg)	Concentration	Detection Limit
Gasoline Range C5 - C10	**ND**	**0.2**
Diesel Range C10 - C28	**ND**	**0.1**
Total Petroleum Hydrocarbons	**ND**	**0.2**

Duplicate Conc. (mg/Kg)	Sample	Duplicate	% Difference	Accept. Range
Gasoline Range C5 - C10	**3.6**	**3.4**	**5.6%**	**0 - 30%**
Diesel Range C10 - C28	**52.3**	**52.5**	**0.4%**	**0 - 30%**

Spike Conc. (mg/Kg)	Sample	Spike Added	Spike Result	% Recovery	Accept. Range
Gasoline Range C5 - C10	**3.6**	**250**	**240**	**94.5%**	**75 - 125%**
Diesel Range C10 - C28	**52.3**	**250**	**297**	**98.3%**	**75 - 125%**

ND - Parameter not detected at the stated detection limit.

References: Method 8015B, Nonhalogenated Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **QA/QC for Samples 53008 - 53014.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Lot #1 4'	Date Reported:	01-28-10
Laboratory Number:	53011	Date Sampled:	01-26-10
Chain of Custody:	8688	Date Received:	01-26-10
Sample Matrix:	Soil	Date Analyzed:	01-27-10
Preservative:	Cool	Date Extracted:	01-26-10
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**3.9**	**0.9**
Toluene	**7.9**	**1.0**
Ethylbenzene	**7.2**	**1.0**
p,m-Xylene	**52.9**	**1.2**
o-Xylene	**28.8**	**0.9**
Total BTEX	**101**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**92.0 %**
	1,4-difluorobenzene	**88.3 %**
	Bromochlorobenzene	**97.0 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm**

Analyst

Review

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Lot #2 3.5'	Date Reported:	01-28-10
Laboratory Number:	53013	Date Sampled:	01-26-10
Chain of Custody:	8688	Date Received:	01-26-10
Sample Matrix:	Soil	Date Analyzed:	01-27-10
Preservative:	Cool	Date Extracted:	01-26-10
Condition:	Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	**3.9**	**0.9**
Toluene	**6.5**	**1.0**
Ethylbenzene	**4.1**	**1.0**
p,m-Xylene	**45.1**	**1.2**
o-Xylene	**16.5**	**0.9**
Total BTEX	**76.1**	

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Fluorobenzene	**94.0 %**
	1,4-difluorobenzene	**90.3 %**
	Bromochlorobenzene	**99.0 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Comments: **Landfarm**

Analyst

Review

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EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	N/A	Project #:	N/A
Sample ID.	01-27-BT QA/QC	Date Reported:	01-28-10
Laboratory Number	53007	Date Sampled:	N/A
Sample Matrix:	Soil	Date Received:	N/A
Preservative.	N/A	Date Analyzed:	01-27-10
Condition	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc.	Detect. Limit
Benzene	1 1135E+006	1.1157E+006	0.2%	ND	0.1
Toluene	1 0905E+006	1 0927E+006	0.2%	ND	0.1
Ethylbenzene	1.0262E+006	1 0283E+006	0.2%	ND	0.1
p,m-Xylene	2.5603E+006	2.5655E+006	0.2%	ND	0.1
o-Xylene	9 7499E+005	9 7694E+005	0.2%	ND	0.1

Duplicate Conc. (ug/Kg)	Sample	Duplicate	%Diff.	Accept Range	Detect. Limit
Benzene	ND	ND	0.0%	0 - 30%	0.9
Toluene	ND	ND	0.0%	0 - 30%	1.0
Ethylbenzene	ND	ND	0.0%	0 - 30%	1.0
p,m-Xylene	ND	ND	0.0%	0 - 30%	1.2
o-Xylene	ND	ND	0.0%	0 - 30%	0.9

Spike Conc. (ug/Kg)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Range
Benzene	ND	50.0	49.5	99.0%	39 - 150
Toluene	ND	50.0	48.9	97.8%	46 - 148
Ethylbenzene	ND	50.0	48.9	97.8%	32 - 160
p,m-Xylene	ND	100	98.5	98.5%	46 - 148
o-Xylene	ND	50.0	49.6	99.2%	46 - 148

ND - Parameter not detected at the stated detection limit.

References

Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **QA/QC for Samples 53007, 53009 - 53011, and 53013**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Lot #1 4'	Date Reported:	01-28-10
Laboratory Number:	53011	Date Sampled:	01-26-10
Chain of Custody:	8688	Date Received:	01-26-10
Sample Matrix:	Soil	Date Analyzed:	01-28-10
Preservative:	Cool	Date Digested:	01-27-10
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	**0.159**	**0.001**
Barium	**147**	**0.001**
Cadmium	**0.012**	**0.001**
Chromium	**0.961**	**0.001**
Lead	**0.803**	**0.001**
Mercury	**ND**	**0.001**
Selenium	**ND**	**0.001**
Silver	**ND**	**0.001**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectroscopy, SW-846, USEPA, December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, August 24, 1998.

Comments: **Landfarm**

Analyst

Review

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TRACE METAL ANALYSIS

Client:	Key Energy	Project #:	98065-0013
Sample ID:	Lot #2 3.5'	Date Reported:	01-28-10
Laboratory Number:	53013	Date Sampled:	01-26-10
Chain of Custody:	8688	Date Received:	01-26-10
Sample Matrix:	Soil	Date Analyzed:	01-28-10
Preservative.	Cool	Date Digested:	01-27-10
Condition:	Intact	Analysis Needed:	Total Metals

Parameter	Concentration (mg/Kg)	Det. Limit (mg/Kg)
Arsenic	**0.126**	**0.001**
Barium	**136**	**0.001**
Cadmium	**0.014**	**0.001**
Chromium	**1.05**	**0.001**
Lead	**1.30**	**0.001**
Mercury	**0.010**	**0.001**
Selenium	**ND**	**0.001**
Silver	**ND**	**0.001**

ND - Parameter not detected at the stated detection limit.

References: Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectroscopy, SW-846, USEPA, December 1996.

Note: Regulatory Limits based on 40 CFR part 261 subpart C section 261.24, August 24, 1998.

Comments: **Landfarm**

Analyst

Review

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TRACE METAL ANALYSIS
Quality Control /
Quality Assurance Report

Client:	QA/QC	Project #:	QA/QC
Sample ID:	01-28 TM QA/AC	Date Reported:	01-28-10
Laboratory Number:	53011	Date Sampled	N/A
Sample Matrix:	Soil	Date Received	N/A
Analysis Requested	Total RCRA Metals	Date Analyzed:	01-28-10
Condition	N/A	Date Digested.	01-27-10

Blank & Duplicate Conc. (mg/Kg)	Instrument Blank (mg/Kg)	Method Blank	Detection Limit	Sample	Duplicate	% Diff.	Acceptance Range
Arsenic	**ND**	**ND**	**0.001**	**0.159**	**0.131**	**17.6%**	**0% - 30%**
Barium	**ND**	**ND**	**0.001**	**147**	**145**	**1.4%**	**0% - 30%**
Cadmium	**ND**	**ND**	**0.001**	**0.012**	**0.011**	**5.1%**	**0% - 30%**
Chromium	**ND**	**ND**	**0.001**	**0.961**	**0.803**	**16.5%**	**0% - 30%**
Lead	**ND**	**ND**	**0.001**	**0.803**	**0.819**	**2.0%**	**0% - 30%**
Mercury	**ND**	**ND**	**0.001**	**ND**	**ND**	**0.0%**	**0% - 30%**
Selenium	**ND**	**ND**	**0.001**	**ND**	**ND**	**0.0%**	**0% - 30%**
Silver	**ND**	**ND**	**0.001**	**ND**	**ND**	**0.0%**	**0% - 30%**

Spike Conc. (mg/Kg)	Spike Added	Sample	Spiked Sample	Percent Recovery	Acceptance Range
Arsenic	**0.250**	**0.159**	**0.345**	**84.1%**	**80% - 120%**
Barium	**0.500**	**147**	**151**	**102%**	**80% - 120%**
Cadmium	**0.250**	**0.012**	**0.248**	**94.8%**	**80% - 120%**
Chromium	**0.500**	**0.961**	**1.24**	**84.7%**	**80% - 120%**
Lead	**0.500**	**0.803**	**1.23**	**94.6%**	**80% - 120%**
Mercury	**0.100**	**ND**	**0.081**	**80.8%**	**80% - 120%**
Selenium	**0.100**	**ND**	**0.084**	**84.1%**	**80% - 120%**
Silver	**0.100**	**ND**	**0.089**	**88.9%**	**80% - 120%**

ND - Parameter not detected at the stated detection limit.

References
Method 3050B, Acid Digestion of Sediments, Sludges and Soils. SW-846, USEPA, December 1996.

Method 6010B, Analysis of Metals by Inductively Coupled Plasma Atomic Emmision Spectorscopy, SW-846, USEPA, December 1996

Comments: **QA/QC for Samples 53006, 53011, 53013, and 53019**

Analyst

Review

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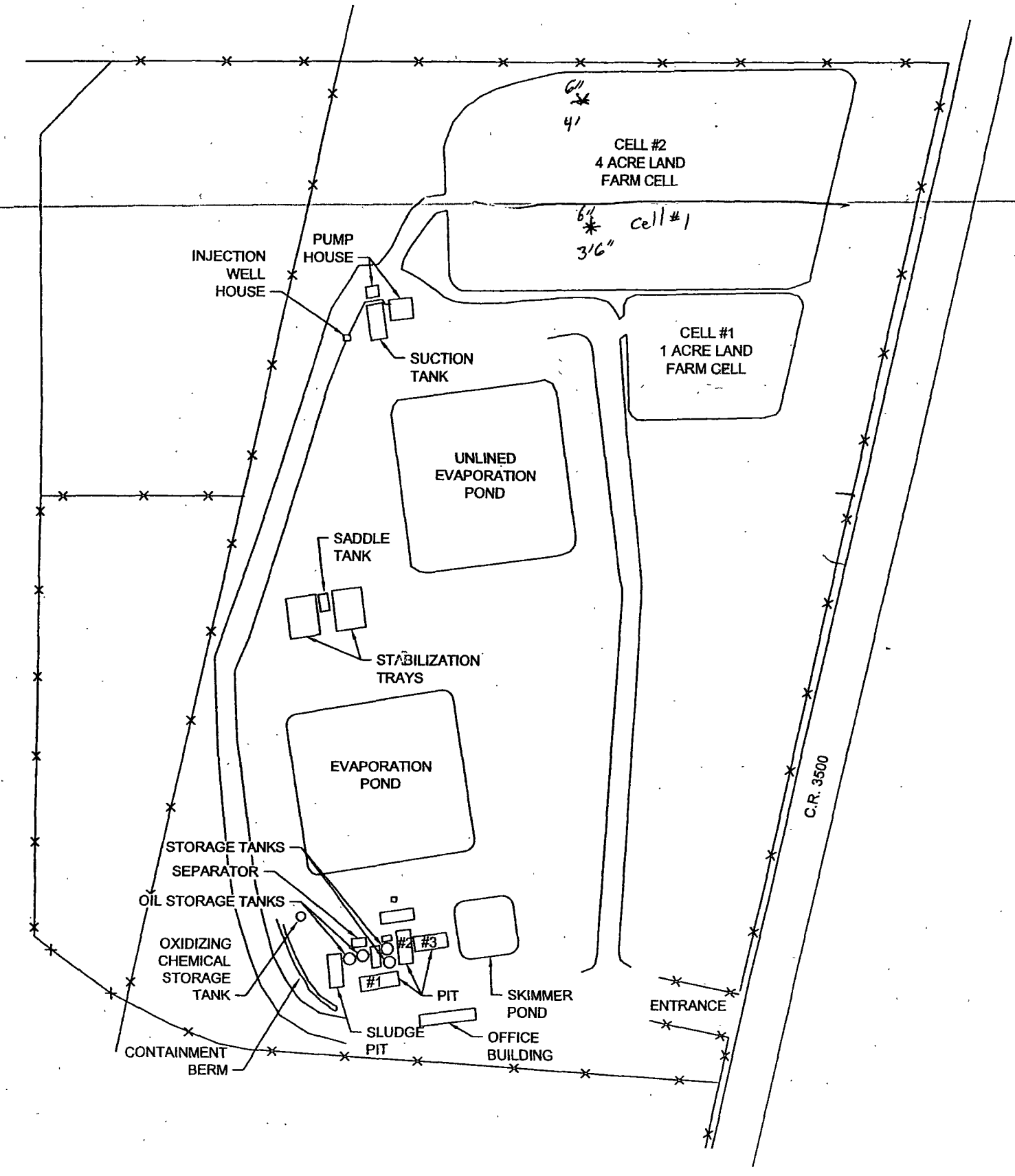
6"
4'
CELL #2
4 ACRE LAND
FARM CELL
6"
Cell #1
3'6"
INJECTION
WELL
HOUSE
PUMP
HOUSE
SUCTION
TANK
CELL #1
1 ACRE LAND
FARM CELL
UNLINED
EVAPORATION
POND
SADDLE
TANK
STABILIZATION
TRAYS
EVAPORATION
POND
C.R. 3500
STORAGE TANKS
SEPARATOR
OIL STORAGE TANKS
OXIDIZING
CHEMICAL
STORAGE
TANK
#1
#2
#3
PIT
SKIMMER
POND
ENTRANCE
SLUDGE
PIT
OFFICE
BUILDING
CONTAINMENT
BERM

CHAIN OF CUSTODY RECORD

8688

Client:	Project Name / Location:
Enterprise Landfarm	Landfarm
Client Address:	Sampler Name:
Client Phone No.:	Client No.: 98065-0013

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative $HgCl_2$	Preservative HCl	TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	PAH	TPH (418.1)	CHLORIDE				Sample Cool	Sample Intact
Lot #1 4'	1/26/10	12:45	53011	(Soil) Solid Sludge Aqueous	1 4oz 1 bag			✓	✓		✓	✓									y	y
Lot #1 6"		12:50	53012	(Soil) Solid Sludge Aqueous	1 4oz			✓									✓					
Lot #2 3½'		1:30	53013	(Soil) Solid Sludge Aqueous	1 4oz 1 bag			✓	✓		✓	✓										
Lot #2 6"		1:35	53014	(Soil) Solid Sludge Aqueous	1 4oz			✓									✓					
				Soil Solid Sludge Aqueous																		
				Soil Solid Sludge Aqueous																		
				Soil Solid Sludge Aqueous																		
				Soil Solid Sludge Aqueous																		
				Soil Solid Sludge Aqueous																		
				Soil Solid Sludge Aqueous																		

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Steve Wilson	01-26-10	14:10	Brandon Tate	1/26/10	14:10
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

PO# 14680085

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