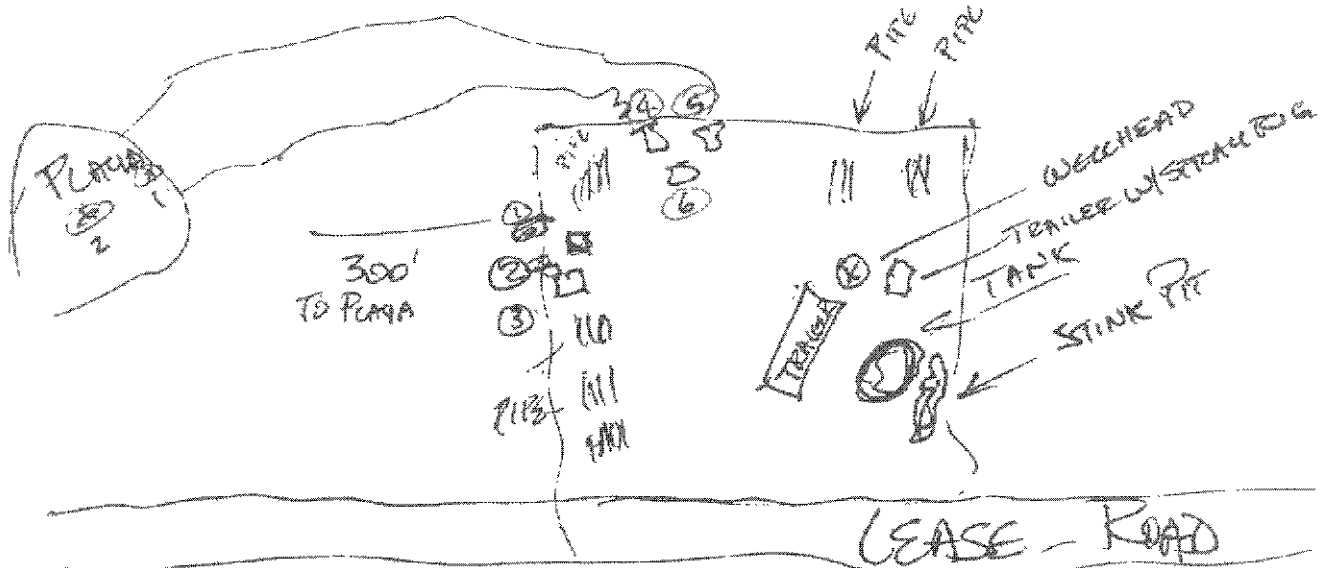
GW – 396

Incident Lab Work

YEAR(S): 2008

INCIDENT OCCURED 11.13.08 PM 11.A.08

SAMPLE POINTS ⑥



Cation-Anion Balance Sheet

DATE: 11/18/2008

Sample #	Calcium ppm	Magnesium ppm	Sodium ppm	Potassium ppm	Alkalinity ppm	Sulfate ppm	Chloride ppm	Nitrate ppm	Fluoride ppm	TDS ppm	EC *µMHOs/cm*
179496	3100	337	29100	759	42	46.3	57600	68.8	10.3	98000	85400

Sample #	Calcium in meq/L	Magnesium in meq/L	Sodium in meq/L	Potassium in meq/L	Alkalinity in meq/L	Sulfate in meq/L	Chloride in meq/L	Nitrate in meq/L	Fluoride in meq/L	**Total Cations in meq/L**	**Total Anions in meq/L**	**Percentage Error**
179496	154.69	27.73	1265.65	19.42	0.84	0.96	1624.90	4.91	0.54	1467.69	1632.15	10.61130902

	EC/Cation	EC/Anion					TDS/EC	TDS/Cat	TDS/Anion	
179496	146769	163215	range	76860	to	93940	1.15	0.67	0.60	needs to be 0.55-0.77

TRACEANALYSIS, INC.

Work Order Receipt

Order

Work Order	8111432
Receive Date	at
Requestor	Larry Johnson - New Mexico Oil Conservation Div.
Invoicing	Larry Johnson - New Mexico Oil Conservation Div.
Purchase Order	N/A
Project	Crawford Ranch Project Location = Lea Co., New Mexico Project Name = Crawford Ranch Project Number = Crawford Ranch A-31-24-37
Comment	N/A

Samples

Sample	Field Code	Priority	Matrix	Collect Date	Collect Time	Quantity
179491	081140920	24 Hours	soil	2008-11-14	09:20	1
179492	08114 Playa Sample #1	24 Hours	soil	2008-11-14	09:20	1
179493	08114 Playa Sample #1	24 Hours	soil	2008-11-14	09:20	1
179494	Phoenix Pad #1 SW Spill Pattern	24 Hours	soil	2008-11-14	08:30	1
179495	Phoenix Pad #2 SE Spill Pattern	24 Hours	soil	2008-11-14	08:35	1
179496	Crawford Ranch A-31-2-37 Dump Water	24 Hours	water	2008-11-13	17:00	1

Sample	Test	Method	Prep	Priority	Expected Date
179491	Alkalinity	SM 2320B	N/A	24 Hours	2008-11-15
	BTEX	S 8021B	S 5035	24 Hours	2008-11-15
	Ca, Total	S 6010B	S 3050B	24 Hours	2008-11-15
	Chloride (IC)	E 300.0	N/A	24 Hours	2008-11-15
	Conductivity	SM 2510B	N/A	24 Hours	2008-11-15
	Fluoride (IC)	E 300.0	N/A	24 Hours	2008-11-15
	K, Total	S 6010B	S 3050B	24 Hours	2008-11-15

Work Order Receipt

Sample	Test	Method	Prep	Priority	Expected Date
	Mg, Total	S 6010B	S 3050B	24 Hours	2008-11-15
	MTBE	S 8021B	S 5035	24 Hours	2008-11-15
	Na, Total	S 6010B	S 3050B	24 Hours	2008-11-15
	NO3 (IC)	E 300.0	N/A	24 Hours	2008-11-15
	pH	SM 4500-H+	N/A	24 Hours	2008-11-15
	SO4 (IC)	E 300.0	N/A	24 Hours	2008-11-15
	TDS	SM 2540C	N/A	24 Hours	2008-11-15
	TPH 418.1	E 418.1	N/A	24 Hours	2008-11-15
	TPH DRO	Mod. 8015B	N/A	24 Hours	2008-11-15
	TPH GRO	S 8015B	S 5035	24 Hours	2008-11-15
179492	Alkalinity	SM 2320B	N/A	24 Hours	2008-11-15
	BTEX	S 8021B	S 5035	24 Hours	2008-11-15
	Ca, Total	S 6010B	S 3050B	24 Hours	2008-11-15
	Chloride (IC)	E 300.0	N/A	24 Hours	2008-11-15
	Conductivity	SM 2510B	N/A	24 Hours	2008-11-15
	Fluoride (IC)	E 300.0	N/A	24 Hours	2008-11-15
	K, Total	S 6010B	S 3050B	24 Hours	2008-11-15
	Mg, Total	S 6010B	S 3050B	24 Hours	2008-11-15
	MTBE	S 8021B	S 5035	24 Hours	2008-11-15
	Na, Total	S 6010B	S 3050B	24 Hours	2008-11-15
	NO3 (IC)	E 300.0	N/A	24 Hours	2008-11-15
	pH	SM 4500-H+	N/A	24 Hours	2008-11-15
	SO4 (IC)	E 300.0	N/A	24 Hours	2008-11-15
	TDS	SM 2540C	N/A	24 Hours	2008-11-15
	TPH 418.1	E 418.1	N/A	24 Hours	2008-11-15
	TPH DRO	Mod. 8015B	N/A	24 Hours	2008-11-15
	TPH GRO	S 8015B	S 5035	24 Hours	2008-11-15
179493	Alkalinity	SM 2320B	N/A	24 Hours	2008-11-15
	BTEX	S 8021B	S 5035	24 Hours	2008-11-15
	Ca, Total	S 6010B	S 3050B	24 Hours	2008-11-15
	Chloride (IC)	E 300.0	N/A	24 Hours	2008-11-15
	Conductivity	SM 2510B	N/A	24 Hours	2008-11-15
	Fluoride (IC)	E 300.0	N/A	24 Hours	2008-11-15
	K, Total	S 6010B	S 3050B	24 Hours	2008-11-15
	Mg, Total	S 6010B	S 3050B	24 Hours	2008-11-15
	MTBE	S 8021B	S 5035	24 Hours	2008-11-15
	Na, Total	S 6010B	S 3050B	24 Hours	2008-11-15
	NO3 (IC)	E 300.0	N/A	24 Hours	2008-11-15
	pH	SM 4500-H+	N/A	24 Hours	2008-11-15
	SO4 (IC)	E 300.0	N/A	24 Hours	2008-11-15
	TDS	SM 2540C	N/A	24 Hours	2008-11-15
	TPH 418.1	E 418.1	N/A	24 Hours	2008-11-15
	TPH DRO	Mod. 8015B	N/A	24 Hours	2008-11-15
	TPH GRO	S 8015B	S 5035	24 Hours	2008-11-15
179494	Chloride (Titration)	SM 4500-Cl B	N/A	24 Hours	2008-11-15
179495	Chloride (Titration)	SM 4500-Cl B	N/A	24 Hours	2008-11-15
179496	Alkalinity	SM 2320B	N/A	24 Hours	2008-11-15
	BTEX	S 8021B	S 5030B	24 Hours	2008-11-15

Work Order Receipt

Sample	Test	Method	Prep	Priority	Expected Date
	Ca, Total	S 6010B	S 3010A	24 Hours	2008-11-15
	Chloride (IC)	E 300.0	N/A	24 Hours	2008-11-15
	Conductivity	SM 2510B	N/A	24 Hours	2008-11-15
	Fluoride (IC)	E 300.0	N/A	24 Hours	2008-11-15
	K, Total	S 6010B	S 3010A	24 Hours	2008-11-15
	Mg, Total	S 6010B	S 3010A	24 Hours	2008-11-15
	MTBE	S 8021B	S 5030B	24 Hours	2008-11-15
	Na, Total	S 6010B	S 3010A	24 Hours	2008-11-15
	NO3 (IC)	E 300.0	N/A	24 Hours	2008-11-15
	pH	SM 4500-H+	N/A	24 Hours	2008-11-15
	SO4 (IC)	E 300.0	N/A	24 Hours	2008-11-15
	TDS	SM 2540C	N/A	24 Hours	2008-11-15
	TPH 418.1	E 418.1	N/A	24 Hours	2008-11-15
	TPH DRO	Mod. 8015B	N/A	24 Hours	2008-11-15
	TPH GRO	S 8015B	S 5030B	24 Hours	2008-11-15

TRACEANALYSIS, INC.

Certifications

WBENC: 237019 **HUB:** 1752439743100-86536 **DBE:** VN 20657
NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX LELAP-02003 Kansas E-10317 **El Paso:** T104704221-08-TX LELAP-02002 **Midland:** T104704392-08-TX

Analytical and Quality Control Report

Larry Johnson
New Mexico Oil Conservation Div.
1625 N. French Dr.
Hobbs, NM, 88240

Report Date: November 18, 2008

Work Order: 8111432

Project Location: Lea Co., New Mexico
Project Name: Crawford Ranch
Project Number: Crawford Ranch A-31-24-37

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
179496	Crawford Ranch A-31-2-37 Dump Water	water	2008-11-13	17:00	2008-11-14

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Dr. Blair Leftwich, Director

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Case Narrative

Samples for project Crawford Ranch were received by TraceAnalysis, Inc. on 2008-11-14 and assigned to work order 8111432. Samples for work order 8111432 were received intact at a temperature of 4.1 deg. C.

Samples were analyzed for the following tests using their respective methods.

Test	Method
Alkalinity	SM 2320B
BTEX	S 8021B
Ca, Total	S 6010B
Chloride (IC)	E 300.0
Conductivity	SM 2510B
Fluoride (IC)	E 300.0
K, Total	S 6010B
Mg, Total	S 6010B
Na, Total	S 6010B
NO3 (IC)	E 300.0
pH	SM 4500-H+
SO4 (IC)	E 300.0
TDS	SM 2540C
TPH 418.1	E 418.1
TPH DRO	Mod. 8015B
TPH GRO	S 8015B

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 8111432 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 179496 - Crawford Ranch A-31-2-37 Dump Water

Laboratory:	Lubbock				
Analysis:	Alkalinity	Analytical Method:	SM 2320B	Prep Method:	N/A
QC Batch:	54364	Date Analyzed:	2008-11-17	Analyzed By:	KV
Prep Batch:	46504	Sample Preparation:	2008-11-17	Prepared By:	KV

Parameter	Flag	RL Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalinity		**42.0**	mg/L as CaCo3	1	4.00
Total Alkalinity		**42.0**	mg/L as CaCo3	1	4.00

Sample: 179496 - Crawford Ranch A-31-2-37 Dump Water

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5030B
QC Batch:	54294	Date Analyzed:	2008-11-15	Analyzed By:	MT
Prep Batch:	46450	Sample Preparation:	2008-11-15	Prepared By:	MT

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		**0.249**	mg/L	20	0.00100
Toluene		**0.173**	mg/L	20	0.00100
Ethylbenzene		<0.0200	mg/L	20	0.00100
Xylene		**0.0465**	mg/L	20	0.00100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.77	mg/L	20	2.00	88	55.6 - 121.3
4-Bromofluorobenzene (4-BFB)		1.84	mg/L	20	2.00	92	58.1 - 118.4

Sample: 179496 - Crawford Ranch A-31-2-37 Dump Water

Laboratory:	Lubbock				
Analysis:	Conductivity	Analytical Method:	SM 2510B	Prep Method:	N/A
QC Batch:	54365	Date Analyzed:	2008-11-18	Analyzed By:	RD
Prep Batch:	46506	Sample Preparation:	2008-11-17	Prepared By:	RD

Parameter	Flag	RL Result	Units	Dilution	RL
Specific Conductance		**85400**	uMHOS/cm	1	0.00

Sample: 179496 - Crawford Ranch A-31-2-37 Dump Water

Laboratory:	Lubbock				
Analysis:	Ion Chromatography	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch:	54391	Date Analyzed:	2008-11-18	Analyzed By:	RD
Prep Batch:	46526	Sample Preparation:	2008-11-17	Prepared By:	RD

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**57600**		mg/L	5000	3.00
Fluoride		**10.3**		mg/L	5	0.200
Nitrate-N		**68.8**		mg/L	5	0.200
Sulfate		**46.3**		mg/L	5	1.00

Sample: 179496 - Crawford Ranch A-31-2-37 Dump Water

Laboratory:	Lubbock				
Analysis:	pH	Analytical Method:	SM 4500-H+	Prep Method:	N/A
QC Batch:	54347	Date Analyzed:	2008-11-17	Analyzed By:	KV
Prep Batch:	46494	Sample Preparation:	2008-11-17	Prepared By:	KV

Parameter	Flag	Result	RL	Units	Dilution	RL
pH		**6.82**		s.u.	1	0.00

Sample: 179496 - Crawford Ranch A-31-2-37 Dump Water

Laboratory:	Lubbock				
Analysis:	Salts, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	54319 [a]	Date Analyzed:	2008-11-17	Analyzed By:	TP
Prep Batch:	46449	Sample Preparation:	2008-11-16	Prepared By:	KV

[a]Not enough sample quantity for MS/MSD preparation.

Parameter	Flag	Result	RL	Units	Dilution	RL
Total Calcium		**3100**		mg/L	50	1.00
Total Magnesium		**337**		mg/L	5	1.00
Total Potassium		**759**		mg/L	5	1.00
Total Sodium		**29100**		mg/L	500	1.00

Sample: 179496 - Crawford Ranch A-31-2-37 Dump Water

Laboratory:	Lubbock				
Analysis:	TDS	Analytical Method:	SM 2540C	Prep Method:	N/A
QC Batch:	54362	Date Analyzed:	2008-11-18	Analyzed By:	RD
Prep Batch:	46502	Sample Preparation:	2008-11-17	Prepared By:	RD

Parameter	Flag	Result	RL Units	Dilution	RL
Total Dissolved Solids		**98000**	mg/L	200	10.00

Sample: 179496 - Crawford Ranch A-31-2-37 Dump Water

Laboratory:	Lubbock				
Analysis:	TPH 418.1	Analytical Method:	E 418.1	Prep Method:	N/A
QC Batch:	54318	Date Analyzed:	2008-11-17	Analyzed By:	CM
Prep Batch:	46466	Sample Preparation:		Prepared By:	CM

Parameter	Flag	Result	RL Units	Dilution	RL
TRPHC		**20.1**	mg/L	2	1.00

Sample: 179496 - Crawford Ranch A-31-2-37 Dump Water

Laboratory:	Lubbock				
Analysis:	TPH DRO	Analytical Method:	Mod. 8015B	Prep Method:	N/A
QC Batch:	54309	Date Analyzed:	2008-11-17	Analyzed By:	MN
Prep Batch:	46458	Sample Preparation:	2008-11-17	Prepared By:	MN

Parameter	Flag	Result	RL Units	Dilution	RL
DRO		**15.0**	mg/L	1	5.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		11.4	mg/L	1	10.0	114	70 - 150

Sample: 179496 - Crawford Ranch A-31-2-37 Dump Water

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015B	Prep Method:	S 5030B
QC Batch:	54331	Date Analyzed:	2008-11-17	Analyzed By:	ER
Prep Batch:	46479	Sample Preparation:	2008-11-17	Prepared By:	ER

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		**3.34**	mg/L	20	0.100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.92	mg/L	20	2.00	96	79.4 - 122.7
4-Bromofluorobenzene (4-BFB)		1.91	mg/L	20	2.00	96	51.3 - 116.6

Method Blank (1) QC Batch: 54294

QC Batch:	54294	Date Analyzed:	2008-11-15	Analyzed By:	MT
Prep Batch:	46450	QC Preparation:	2008-11-15	Prepared By:	MT

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.000119	mg/L	0.001
Toluene		<0.000146	mg/L	0.001
Ethylbenzene		<0.000119	mg/L	0.001
Xylene		0.000200	mg/L	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.0884	mg/L	1	0.100	88	69.3 - 105.6
4-Bromofluorobenzene (4-BFB)		0.0889	mg/L	1	0.100	89	66.8 - 110.2

Method Blank (1) QC Batch: 54309

QC Batch:	54309	Date Analyzed:	2008-11-17	Analyzed By:	MN
Prep Batch:	46458	QC Preparation:	2008-11-17	Prepared By:	MN

Parameter	Flag	MDL Result	Units	RL
DRO		<1.51	mg/L	5

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		9.24	mg/L	1	10.0	92	36.3 - 156

Method Blank (1) QC Batch: 54318

QC Batch:	54318	Date Analyzed:	2008-11-17	Analyzed By:	CM
Prep Batch:	46466	QC Preparation:	2008-11-17	Prepared By:	CM

Parameter	Flag	MDL Result	Units	RL
TRPHC		<0.0946	mg/L	1

Method Blank (1) QC Batch: 54319

QC Batch: 54319 Date Analyzed: 2008-11-17 Analyzed By: TP
Prep Batch: 46449 QC Preparation: 2008-11-16 Prepared By: KV

Parameter	Flag	MDL Result	Units	RL
Total Calcium		<0.175	mg/L	1
Total Magnesium		<0.148	mg/L	1
Total Potassium		<0.327	mg/L	1
Total Sodium		<0.244	mg/L	1

Method Blank (1) QC Batch: 54331

QC Batch: 54331 Date Analyzed: 2008-11-17 Analyzed By: ER
Prep Batch: 46479 QC Preparation: 2008-11-17 Prepared By: ER

Parameter	Flag	MDL Result	Units	RL
GRO		<0.0229	mg/L	0.1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.103	mg/L	1	0.100	103	79.4 - 122.7
4-Bromofluorobenzene (4-BFB)		0.0840	mg/L	1	0.100	84	51.3 - 116.6

Method Blank (1) QC Batch: 54362

QC Batch: 54362 Date Analyzed: 2008-11-18 Analyzed By: RD
Prep Batch: 46502 QC Preparation: 2008-11-17 Prepared By: RD

Parameter	Flag	MDL Result	Units	RL
Total Dissolved Solids		<5.000	mg/L	10

Method Blank (1) QC Batch: 54364

QC Batch:	54364	Date Analyzed:	2008-11-17	Analyzed By:	KV
Prep Batch:	46504	QC Preparation:	2008-11-17	Prepared By:	KV

Parameter	Flag	MDL Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1
Bicarbonate Alkalinity		<4.00	mg/L as CaCo3	4
Total Alkalinity		<4.00	mg/L as CaCo3	4

Method Blank (1) QC Batch: 54365

QC Batch:	54365	Date Analyzed:	2008-11-18	Analyzed By:	RD
Prep Batch:	46506	QC Preparation:	2008-11-17	Prepared By:	RD

Parameter	Flag	MDL Result	Units	RL
Specific Conductance		1.38	uMHOS/cm	

Method Blank (1) QC Batch: 54391

QC Batch:	54391	Date Analyzed:	2008-11-18	Analyzed By:	RD
Prep Batch:	46526	QC Preparation:	2008-11-17	Prepared By:	RD

Parameter	Flag	MDL Result	Units	RL
Chloride		<1.74	mg/L	3
Fluoride		<0.0889	mg/L	0.2
Nitrate-N		<0.0805	mg/L	0.2
Sulfate		<0.344	mg/L	1

Duplicates (1) Duplicated Sample: 179496

QC Batch:	54347	Date Analyzed:	2008-11-17	Analyzed By:	KV
Prep Batch:	46494	QC Preparation:	2008-11-17	Prepared By:	KV

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
pH	6.80	6.82	s.u.	1	0	20

Duplicates (1) Duplicated Sample: 179496

QC Batch: 54362 | Date Analyzed: 2008-11-18 | Analyzed By: RD
Prep Batch: 46502 | QC Preparation: 2008-11-17 | Prepared By: RD

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Total Dissolved Solids	98200	98000	mg/L	200	0	10

Duplicates (1) Duplicated Sample: 179132

QC Batch: 54364 | Date Analyzed: 2008-11-17 | Analyzed By: KV
Prep Batch: 46504 | QC Preparation: 2008-11-17 | Prepared By: KV

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Hydroxide Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	20
Carbonate Alkalinity	<1.00	<1.00	mg/L as CaCo3	1	0	20
Bicarbonate Alkalinity	296	272	mg/L as CaCo3	1	8	20
Total Alkalinity	296	272	mg/L as CaCo3	1	8	20

Duplicates (1) Duplicated Sample: 179496

QC Batch: 54365 | Date Analyzed: 2008-11-18 | Analyzed By: RD
Prep Batch: 46506 | QC Preparation: 2008-11-17 | Prepared By: RD

Param	Duplicate Result	Sample Result	Units	Dilution	RPD	RPD Limit
Specific Conductance	86700	85400	uMHOS/cm	1	2	20

Laboratory Control Spike (LCS-1)

QC Batch: 54294 | Date Analyzed: 2008-11-15 | Analyzed By: MT
Prep Batch: 46450 | QC Preparation: 2008-11-15 | Prepared By: MT

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	0.0981	mg/L	1	0.100	<0.000119	98	81.5 - 108.2
Toluene	0.0981	mg/L	1	0.100	<0.000146	98	80.8 - 109
Ethylbenzene	0.0963	mg/L	1	0.100	<0.000119	96	80.7 - 109.2
Xylene	0.291	mg/L	1	0.300	0.0002	97	80 - 109.3

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	0.0939	mg/L	1	0.100	<0.000119	94	81.5 - 108.2	4	20
Toluene	0.0942	mg/L	1	0.100	<0.000146	94	80.8 - 109	4	20
Ethylbenzene	0.0924	mg/L	1	0.100	<0.000119	92	80.7 - 109.2	4	20
Xylene	0.280	mg/L	1	0.300	0.0002	93	80 - 109.3	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0912	0.0928	mg/L	1	0.100	91	93	79.3 - 114.3
4-Bromofluorobenzene (4-BFB)	0.0922	0.0929	mg/L	1	0.100	92	93	76.3 - 119.7

Laboratory Control Spike (LCS-1)

QC Batch: 54309 | Date Analyzed: 2008-11-17 | Analyzed By: MN
Prep Batch: 46458 | QC Preparation: 2008-11-17 | Prepared By: MN

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	28.3	mg/L	1	25.0	<1.51	113	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	28.9	mg/L	1	25.0	<1.51	116	70 - 130	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Triacontane	8.76	8.87	mg/L	1	10.0	88	89	70 - 150

Laboratory Control Spike (LCS-1)

QC Batch: 54318 | Date Analyzed: 2008-11-17 | Analyzed By: CM
Prep Batch: 46466 | QC Preparation: 2008-11-17 | Prepared By: CM

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
TRPHC	7.89	mg/L	1	8.50	<0.0946	93	76.6 - 117

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

continued ...

control spikes continued ...

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
TRPHC	8.11	mg/L	1	8.50	<0.0946	95	76.6 - 117	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 54319 | Date Analyzed: 2008-11-17 | Analyzed By: TP
Prep Batch: 46449 | QC Preparation: 2008-11-16 | Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Calcium	52.4	mg/L	1	50.0	<0.175	105	85 - 115
Total Magnesium	51.3	mg/L	1	50.0	<0.148	103	85 - 115
Total Potassium	51.1	mg/L	1	50.0	<0.327	102	85 - 115
Total Sodium	51.9	mg/L	1	50.0	<0.244	104	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Calcium	51.3	mg/L	1	50.0	<0.175	103	85 - 115	2	20
Total Magnesium	50.3	mg/L	1	50.0	<0.148	101	85 - 115	2	20
Total Potassium	50.4	mg/L	1	50.0	<0.327	101	85 - 115	1	20
Total Sodium	51.0	mg/L	1	50.0	<0.244	102	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 54331 | Date Analyzed: 2008-11-17 | Analyzed By: ER
Prep Batch: 46479 | QC Preparation: 2008-11-17 | Prepared By: ER

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	0.954	mg/L	1	1.00	<0.0229	95	75.6 - 116.1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	1.10	mg/L	1	1.00	<0.0229	110	75.6 - 116.1	14	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.0910	0.109	mg/L	1	0.100	91	109	76.5 - 118.1
4-Bromofluorobenzene (4-BFB)	0.0942	0.0874	mg/L	1	0.100	94	87	74.7 - 117

Laboratory Control Spike (LCS-1)

QC Batch: 54391 | Date Analyzed: 2008-11-18 | Analyzed By: RD
Prep Batch: 46526 | QC Preparation: 2008-11-17 | Prepared By: RD

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	11.8	mg/L	1	12.5	<1.74	94	90 - 110
Fluoride	2.56	mg/L	1	2.50	<0.0889	102	90 - 110
Nitrate-N	2.41	mg/L	1	2.50	<0.0805	96	90 - 110
Sulfate	12.4	mg/L	1	12.5	<0.344	99	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	12.0	mg/L	1	12.5	<1.74	96	90 - 110	2	20
Fluoride	2.74	mg/L	1	2.50	<0.0889	110	90 - 110	7	20
Nitrate-N	2.40	mg/L	1	2.50	<0.0805	96	90 - 110	0	20
Sulfate	12.4	mg/L	1	12.5	<0.344	99	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 179496

QC Batch: 54294 | Date Analyzed: 2008-11-15 | Analyzed By: MT
Prep Batch: 46450 | QC Preparation: 2008-11-15 | Prepared By: MT

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.66	mg/L	20	2.00	0.249	120	33.8 - 135.2
Toluene	2.55	mg/L	20	2.00	0.173	119	46.1 - 126.8
Ethylbenzene	2.39	mg/L	20	2.00	<0.00238	120	39.6 - 129.9
Xylene	7.15	mg/L	20	6.00	0.0465	118	42.5 - 127.4

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene [1]	2.08	mg/L	20	2.00	0.249	92	33.8 - 135.2	24	20

continued ...

[1]Matrix spike RPD out of control limits. Use LCS/LCSD to demonstrate analysis is under control.

matrix spikes continued ...

Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Toluene	[2]	2.00	mg/L	20	2.00	0.173	91	46.1 - 126.8	24	20
Ethylbenzene	[3]	1.85	mg/L	20	2.00	<0.00238	92	39.6 - 129.9	26	20
Xylene	[4]	5.60	mg/L	20	6.00	0.0465	92	42.5 - 127.4	24	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.84	1.81	mg/L	20	2	92	90	70.4 - 122.7
4-Bromofluorobenzene (4-BFB)	1.90	1.90	mg/L	20	2	95	95	74.5 - 119.8

Matrix Spike (MS-1) Spiked Sample: 179496

QC Batch: 54309 | Date Analyzed: 2008-11-17 | Analyzed By: MN
Prep Batch: 46458 | QC Preparation: 2008-11-17 | Prepared By: MN

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	44.1	mg/L	1	25.0	15	116	70 - 130

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	40.4	mg/L	1	25.0	15	102	70 - 130	9	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Triacontane	11.4	10.8	mg/L	1	10	114	108	70 - 150

Matrix Spike (MS-1) Spiked Sample: 179496

QC Batch: 54331 | Date Analyzed: 2008-11-17 | Analyzed By: ER
Prep Batch: 46479 | QC Preparation: 2008-11-17 | Prepared By: ER

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	22.9	mg/L	20	20.0	3.34	98	57.7 - 128.7

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

[2]Matrix spike RPD out of control limits. Use LCS/LCSD to demonstrate analysis is under control.
[3]Matrix spike RPD out of control limits. Use LCS/LCSD to demonstrate analysis is under control.
[4]Matrix spike RPD out of control limits. Use LCS/LCSD to demonstrate analysis is under control.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	24.6	mg/L	20	20.0	3.34	106	57.7 - 128.7	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.83	1.90	mg/L	20	2	92	95	63.2 - 128.1
4-Bromofluorobenzene (4-BFB)	2.10	1.94	mg/L	20	2	105	97	63.6 - 128

Matrix Spike (MS-1) Spiked Sample: 179496

QC Batch: 54391 | Date Analyzed: 2008-11-18 | Analyzed By: RD
Prep Batch: 46526 | QC Preparation: 2008-11-17 | Prepared By: RD

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	142000	mg/L	5000	62500	57641.5	135	62.2 - 146
Fluoride	10700	mg/L	5000	12500	<444	86	63.5 - 127
Nitrate-N	12600	mg/L	5000	12500	628.783	96	80 - 120
Sulfate	65000	mg/L	5000	62500	<1720	104	61.5 - 151

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	120000	mg/L	5000	62500	57641.5	100	62.2 - 146	17	20
Fluoride	12500	mg/L	5000	12500	<444	100	63.5 - 127	16	20
Nitrate-N	12200	mg/L	5000	12500	628.783	92	80 - 120	3	20
Sulfate	64300	mg/L	5000	62500	<1720	103	61.5 - 151	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (CCV-1)

QC Batch: 54294 | Date Analyzed: 2008-11-15 | Analyzed By: MT

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0968	97	85 - 115	2008-11-15
Toluene		mg/L	0.100	0.0967	97	85 - 115	2008-11-15
Ethylbenzene		mg/L	0.100	0.0951	95	85 - 115	2008-11-15
Xylene		mg/L	0.300	0.287	96	85 - 115	2008-11-15

Standard (CCV-2)

QC Batch: 54294 Date Analyzed: 2008-11-15 Analyzed By: MT

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/L	0.100	0.0952	95	85 - 115	2008-11-15
Toluene		mg/L	0.100	0.0954	95	85 - 115	2008-11-15
Ethylbenzene		mg/L	0.100	0.0933	93	85 - 115	2008-11-15
Xylene		mg/L	0.300	0.282	94	85 - 115	2008-11-15

Standard (CCV-1)

QC Batch: 54309 Date Analyzed: 2008-11-17 Analyzed By: MN

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	287	115	85 - 115	2008-11-17

Standard (CCV-2)

QC Batch: 54309 Date Analyzed: 2008-11-17 Analyzed By: MN

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/L	250	281	112	85 - 115	2008-11-17

Standard (ICV-1)

QC Batch: 54318 Date Analyzed: 2008-11-17 Analyzed By: CM

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC		mg/L	100	92.7	93	80 - 120	2008-11-17

Standard (CCV-1)

QC Batch: 54318 Date Analyzed: 2008-11-17 Analyzed By: CM

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC		mg/L	100	93.6	94	80 - 120	2008-11-17

Standard (ICV-1)

QC Batch: 54319 Date Analyzed: 2008-11-17 Analyzed By: TP

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	50.0	51.9	104	90 - 110	2008-11-17
Total Magnesium		mg/L	50.0	52.3	105	90 - 110	2008-11-17
Total Potassium		mg/L	50.0	51.0	102	90 - 110	2008-11-17
Total Sodium		mg/L	50.0	52.1	104	90 - 110	2008-11-17

Standard (CCV-1)

QC Batch: 54319 Date Analyzed: 2008-11-17 Analyzed By: TP

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Calcium		mg/L	50.0	51.0	102	90 - 110	2008-11-17
Total Magnesium		mg/L	50.0	50.6	101	90 - 110	2008-11-17
Total Potassium		mg/L	50.0	47.4	95	90 - 110	2008-11-17
Total Sodium		mg/L	50.0	51.5	103	90 - 110	2008-11-17

Standard (CCV-1)

QC Batch: 54331 Date Analyzed: 2008-11-17 Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	0.962	96	85 - 115	2008-11-17

Standard (CCV-2)

QC Batch: 54331 Date Analyzed: 2008-11-17 Analyzed By: ER

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/L	1.00	0.951	95	85 - 115	2008-11-17

Standard (ICV-1)

QC Batch: 54347 Date Analyzed: 2008-11-17 Analyzed By: KV

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7.00	7.10	101	98 - 102	2008-11-17

Standard (CCV-1)

QC Batch: 54347 Date Analyzed: 2008-11-17 Analyzed By: KV

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
pH		s.u.	7.00	7.08	101	98 - 102	2008-11-17

Standard (ICV-1)

QC Batch: 54362 Date Analyzed: 2008-11-18 Analyzed By: RD

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	978.0	98	90 - 110	2008-11-18

Standard (CCV-1)

QC Batch: 54362 Date Analyzed: 2008-11-18 Analyzed By: RD

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Dissolved Solids		mg/L	1000	941.0	94	90 - 110	2008-11-18

Standard (ICV-1)

QC Batch: 54364 Date Analyzed: 2008-11-17 Analyzed By: KV

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/L as CaCo3	250	239	96	95 - 105	2008-11-17

Standard (CCV-1)

QC Batch: 54364 Date Analyzed: 2008-11-17 Analyzed By: KV

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Alkalinity		mg/L as CaCo3	250	244	98	95 - 105	2008-11-17

Standard (ICV-1)

QC Batch: 54365 Date Analyzed: 2008-11-18 Analyzed By: RD

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1410	1470	104	90 - 110	2008-11-18

Standard (CCV-1)

QC Batch: 54365 Date Analyzed: 2008-11-18 Analyzed By: RD

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Specific Conductance		uMHOS/cm	1410	1440	102	90 - 110	2008-11-18

Standard (ICV-1)

QC Batch: 54391 Date Analyzed: 2008-11-18 Analyzed By: RD

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.8	94	90 - 110	2008-11-18
Fluoride		mg/L	2.50	2.56	102	90 - 110	2008-11-18
Nitrate-N		mg/L	2.50	2.40	96	90 - 110	2008-11-18
Sulfate		mg/L	12.5	12.4	99	90 - 110	2008-11-18

Standard (CCV-1)

QC Batch: 54391 | Date Analyzed: 2008-11-18 | Analyzed By: RD

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/L	12.5	11.7	94	90 - 110	2008-11-18
Fluoride		mg/L	2.50	2.70	108	90 - 110	2008-11-18
Nitrate-N		mg/L	2.50	2.41	96	90 - 110	2008-11-18
Sulfate		mg/L	12.5	12.5	100	90 - 110	2008-11-18

Summary Report

Larry Johnson
New Mexico Oil Conservation Div.
1625 N. French Dr.
Hobbs, NM 88240

Report Date: November 18, 2008

Work Order: 8111432

Project Location: Lea Co., New Mexico
Project Name: Crawford Ranch
Project Number: Crawford Ranch A-31-24-37

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
179491	081140920	soil	2008-11-14	09:20	2008-11-14
179492	08114 Playa Sample #1	soil	2008-11-14	09:20	2008-11-14
179493	08114 Playa Sample #1	soil	2008-11-14	09:20	2008-11-14

	BTEX				MTBE	TPH 418.1	TPH DRO	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	TRPHC	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
179491 - 081140920	**0.0362**	**0.116**	<0.0100	**0.230**		**7220**	**603**	**13.8**
179492 - 08114 Playa Sample #1	<0.0100	<0.0100	<0.0100	<0.0100		<10.0	<50.0	<1.00
179493 - 08114 Playa Sample #1	<0.0100	<0.0100	<0.0100	**0.0750**		<10.0	**175**	<1.00

Sample: 179491 - 081140920

Param	Flag	Result	Units	RL
Total Calcium		**33000**	mg/Kg	100
Total Magnesium		**2740**	mg/Kg	100
Total Potassium		**1440**	mg/Kg	100
Total Sodium		**10800**	mg/Kg	100

Sample: 179492 - 08114 Playa Sample #1

Param	Flag	Result	Units	RL
Total Calcium		**2240**	mg/Kg	100
Total Magnesium		**1220**	mg/Kg	100
Total Potassium		**1560**	mg/Kg	100
Total Sodium		**312**	mg/Kg	100

Sample: 179493 - 08114 Playa Sample #1

Param	Flag	Result	Units	RL
Total Calcium		**11800**	mg/Kg	100
Total Magnesium		**5070**	mg/Kg	100
Total Potassium		**5030**	mg/Kg	100
Total Sodium		**435**	mg/Kg	100

Summary Report

Larry Johnson
New Mexico Oil Conservation Div.
1625 N. French Dr.
Hobbs, NM 88240

Report Date: November 18, 2008

Work Order: 8111432

Project Location: Lea Co., New Mexico
Project Name: Crawford Ranch
Project Number: Crawford Ranch A-31-24-37

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
179496	Crawford Ranch A-31-2-37 Dump Water	water	2008-11-13	17:00	2008-11-14

	BTEX				MTBE	TPH 418.1	TPH DRO	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	TRPHC	DRO	GRO
Sample - Field Code	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
179496 - Crawford Ranch A-31-2-37 Dump Water	**0.249**	**0.173**	<0.0200	**0.0465**		**20.1**	**15.0**	**3.34**

Sample: 179496 - Crawford Ranch A-31-2-37 Dump Water

Param	Flag	Result	Units	RL
Total Calcium		**3100**	mg/L	1.00
Total Magnesium		**337**	mg/L	1.00
Total Potassium		**759**	mg/L	1.00
Total Sodium		**29100**	mg/L	1.00

Summary Report

Larry Johnson
New Mexico Oil Conservation Div.
1625 N. French Dr.
Hobbs, NM 88240

Report Date: November 18, 2008

Work Order: 8111432

Project Location: Lea Co., New Mexico
Project Name: Crawford Ranch
Project Number: Crawford Ranch A-31-24-37

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
179496	Crawford Ranch A-31-2-37 Dump Water	water	2008-11-13	17:00	2008-11-14

	BTEX				MTBE	TPH 418.1	TPH DRO	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	TRPHC	DRO	GRO
Sample - Field Code	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
179496 - Crawford Ranch A-31-2-37 Dump Water	**0.249**	**0.173**	<0.0200	**0.0465**		**20.1**	**15.0**	**3.34**

Sample: 179496 - Crawford Ranch A-31-2-37 Dump Water

Param	Flag	Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1.00
Bicarbonate Alkalinity		**42.0**	mg/L as CaCo3	4.00
Total Alkalinity		**42.0**	mg/L as CaCo3	4.00
Specific Conductance		**85400**	uMHOS/cm	0.00
Chloride		**57600**	mg/L	3.00
Fluoride		**10.3**	mg/L	0.200
Nitrate-N		**68.8**	mg/L	0.200
Sulfate		**46.3**	mg/L	1.00
pH		**6.82**	s.u.	0.00
Total Calcium		**3100**	mg/L	1.00
Total Magnesium		**337**	mg/L	1.00
Total Potassium		**759**	mg/L	1.00
Total Sodium		**29100**	mg/L	1.00
Total Dissolved Solids		**98000**	mg/L	10.00

Summary Report

Larry Johnson
New Mexico Oil Conservation Div.
1625 N. French Dr.
Hobbs, NM 88240

Report Date: November 18, 2008

Work Order: 8111432

Project Location: Lea Co., New Mexico
Project Name: Crawford Ranch
Project Number: Crawford Ranch A-31-24-37

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
179491	081140920	soil	2008-11-14	09:20	2008-11-14
179492	08114 Playa Sample #1	soil	2008-11-14	09:20	2008-11-14
179493	08114 Playa Sample #2	soil	2008-11-14	09:20	2008-11-14
179494	Phoenix Pad #1 SW Spill Pattern	soil	2008-11-14	08:30	2008-11-14
179495	Phoenix Pad #2 SE Spill Pattern	soil	2008-11-14	08:35	2008-11-14

	BTEX				MTBE	TPH 418.1	TPH DRO	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	TRPHC	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
179491 - 081140920	**0.0362**	**0.116**	<0.0100	**0.230**		**7220**	**603**	**13.8**
179492 - 08114 Playa Sample #1	<0.0100	<0.0100	<0.0100	<0.0100		<10.0	<50.0	<1.00
179493 - 08114 Playa Sample #2	<0.0100	<0.0100	<0.0100	**0.0750**		<10.0	**175**	<1.00

Sample: 179491 - 081140920

Param	Flag	Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/Kg as CaCo3	1.00
Carbonate Alkalinity		<1.00	mg/Kg as CaCo3	1.00
Bicarbonate Alkalinity		**70.0**	mg/Kg as CaCo3	4.00
Total Alkalinity		**70.0**	mg/Kg as CaCo3	4.00
Specific Conductance		**59800**	uMHOS/cm	0.00
Chloride		**29700**	mg/Kg	1.00
Fluoride		<5.00	mg/Kg	0.500
Sulfate		**7210**	mg/Kg	2.00
Nitrate-N		<2.00	mg/Kg	0.200
pH		**6.74**	s.u.	0.00
Total Calcium		**33000**	mg/Kg	100
Total Magnesium		**2740**	mg/Kg	100

continued ...

sample 179491 continued . . .

Param	Flag	Result	Units	RL
Total Potassium		**1440**	mg/Kg	100
Total Sodium		**10800**	mg/Kg	100
Total Dissolved Solids		**34650**	mg/Kg	25.00

Sample: 179492 - 08114 Playa Sample #1

Param	Flag	Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/Kg as CaCo3	1.00
Carbonate Alkalinity		<1.00	mg/Kg as CaCo3	1.00
Bicarbonate Alkalinity		**130**	mg/Kg as CaCo3	4.00
Total Alkalinity		**130**	mg/Kg as CaCo3	4.00
Specific Conductance		**441**	uMHOS/cm	0.00
Chloride		**23.3**	mg/Kg	1.00
Fluoride		<5.00	mg/Kg	0.500
Sulfate		<20.0	mg/Kg	2.00
Nitrate-N		**3.68**	mg/Kg	0.200
pH		**6.92**	s.u.	0.00
Total Calcium		**2240**	mg/Kg	100
Total Magnesium		**1220**	mg/Kg	100
Total Potassium		**1560**	mg/Kg	100
Total Sodium		**312**	mg/Kg	100
Total Dissolved Solids		**2290**	mg/Kg	25.00

Sample: 179493 - 08114 Playa Sample #2

Param	Flag	Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/Kg as CaCo3	1.00
Carbonate Alkalinity		<1.00	mg/Kg as CaCo3	1.00
Bicarbonate Alkalinity		**220**	mg/Kg as CaCo3	4.00
Total Alkalinity		**220**	mg/Kg as CaCo3	4.00
Specific Conductance		**830**	uMHOS/cm	0.00
Chloride		**84.0**	mg/Kg	1.00
Fluoride		<5.00	mg/Kg	0.500
Sulfate		**37.6**	mg/Kg	2.00
Nitrate-N		**12.6**	mg/Kg	0.200
pH		**7.55**	s.u.	0.00
Total Calcium		**11800**	mg/Kg	100
Total Magnesium		**5070**	mg/Kg	100
Total Potassium		**5030**	mg/Kg	100
Total Sodium		**435**	mg/Kg	100
Total Dissolved Solids		**2330**	mg/Kg	25.00

Sample: 179494 - Phoenix Pad #1 SW Spill Pattern

Param	Flag	Result	Units	RL
Chloride		**900**	mg/Kg	3.25

Sample: 179495 - Phoenix Pad #2 SE Spill Pattern

Param	Flag	Result	Units	RL
Chloride		**99200**	mg/Kg	3.25

Submittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

Carrier # Carrier's

Order ID # 811432 Page ____ of ____

TraceAnalysis, Inc.

email: lab@traceanalysis.com

6701 Aberdeen Avenue, Suite 9, Lubbock, Texas 79424, Tel (806) 794-1296, Fax (806) 794-1298, 1 (800) 378-1296
5002 Basin Street, Suite A1, Midland, Texas 79703, Tel (432) 689-6301, Fax (432) 689-6313
200 East Sunset Rd., Suite E, El Paso, Texas 79922, Tel (915) 585-3443, Fax (915) 585-4944, 1 (888) 588-3443
8808 Camp Bowie Blvd. West, Suite 180, Ft. Worth, Texas 76116, Tel (817) 201-5260, Fax (817) 560-4336

Company Name: NEW MEXICO OIL CONSERVATION DIVISION
Phone #: 575-393-6161
Address: (Street, City, Zip) 1625 N. FRENCH DR
Fax #: 575-393-0720
Contact Person: HARRY JOHNSON
E-mail: larry.johnson@state.nm.us
Invoice to: (If different from above)
Project #:
Project Name: CRAWFORD RANCH
Project Location (including state): CRAWFORD RANCH A-31-24-37 LEA CO. NEW MEXICO
Sampler Signature:

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	FIELD CODE	# CONTAINERS	Volume / Amount	MATRIX: WATER	SOIL	AIR	SLUDGE	PRESERVATIVE METHOD: HCl	HNO_3	H_2SO_4	NaOH	ICE	NONE	SAMPLING: DATE	TIME	MTBE 8021B / 602 / 8260B / 624	BTEX (8021B) 602 / 8260B / 624	TPH 418.1 / TX1005 / TX1005 Ext(C35)	TPH 8015 GRO / DRO / TVHC	PAH 8270C / 625	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C / 625	PCB's 8082 / 608	Pesticides 8081A / 608	BOD, TSS, pH	Moisture Content	GEN CHEM	CHLORIDES	Ca, K, Mg, Na	Turn Around Time if different from standard	Hold
179491	C81114 0920	1-G	40Z		X									11/14/08	0920		X	X															X				
492	C8 11 14 PLAYA SAMPLE #1																"	"																			
493	C8 11 14 PLAYA SAMPLE #2																"	"																			
494	PHOENIX PAD #1 SW SPILL PATTERN		BAILER												0830																			X			
495	PHOENIX PAD #2 SE SPILL PATTERN														0835																			X			
496	CRAWFORD RANCH A-31-24-37 PUMP WATER	1-G	1L	X										11/13/08	1700		X	X															X				

Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	Temp°C:
	NMOCD	11.14.08	5:00					
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	Temp°C:
Relinquished by:	Company:	Date:	Time:	Received by:	Company:	Date:	Time:	Temp°C:
					Trace Lubbock	11/14/08	5:00	4.1°

LAB USE ONLY
Intact Y / N
Headspace Y / N / NA
Log-In-Review

REMARKS:
24 hrs ASAP

- ☐ Dry Weight Basis Required
- ☐ TRRP Report Required
- ☐ Check If Special Reporting Limits Are Needed

11/17/08 – Brian Nelson Summ. 9.30 @