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 #: 2500036
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: Stovall 13-1
API Number: 3000920022 OCD Permit Number: Closed loop
U/L or Qtr/Qtr B Section 13 Township 8N Range 35E County: Curry
Center of Proposed Design: Latitude 34.920650 Longitude 103.184706 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: _____ Dimensions: L _____ x W _____ x D _____

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: _____ 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

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:** 11-18-14

Title: Environmental Specialist **OCD Permit Number:** — Closed loop

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: September 9, 2011**

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. Well not completed, no flow back or completion fluids, no waste generated, pit backfilled and seeded.

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: no exploration and production waste generated 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) - **See Appendix A of Closure Report**

☒ Soil Backfilling and Cover Installation - **Described in Closure Report**

☒ Re-vegetation Application Rates and Seeding Technique - **Described in Closure Report**

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) – **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 Report**

☒ Confirmation Sampling Analytical Results (if applicable) - **See Appendix B of Closure Report**

☐ Waste Material Sampling Analytical Results (required for on-site closure) – **Not applicable, pit not used no waste generated**

☐ Disposal Facility Name and Permit Number– **Not applicable**

☒ Soil Backfilling and Cover Installation - **Description and Photo Documentation included in Closure Report**

☒ Re-vegetation Application Rates and Seeding Technique - **Described in Closure Report**

☒ Site Reclamation (Photo Documentation) - **See Appendix A of Closure Report**

On-site Closure Location: Latitude _____ Longitude _____ 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: Senior Regulatory Advisor

Signature: _____ Date: _____

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

amec

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

July 25, 2012

Subject: Stovall 13-1 Gas Well Completion Pit Closure Report
Terry and Pamela Stovall Partnership Lease
Curry County, New Mexico

Dear Mr. Bergstrom:

AMEC Environment and Infrastructure, Inc. (AMEC) is submitting this closure report for the completion pit at the Stovall 13-1 natural gas well (API # 3000920022) located in Section 13; Township 8 North; Range 35 East of Curry County, New Mexico. This wildcat gas well was not completed and was plugged and abandoned on June 14, 2011. The well was drilled using closed-loop methods and the completion pit was never used for completion or flow back fluids. The pit was used only for a small volume of water pumped from the adjacent fresh water well during well development. The fresh water well development water was removed by bailing and pumping and it contained both drilling mud and formation material. This report was prepared in accordance with guidelines published in New Mexico Administrative Code (NMAC) 19.15.17.13 and includes a brief description of the pit closure process, analytical results for the soil samples collected beneath the liner, backfilling, and revegetation procedures.

SCOPE OF WORK

The scope of work described below was conducted in accordance with the NMAC 19.15.17.13 and the New Mexico Oil Conservation Division (OCD) guidance document *New Mexico Pit Closure Plan*. The scope of work for the pit closure included:

- Cutting five holes through the 30-mil high density polyethylene (HDPE) pit liner;
- The collection of five soil samples immediately below the liner through the holes cut in the liner;
- The creation and laboratory analysis of a five-point composite soil sample;
- Removal, transport, and disposal of the 30-mil HDPE pit liner;
- Backfill to grade, contouring with the surrounding topography, and seeding; and
- Reporting the results of the closure activities in this report.

FIELD ACTIVITIES

On August 26, 2011, AMEC arrived at the location and observed that there was no evidence of a breach in the liner. In order to expedite the pit closure process, AMEC cut holes through the 30-mil HDPE liner in five locations and collected a soil sample from each location as depicted on Figure 1 (Appendix A, Photos 1-6; 13-17; 20-24). There were no visible indications of a breech in the liner or wet areas in the exposed soil in the five sample locations. These samples were used to create a five-point composite that was submitted for laboratory analysis. Soil samples were collected in properly labeled 4-ounce glass sample jars, placed in a cooler with ice, and transported under chain-of custody to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico. The samples were analyzed for motor oil range organics, diesel range organics, gasoline range organics, total petroleum hydrocarbons (TPH), benzene, toluene, ethyl benzene, xylenes (collectively BTEX), and chloride on a 24 hour turn-around-time or rush basis.

Following sample collection, Robinson Construction (Robinson) began to remove the liner. As the liner was removed, no visible indications of a breech were observed in the liner. Once the liner had been removed, wet areas were not observed in the soil. Inspection of the pit bottom indicated that caliche was exposed over the majority of the pit bottom.

The chloride laboratory analytical result for the five-point composite sample was 25 parts per million (ppm) or milligrams per kilogram. The chloride laboratory analytical result for the spoils stockpile was 83 ppm. TPH was detected in the pit bottom sample at a concentration of 34 ppm, below the OCD regulatory limit of 2,500 ppm. None of the other organic constituents were detected in the samples. The laboratory analytical results are summarized in Table 1 and the laboratory analytical sheets are included in Appendix B.

Mr. Leking, with OCD's Hobbs district office, was contacted via telephone after receiving the analytical results via email and he indicated that the pit could be backfilled and compacted with the clean spoils stockpile removed to create the pit. Robinson began backfill and compaction activities on 28 August and completed them on September 9, 2011 (Appendix A, Photos 7-13). In March of 2012, the location was seeded with the prescribed seed mix applied with a mechanical seed drill at a rate of 8-12 pounds pure live seed per acre. Seeding was supplemented as necessary by hand broadcast in areas with restricted machinery access. The OCD Form C-144 is presented in Appendix C.

DISCUSSION

Soil or bedrock examined and sampled in the bottom of the pit after liner removal did not contain chloride or hydrocarbon concentrations above any of the regulatory limits. Bedrock in the bottom of the excavation was ripped as much as practicable, and mixed with clean soil from the stockpile. The remainder of the clay-rich, low permeability, clean soil stockpile was placed and compacted in the excavation. The pit closure described above was done in accordance with NMAC 19.15.17.13.

LIMITATIONS

The scope of work for this report is intended to provide documentation of the Stovall 13-1 completion pit closure process in relation to the removal and disposal of the pit liner and soil sampling beneath the liner. 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.

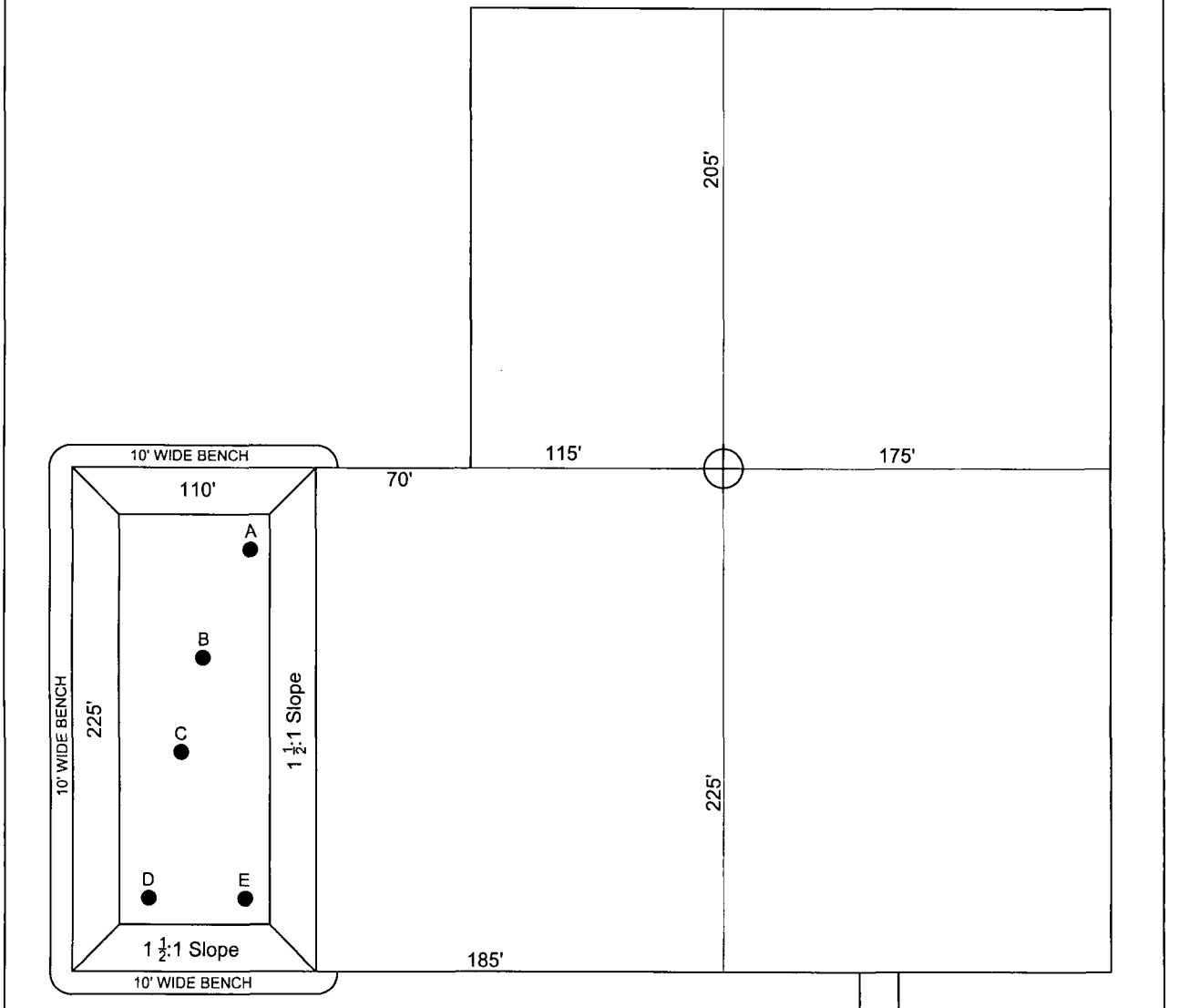
Respectfully submitted,
AMEC Environment & Infrastructure, Inc.

David Janney, PG
Project Manager

Reviewed by:

Dan Kwiecinski, PE
Branch Manager

FIGURES



EXPLANATION:

- ●A COMPOSITE SAMPLE POINTS
- ⊕ GAS WELL

N
W E
S

0 80
Approximate Scale in Feet

SAMPLE LOCATION MAP
Stovall #13-1
Shell Exploration & Production
Section 13, Township 8N, Range 35E
Curry County, NM

By: KWJ	Date: 7/24/12	Project No. HO10160270
amec		Figure 1

TABLES

Table 1
Stovall 13-1 Completion Pit Analytical Summary
Curry County, New Mexico

Sample Number	Date Collected	Matrix	Gasoline Range Organics EPA Method 8015B	Diesel Range Organics EPA Method 8015B	Motor Oil Range Organics EPA Method 8015B	Volatiles B, T, E, X EPA Method 8021B				Total Petroleum Hydrocarbons EPA Method 418.1	Chloride	Comments
Stovall-82611-1	8/26/11	soil	< 5	<10	< 51	< 0.05	< 0.05	< 0.05	< 0.099	20	25	5 point composite
Stovall-82611-2	8/26/11	soil	NA	NA	NA	NA	NA	NA	NA	NA	83	spoils pile

NOTES:
All concentrations are in milligrams per kilogram (mg/Kg) for soil and µg/L for water
B = Benzene
CY = Cubic yards
E = Ethyl benzene
NA = Not analyzed
T = Toluene
X = Xylenes

API No. 30-009-20022

APPENDIX A

Photographic Log

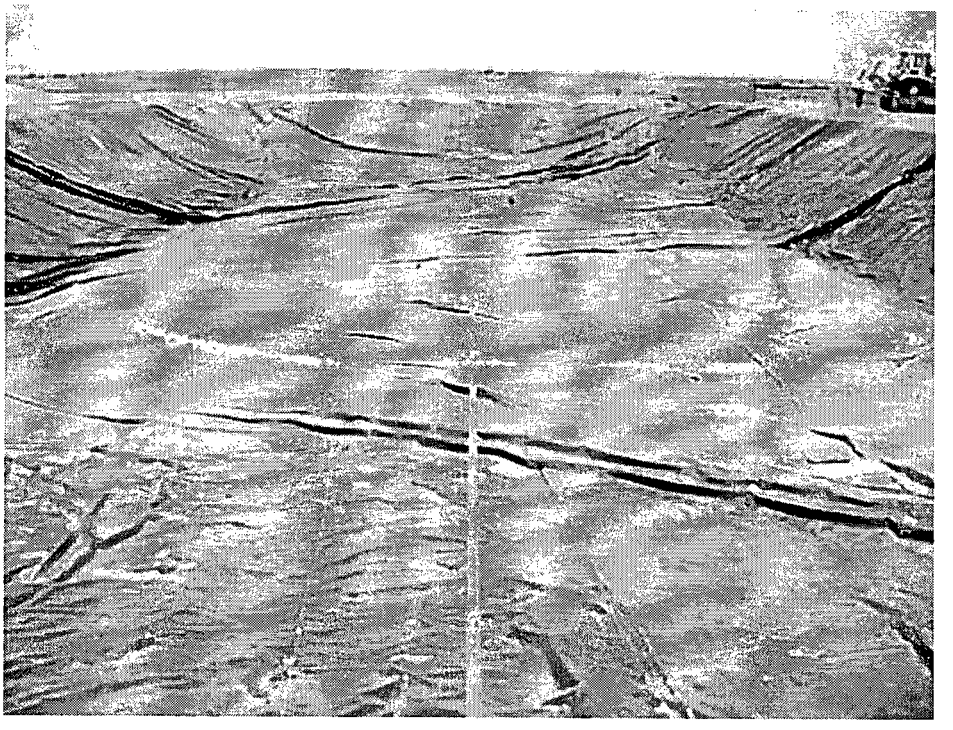


Photo 1. Completion pit during sampling with minor mud and rainwater, note holes cut through liner for soil sampling (looking north).

Photo 2. Sample location Stovall-82611-A (looking northwest).

Photo 3. Sample location Stovall-82611-B (looking west).

Photo 4. Sample location Stovall-82611-C (looking northeast).

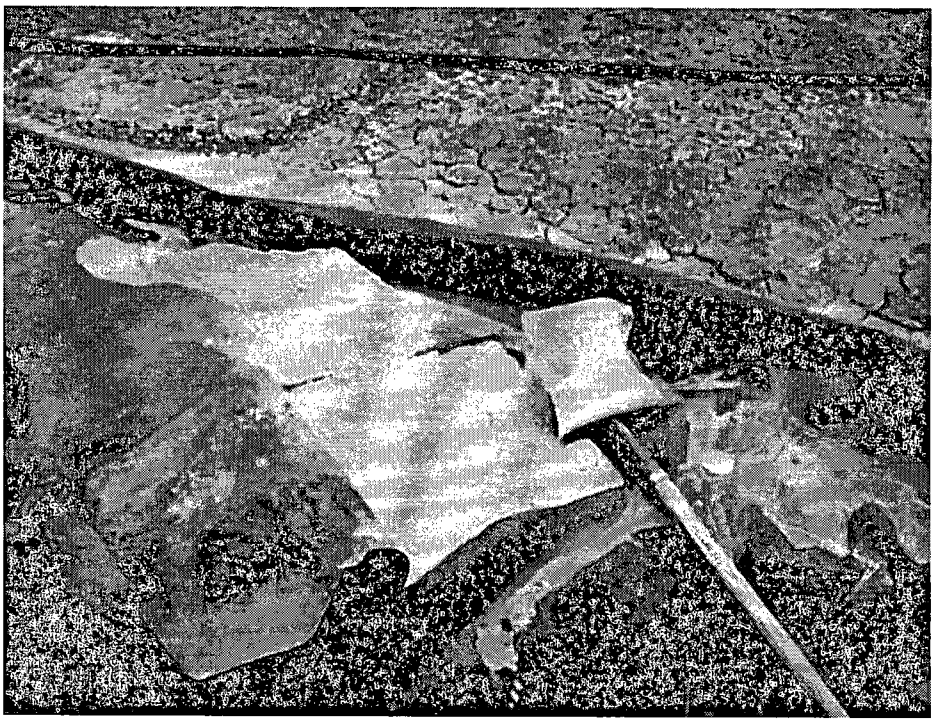


Photo 5. Sample location Stovall-82611-D (looking northeast).

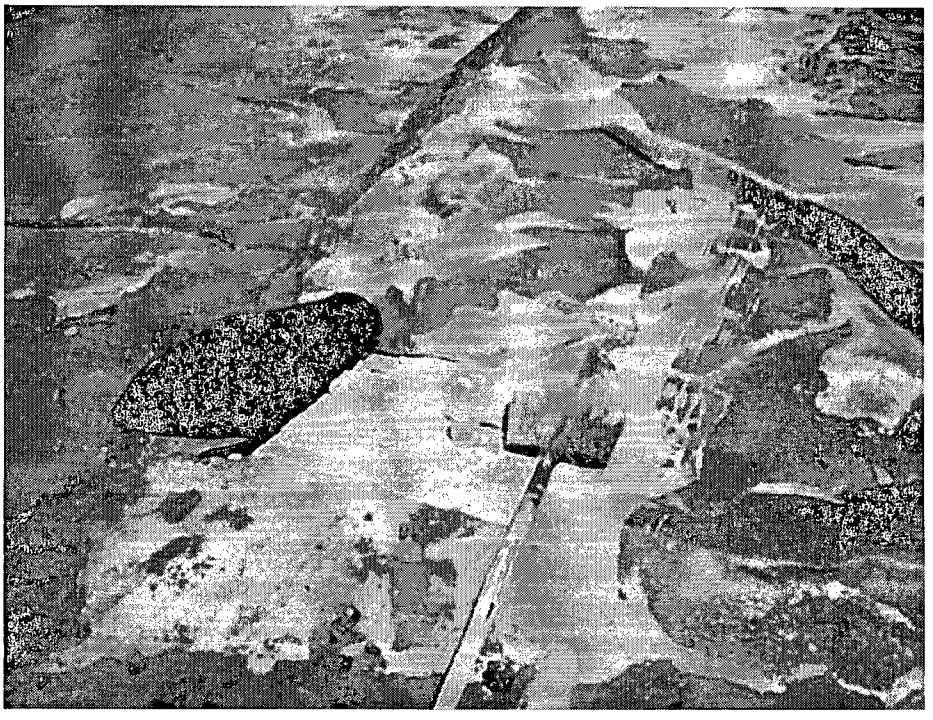


Photo 6. Sample location Stovall-82611-E (looking northwest).

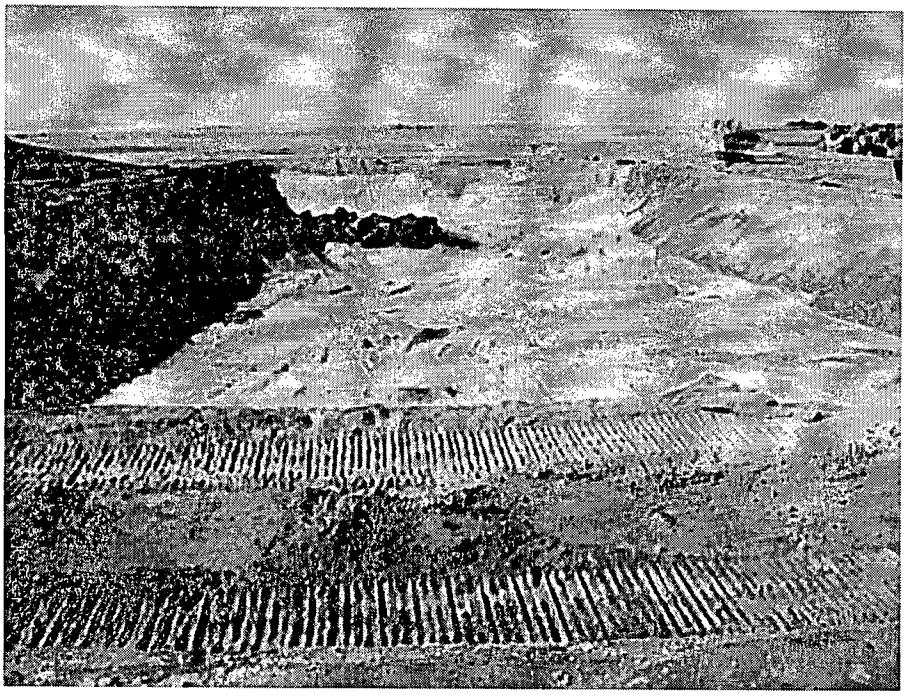


Photo 7. Liner nearly removed (looking north).

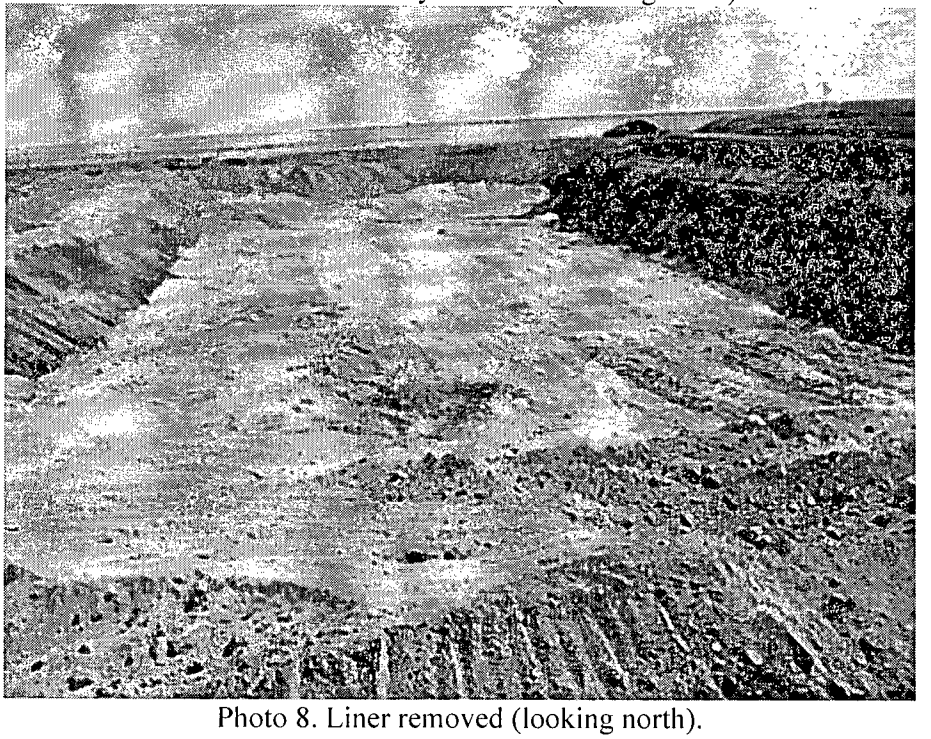


Photo 8. Liner removed (looking north).

Photo 9. Liner removed and staged for transport and disposal (looking north).

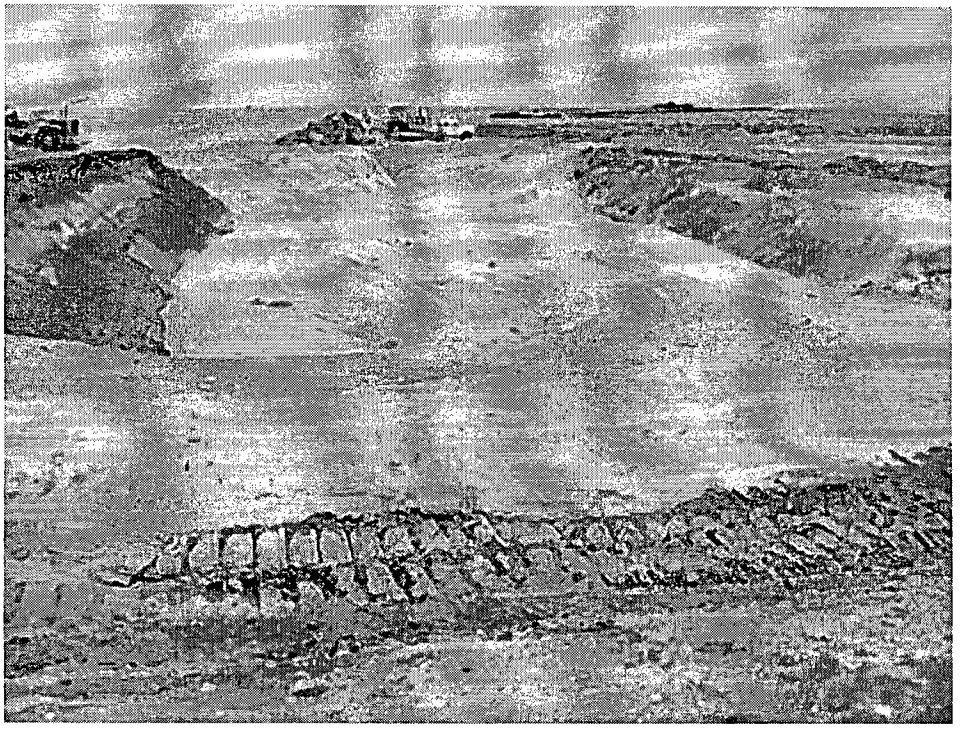


Photo 10. Backfill and compaction partially completed (looking northeast).

Photo 11. Backfill and compaction nearly completed (looking north).

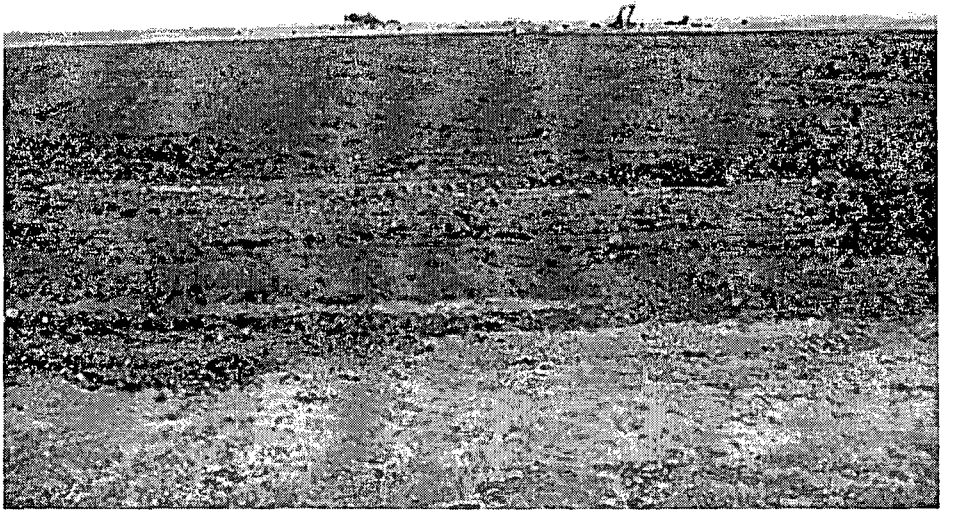


Photo 12. Backfill and compaction completed (looking east-southeast).

Photo 13. Backfill and compaction completed (looking northeast).

APPENDIX B

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

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, August 30, 2011

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

TEL: ( ) 449-8487
FAX (505) 821-7371

RE: Shell-Lobo

Order No.: 1108A94

Dear David Janney:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 8/26/2011 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. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

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

Hall Environmental Analysis Laboratory, Inc.

Date: *30-Aug-11*
Analytical Report

CLIENT:	AMEC	**Client Sample ID:**	Strovall-82611-1
Lab Order:	1108A94	**Collection Date:**	8/26/2011 11:30:00 AM
Project:	Shell-Lobo	**Date Received:**	8/26/2011
Lab ID:	1108A94-01	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JB**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	8/30/2011 9:09:09 AM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	8/30/2011 9:09:09 AM
Surr: DNOP	104	73.4-123		%REC	1	8/30/2011 9:09:09 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/29/2011 4:05:21 PM
Surr: BFB	92.2	75.2-136		%REC	1	8/29/2011 4:05:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.050		mg/Kg	1	8/29/2011 4:05:21 PM
Toluene	ND	0.050		mg/Kg	1	8/29/2011 4:05:21 PM
Ethylbenzene	ND	0.050		mg/Kg	1	8/29/2011 4:05:21 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/29/2011 4:05:21 PM
Surr: 4-Bromofluorobenzene	93.1	80-120		%REC	1	8/29/2011 4:05:21 PM
EPA METHOD 300.0: ANIONS						Analyst: **SRM**
Chloride	25	1.5		mg/Kg	1	8/29/2011 3:48:26 PM
EPA METHOD 418.1: TPH						Analyst: **JB**
Petroleum Hydrocarbons, TR	34	20		mg/Kg	1	8/30/2011

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *30-Aug-11*
Analytical Report

CLIENT:	AMEC	**Client Sample ID:**	Strovall-82611-2
Lab Order:	1108A94	**Collection Date:**	8/26/2011 12:00:00 PM
Project:	Shell-Lobo	**Date Received:**	8/26/2011
Lab ID:	1108A94-02	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **SRM**
Chloride	83	30		mg/Kg	20	8/29/2011 4:40:41 PM

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: AMEC
Project: Shell-Lobo **Work Order:** 1108A94

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions											
Sample ID: MB-28233		*MBLK*				Batch ID:	**28233**	Analysis Date:		8/29/2011 3:13:36 PM	
Chloride	ND	mg/Kg	1.5								
Sample ID: LCS-28233		*LCS*				Batch ID:	**28233**	Analysis Date:		8/29/2011 3:31:01 PM	
Chloride	13.98	mg/Kg	1.5	15	0	93.2	90	110			
Method: EPA Method 418.1: TPH											
Sample ID: MB-28237		*MBLK*				Batch ID:	**28237**	Analysis Date:		8/30/2011	
Petroleum Hydrocarbons, TR	ND	mg/Kg	20								
Sample ID: LCS-28237		*LCS*				Batch ID:	**28237**	Analysis Date:		8/30/2011	
Petroleum Hydrocarbons, TR	98.38	mg/Kg	20	100	0	98.4	87.8	115			
Sample ID: LCSD-28237		*LCSD*				Batch ID:	**28237**	Analysis Date:		8/30/2011	
Petroleum Hydrocarbons, TR	103.5	mg/Kg	20	100	0	104	87.8	115	5.07	8.04	
Method: EPA Method 8015B: Diesel Range Organics											
Sample ID: MB-28229		*MBLK*				Batch ID:	**28229**	Analysis Date:		8/30/2011 7:26:35 AM	
Diesel Range Organics (DRO)	ND	mg/Kg	10								
Motor Oil Range Organics (MRO)	ND	mg/Kg	50								
Sample ID: LCS-28229		*LCS*				Batch ID:	**28229**	Analysis Date:		8/30/2011 8:00:43 AM	
Diesel Range Organics (DRO)	49.91	mg/Kg	10	50	0	99.8	66.7	119			
Sample ID: LCSD-28229		*LCSD*				Batch ID:	**28229**	Analysis Date:		8/30/2011 8:35:04 AM	
Diesel Range Organics (DRO)	45.86	mg/Kg	10	50	0	91.7	66.7	119	8.48	18.9	
Method: EPA Method 8015B: Gasoline Range											
Sample ID: 1108A94-01AMSD		*MSD*				Batch ID:	**28220**	Analysis Date:		8/29/2011 7:27:32 PM	
Gasoline Range Organics (GRO)	27.59	mg/Kg	5.0	24.85	0	111	72.4	149	3.48	19.2	
Sample ID: MB-28220		*MBLK*				Batch ID:	**28220**	Analysis Date:		8/29/2011 10:18:36 AM	
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0								
Sample ID: LCS-28220		*LCS*				Batch ID:	**28220**	Analysis Date:		8/29/2011 12:14:15 PM	
Gasoline Range Organics (GRO)	26.75	mg/Kg	5.0	25	0	107	86.4	132			
Sample ID: 1108A94-01AMS		*MS*				Batch ID:	**28220**	Analysis Date:		8/29/2011 6:58:38 PM	
Gasoline Range Organics (GRO)	26.65	mg/Kg	5.0	25	0	107	72.4	149			
Method: EPA Method 8021B: Volatiles											
Sample ID: MB-28220		*MBLK*				Batch ID:	**28220**	Analysis Date:		8/29/2011 10:18:36 AM	
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-28220		*LCS*				Batch ID:	**28220**	Analysis Date:		8/29/2011 12:43:07 PM	
Benzene	0.9426	mg/Kg	0.050	1	0	94.3	83.3	107			
Toluene	0.9762	mg/Kg	0.050	1	0	97.6	74.3	115			
Ethylbenzene	0.9795	mg/Kg	0.050	1	0	97.9	80.9	122			
Xylenes, Total	2.987	mg/Kg	0.10	3	0	99.6	85.2	123			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name AMEC | Date Received: 8/26/2011

Work Order Number 1108A94 | Received by: AMF

Checklist completed by: Signature 8/26/11 Date | Sample ID labels checked by: MF 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?	**6.4°**	<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: AMEC

Mailing Address: 8519 Jefferson NE
Albuquerque, NM 87113

Phone #: 505.821.1801

email or Fax#: david.janney@amec.com

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

Accreditation
☐ NELAP ☐ Other _____

☒ EDD (Type) Excel

Turn-Around Time:
☐ Standard ☒ Rush 24hr TAT

Project Name: Sovell-Lobo

Project #: H0101160270

Project Manager: David Janney

Sampler: David Janney

On Ice: ☒ Yes ☐ No

Sample Temperature: 0.4

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	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 (300.1)	TPH MRO			Air Bubbles (Y or N)
8-26-11	1120	Soil	Sovell-82611-1	2-4oz glass	None	1108494-1		X	X	X								X	X			
"	1200	"	Sovell-82611-2	1-4oz glass	"	-2												X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
8/26/11	1620	David Janney		8/26/11	1620
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

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