

# **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

March 13, 2012

Subject:

Notice of Completion Pit Closure and Interim Reclamation

Shell Exploration & Production Co., Latigo Ranch 3-5 (API No. 30-019-20137)

Guadalupe County, New Mexico

Dear Mr. Martin:

Shell Exploration & Production Company (Shell), as service provider to SWEPI LP in New Mexico, is submitting a Pit Closure Report (including Form C-144) to detail completion pit closure activities and interim reclamation conducted for the subject well, to New Mexico Oil Conservation Division-District 4 (OCD) for your review and approval.

If you have any questions or require any additional information regarding these reports, please contact me at (303) 222-6347, or David Janney at AMEC in Albuquerque at (505) 821-1801.

Regards,

Michael L. Bergstrom Senior Regulatory Advisor

Shell Exploration & Production Company

Attachments: Completion Pit Closure Report

Michael L. Beigetron

Form C-144



November 3, 2011

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

Subject:

Latigo Ranch 3-5 Gas Well Completion Pit Closure Report

Singleton Properties, LLC Lease

Cuervo, Guadalupe County, New Mexico

Dear Mr. Bergstrom:

AMEC Environment and Infrastructure (AMEC) is submitting this closure report for the completion pit at the Latigo Ranch 3-5 natural gas well (API # 3001920137) located in Section 5; Township 10 N; Range 23 East of Guadalupe County, New Mexico (Figure 1). This wildcat gas well was completed and ready for flow testing on September 22, 2009. This well was drilled using closed-loop methods and the pit was used solely for the containment of completions materials. This report was prepared in accordance with guidelines published in New Mexico Administrative Code 19.15.17.13 and includes a brief description of the pit closure process, pit contents and pit liner removal procedures, soil sampling procedures conducted by AMEC following removal of the liner, and backfilling procedures.

#### **SCOPE OF WORK**

The scope of work described below was conducted in accordance with the 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 fluid and drilling mud in the lined pit;
- Removal of the 30 mil HPDPE pit liner;
- Transport and disposal of drilling completions and flow-back fluids, drilling mud, and pit liner;
- Removal, transport, and disposal of approximately five cubic yards of soil from selected locations in the bottom of the excavation;
- Collection, chloride field test kit, and laboratory analysis of samples from the excavation bottom;
- Backfilling to grade and contouring with the surrounding topography; and

Reporting the results of the closure in this report.

#### FIELD ACTIVITIES

Robinson Construction Group (Robinson) began removing the fluid from the pit on December 11, 2010 (Appendix A, Photos 1-3). Robinson removed approximately 21,200 barrels of fluid (890,400 gallons), 560 cubic yards of mud contained in the liner, and 220 cubic yards of soil beneath the liner. Robinson completed the removals on January 14, 2011 (Appendix A, Photos 4-5). Fluid was removed and transported in vacuum trucks and the mud, liner and soil were transported in end dump trucks to the Gandy-Marley Inc. (GMI) oil-field waste disposal facility located in Tatum, New Mexico (facility ID # NM 711-1-0020) for proper disposal.

During liner removal, there were no visible indications of a breech in the liner material. There was, however, wet and stained soil beneath the liner in the north east corner of the excavation (Appendix A, Photo 6). Robinson removed all of the stained soil, approximately 220 cubic yards, in the northeast corner of the excavation and prepared the excavation bottom for sampling (Appendix A, Photos 7-8). On January 10, 2011, AMEC collected a five-point composite soil sample from the bottom of the pit (Appendix A, Photos -9-13). The five-point composite sample was collected from each corner and the center of the excavation and is depicted on Figure 2. Sample point LR35-110111-3 was in the northeast corner of the excavation. Approximately four ounces of soil from each of the five points was placed into a one-gallon zip-lock bag and the contents were thoroughly mixed. The samples for laboratory analysis were removed from the zip-lock bag and placed into two properly labeled 4-ounce glass sample jars. The sample jars were placed in a cooler with ice and 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, and chloride. In addition to submitting the samples for laboratory analysis, AMEC also removed 20 grams of soil from the five-point composite sample and analyzed 10 grams using the Hach "Quantab" Chloride Field Test Kit # 2744940 (Low Range 30-600 parts per million (ppm) CI) and 10 grams using the test kit # 2751340 (High Range 300-6000 ppm Cl).

According to the Hach guidelines, the soil for field test kit analysis was placed into 100 milliliters of hot water for 90 minutes before reading the colorimetric strips. The Low-Range Quantab indicated the chloride concentration in the sample was less than 20 ppm and the Hi-Range Quantab indicated the chloride concentration was less than 287 ppm.

The chloride laboratory analytical result for the five-point composite sample was 1,400 ppm. No organic compounds were detected in the sample. The laboratory analytical results are summarized in Table 1 and the laboratory analytical sheets are included in Appendix B.

Mr. Ed Martin, with the New Mexico Oil Conservation Division (OCD) was contacted via telephone and informed of the analytical results. Mr. Martin indicated that the excavation bottom could be ripped as much as practicable and clean backfill material

mixed 3:1with soil in the bottom of the excavation. This could be followed by backfilling and compaction. Robinson completed the backfill, compaction, and contouring on January 17, 2011 (Appendix A, Photos 14-16) and the contoured pit will be reseeded in early 2012. The expected application of the prescribed seed mix will be 8-12 pounds pure live seed per acre and it will be applied with a mechanical seed drill and as necessary hand broadcast in areas with restricted machinery access. The OCD Form C-144 is included in Appendix C. Robinson returned the GMI disposal load tickets directly to Shell Exploration & Production Company.

#### DISCUSSION

Soil with chloride concentrations above the regulatory limit of 1,000 ppm remained in place. All of the other analyte concentrations in these samples were below the regulatory limits. Soil in the bottom of the excavation was ripped as much as practicable, and mixed with clean soil from the stockpile at a ratio of 3:1 clean soil and excavation bottom soil. The remainder of the clay-rich, low permeability, clean soil stockpile was placed and compacted in the excavation. Based on drilling of five nearby water wells, depth to groundwater at the location is greater than 300 feet; therefore, the pit closure described above is protective of human health and the environment.

The initial Hach chloride field test kit results were not consistent with the chloride concentrations in the laboratory samples and the difference between the field test kit results and the laboratory results were greater than one order of magnitude. Chloride field test kits for this location are suspect; possible due to the fine-grained materials (clay of mudstone) being analyzed.

#### **LIMITATIONS**

The scope of work for this report is intended to provide documentation of the Latigo Ranch 3-5 completion pit closure process in relation to the removal of fluids, mud, and soil and is not intended to provide and assessment of the 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 AMEC's profession practicing in the same locality, under similar conditions and at the date the services are provided. Any 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. AMEC 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,

**AMEC Environment and Infrastructure** 

David Janney, P

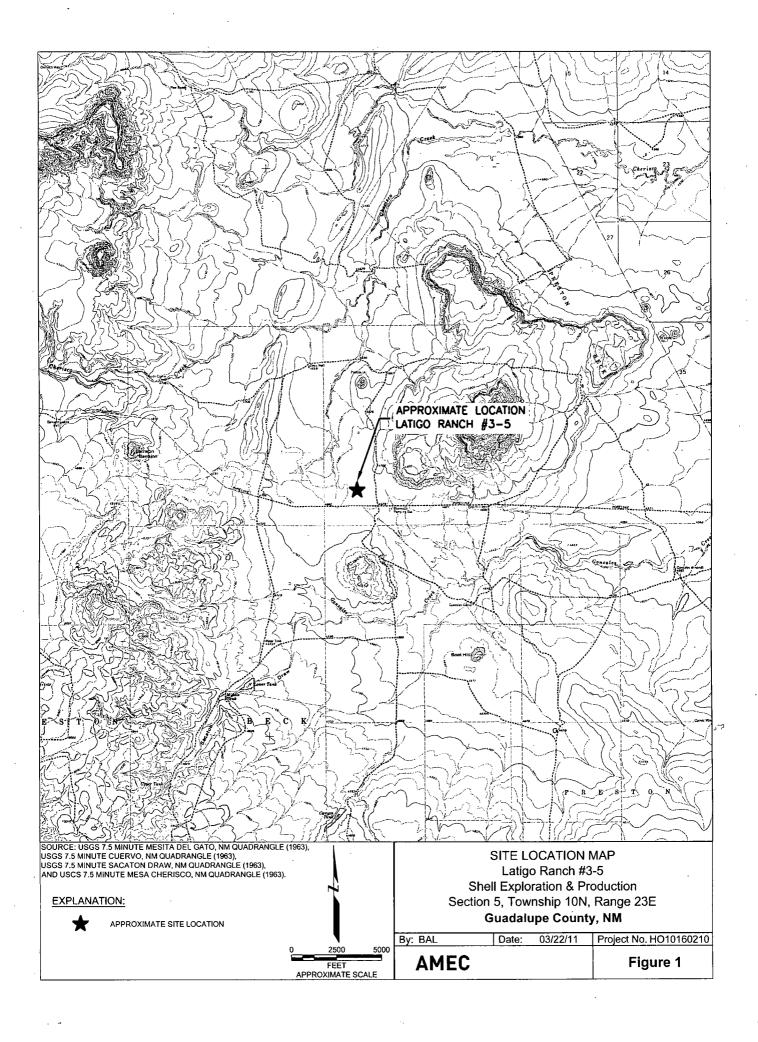
Project Manager

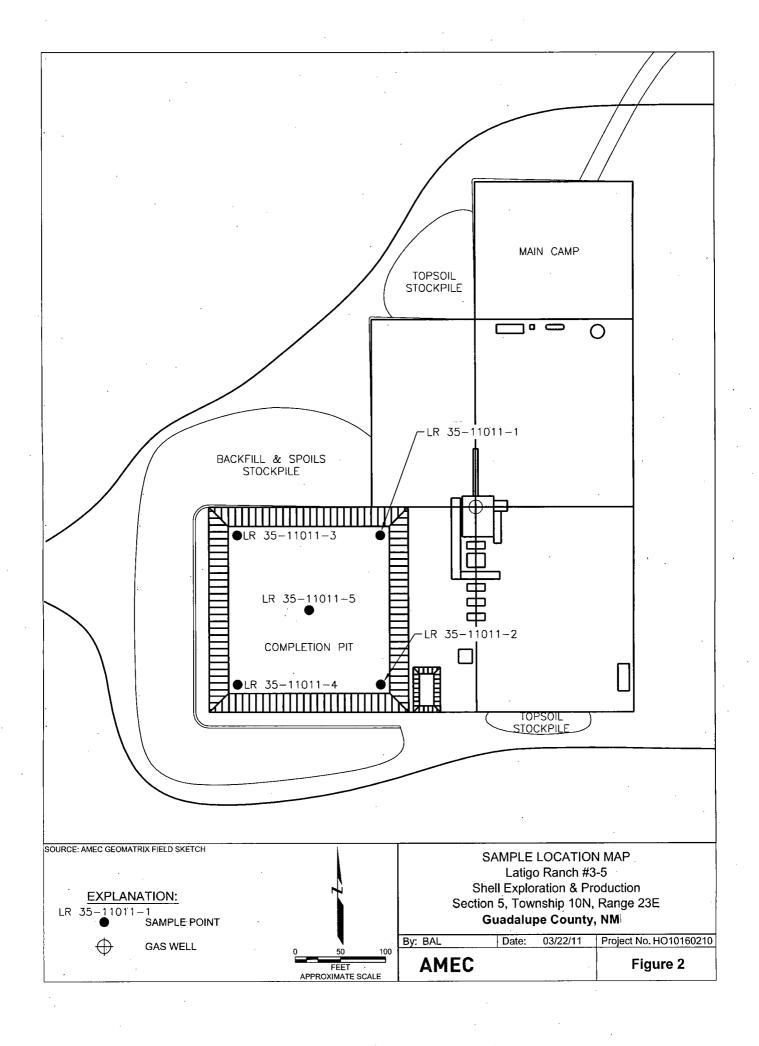
Reviewed by

Dan Kwiecinski, PE

**Unit Manager** 

## **FIGURES**





### **TABLES**

Table 1

Latigo Ranch 3-5 Completion Pit Analytical Summary
Guadalupe County, New Mexico

· · · · · · · · · · · · · · · · · · ·		· · · —		· · · · · · · · · · · · · · · · · · ·
Oil Range Organics   Gasoline Range Organics	s   Motor Oil Range Organics   Gasoline Range Orga	ge Organics   Motor Oil Range Organics   Gasoline Range Org	sel Range Organics   Motor Oil Range Organics   Gasoline Range Org	esel Range Organics   Motor Oil Range Organics   Gasoline Range Org
A Method 8015B EPA Method 8015B	EPA Method 8015B EPA Method 8015B	hod 8015B EPA Method 8015B EPA Method 8015B	PA Method 8015B EPA Method 8015B EPA Method 8015B	EPA Method 8015B EPA Method 8015B EPA Method 8015B
<50 <5	<50	10 <50 <5	<10 <50 <5	<10 <50 <5

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

# APPENDIX A Photographic Log



Photo 1: Pit prior to commencement of fluid removal (looking northeast).

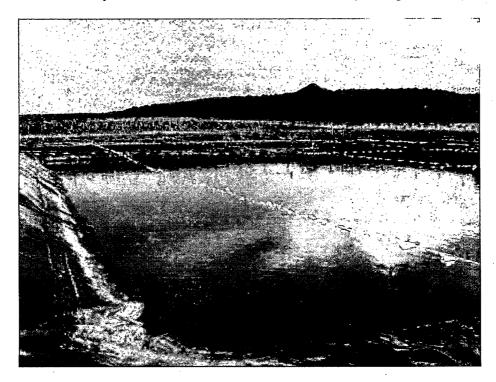


Photo 2: Pit after removing approximately half of the fluid (looking east).

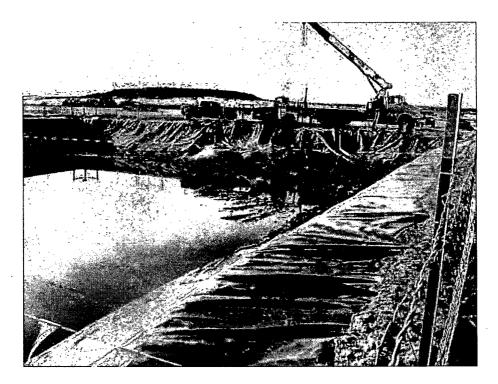


Photo 3: Mud exposed in pit after removing most of the fluid (looking southwest).

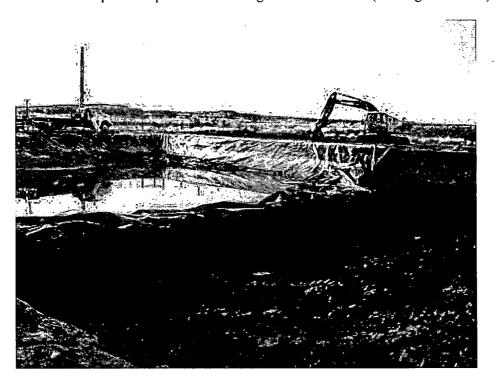


Photo 4: Removing the liner (looking west).



Photo 5: Removing the pit liner (looking east).



Photo 6: Staining in northeast corner of the pit bottom (looking west).



Photo 7: Pit bottom ready for sampling (looking east).

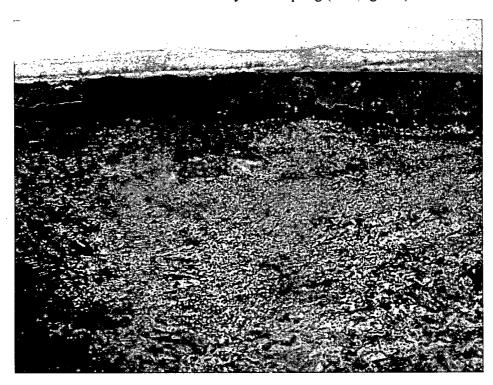


Photo 8: Pit bottom ready for sampling (looking west).



Photo 9: Sample point LR332-1 (excavated area in center).



Photo 10: Sample point LR332-2 (excavated area in center).

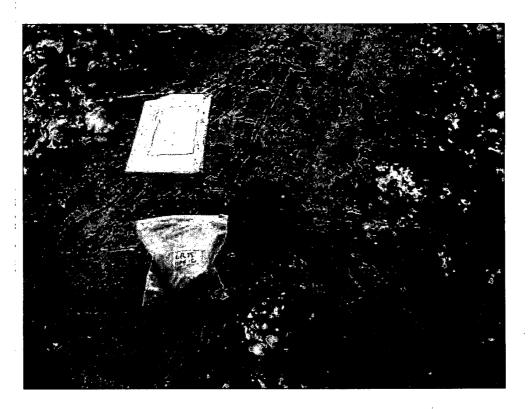


Photo 11: Sample point LR332-3 (excavated area in center).



Photo 12: Sample point LR332-4 (excavated area in center).



Photo 13: Sample point LR332-4 (excavated area behind sample bag)

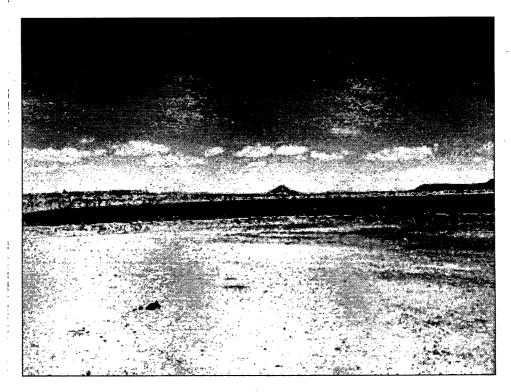


Photo 14: Backfill and compaction completed (looking northeast).



Photo 15: Backfill and compaction completed (looking east).

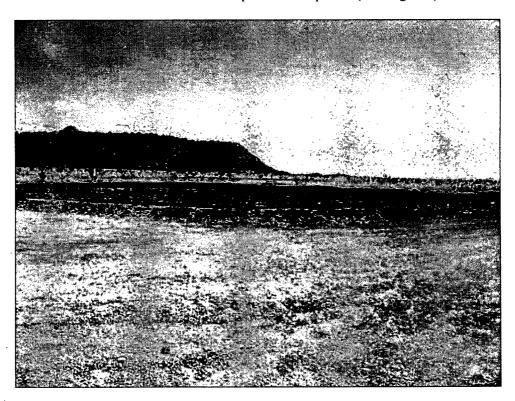


Photo 16: Backfill and compaction completed (looking southeast).

## APPENDIX B

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



#### **COVER LETTER**

Thursday, January 13, 2011

David Janney AMEC 8519 Jefferson Street, NE-Albuquerque, NM 87113

TEL: (505) 821-1801 FAX (505) 821-7371

RE: Shell Cuervo

Dear David Janney:

Order No.: 1101275

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 1/10/2011 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901.

AZ license # AZ0682

ORELAP Lab # NM100001

Texas Lab# T104704424-08-TX



#### Hall Environmental Analysis Laboratory, Inc.

Date: 13-Jan-11

**CLIENT:** 

**AMEC** 

Lab Order:

1101275

Project:

Shell Cuervo

Lab ID:

1101275-01

Client Sample ID: LR35-11011(1-5)

Collection Date: 1/10/2011 1:35:00 PM

Date Received: 1/10/2011

Matrix: SOIL

Analyses	Result	PQL	Qual 1	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE OF	RGANICS					Analyst: JB
Diesel Range Organics (DRO).	ND .	. 10	r	ng/Kg	1	1/11/2011 7:43:39 PM
Motor Oil Range Organics (MRO)	- ND	50	. <b>r</b>	ng/Kg.	1	1/11/2011 7:43:39 PM
Surr: DNOP	106	81.8-129	9	%REC	1	1/11/2011 7:43:39 PM
EPA METHOD 8015B: GASOLINE RANGE			•			Analyst: NSE
Gasoline Range Organics (GRO)	ND:	5.0	r	ng/Kg	1 .	1/12/2011 11:35:54 AM
Surr: BFB	101	89.7-125		%REC	1	1/12/2011 11:35:54 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSE
Benzene	ND	0:050	r	ng/Kg	1	1/12/2011 11:35:54 AN
Toluene	ND:	0.050	r	ng/Kg	1	1/12/2011 11:35:54 AN
Ethylbenzene	ND.	0.050	r	ng/Kg	. 1 .	1/12/2011 11:35:54 AM
Xylenes, Total	ND	0.10	r	ng/Kg	1	1/12/2011 11:35:54 AN
Surr: 4-Bromofluorobenzene	123	88.9-151	q	%REC	1	1/12/2011 11:35:54 AM
EPA METHOD 300.0: ANIONS	. •					Analyst: LJB
Chloride	1400	150-	ľ	ng/Kg	100	1/11/2011 1:00:22 PM
EPA METHOD 418.1: TPH			,			Analyst: JB
Petroleum Hydrocarbons, TR	ND.	20	r	ng/Kg	1.	1/12/2011

#### Qualifiers:

- Value exceeds Maximum Contaminant Level
- Estimated value
- Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit

- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- Not Detected at the Reporting Limit
- Spike recovery outside accepted recovery limits

Date: 13-Jan-11

# **QA/QC SUMMARY REPORT**

Client:

**AMEC** 

Project:

Shell-Cuervo

Work Order:

1101275

Project: Shell Cuervo	). 							Work	Order: 1101275
Analyte	Result	Units	PQL	SPK Val SP	K ref	%Rec Lo	wLimit Hi	ghLimit %RPD	RPDLimit Qual
Method: EPA Method 300.0: A	nions								
Sample ID: MB-25174		MBLK.				Batch ID:	25174	Analysis Date:	1/11/2011 12:25:32 PM
Chloride	ND	mg/Kg	1:5			•			
Sample ID: LCS-25174		LCS			٠	Batch ID:	25174	Analysis Date:	1/11/2011 12:42:57 PM
Chloride	14.03	mg/Kg	1.5	15	0	93.8	90	110	
Method: EPA Method 418.1: TF	<b></b>		-						
Sample ID: MB-25176	••	MBLK				Batch ID:	25176	Analysis Date:	1/12/201
Petroleum Hydrocarbons, TR	ND	mg/Kg	20-						
Sample ID: LCS-25176	ND	LCS	20*			Batch ID:	25176	Analysis Date:	1/12/201
•	449.9			100	0	113	86.8	116	
Petroleum Hydrocarbons, TR- Sample ID: LCSD-26176	113.3°	mg/Kg	20	. 100	U	Batch ID:	25176	Analysis Date:	1/12/201
·		LCSD			_				
Petroleum Hydrocarbons, TR	114.7	mg/Kg	20	100	0.	115	86.8	116 1.25	16:2
Method: EPA Method 8015B: D	lesel Range	Organics	*				•		
Sample ID: MB-25175		MBLK				Batch ID:	25176	Analysis Date:	1/11/2011 6:03:12 PM
Diesel Range Organics (DRO)	ND	mg/Kg	10						
Motor Oil Range Organics (MRO)	ND	mg/Kg	50						
Sample ID: LCS-25175		LCS		÷		Batch ID:	25176	Analysis Date:	1/11/2011 6:37:06 PI
Diesel Range Organics (DRO)	37.13	mg/Kg	10°	50	0	74.3	66.2	120	
Sample ID: LCSD-25175	••••	LCSD		•	•	Batch ID:	25175	Analysis Date:	1/11/2011 7:10:17 PI
Diesel Range Organics (DRO)	41.12	mg/Kg	10	50	0	82.2	66.2	120 10.2	14.3
Mark and EDA Mark and OARD C									
Method: EPA Method 8015B: G	asonne Rai	nge MBLK	٠			Batch ID:	25170	Analysis Date:	1/12/2011 6:16:46 PM
Sample ID: MB-25170						Datel ID.	20170	Allalysis Date.	1/12/2011 0:10:401 1
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0			D-1-6 ID:		Anatoria Dita.	4.40.00044 4.40.00 DB
Sample ID: LCS-25170		LCS				Batch ID:	25170	Analysis Date:	1/12/2011 4:46:23 PM
Gasoline:Range Organics (GRO)	26.76	mg/Kg	5.0	25	0	107	95.7	120	·
Method: EPA Method 8021B: V	olatiles							٠,	
Sample ID: MB-25170		MBLK				Batch ID:	25170	Analysis Date:	1/12/2011 6:16:46 PN
Rannona	410	mg/Kg	0.050						
Denzene	NU.		0.030						
	ND ND		0.050						
Toluene		mg/Kg		٠.					
Toluene Ethylbenzene	ND		0.050			•		s	
Toluene Ethylbenzene Xylenes, Total	ND ND	mg/Kg mg/Kg	0.050 0.050			Batch ID:	25170	Analysis Date:	1/12/2011 5:16:20 PM
Toluene Ethylbenzene Xylenes, Total Sample ID: LCS-25170	ND ND	mg/Kg mg/Kg mg/Kg LCS	0.050 0.050	1	0	Batch ID:	<b>25170</b> 83.3	Analysis Date:	1/12/2011 5:16:20 PM
Toluene Ethylbenzene Xylenes, Total Sample ID: LCS-25170 Benzene	ND ND ND	mg/Kg mg/Kg mg/Kg	0.050 0.050 0.10		0 0			-	1/12/2011 5:16:20 PM
Toluene Ethylbenzene Kylenes, Total Sample ID: LCS-25170 Benzene Toluene	ND ND ND	mg/Kg mg/Kg mg/Kg LCS mg/Kg	0.050 0.050 0.10	1		104	83.3	107	1/12/2011 5:16:20 PM
Toluene Ethylbenzene Xylenes, Total Sample ID: LCS-25170 Benzene Toluene Ethylbenzene	ND ND ND 1.041 0.9832	mg/Kg mg/Kg mg/Kg LCS mg/Kg mg/Kg	0.050 0.050 0.10 0.050 0.050	1 1	0	104 98.3 105	83.3 74.3	107 115	1/12/2011 5:16:20 PN
Toluene Ethylbenzene Xylenes, Total Sample ID: LCS-25170 Benzene Toluene Ethylbenzene Xylenes, Total	ND ND ND 1.041 0.9832 1.047	mg/Kg mg/Kg mg/Kg LCS mg/Kg mg/Kg	0.050 0.050 0.10 0.050 0.050 0.050	1 1 1	0	104 98.3 105	83.3 74.3 80.9	107 115 122	
Toluene Ethylbenzene Xylenes, Total Sample ID: LCS-25170 Benzene Toluene Ethylbenzene Xylenes, Total Sample ID: LCSD-25170	ND ND ND 1.041 0.9832 1.047	mg/Kg mg/Kg mg/Kg LCS mg/Kg mg/Kg mg/Kg mg/Kg	0.050 0.050 0.10 0.050 0.050 0.050	1 1 1 3	0	104 98.3 105 107	83.3 74.3 80.9 85.2	107 115 122 123	
Toluene Ethylbenzene Xylenes, Total Sample ID: LCS-25170 Benzene Toluene Ethylbenzene Xylenes, Total Sample ID: LCSD-25170 Benzene	ND ND 1.041 0.9832 1.047 3.221	mg/Kg mg/Kg mg/Kg LCS mg/Kg mg/Kg mg/Kg mg/Kg	0.050 0.050 0.10 0.050 0.050 0.050 0.10	1 1 1 3	0 0 0	104 98.3 105 107 Batch ID:	83.3 74.3 80.9 85.2 25170	107 115 122 123 Analysis Date:	1/12/2011 5:46:33 PM
Benzene Toluene Ethylbenzene Xylenes, Total Sample ID: LCS-25170 Benzene Toluene Ethylbenzene Xylenes, Total Sample ID: LCSD-25170 Benzene Toluene Ethylbenzene	ND ND 1.041 0.9832 1.047 3.221	mg/Kg mg/Kg mg/Kg LCS mg/Kg mg/Kg mg/Kg mg/Kg	0.050 0.050 0.10 0.050 0.050 0.050 0.10	1 1 1 3	0 0 0	104 98.3 105 107 Batch ID:	83.3 74.3 80.9 85.2 25170 83.3	107 115 122 123 Analysis Date: 107 0.135	1/12/2011 5:46:33 PN 15.6

#### Qualifiers:

E Estimated value

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

NC Non-Chlorinated

R RPD outside accepted recovery limits

# Hall Environmental Analysis Laboratory, Inc.

#### Sample Receipt Checklist

Chefit Matrie AIMEC	$\sim$		_		Date Receiv	eu.		1/10/2011	•
Work Order Number 1101275			) 1		Received b	y: AT			
	/		P		11/	labels checked		<u>k</u>	
Checklist completed by:	1 11		~	Date	01/10/1	_		fnittals	
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Matrix:		Carrier name	e: <u>Ciler</u>	nt drop-o	<u>II</u>	.*	*		•
Shipping container/cooler in good condition?			Yes	<b>Y</b>	No 🗆	Not Present			
Custody, seals intact on shipping container/coo	oler?		Yes		No 🗌	Not Present		Not Shipped	)
Custody seals intact on sample bottles?	٠.		Yes	$\mathbf{Z}$	No 🗔	N/A		•	
Chain of custody present?			Yes	$\mathbf{Z}$	No 🗆		•		
Chain of custody signed when relinquished an	d recei	ved?	Yes	$\mathbf{Z}$	No 🗌				
Chain of custody agrees with sample labels?	•		Yes	$\square$	No 🗌		,	,	
Samples in proper container/bottle?	٠,		Yes	$\mathbf{Z}$	No 🗆	•			
Sample containers intact?			Yes	$\overline{\mathbf{V}}$	No 🗌	•			•
Sufficient sample volume for indicated test?	,		Yes		No 🗀			•	
All samples received within holding time?			Yes	$\mathbf{V}$	No 🗀			Number of pre	served
Water - VOA vials have zero headspace?	No	VOA vials su	bmitted	V	Yes 🗆	No.		bottles checke pH:	d for
Water - Preservation labels on bottle and cap	match?		Yes		No 🗆	N/A 🗹		· ·	
Water - pH acceptable upon receipt?			Yes		No 🗆	N/A 🗹		<2 >12 unless i below.	noted
Container/Temp Blank temperature?		,	2.	7°	<6° C Accepta			Dalow.	
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# APPENDIX C OCD Form C-144

Form C-144 Revised August 1, 2011

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

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.
Operator: SWEPI LP OGRID #: 250036
Address: P.O. Box 567, Houston, TX77001 (Local contact: Shell Explor. & Prod. Co. 4582 S Ulster Pkwy., Suite 1400, Denver, CO 80237)
Facility or well name: <u>Latigo Ranch 3-5</u>
API Number: 3001920137 OCD Permit Number:
U/L or Qtr/Qtr K Section 5 Township 10N Range 23E County: Guadalupe
Center of Proposed Design: Latitude 35.119508       Longitude 104.526053       NAD: ☐ 1927 ☒ 1983
Surface Owner:  Federal State Private Tribal Trust or Indian Allotment
Pit:       Subsection F or G of 19.15.17.11 NMAC         Temporary:       □ Drilling       □ Workover         □ Permanent       □ Emergency       □ Cavitation       □ P&A         □ Lined       □ Unlined       Liner type:       Thickness      mil       □ LLDPE       □ HDPE       □ PVC       □ Other         □ String-Reinforced
3.
Closed-loop System: Subsection H of 19.15.17.11 NMAC
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□ 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 □
☐ 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: Thicknessmil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other
□ 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 □
☐ 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: Thicknessmil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other         Liner Seams:       ☐ Welded ☐ Factory ☐ Other
☐ 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 ☐ Unlined Liner type: Other ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other ☐ LINER Seams:    4. ☐ Below-grade tank: Subsection I of 19.15.17.11 NMAC
☐ 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:
Closed-loop System: Subsection H of 19.15.17.11 NMAC   Type of Operation: P&A
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 □ Welded □ Factory □ Other □ Delow-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
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 □ PVC □ Other   Liner Seams: □ Welded □ Factory □ Other    ### 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
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
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 □ PVC □ Other   Liner Seams: □ Welded □ Factory □ Other    ### 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

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, institution or church)	hospital,
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	affina for
consideration of approval.	office for .
Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.	
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 accept material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of a Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to dry above-grade tanks associated with a closed-loop system.	priate district pproval.
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:
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)
Permanent Pits Permit Application Checklist: 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 <sub>2</sub> S, Prevention Plan   Gil 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
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 Completion Pit  Proposed Closure Method: Waste Excavation and Removal Temporary Completion 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)
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 G of 19.15.17.13 NMAC

Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13.1 Instructions: Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if facilities are required.	NMAC) nore than two					
Disposal Facility Name: Disposal Facility Permit Number:						
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	2					
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 sour provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate districtions of acceptable sour provided an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justif demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.	rict office or may be					
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 play a check mark in the box, that the documents are attached.	lan. Please indicate,					
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. 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 canr   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						

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:
OCD Approval: ☐ Permit Application (including closure plan) ☐ Closure Plan	(only) OCD Conditions (see attachment)
OCD Representative Signature:	Approval Date:
Title:	OCD Permit Number:
Closure Report (required within 60 days of closure completion): Subsection K Instructions: Operators are required to obtain an approved closure plan prior to the closure report is required to be submitted to the division within 60 days of the section of the form until an approved closure plan has been obtained and the closure pl	implementing any closure activities and submitting the closure report.  completion of the closure activities. Please do not complete this
22.	
Closure Method:  ☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternation ☐ If different from approved plan, please explain.	ve Closure Method   Waste Removal (Closed-loop systems only)
	Disposal Facility Permit Number: NM-711-1-020 Disposal Facility Permit Number: a areas that will not be used for future service and operations?
Proof of Closure Notice (surface owner and division) − Not applicable Proof of Deed Notice (required for on-site closure) − Not applicable Plot Plan (for on-site closures and temporary pits) − See Figure 2 of Closure Confirmation Sampling Analytical Results (if applicable)) - See Appendix I Waste Material Sampling Analytical Results (required for on-site closure) − I Disposal Facility Name and Permit Number - Included in Box 23 above and Soil Backfilling and Cover Installation - Description and Photo Documenta Re-vegetation Application Rates and Seeding Technique - Described in Closure Reconsideration (Photo Documentation) - See Appendix A of Closure Repon-site Closure Location: Latitude Longitude	3 of Closure Report Not applicable I in Closure Report Ition included in Closure Report sure Report
Operator Closure Certification:  I hereby certify that the information and attachments submitted with this closure republief. I also certify that the closure complies with all applicable closure requirements.	
Name (Print): Michael L. Bergstrom	Title: Regulatory Advisor
Signature: Michael L. Bugstron	Date: 3/(3/20/2)
e-mail address: Michael.Bergstrom@shell.com	Telephone: <u>303.222.6347</u>