Shell Exploration & Production

State of New Mexico
Energy, Minerals and Natural Resources Dept.
Oil Conservation Division-District 4
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
Attn.: Ed Martin, District Supervisor

Shell Exploration & Production Co.
Regulatory Affairs-EP Americas
4582 S. Ulster Street Parkway
Suite 1400
Denver, Colorado 80237

May 20, 2010

Subject: Drilling Pit Closure Report
Shell Exploration & Production Co., Webb CD-1 (API No. 30-019-20134)
Guadalupe County, New Mexico

Dear Mr. Martin:

Shell Exploration & Production Company, as service provider to SWEPI LP in New Mexico, is submitting our Drilling Pit Closure Report, including Form C-144 (Appendix C) for the subject well to New Mexico Oil Conservation Division-District 4 (OCD) for your review and recordkeeping.

If you have any questions or require any additional information regarding this closure plan, please contact me at (303) 222-6347, or David Janney at Kleinfelder in Albuquerque at (505) 344-7373.

Regards,

Michael L. Bergstrom
Senior Regulatory Advisor
Shell Exploration & Production Company

Attachments: Drilling Pit Closure Report
Form C-144, included in Appendix C of report

KLEINFELDER
Bright People. Right Solutions.

February 5, 2010
File No.: 94663.9-ALB10RP001

Mr. Michael L. Bergstrom
Regulatory Coordinator
Shell Exploration & Production Co.
4582 S. Ulster St. Pkwy., Suite 1400
Denver, CO 80237

Subject: CD-1 Gas Well Drilling Pit Closure Report
Webb and Hage Land and Cattle Company Lease
Cuervo, Guadalupe County, New Mexico

Dear Mr. Bergstrom:

Kleinfelder West, Inc. (Kleinfelder) is pleased to submit this closure report for the CD-1 natural gas well API # 3001920134 located in Section 25; Township 11 N; Range 23 East of Guadalupe County, New Mexico. This wildcat gas well was completed by Cuervo Exploration on May 29, 2006 and Shell Exploration & Production Co. (dba SWEPI) purchased the well and assumed responsibility for closure. This report was prepared in accordance with guidelines published in New Mexico Administrative Code 19.15.17.13 and includes a brief description of pit closure process, drill cuttings, liquid and pit liner removal procedures, soil sampling procedures conducted by Kleinfelder following removal of the pit liner, analytical results for the soil samples collected following liner removal, and backfilling and revegetation procedures. A copy of this report will be forwarded to Mr. Ed Martin, Project Manager, with the New Mexico Oil Conservation Division (OCD) following receipt of your permission to do so.

SCOPE OF WORK

The scope of work described below was conducted in accordance New Mexico Administrative Code 19.15.17.13 and the OCD guidance document New Mexico Pit Closure Plan. The scope of work for the pit closure included:

- Removal of all solid and liquid drilling waste in the lined pit;
- Removal of the plastic pit liner;
- Transport and disposal of solid and liquid waste and pit liner;

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- Excavation and removal of approximately two feet of soil across the bottom of the pit;
- Collection and laboratory analysis of a five-point composite soil sample following soil excavation;
- Excavation and removal of approximately two additional feet of soil from the bottom of the pit following receipt of laboratory analytical results that indicated chloride concentrations were above the regulatory limits;
- Collection and laboratory analysis of an additional five-point composite soil sample following soil excavation;
- Laboratory analysis of each of the five-point composite samples as a stand-alone sample;
- Excavation and removal of approximately one additional foot of soil from the bottom of the pit following receipt of laboratory analytical results for the individual samples;
- Collection and chloride field test kit analysis of samples that were collected from three areas that the laboratory analysis of the individual samples indicated still contained chloride concentrations above the regulatory limits;
- Backfilling and recontouring of the pit: and
- Reporting the results of the closure in this report.

FIELD ACTIVITIES

Gandy Corporation (Gandy) began removing the solid and liquid drilling waste products from the pit on May 4, 2009 and completed the waste removal on May 15, 2009 (Appendix A, Photos 1-2). Gandy removed the liner from May 16 through May 17, 2009. All waste material and the liner were transported in closed roll-off bins to the Gandy-Marley Inc. oil-field waste disposal facility located in Tatum, New Mexico, facility ID # NM 711-1-0020. Gandy completed the backfilling and recontouring activities on June 12, 2009. Gandy removed and transported approximately 2,140 cubic yards of soil from the pit to its Tatum facility. Gandy returned the disposal load tickets directly to SWEPI.

There were no visible or olfactory indications of a breech in the liner but there were several wet areas under the liner. Kleinfelder collected a five-point composite soil sample (CD-1 East 1-5) from the bottom of the pit after liner removal. Each single sample was collected from one of the wet areas depicted on Figure 2. Soil samples were placed into properly labeled glass sample jars and placed in a cooler with ice and

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transported under chain-of custody to Hall Analytical Laboratory (Hall) in Albuquerque, New Mexico. The samples were analyzed for diesel (DRO), gasoline (GRO) and motor oil range organics (MRO), benzene, toluene, ethyl benzene, xylenes, methyl tert-butyl ether (MTBE), and chloride. In addition to collecting samples for laboratory analysis, Kleinfelder also collected single grab soil samples from the pit bottom and from the spoils stock pile and analyzed them using the Hach "Quantab" Chloride Field Test Kit # 2751340 (Quantab). According to the manufacturer's guidelines, the soil samples were placed into hot water for at least 30 minutes and the field test kit results indicated the chloride concentration was less than 300 parts per million (ppm) in each sample.

Based on laboratory analytical results for Kleinfelder's five-point composite sample, the chloride concentration was 1,500 ppm which is above the regulatory limit of 1,000 ppm. All of the other analyte concentrations were below the regulatory limits. In order to identify which of the five individual samples contained chloride concentrations above 1,000 ppm, Hall individually analyzed each of the five single point samples for chloride and the analytical results ranged from 1,000 ppm to 4,200 ppm. Based on these results, Gandy excavated and additional two feet of soil from the bottom of the pit on May 26th and stockpiled it separately. The laboratory analytical results are summarized in Table 1 and the laboratory analytical results package is included in Appendix B.

Kleinfelder returned to the site on May 19, 2009 and collected another five-point composite sample (Appendix A, CD-1 A-E, Photos 3-7) from the bottom of the deepened pit and submitted it to Hall for chloride analysis. Kleinfelder also collected a five-point composite sample of the spoils soil removed from the pit during construction (CD-1 2A-2E) for a background sample comparison. Sample locations are presented in Figure 2. Based on laboratory analytical results for the five-point pit bottom composite sample, the chloride concentration was 1,800 ppm. In order to identify which of the five individual samples contained chloride above the regulatory limit, each of the individual single point samples were also analyzed for chloride. The analytical results ranged from 470 ppm to 5,300 ppm. Based on these results, on May 26, Gandy removed an additional two feet of soil from the bottom of the pit in the three locations that contained chloride concentrations above 1,000 ppm. Gandy stockpiled it separately from the remainder of the spoils. The laboratory analytical results are summarized in Table 1 and the laboratory analytical results package is included in Appendix B. Based on the lack of correlation of the Quantab results with the laboratory analytical results, additional correspondence took place between Kleinfelder and Hach. Hach indicated that the clay matrix of the soil may require additional digestion time and advised that the digestion time be increased to at least 90 minutes in boiling water.

Kleinfelder returned to the site on May 27 and collected samples from previous sampling points CD-1A, CD-1D, and CD-1E and took additional photos of the bottom of the deepened pit (Appendix A, Photos 8-11). These samples were designated 052709A, 052709D and 052709E, respectively. Each sample was analyzed with Quantab. The soil samples were placed into hot water for at least 130 minutes before the colorimetric

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test strip was observed. Each of the samples indicated a chloride concentration of less than 300 ppm. In order to verify the test strip color indications, Kleinfelder prepared a linear regression plot based on the chloride concentration correlations listed on the Quantab bottle. The concentrations listed on the Quantab bottle indicated that a test strip reading of 1.8 would correlate to a chloride concentration of 2,880 ppm, the lowest correlation listed on the Quantab bottle. The regression curve indicated that a Quantab test strip reading of 1.2 would correlate to a Quantab field test kit chloride concentration of 1,000 ppm or less. The Quantab results are summarized in Table 2 and the linear regression curve is presented in Figure 3. Mr. Ed Martin with OCD was on-site during this sampling event and based on these results, Mr. Martin agreed that the chloride concentrations were below the 1,000 ppm threshold and that the pit could be closed without further excavation.

Gandy completed the backfill, compaction, and recontour effort on approximately June 5, 2008. The pit was not reseeded because SWEPI may perform additional completions on this well in the 2010. If additional completions are not performed, the pit will be reseeded in 2010. Kleinfelder returned to the site and took additional photos of the completed project (Appendix A, Photos 12-15). The Form C-144 is presented in Appendix C.

DISCUSSION

Soil above the OCD action levels for petroleum hydrocarbons and chloride were removed from the pit and transported to the Gandy Facility in Tatum, NM for proper disposal.

The initial Hach field test kit chloride results indicated that chloride concentrations were below the 300 ppm detection limit of the field test kits. The laboratory analytical results, however, reported that chloride concentrations were above 1,000 ppm. Based on correspondence with Hach, the digestion time for the Quantab field tests needs to be at least 90 minutes for the clay soil at CD-1. The 30 minute digestion time originally indicated by Hach may be applicable to sandy soil with less than 10 percent clay. Future use of Quantab field tests must be approached with an understanding of soil type and the appropriate digestion time for a given soil type.

LIMITATIONS

The scope of work for this report is intended to provide documentation of the CD-1 drilling pit closure process and relation to the removal of soil containing chloride and petroleum hydrocarbons above the concentrations OCD will allow to remain in-place following pit closure. This report is not intended to provide and assessment of the use of Hach chloride field test kits.

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same

locality, under similar conditions and at the date the services are provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

Respectfully submitted,
KLEINFELDER WEST, INC.

David Janney, PG
Project Manager

Reviewed by:

Kerry Ruebelmann, MS, PG
Regional Manager

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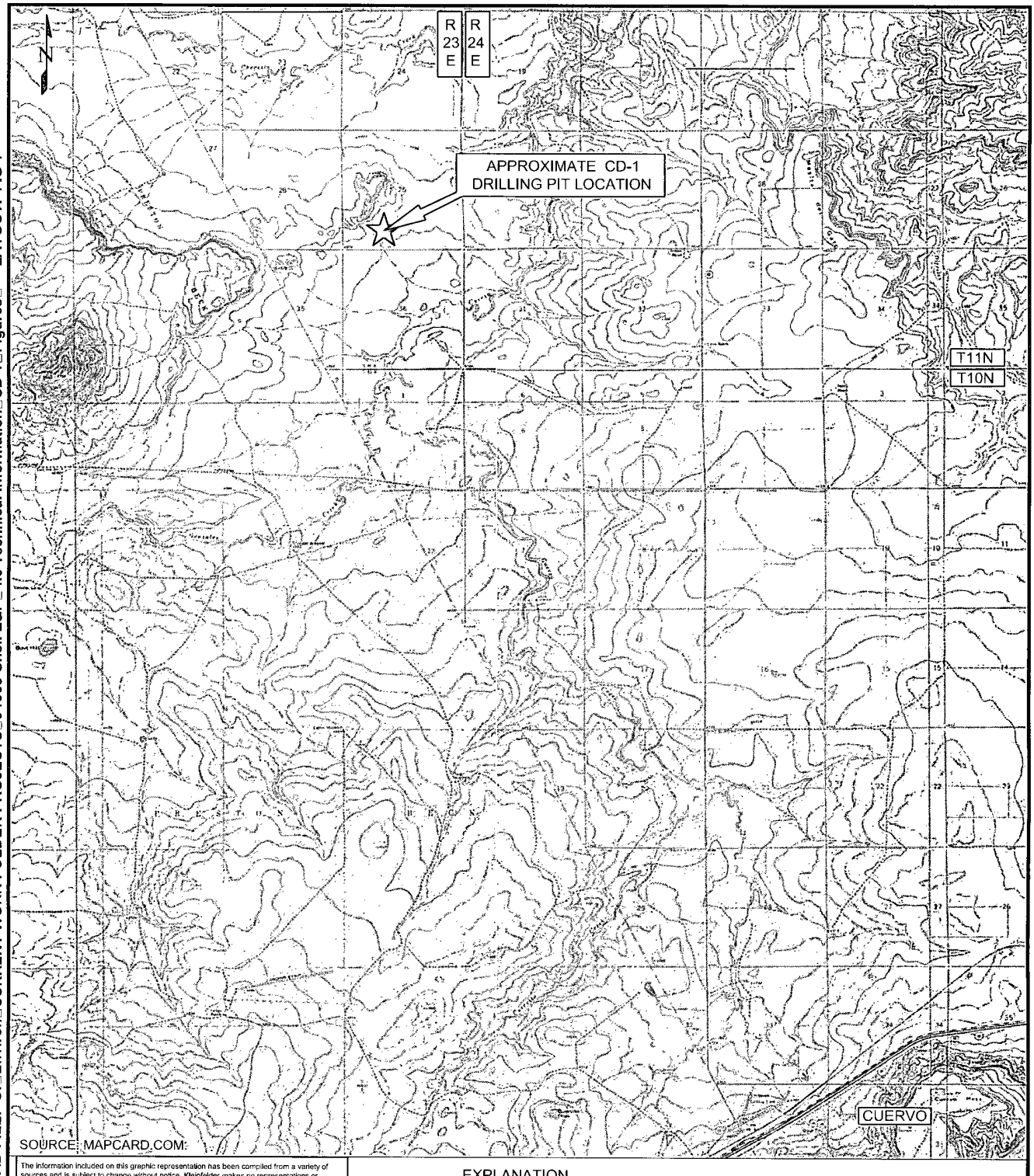
FIGURES



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EXPLANATION

☆ APPROXIMATE SITE LOCATION

ATTACHED IMAGES: Images: 2202.tiff Images: 31766.tiff Images: 67683.tiff Images: 9105.tiff
ATTACHED XREFS:
ALBUQUERQUE, NM
CAD FILE: G:\Environ\CURRENT WORK FOLDER PROJECTS\94663-Shell E&P\4.0 Technical Information\CD-1\Figures\ LAYOUT: FIG 1

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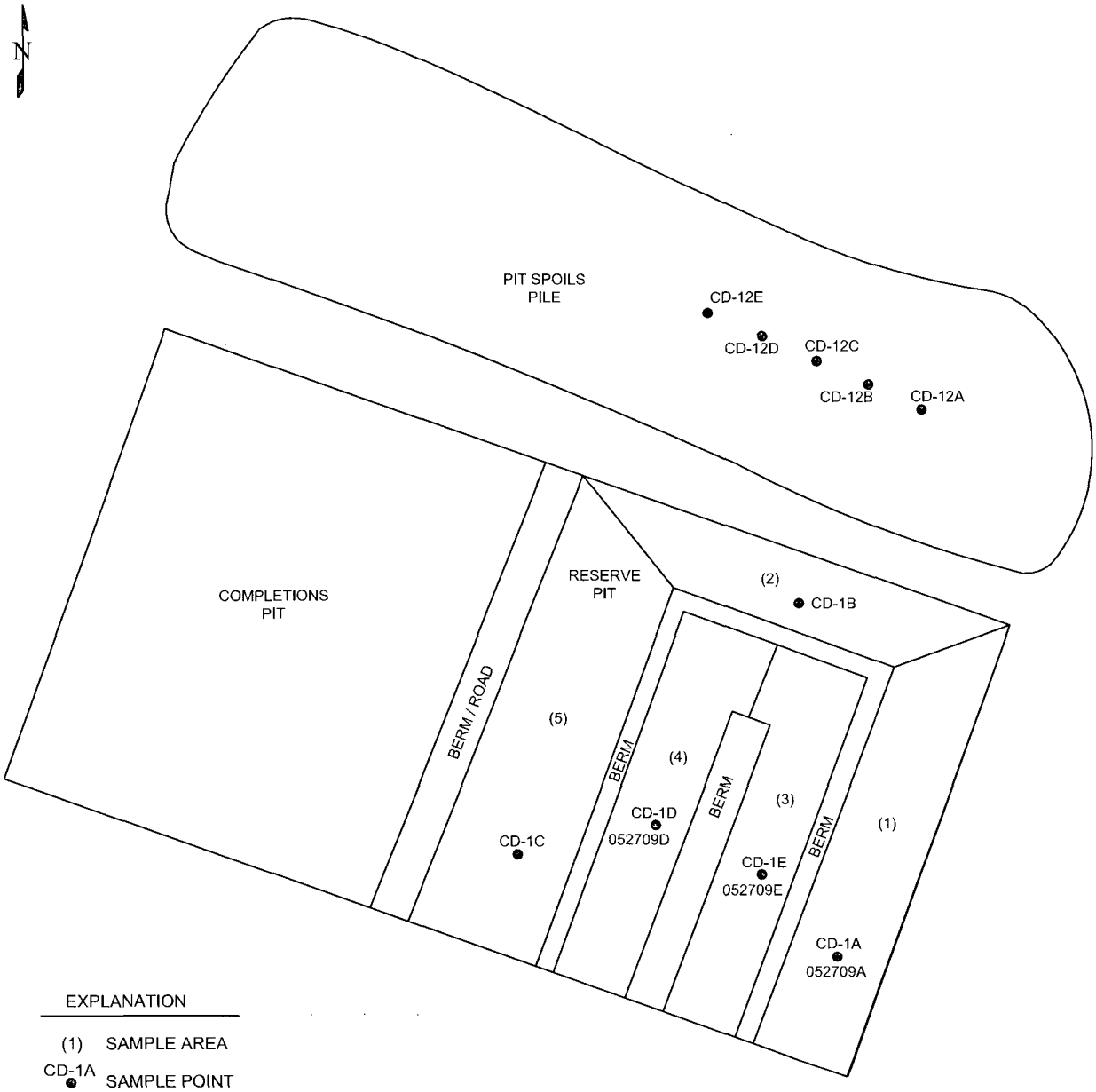
PROJECT NO.	94663
DRAWN:	JUNE 2009
DRAWN BY:	PD
CHECKED BY:	DJ
FILE NAME:	94663_02_0.dwg

SITE LOCATION MAP

SHELL EXPLORATION & PRODUCTION
SECTION 25, TOWNSHIP 11N, RANGE 23E
GUADALUPE COUNTY, NM
API # 3001920134

ORIGINATOR: D. JANNEY	DRAWING CATEGORY: 1
APPROVED BY:	

FIGURE **1**



SOURCE: KLEINFELDER FIELD SKETCH

ATTACHED IMAGES: Images: 2202.tiff Images: 31766.tiff Images: 67683.tiff Images: 9105.tiff
ATTACHED XREFS:
ALBUQUERQUE, NM CAD FILE: G:\Environ\CURRENT WORK FOLDER PROJECTS\94663-Shell E&P\4.0 Technical Information\CD-1\Figures\ LAYOUT: FIG 2

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PROJECT NO.	94663
DRAWN:	JUNE 2009
DRAWN BY:	PD
CHECKED BY:	DJ
FILE NAME:	94663_02_01.dwg

CD-1 DRILLING PIT SAMPLE LOCATION MAP

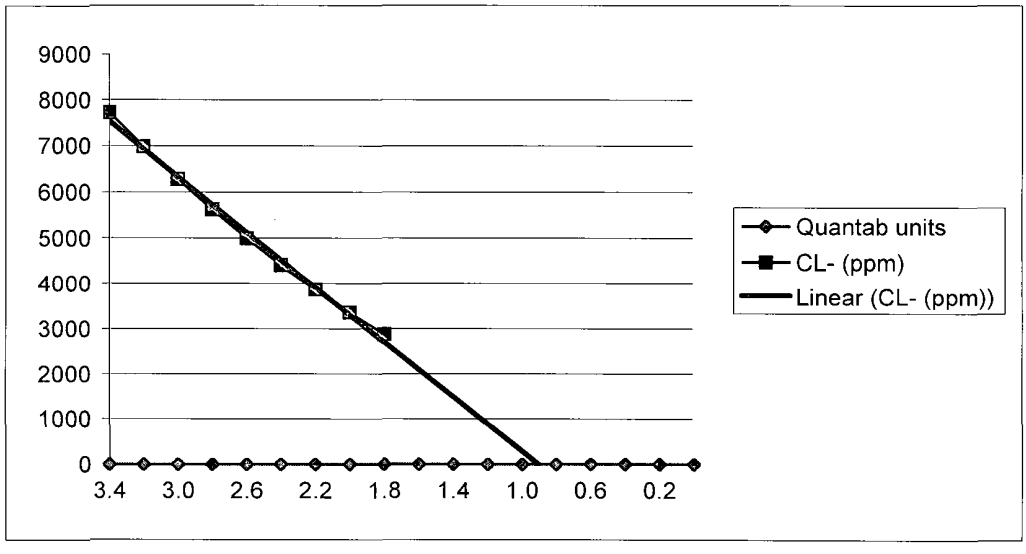
SHELL EXPLORATION & PRODUCTION
SECTION 25, TOWNSHIP 11N, RANGE 23E
GUADALUPE COUNTY, NM
API # 3001920134

ORIGINATOR: D. JANNEY
APPROVED BY:
DRAWING CATEGORY: 1

FIGURE
2

Figure 3
Quantab Linear Regression Graph
CD-1 Drilling Pit
Guadalupe County, NM

Quantab Strip Reading	Hach Cl^- (ppm) (includes 10x dillution for soil)
3.4	7720
3.2	6980
3	6280
2.8	5620
2.6	5000
2.4	4420
2.2	3870
2	3360
1.8	2880
1.6	
1.4	
1.2	
1	
0.8	
0.6	
0.4	
0.2	
0	



TABLES

Table 1
CD-1 Drilling Pit Laboratory Analytical Summary
Guadalupe County, New Mexico

Sample Number	Date Collected	Matrix	Diesel Range Organics EPA Method 8015B	Motor Oil Range Organics EPA Method 8015B	Gasoline Range Organics EPA Method 8015B	Volatiles EPA Method 8021B MTBE, B, T, E, X	Total Petroleum Hydrocarbons EPA Method 418.1	Anions (Chloride) EPA Method 418.1	Comments
CD-1 East (1-5)	5/15/09	soil	15.0	<50	<5	<0.10, < 0.05, <0.05, <0.05, <0.10	45.0	1,500.0	bottom of CD-1 pit
CD-1 East 1	5/15/09	soil	NA	NA	NA	NA	NA	1,000.0	bottom of CD-1 pit
CD-1 East 2	5/15/09	soil	NA	NA	NA	NA	NA	2,200.0	bottom of CD-1 pit
CD-1 East 3	5/15/09	soil	NA	NA	NA	NA	NA	3,300.0	bottom of CD-1 pit
CD-1 East 4	5/15/09	soil	NA	NA	NA	NA	NA	4,200.0	bottom of CD-1 pit
CD-1 East 5	5/15/09	soil	NA	NA	NA	NA	NA	1,800.0	bottom of CD-1 pit
CD-1-(A,B,C,D,E)	5/19/09	soil	NA	NA	NA	NA	NA	1,800.0	bottom of CD-1 pit
CD-1-(2A,2B,2C,2D,2E)	5/19/09	soil	NA	NA	NA	NA	NA	42.0	pit spoils pile for background
CD-1 A	5/19/09	soil	NA	NA	NA	NA	NA	5,300.0	bottom of CD-1 pit
CD-1 B	5/19/09	soil	NA	NA	NA	NA	NA	530.0	bottom of CD-1 pit
CD-1 C	5/19/09	soil	NA	NA	NA	NA	NA	470.0	bottom of CD-1 pit
CD-1 D	5/19/09	soil	NA	NA	NA	NA	NA	2,100.0	bottom of CD-1 pit
CD-1 E	5/19/09	soil	NA	NA	NA	NA	NA	2,000.0	bottom of CD-1 pit

NOTES:
All concentrations are in milligrams per kilogram (mg/Kg)
B = Benzene
E = Ethyl benzene
NA = Not analyzed
T = Toluene
X = Xylenes

Table 2
CD-1 Drilling Pit Chloride Field Test Kit Results Summary
Guadalupe County, New Mexico

Sample Number	Date Collected	Matrix	Hach Chloride Field Test Kit #2751340	Comments
052709A	5/27/09	soil	0.0	bottom of CD-1 pit, after last overexcavation event
052709D	5/27/09	soil	0.0	bottom of CD-1 pit, after last overexcavation event
052709E	5/27/09	soil	0.0	bottom of CD-1 pit, after last overexcavation event

NOTES:
All concentrations are in milligrams per kilogram (mg/Kg)

APPENDIX A

Photographic Log

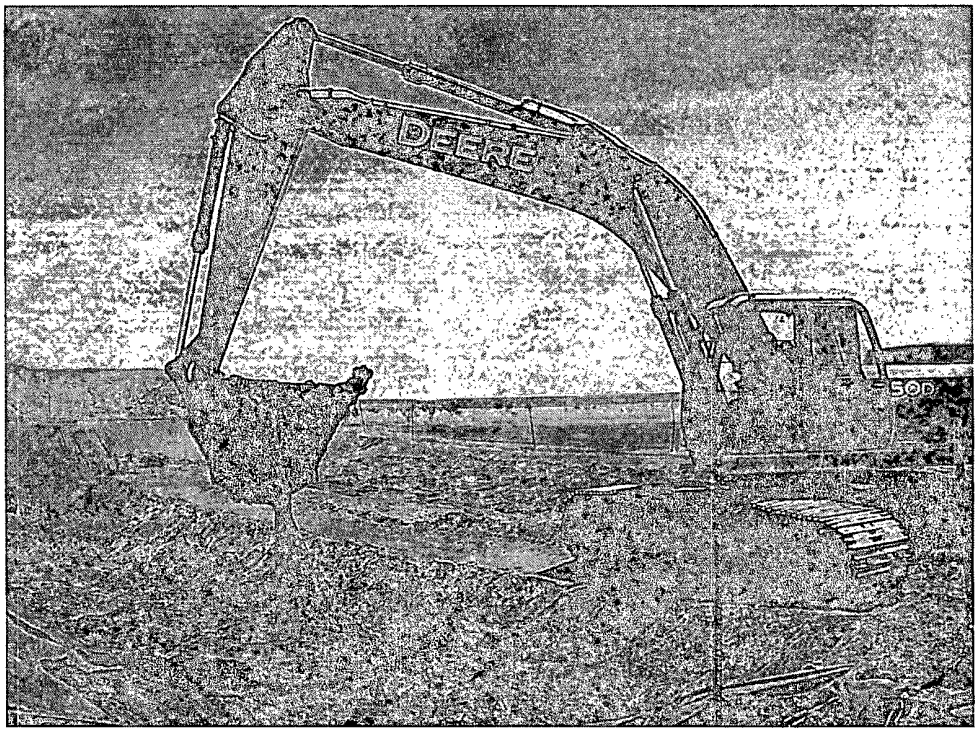


Photo 1: Removing liner from the east side of the pit (looking northeast).

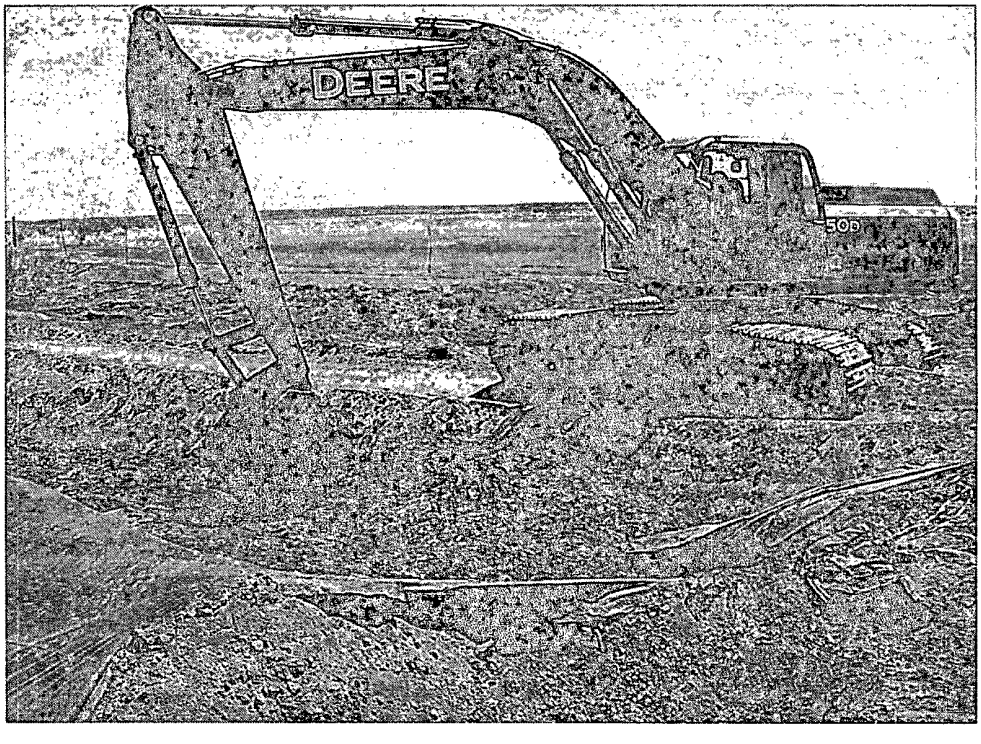


Photo 2: Removing sludge from the east side of the pit (looking northeast).

Photo 3: Sample point CD-1A (southeast corner of the pit).

Photo 4: Sample point CD-1B (north side of the pit).

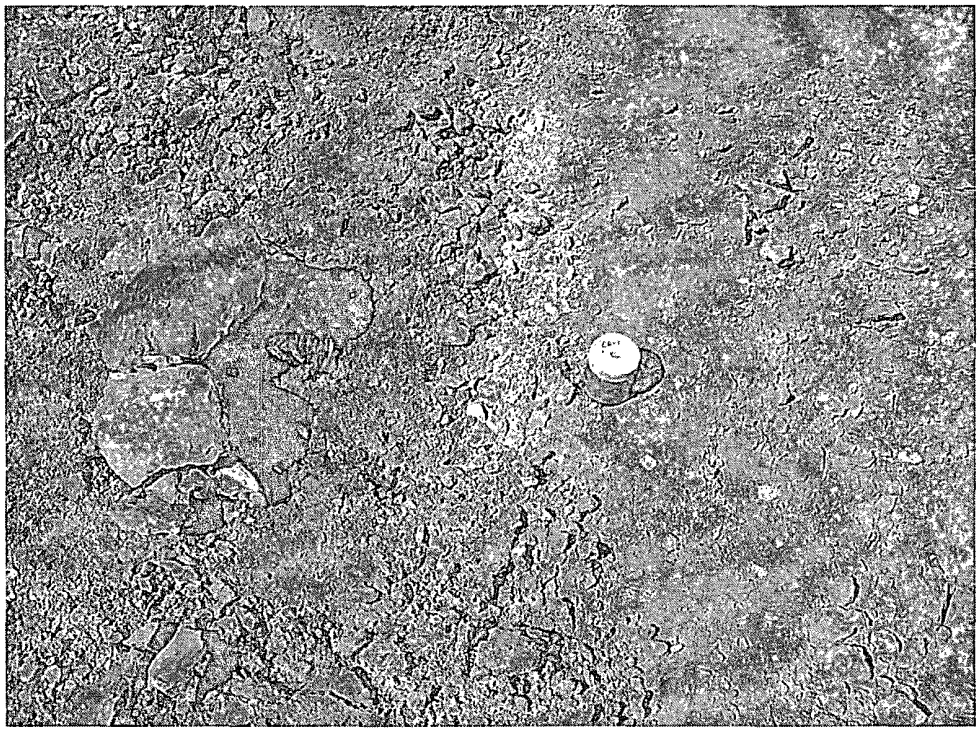


Photo 5: Sample point CD-1C (southwest corner of the pit) .

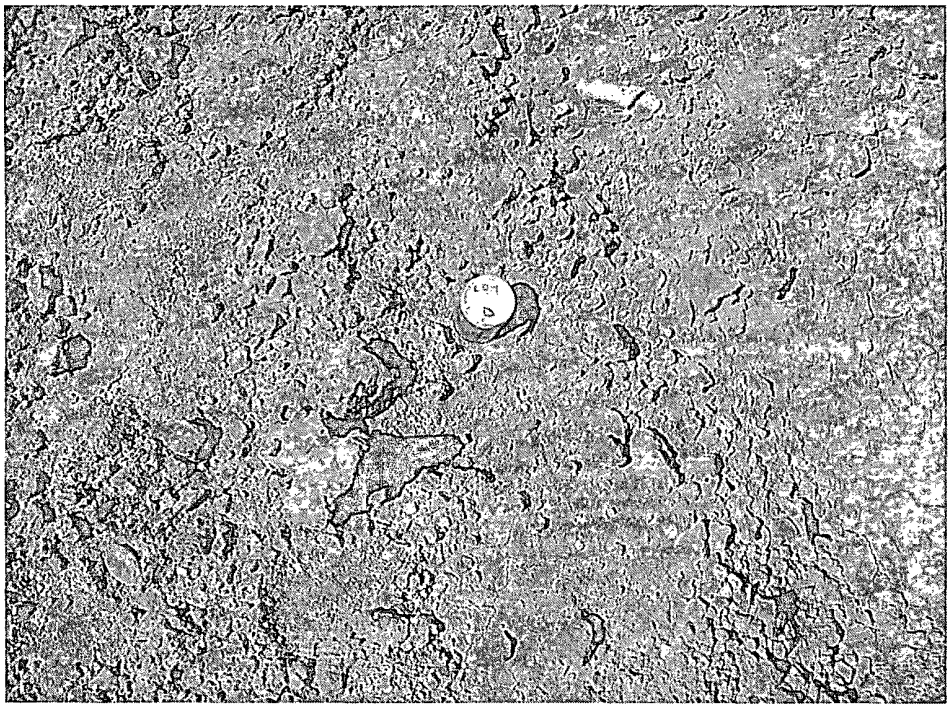


Photo 6: Sample point CD-1D (west central portion of the pit).

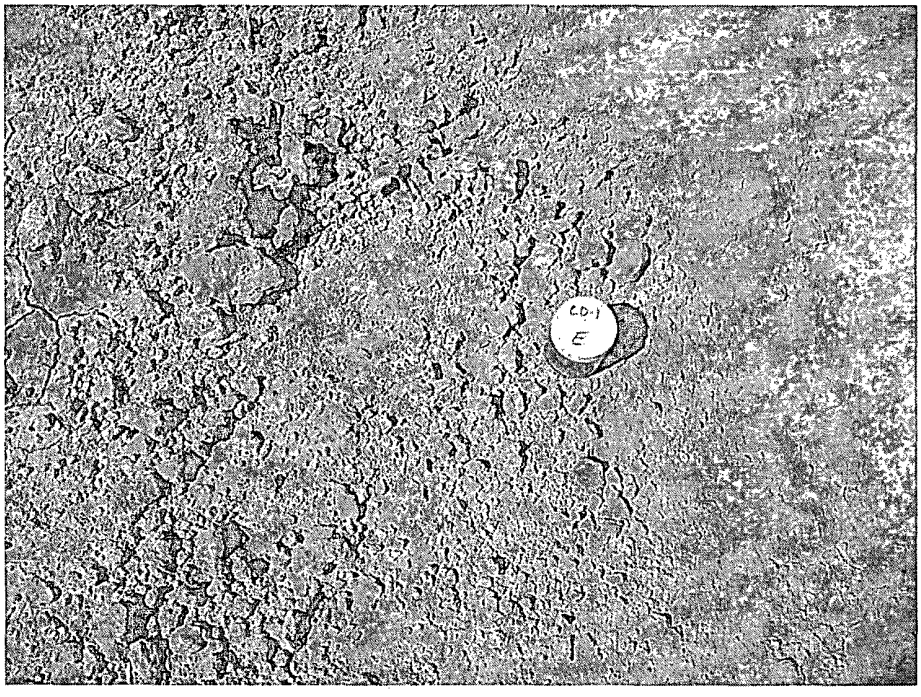


Photo 7: Sample point CD-1E (east central portion of the pit).

Photo 8: Western portion of the excavated pit (looking northwest).

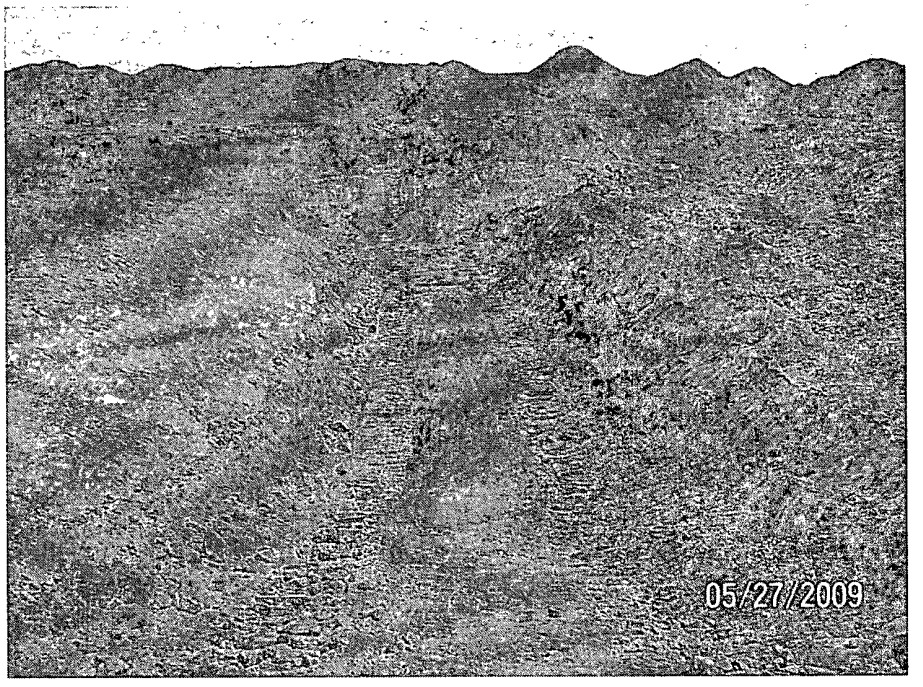


Photo 9: East central portion of the excavated pit (looking north).

Photo 10: Central portion of the excavated pit (looking southeast).

Photo 11: Backfilling the pit (looking west).

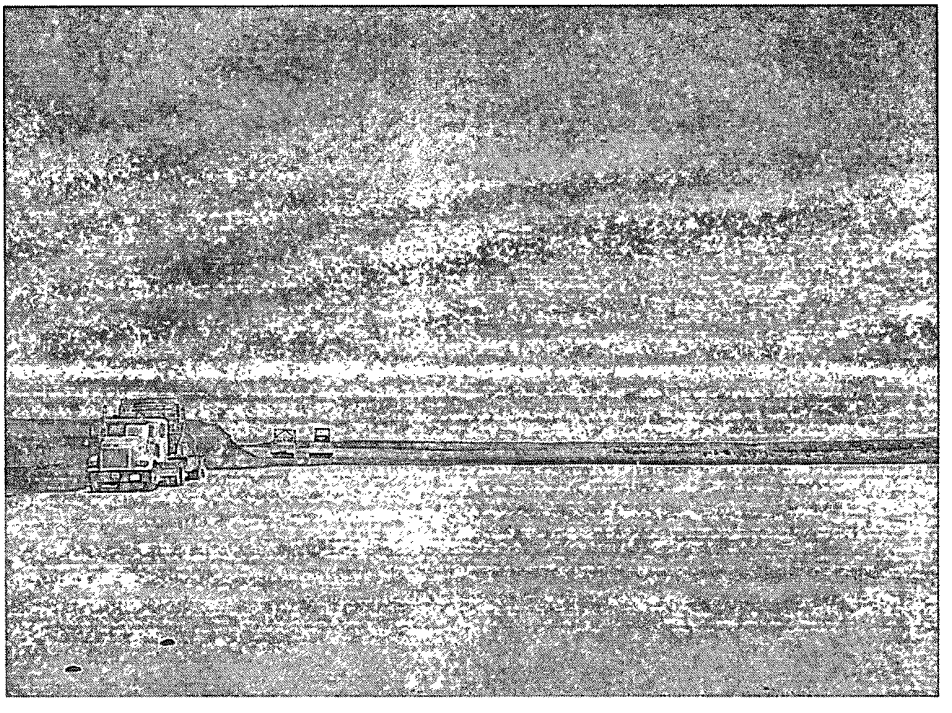


Photo 12: Backfill, compaction, and grading completed (looking north).

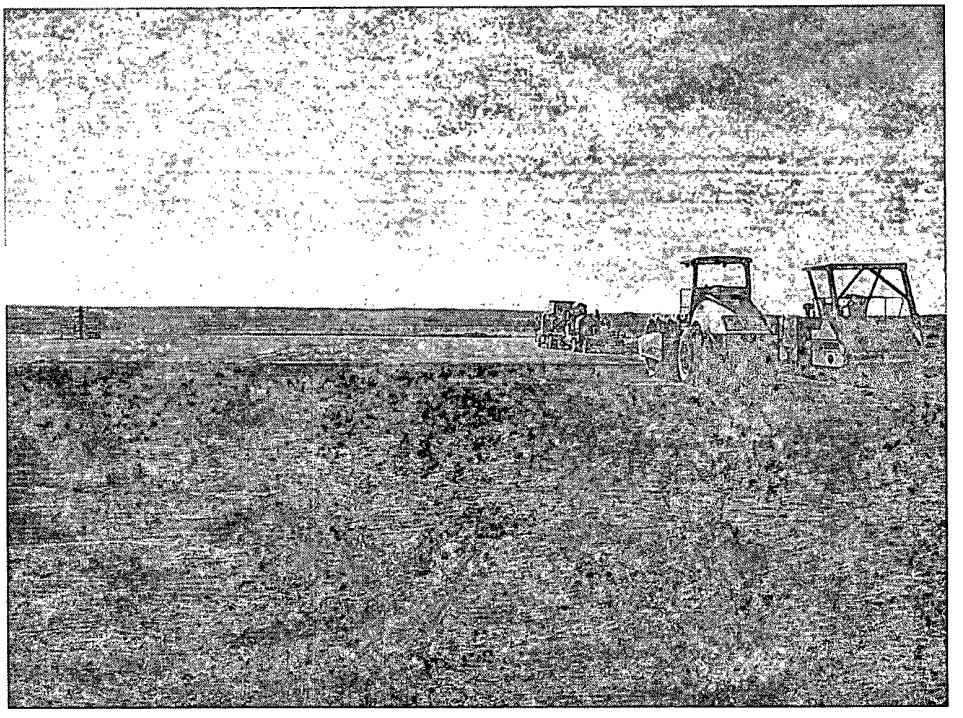


Photo 13: Backfill, compaction, and grading completed (looking south).

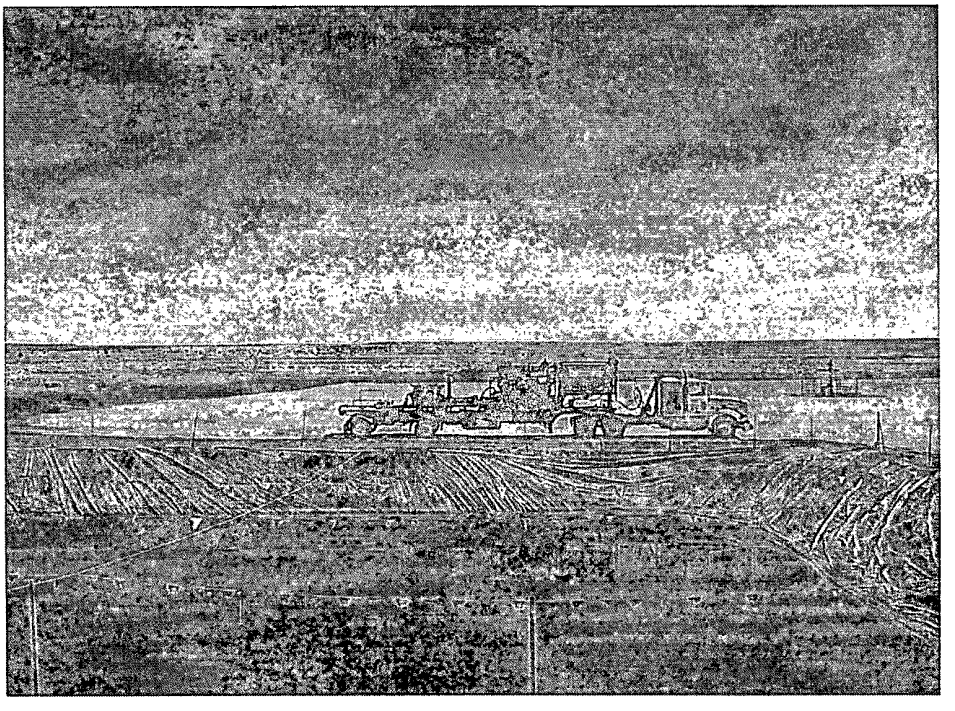


Photo 14: Backfill, compaction, and grading completed (looking east).

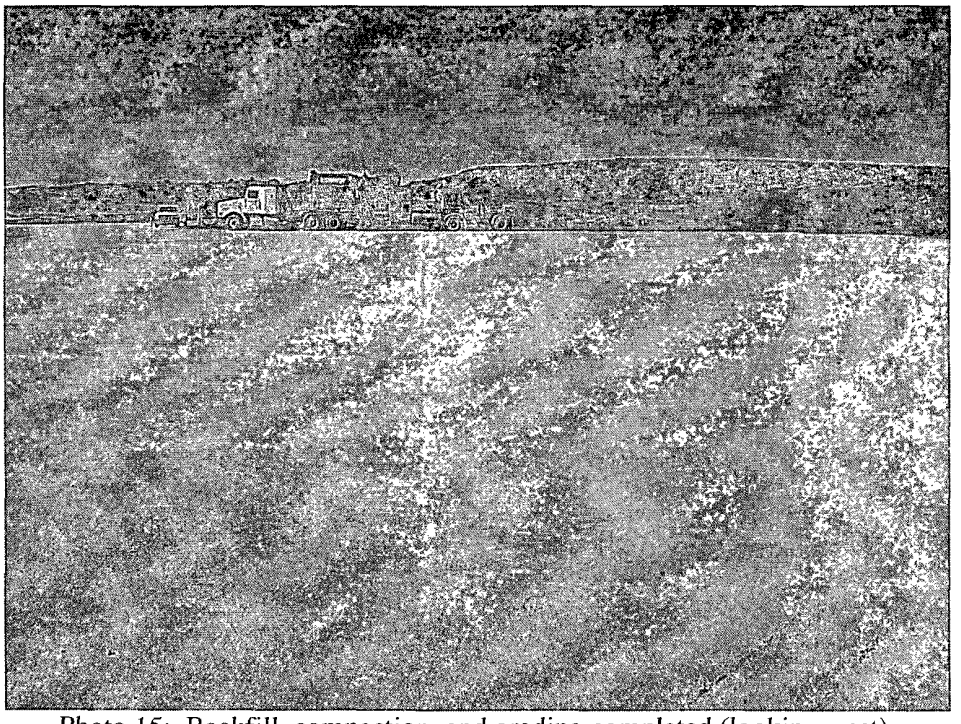


Photo 15: Backfill, compaction, and grading completed (looking west).

APPENDIX B

Laboratory Analytical Results, QA/QC, and Chains-of-Custody

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, May 19, 2009

David Janney
Kleinfelder
8300 Jefferson, NE Suite B
Albuquerque, NM 87113

TEL: (505) 344-7373
FAX (505) 344-1711

RE: Shell E & P CD-1 Pit Closure

Order No.: 0905296

Dear David Janney:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 5/15/2009 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. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001
Texas Lab# T104704424-08-TX

Hall Environmental Analysis Laboratory, Inc.

Date: *19-May-09*

CLIENT:	Kleinfelder	**Client Sample ID:**	CD-1 EAST
Lab Order:	0905296	**Collection Date:**	5/15/2009 11:00:00 AM
Project:	Shell E & P CD-1 Pit Closure	**Date Received:**	5/15/2009
Lab ID:	0905296-01	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **SCC**
Diesel Range Organics (DRO)	15	10		mg/Kg	1	5/18/2009
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/18/2009
Surr: DNOP	69.0	61.7-135		%REC	1	5/18/2009
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **DAM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/17/2009 11:25:11 PM
Surr: BFB	93.8	58.8-123		%REC	1	5/17/2009 11:25:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: **DAM**
Methyl tert-butyl ether (MTBE)	ND	0.10		mg/Kg	1	5/17/2009 11:25:11 PM
Benzene	ND	0.050		mg/Kg	1	5/17/2009 11:25:11 PM
Toluene	ND	0.050		mg/Kg	1	5/17/2009 11:25:11 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/17/2009 11:25:11 PM
Xylenes, Total	ND	0.10		mg/Kg	1	5/17/2009 11:25:11 PM
Surr: 4-Bromofluorobenzene	93.3	66.8-139		%REC	1	5/17/2009 11:25:11 PM
EPA METHOD 418.1: TPH						Analyst: **LRW**
Petroleum Hydrocarbons, TR	45	20		mg/Kg	1	5/18/2009

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
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *19-May-09*

CLIENT:	Kleinfelder	**Client Sample ID:**	CD-1 East
Lab Order:	0905296	**Collection Date:**	5/15/2009 10:45:00 AM
Project:	Shell E & P CD-1 Pit Closure	**Date Received:**	5/15/2009
Lab ID:	0905296-02	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	1500	6.0		mg/Kg	20	5/18/2009 4:54:39 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
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: Kleinfelder
Project: Shell E & P CD-1 Pit Closure **Work Order:** 0905296

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions									
Sample ID: MB-19124		*MBLK*			Batch ID:	**19124**	Analysis Date:		5/18/2009 3:45:01 PM
Chloride	ND	mg/Kg	0.30						
Sample ID: LCS-19124		*LCS*			Batch ID:	**19124**	Analysis Date:		5/18/2009 4:02:26 PM
Chloride	15.21	mg/Kg	0.30	101	90	110			
Method: EPA Method 418.1: TPH									
Sample ID: MB-19115		*MBLK*			Batch ID:	**19115**	Analysis Date:		5/18/2009
Petroleum Hydrocarbons, TR	ND	mg/Kg	20						
Sample ID: LCS-19115		*LCS*			Batch ID:	**19115**	Analysis Date:		5/18/2009
Petroleum Hydrocarbons, TR	97.62	mg/Kg	20	97.6	82	114			
Sample ID: LCSD-19115		*LCSD*			Batch ID:	**19115**	Analysis Date:		5/18/2009
Petroleum Hydrocarbons, TR	96.48	mg/Kg	20	96.5	82	114	1.17	20	
Method: EPA Method 8015B: Diesel Range Organics									
Sample ID: MB-19113		*MBLK*			Batch ID:	**19113**	Analysis Date:		5/18/2009
Diesel Range Organics (DRO)	ND	mg/Kg	10						
Motor Oil Range Organics (MRO)	ND	mg/Kg	50						
Sample ID: LCS-19113		*LCS*			Batch ID:	**19113**	Analysis Date:		5/18/2009
Diesel Range Organics (DRO)	48.39	mg/Kg	10	96.8	64.6	116			
Sample ID: LCSD-19113		*LCSD*			Batch ID:	**19113**	Analysis Date:		5/18/2009
Diesel Range Organics (DRO)	50.40	mg/Kg	10	101	64.6	116	4.08	17.4	
Method: EPA Method 8015B: Gasoline Range									
Sample ID: MB-19111		*MBLK*			Batch ID:	**19111**	Analysis Date:		5/17/2009 7:20:31 PM
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0						
Sample ID: LCS-19111		*LCS*			Batch ID:	**19111**	Analysis Date:		5/17/2009 5:18:00 PM
Gasoline Range Organics (GRO)	29.13	mg/Kg	5.0	112	64.4	133			
Sample ID: LCSD-19111		*LCSD*			Batch ID:	**19111**	Analysis Date:		5/17/2009 5:48:37 PM
Gasoline Range Organics (GRO)	30.65	mg/Kg	5.0	118	69.5	120	5.09	11.6	

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Kleinfelder
Project: Shell E & P CD-1 Pit Closure **Work Order:** 0905296

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles									
Sample ID: MB-19111		*MBLK*			Batch ID:	**19111**	Analysis Date:		5/17/2009 7:20:31 PM
Methyl tert-butyl ether (MTBE)	ND	mg/Kg	0.10						
Benzene	ND	mg/Kg	0.050						
Toluene	ND	mg/Kg	0.050						
Ethylbenzene	ND	mg/Kg	0.050						
Xylenes, Total	ND	mg/Kg	0.10						
Sample ID: LCS-19111		*LCS*			Batch ID:	**19111**	Analysis Date:		5/17/2009 6:19:16 PM
Methyl tert-butyl ether (MTBE)	1.607	mg/Kg	0.10	80.1	67.9	135			
Benzene	1.077	mg/Kg	0.050	105	78.8	132			
Toluene	1.139	mg/Kg	0.050	111	78.9	112			
Ethylbenzene	1.147	mg/Kg	0.050	115	69.3	125			
Xylenes, Total	3.275	mg/Kg	0.10	109	73	128			
Sample ID: LCSD-19111		*LCSD*			Batch ID:	**19111**	Analysis Date:		5/17/2009 6:49:48 PM
Methyl tert-butyl ether (MTBE)	1.647	mg/Kg	0.10	82.1	67.9	135	2.44	28	
Benzene	1.108	mg/Kg	0.050	108	78.8	132	2.82	27	
Toluene	1.140	mg/Kg	0.050	111	78.9	112	0.0527	19	
Ethylbenzene	1.165	mg/Kg	0.050	116	69.3	125	1.50	10	
Xylenes, Total	3.326	mg/Kg	0.10	111	73	128	1.55	13	

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name KLEIN | Date Received: 5/15/2009

Work Order Number 0905296 | Received by: AMF

Checklist completed by: _____ 5/15/09 | Sample ID labels checked by: _____ Initials

Signature | Date

Matrix: | Carrier name: Client drop-off

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?	**2.6°**	<6° C *Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: Composited samples as per client request AS 5/15

Corrective Action _____

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Client: Kleinfelder
Mailing Address: 8300 Jefferson Ste B
Albuquerque, NM 87113
Phone #: (505) 344-7373
email or Fax#: (505) 344-1711
QA/QC Package: ☑ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time: ☐ Standard ☑ Rush 24-48 hr (Monday!)
Project Name: Shell E+P CD-1 Pit Closure
Project #: 94663
Project Manager: D. Janney
Sampler: M. Wikstrom
On Ice: ☑ Yes ☐ No
Sample Temperature: 2.6

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 0905296
5-15-09	1100	Soil	CD-1 EAST	5x 4oz Jars	None	1
5-15-09	1045	Soil	CD-1 EAST	5x 4oz Jars	None	2

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)	8310 (PNA or PAH)	RCRA 8 Metals	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)
✓		✓	✓								
							✓				

Date	Time	Relinquished by:	Received by:	Date	Time
5/15/09	3:30			5/15/09	3:30
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Please combine and mix 5 hydrocarbon jars and analyze as one sample. Do the same for the 5 Cl jars.
email results to D.Janney@kleinfelder.com

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.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, May 21, 2009

David Janney
Kleinfelder
8300 Jefferson, NE Suite B
Albuquerque, NM 87113

TEL: (505) 344-7373
FAX (505) 344-1711

RE: Shell E & P CD-1 Pit Closure

Order No.: 0905340

Dear David Janney:

Hall Environmental Analysis Laboratory, Inc. received 5 sample(s) on 5/19/2009 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. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001
Texas Lab# T104704424-08-TX

Hall Environmental Analysis Laboratory, Inc.

Date: *21-May-09*

CLIENT: Kleinfelder
Project: Shell E & P CD-1 Pit Closure
Lab Order: 0905340

Lab ID: 0905340-01 **Collection Date:** 5/15/2009 10:45:00 AM
Client Sample ID: CD-1 East #1 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	1000	6.0		mg/Kg	20	5/20/2009 3:04:56 AM

Lab ID: 0905340-02 **Collection Date:** 5/15/2009 10:45:00 AM
Client Sample ID: CD-1 East #2 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	2200	6.0		mg/Kg	20	5/20/2009 3:39:45 AM

Lab ID: 0905340-03 **Collection Date:** 5/15/2009 10:45:00 AM
Client Sample ID: CD-1 East #3 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	3300	15		mg/Kg	50	5/20/2009 12:46:52 PM

Lab ID: 0905340-04 **Collection Date:** 5/15/2009 10:45:00 AM
Client Sample ID: CD-1 East #4 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	4200	15		mg/Kg	50	5/20/2009 1:04:16 PM

Lab ID: 0905340-05 **Collection Date:** 5/15/2009 10:45:00 AM
Client Sample ID: CD-1 East #5 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	1800	6.0		mg/Kg	20	5/20/2009 6:16:25 AM

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
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: Kleinfelder
Project: Shell E & P CD-1 Pit Closure **Work Order:** 0905340

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions									
Sample ID: MB-19139		*MBLK*			Batch ID:	**19139**	Analysis Date:	5/20/2009 2:12:42 AM	
Chloride	ND	mg/Kg	0.30						
Sample ID: LCS-19139		*LCS*			Batch ID:	**19139**	Analysis Date:	5/20/2009 2:30:06 AM	
Chloride	15.10	mg/Kg	0.30	101	90	110			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name KLEIN | Date Received: 5/19/2009

Work Order Number 0905340 | Received by: AMF

Checklist completed by: Signature 5/19/09 Date | Sample ID labels checked by: Initials

Matrix: | Carrier name Client drop-off

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?	**2.6°**	*<6° C Acceptable* If given sufficient time to cool.		

Number of preserved bottles checked for pH: _____

<2 >12 unless noted below.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

5/19/09

Chain-of-Custody Record

Client: Klemfelder

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☐ Rush

Project Name: Shell E&P CD-1 Pit closure

Project #: 94663

Project Manager: D. Janney

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.6

HEAL No. 0905296

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	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)
5/15/09	1045	Soil	CD-1 East #1			-1								X								
			CD-1 East #2			-2								X								
			CD-1 East #3			-3								X								
			CD-1 East #4			-4								X								
			CD-1 East #5			-5								X								

Date:	Time:	Relinquished by:	Received by:	Date	Time
				5/15/09	1530
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Per client request analyze each sample individually per DJ on 5/19/09 Refer to HEAL # 0905296 / 5/19/09

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.

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, May 21, 2009

David Janney
Kleinfelder
8300 Jefferson, NE Suite B
Albuquerque, NM 87113

TEL: (505) 344-7373
FAX (505) 344-1711

RE: Shell E & P

Order No.: 0905348

Dear David Janney:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 5/20/2009 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. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001
Texas Lab# T104704424-08-TX

Hall Environmental Analysis Laboratory, Inc.

Date: *21-May-09*

CLIENT: Kleinfelder
Project: Shell E & P
Lab Order: 0905348

Lab ID: 0905348-01 **Collection Date:** 5/19/2009 3:00:00 PM
Client Sample ID: CD-1-(A,B,C,D,E) **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	1800	6.0		mg/Kg	20	5/20/2009 2:13:54 PM

Lab ID: 0905348-02 **Collection Date:** 5/19/2009 3:35:00 PM
Client Sample ID: CD-1-(2A,2B,2C,2D,2E) **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	42	3.0		mg/Kg	10	5/20/2009 3:23:32 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
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: Kleinfelder
Project: Shell E & P **Work Order:** 0905348

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions									
Sample ID: MB-19142		*MBLK*			Batch ID:	**19142**	Analysis Date:	5/20/2009 1:39:05 PM	
Chloride	ND	mg/Kg	0.30						
Sample ID: LCS-19142		*LCS*			Batch ID:	**19142**	Analysis Date:	5/20/2009 1:56:30 PM	
Chloride	15.49	mg/Kg	0.30	103	90	110			
Sample ID: LCS-19142		*LCS*			Batch ID:	**19142**	Analysis Date:	5/20/2009 7:27:16 PM	
Chloride	15.51	mg/Kg	0.30	103	90	110			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name KLEIN | Date Received: 5/20/2009

Work Order Number 0905348 | Received by: ARS

Checklist completed by: _____ 5/20/09 | Sample ID labels checked by: TJ

Signature | Date | Initials

Matrix: | Carrier name: Client drop-off

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?	**5.9°**	*<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: Kleinfelder

Mailing Address: 8300 Jefferson NE Ste B
ABQ, NM 87113

Phone #: 344-7373

email or Fax#: jjanney@kleinfelder.com eshannon@kleinfelder.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 12-hr

Project Name: Shell ETP

Project #: 94663.9

Project Manager: David Janney

Sampler: D. Janney

On Ice: ☒ Yes ☐ No

Sample Temperature: 5.9

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 0905318
5-19-09	1500	Soil	CD-1-(A,B,C,D,E)	4oz (5)	None	1
"	1535	"	CD-1-(2A,2B,2C,2D,2E)	4oz (5)	"	2

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)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride EPA 300.0				Air Bubbles (Y or N)
											X				
											X				

Date	Time	Relinquished by:	Received by:	Date	Time
5-20-09	0745	David Janney	David Gay	5/20/09	7:55AM
Date	Time	Relinquished by:	Received by:	Date	Time
		David Gay 5/20/09		5/20/09	8:10

Remarks: Please composite each set of jars into two five pt. composites, Hold reject for possible discrete analysis.

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.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Friday, May 22, 2009

David Janney
Kleinfelder
8300 Jefferson, NE Suite B
Albuquerque, NM 87113

TEL: (505) 344-7373
FAX: (505) 344-1711

RE: Shell E & P

Order No.: 0905383

Dear David Janney:

Hall Environmental Analysis Laboratory, Inc. received 5 sample(s) on 5/20/2009 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. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001
Texas Lab# T104704424-08-TX

Hall Environmental Analysis Laboratory, Inc.

Date: *22-May-09*

CLIENT: Kleinfelder
Project: Shell E & P
Lab Order: 0905383

Lab ID: 0905383-01 **Collection Date:** 5/19/2009 3:00:00 PM
Client Sample ID: CD-1 A **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	5300	15		mg/Kg	50	5/21/2009 12:36:15 PM

Lab ID: 0905383-02 **Collection Date:** 5/19/2009 3:00:00 PM
Client Sample ID: CD-1 B **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	530	3.0		mg/Kg	10	5/21/2009 11:26:39 AM

Lab ID: 0905383-03 **Collection Date:** 5/19/2009 3:00:00 PM
Client Sample ID: CD-1 C **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	470	3.0		mg/Kg	10	5/21/2009 11:44:03 AM

Lab ID: 0905383-04 **Collection Date:** 5/19/2009 3:00:00 PM
Client Sample ID: CD-1 D **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	2100	15		mg/Kg	50	5/21/2009 12:53:40 PM

Lab ID: 0905383-05 **Collection Date:** 5/19/2009 3:00:00 PM
Client Sample ID: CD-1 E **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	2000	15		mg/Kg	50	5/21/2009 1:11:04 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
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: Kleinfelder
Project: Shell E & P **Work Order:** 0905383

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions									
Sample ID: MB-19154		*MBLK*			Batch ID:	**19154**	Analysis Date:	5/21/2009 10:34:27 AM	
Chloride	ND	mg/Kg	0.30						
Sample ID: LCS-19154		*LCS*			Batch ID:	**19154**	Analysis Date:	5/21/2009 10:51:51 AM	
Chloride	15.13	mg/Kg	0.30	101	90	110			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Chain-of-Custody Record

Client: Kleinfelder

Mailing Address: 8300 Jefferson NE, Suite B
Albuquerque, NM 87113

Phone #: 505-344-7373

email or Fax#: eshannon@kleinfelder.com

QA/QC Package: djanney@kleinfelder.com

X Standard ☐ Level 4 (Full Validation)

Accreditation:
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 24 hr

Project Name:
Shell EP&P

Project #:
94663.9

Project Manager:
David Janney

Sampler: D. Janney
On Ice: ☒ Yes ☐ No
Sample Temperature: 4°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 0905178
5/19/09	15:00	soil	CD-1 A	4oz x 1	none	1
5/19/09	15:00	soil	CD-1 B	4oz x 1	none	2
5/19/09	15:00	soil	CD-1 C	4oz x 1	none	3
5/19/09	15:00	soil	CD-1 D	4oz x 1	none	4
5/19/09	15:00	soil	CD-1 E	4oz x 1	none	5

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)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride EPA 300.1				Air Bubbles (Y or N)
											X				
											X				
											X				
											X				
											X				

Requested by:

Date	Time	Relinquished by:	Received by:	Date	Time
5/20/09	4:08			5/20/09	16:28
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached COC for sample relinquish info. 24 Hr Rus

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.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Friday, May 22, 2009

David Janney
Kleinfelder
8300 Jefferson, NE Suite B
Albuquerque, NM 87113

TEL: (505) 344-7373
FAX (505) 344-1711

RE: Shell E & P

Order No.: 0905273

Dear David Janney:

Hall Environmental Analysis Laboratory, Inc. received 25 sample(s) on 5/14/2009 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. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001
Texas Lab# T104704424-08-TX

Hall Environmental Analysis Laboratory, Inc.

Date: *22-May-09*

CLIENT: Kleinfelder
Project: Shell E & P
Lab Order: 0905273

Lab ID: 0905273-01 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-5-5000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	28000	150		mg/Kg	500	5/19/2009 11:01:14 PM

Lab ID: 0905273-02 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-5-12000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	3200	30		mg/Kg	100	5/19/2009 11:18:38 PM

Lab ID: 0905273-03 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-5-14538 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	190	3.0		mg/Kg	10	5/18/2009 6:39:06 PM

Lab ID: 0905273-04 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-5-2000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	270	3.0		mg/Kg	10	5/18/2009 7:13:55 PM

Lab ID: 0905273-05 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-5-13000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	110	3.0		mg/Kg	10	5/18/2009 7:31:19 PM

Lab ID: 0905273-06 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-5-11000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	410	3.0		mg/Kg	10	5/18/2009 7:48:44 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
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

CLIENT: Kleinfelder **Lab Order:** 0905273
Project: Shell E & P

Lab ID: 0905273-07 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-5-9000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	2600	30		mg/Kg	100	5/19/2009 11:36:02 PM

Lab ID: 0905273-08 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-5-7000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	6200	60		mg/Kg	200	5/19/2009 11:53:27 PM

Lab ID: 0905273-09 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-5-8000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	6000	60		mg/Kg	200	5/20/2009 12:10:52 AM

Lab ID: 0905273-10 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-5-4000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	24000	150		mg/Kg	500	5/20/2009 12:28:16 AM

Lab ID: 0905273-11 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-5-3000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	15000	60		mg/Kg	200	5/20/2009 12:45:40 AM

Lab ID: 0905273-12 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-5-1000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	45	1.5		mg/Kg	5	5/18/2009 11:35:02 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
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

CLIENT: Kleinfelder **Lab Order:** 0905273
Project: Shell E & P

Lab ID: 0905273-13 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-5-6000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	22000	60		mg/Kg	200	5/20/2009 1:03:04 AM

Lab ID: 0905273-14 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-5-14000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	180	3.0		mg/Kg	10	5/19/2009 1:02:04 AM

Lab ID: 0905273-15 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-3-9000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	440	3.0		mg/Kg	10	5/19/2009 1:19:28 AM

Lab ID: 0905273-16 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-3-2000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	21	0.30		mg/Kg	1	5/19/2009 1:36:53 AM

Lab ID: 0905273-17 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-3-8000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	2000	30		mg/Kg	100	5/20/2009 1:20:29 AM

Lab ID: 0905273-18 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-3-1000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	13	0.30		mg/Kg	1	5/21/2009 10:45:34 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Estimated value
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

CLIENT: Kleinfelder **Lab Order:** 0905273
Project: Shell E & P

Lab ID: 0905273-19 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-3-10000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	390	3.0		mg/Kg	10	5/20/2009 8:02:05 PM

Lab ID: 0905273-20 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-3-7000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	400	3.0		mg/Kg	10	5/20/2009 8:19:30 PM

Lab ID: 0905273-21 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-3-5000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	15000	60		mg/Kg	200	5/21/2009 11:02:58 PM

Lab ID: 0905273-22 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-3-6000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	1700	6.0		mg/Kg	20	5/21/2009 11:20:23 PM

Lab ID: 0905273-23 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-3-4000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	19000	60		mg/Kg	200	5/21/2009 11:37:47 PM

Lab ID: 0905273-24 **Collection Date:** 5/12/2009 11:00:00 AM
Client Sample ID: 3-3-3000 **Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	3000	15		mg/Kg	50	5/22/2009 12:30:00 AM

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
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *22-May-09*

CLIENT: Kleinfelder
Project: Shell E & P
Lab Order: 0905273

Lab ID: 0905273-25
Client Sample ID: 3-5-10000
Collection Date: 5/12/2009 11:00:00 AM
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **RAGS**
Chloride	1100	3.0		mg/Kg	10	5/20/2009 9:46:31 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
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: Kleinfelder
Project: Shell E & P **Work Order:** 0905273

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions									
Sample ID: 0905273-16AMSD		*MSD*			Batch ID: **19124**		Analysis Date:		5/19/2009 2:29:06 AM
Chloride	33.44	mg/Kg	0.30	79.7	75	125	4.21	20	
Sample ID: MB-19124		*MBLK*			Batch ID: **19124**		Analysis Date:		5/18/2009 3:45:01 PM
Chloride	ND	mg/Kg	0.30						
Sample ID: MB-19142		*MBLK*			Batch ID: **19142**		Analysis Date:		5/20/2009 1:39:05 PM
Chloride	ND	mg/Kg	0.30						
Sample ID: LCS-19124		*LCS*			Batch ID: **19124**		Analysis Date:		5/18/2009 4:02:26 PM
Chloride	15.21	mg/Kg	0.30	101	90	110			
Sample ID: LCS-19142		*LCS*			Batch ID: **19142**		Analysis Date:		5/20/2009 1:56:30 PM
Chloride	15.49	mg/Kg	0.30	103	90	110			
Sample ID: LCS-19142		*LCS*			Batch ID: **19142**		Analysis Date:		5/20/2009 7:27:16 PM
Chloride	15.51	mg/Kg	0.30	103	90	110			
Sample ID: 0905273-16AMS		*MS*			Batch ID: **19124**		Analysis Date:		5/19/2009 2:11:41 AM
Chloride	34.88	mg/Kg	0.30	89.3	75	125			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name KLEIN | Date Received: 5/14/2009

Work Order Number 0905273 | Received by: AT

Checklist completed by: _____ 5/14/09 | Sample ID labels checked by: AS

Signature | Date | Initials

Matrix: | Carrier name: Client drop-off

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?	**2.0°**	<6° C *Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: Added sample 3-5-10000 to C.O.C. as per D.J. AS 5/15

Corrective Action _____

Chain-of-Custody Record

Client: Kleinfelder

Mailing Address: 8300 Jefferson Ste B

Phone #: 344-7373

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: Shell B+P

Project #: 94663

Project Manager: D. Jaramey

Sampler: MW

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 0905073	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F^-, Cl^-, NO_3, NO_2, PO_4, SO_4) 300.0	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
5-12-09	1100	Soil	3-5-5000	Brass	None	1								✓								
			3-5-12000			2								✓								
			3-5-14538			3								✓								
			3-5-2000			4								✓								
			3-5-13000			5								✓								
			3-5-11000			6								✓								
			3-5-9000			7								✓								
			3-5-7000			8								✓								
			3-5-8000			9								✓								
			3-5-4000			10								✓								
			3-5-3000			11								✓								
			3-5-1000			12								✓								

Date	Time	Relinquished by:	Received by:	Date	Time
5/14/09	1636			5/14/09	1636
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Please email results to M. Wilkstrom and D. Jaramey. #25 3-5-10000

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.

Chain-of-Custody Record

Client: Kleinfelder

Mailing Address: 8300 Jefferson Ste B

Phone #: 344-7373

email or Fax#:

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: Shell E+P

Project #: 94663

Project Manager: D. Tanner

Sampler: MW

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.0°

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	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 94052	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	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)
5-12-09	1100	Soil	3-5-6000	Brass	NA	13																
			3-5-14000			14																
			3-3-9000			15																
			3-3-2000			16																
			3-3-8000			17																
			3-3-1000			18																
			3-3-10000			19																
			3-3-7000			20																
			3-3-5000			21																
			3-3-6000			22																
			3-3-4000			23																
			3-3-3000			24																

Date:	Time:	Relinquished by:	Received by:	Date	Time
5-14-09	1636			5/14/09	1636
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Please email results to M. Clinton and D. Tanner

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.

APPENDIX C

OCD Form C-144

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

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-144
July 21, 2008

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office.
For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

Pit, Closed-Loop System, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application

Type of action: ☒ Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method
☐ Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method
☐ Modification to an existing permit
☐ Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method

Instructions: Please submit one application (Form C-144) per individual pit, closed-loop system, below-grade tank or alternative request

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.
Operator: SWEPI LP OGRID #:
Address: P.O. Box 567, Houston, TX 77001 (Local contact: Shell Explor. & Prod. Co. 4582 S. Ulster St. Pkwy., Suite 1400, Denver, CO 80237)
Facility or well name: CD-1
API Number: 3001920134 OCD Permit Number:
U/L or Qtr/Qtr N Section 25 Township 11N Range 23E County: Guadalupe
Center of Proposed Design: Latitude 35° 08' 45.14" Longitude 104° 27' 17.91" NAD: ☐1927 ☒ 1983
Surface Owner: ☐ Federal ☐ State ☒ Private ☐ Tribal Trust or Indian Allotment

2.
☐ **Pit:** Subsection F or G of 19.15.17.11 NMAC
Temporary: ☐ Drilling ☐ Temporary Completions ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A
☐ Lined ☐ Unlined Liner type: Thickness ____ mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other
☐ String-Reinforced
Liner Seams: ☐ Welded ☐ Factory ☐ Other Volume: ____bbl Dimensions: L ____ x W____ x D 10ft

3.
☐ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC
Type of Operation: ☐ P&A ☒ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)
☐ Drying Pad ☐ Above Ground Steel Tanks ☐ Haul-off Bins ☐ Other
☐ Lined ☐ Unlined Liner type: Thickness ____mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other
Liner Seams: ☐ Welded ☐ Factory ☐ Other

4.
☐ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC
Volume: ____bbl Type of fluid:
Tank Construction material:
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other
Liner type: Thickness ____mil ☐ HDPE ☐ PVC ☐ Other

5.
☐ **Alternative Method:**
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

6.

Fencing: Subsection D of 19.15.17.11 NMAC *(Applies to permanent pits, temporary pits, and below-grade tanks)*

☐ Chain link, six feet in height, two strands of barbed wire at top *(Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)*

☐ Four foot height, four strands of barbed wire evenly spaced between one and four feet

☒ Alternate. Please specify:_____

7.

Netting: Subsection E of 19.15.17.11 NMAC *(Applies to permanent pits and permanent open top tanks)*

☐ Screen ☐ Netting ☐ Other_____

☐ Monthly inspections (If netting or screening is not physically feasible)

8.

Signs: Subsection C of 19.15.17.11 NMAC

☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☐ Signed in compliance with 19.15.3.103 NMAC

9.

Administrative Approvals and Exceptions:

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

☐ Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau office for consideration of approval.

☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

10.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. **Siting criteria does not apply to drying pads or above-grade tanks associated with a closed-loop system.**

Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. *(Applies to temporary, emergency, or cavitation pits and below-grade tanks)* - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No ☐ NA
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. *(Applies to permanent pits)* - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No ☐ NA
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☐ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☐ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☐ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☐ No

11.
Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
☐ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

12.
Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9
☐ Siting Criteria Compliance Demonstrations (only for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC
☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____

☐ Previously Approved Operating and Maintenance Plan API Number: _____ *(Applies only to closed-loop system that use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)*

13.
Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
☐ Climatological Factors Assessment
☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Quality Control/Quality Assurance Construction and Installation Plan
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Nuisance or Hazardous Odors, including H_2S, Prevention Plan
☐ Emergency Response Plan
☐ Oil Field Waste Stream Characterization
☐ Monitoring and Inspection Plan
☐ Erosion Control Plan
☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

14.
Proposed Closure: 19.15.17.13 NMAC
Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

Type: ☐ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☐ Below-grade Tank ☒ Closed-loop System ☐ Alternative ☐ Temporary Completions

Proposed Closure Method: ☐ Waste Excavation and Removal (Temporary Completions Pit)
☐ Waste Removal (Closed-loop systems only)
☐ On-site Closure Method (Only for temporary pits and closed-loop systems)
☐ In-place Burial ☐ On-site Trench Burial
☐ Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)

15.
Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

16.

Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13.D NMAC)

Instructions: Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.

Disposal Facility Name: Gandy Marley, Tatum, NM Disposal Facility Permit Number: NM-711-1-0020

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please provide the information below) ☒ No

Required for impacted areas which will not be used for future service and operations:

☐ Soil Backfill and Cover Design Specifications - - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC

☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

17.

Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC

Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 50 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Ground water is between 50 and 100 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☐ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☐ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☐ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☐ No

18.

On-Site Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

☐ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.11 NMAC

☐ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC

☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC

☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☐ Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)

☐ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC

☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

19.
Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): _____ Title: _____

Signature: _____ Date: _____

e-mail address: _____ Telephone: _____

20.
OCD Approval: ☐ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: _____ **Approval Date:** _____

Title: _____ **OCD Permit Number:** _____

21.
Closure Report (required within 60 days of closure completion): Subsection K of 19.15.17.13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☒ **Closure Completion Date:** _____

22.
Closure Method:

☒ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)

☐ If different from approved plan, please explain.

23.
Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:

Instructions: Please indentify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please demonstrate compliance to the items below) ☐ No

Required for impacted areas which will not be used for future service and operations:

☐ Site Reclamation (Photo Documentation)

☐ Soil Backfilling and Cover Installation

☐ Re-vegetation Application Rates and Seeding Technique

24.
Closure Report Attachment Checklist: ***Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.***

☐ Proof of Closure Notice (surface owner and division)

☐ Proof of Deed Notice (required for on-site closure)

☒ Plot Plan (for on-site closures and temporary pits)

☒ Confirmation Sampling Analytical Results (if applicable)

☐ Waste Material Sampling Analytical Results (required for on-site closure)

☒ Disposal Facility Name and Permit Number

☒ Soil Backfilling and Cover Installation

☒ Re-vegetation Application Rates and Seeding Technique

☒ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude 35° 08' 45.14" Longitude 104° 27' 17.91" NAD: ☐1927 ☒ 1983

25.
Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): Michael L. Bergstrom Title: Regulatory Coordinator

Signature: Michael L. Bergstrom Date: 5/20/2010

e-mail address: Michael.Bergstrom@shell.com Telephone: 303.222.6347