

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  
June 24, 2008

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office.  
For permanent pits and operations, 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

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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

*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: <u>Apache Corporation</u>                                                                                                                                                  | OGRID #: <u>873</u>                |
| Address: <u>6120 S. Yale Ste. 1500</u>                                                                                                                                               |                                    |
| Facility or well name: <u>East Blinbry Drinkard Unit 81</u>                                                                                                                          |                                    |
| API Number: <u>30-025-39057</u>                                                                                                                                                      | OCD Permit Number: <u>P1-00233</u> |
| U/L or Qtr/Qtr <u>B</u> Section <u>14</u> Township <u>215</u> Range <u>37E</u> County: <u>Lea</u>                                                                                    |                                    |
| Center of Proposed Design: Latitude <u>32.482784°N</u> Longitude <u>103.129065°W</u> NAD: <input checked="" type="checkbox"/> 1927 <input type="checkbox"/> 1983                     |                                    |
| Surface Owner: <input type="checkbox"/> Federal <input type="checkbox"/> State <input checked="" type="checkbox"/> Private <input type="checkbox"/> Tribal Trust or Indian Allotment |                                    |

|                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> <b>Pit:</b> Subsection F or G of 19.15.17.11 NMAC                                                                   |
| Temporary: <input type="checkbox"/> Drilling <input type="checkbox"/> Workover                                                               |
| <input type="checkbox"/> Permanent <input type="checkbox"/> Emergency <input type="checkbox"/> Cavitation <input type="checkbox"/> Steel Pit |
| <input type="checkbox"/> Lined <input type="checkbox"/> Unlined                                                                              |
| Liner type: Thickness _____ mil <input type="checkbox"/> LLDPE <input type="checkbox"/> HDPE <input type="checkbox"/> PVC                    |
| <input type="checkbox"/> Other _____ <input type="checkbox"/> String-Reinforced                                                              |
| Seams: <input type="checkbox"/> Welded <input type="checkbox"/> Factory <input type="checkbox"/> Other _____                                 |
| Volume: _____ bbl Dimensions: L _____ x W _____ x D _____                                                                                    |

|                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> <b>Closed-loop System:</b> Subsection H of 19.15.17.11 NMAC                                                           |
| <input type="checkbox"/> Drying Pad <input type="checkbox"/> Tanks <input checked="" type="checkbox"/> Haul-off Bins <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Lined <input type="checkbox"/> Unlined                                                                                           |
| Liner type: Thickness _____ mil <input type="checkbox"/> LLDPE <input type="checkbox"/> HDPE <input type="checkbox"/> PVC                                 |
| <input type="checkbox"/> Other _____                                                                                                                      |
| Seams: <input type="checkbox"/> Welded <input type="checkbox"/> Factory <input type="checkbox"/> Other _____                                              |
| Volume: _____ bbl _____ yd <sup>3</sup>                                                                                                                   |
| Dimensions: Length _____ x Width _____                                                                                                                    |

|                                                                                                |
|------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> <b>Below-grade tank:</b> Subsection I of 19.15.17.11 NMAC             |
| Volume: _____ bbl                                                                              |
| Type of fluid: _____                                                                           |
| Tank Construction material: _____                                                              |
| <input type="checkbox"/> Secondary containment with leak detection                             |
| <input type="checkbox"/> Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off |
| <input type="checkbox"/> Visible sidewalls and liner                                           |
| <input type="checkbox"/> Visible sidewalls only                                                |
| <input type="checkbox"/> Other _____                                                           |
| Liner type: Thickness _____ mil <input type="checkbox"/> HDPE <input type="checkbox"/> PVC     |
| <input type="checkbox"/> Other _____                                                           |

|                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------|
| <b>Fencing:</b> Subsection D of 19.15.17.11 NMAC                                                                          |
| <input type="checkbox"/> Chain link, six feet in height, two strands of barbed wire at top                                |
| <input type="checkbox"/> Four foot height, four strands of barbed wire evenly spaced between one and four feet            |
| <b>Netting:</b> Subsection E of 19.15.17.11 NMAC                                                                          |
| <input type="checkbox"/> Screen <input type="checkbox"/> Netting <input type="checkbox"/> Other _____                     |
| <input type="checkbox"/> Monthly inspections                                                                              |
| <b>Signs:</b> Subsection C of 19.15.17.11 NMAC                                                                            |
| <input type="checkbox"/> 12"x24", 2' lettering, providing Operator's name, site location, and emergency telephone numbers |
| <input type="checkbox"/> Signed in compliance with 19.15.3.103 NMAC                                                       |

|                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> <b>Alternative Method:</b>                                                                                                    |
| Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. |

|                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Administrative Approvals and Exceptions:</b>                                                                                                                                                 |
| 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:                                                                                                            |
| <input type="checkbox"/> Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau office for consideration of approval. |
| <input type="checkbox"/> 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 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

**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 - 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 (required for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9
- ☐ Siting Criteria Compliance Demonstrations (required 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 - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

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

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**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<sub>2</sub>S, 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

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**Proposed Closure:** 19.15.17.13 NMAC

Type: ☐ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ Permanent Pit ☐ Below-grade Tank ☒ Closed-loop System ☐ Alternative

Proposed Closure Method: ☐ Waste Excavation and Removal  
☒ 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)

**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

**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

**Waste Removal Closure For Closed-loop Systems That Utilize Haul-off Bins Only:** (19.15.17.13.D NMAC) Instructions: Please identify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings.

Disposal Facility Name: Sundance Incorporated Disposal Facility Permit Number: NM-01-0003

**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 and Design of Burial Trench (if applicable) 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

**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): Sam Hampton Title: Drilling Engineer

Signature: [Signature] Date: 7/16/08

e-mail address: Sam.hampton@apache.corp.com Telephone: 918-491-4954

**OCD Approval:** ☒ Permit Application (including closure plan) ☐ Closure Plan (only)

OCD Representative Signature: [Signature] Approval Date: 7/31/08

Title: Geologist OCD Permit Number: P1-00233

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

☐ Closure Completion Date: \_\_\_\_\_

**Closure Method:**

- ☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method
- ☐ If different from approved plan, please explain.

**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
- ☐ Proof of Deed Notice (if applicable)
- ☐ Plot Plan
- ☐ Confirmation Sampling Analytical Results
- ☐ Waste Material Sampling Analytical Results
- ☐ 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 \_\_\_\_\_ Longitude \_\_\_\_\_ NAD: ☐ 1927 ☐ 1983

**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): \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

e-mail address: \_\_\_\_\_ Telephone: \_\_\_\_\_

APACHE CORPORATION  
CLOSED-LOOP SYSTEM DESIGN, OPERATION, MAINTENANCE AND CLOSURE  
PLAN – revised 7/16/2008  
TYPICAL FOR NEW MEXICO WELLS

This document is intended to provide design requirements as well as operating, maintenance and closure instructions for closed-loop (drilling fluid) systems, ensuring compliance with the New Mexico Title 19, Chapter 15, Part 17 rules and regulations. Drilling units operating for Apache Corporation in New Mexico should be rigged up with a closed-loop system consistent with this design and should be operated, maintained and closed in a manner consistent with this document.

**Design**

The closed-loop system shall be designed and constructed to ensure the confinement of oil, gas or water and to prevent uncontrolled releases. We will utilize cuttings bins to contain drilled solids for transport and disposal off site at a New Mexico licensed disposal facility. Figure 1. – New Mexico Typical Closed Loop System is attached for reference when reviewing the following design specifications.

The minimum solids removal equipment shall include a high speed shaker and a centrifuge.

- The shale shaker(s) shall be placed to receive all of the fluid and cuttings as they return from the well bore. Entry from the flow line shall be such that splash is minimized. It shall be placed such that the drilled solids that are removed by the screen are easily conveyed to the cuttings bin(s). If a slide is required it should be designed with as much slope as possible to minimize maintenance while drilling.
- The centrifuge shall be fed by a dedicated centrifugal pump from the first active mud tank. It shall be placed such that the drilled solids removed dump directly into the cuttings bin(s). The liquid recovered should be gravity returned to the active mud system, down stream of the feed pump suction.

The minimum active mud system volume shall be 500 barrels. Tank(s) shall be of steel construction and in a condition such that no leaks or uncontrolled releases would be expected.

- The tanks shall be equipped with a jetting system to allow emptying of the tanks into an above ground container.
- Any dump valves shall be in good condition and left closed at all times during regular drilling operations.
- Tank bottoms shall be sloped to facilitate clean out.

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In addition to the active mud tank(s) the closed-loop system shall include at a minimum two additional steel tanks for fluid containment. Both tanks shall be placed such that fluid can easily be drawn out of them on an as needed basis with vacuum trucks.

- One steel tank shall be placed such that it can receive fluid from the choke manifold. This same tank shall be placed where returns from the well bore during cementing operations can be directed into it, diverting cement returns from the active mud system.
- Another steel tank shall be placed such that the active mud system can be jetted into it when dilution is required.

All drilled solids removed from the well bore and recovered from the drilling fluid shall be collected in steel "haul-off" bins. These temporary pits for solids management shall comply with any applicable requirements for temporary pits specified in 19.15.17 NMAC.

- Cuttings bins shall be of steel construction and be capable of being closed during transport to prevent spillage.
- Cuttings bins shall be constructed and placed in a manner to facilitate removal of full bins and placement of empty bins with out disrupting the drilling operations.

The entire closed-loop system as described above, with the exception of the active mud tanks, shall be placed on a 20 mil nylon reinforced liner for splash containment.

- The liner shall be of size and installed in a manner that splash from normal operations such as fluid transfer, jetting of tanks, washing down of shaker slide, etc of the closed-loop system does not reach the soil on the location.
- The liner shall be installed in a manner such that run on of surface water does not occur, and run off of splash fluids does not occur.

#### Operation and Maintenance

The closed-loop system shall be operated and maintained at all times in such a manner as to prevent contamination of fresh water and protect the public health and the environment. While Apache Corp relies on various third party vendors to provide, operate and maintain the closed-loop system, in the end it is the Apache Corp on-site representative who must take responsibility for the effective operation of the system. At the end of the well, all drilling fluids and drilled solids should be disposed of in a licensed disposal facility in New Mexico.

Know which licensed and approved disposal facility is closest to your location and verify they are capable and prepared to receive the cuttings and fluids from your well. Track all loads sent during the drilling of the well and up to the time the rig is moved off of the location.

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Current approved facilities are;

- Controlled Recovery Inc. (877) 505-4274
- Sundance Incorporated (575) 394-2511

Ensure that the closed-loop system meets the design criteria listed above and is properly installed and fully functional prior to spud.

The shale shaker(s) must be run at all times while drilling unless the use of lost circulation material (LCM) prevents it. The shaker(s) should also be run as required while tripping to ensure that any displacement from the well bore is returned to the active system and does not run over the (stopped) shale shaker screens.

- The finest mesh screens that will not cause excessive fluid discharge shall be used at all times. Torn screens should be replaced as soon as possible.
- The shale slide shall be inspected regularly through out a tour and kept clean such that drilled solids do not build up and spill over the sides, missing the cuttings bins.

The centrifuge should be run at all times while drilling fluid is maintained in the active mud system. Continual use will reduce dilution requirements.

- The centrifuge and associated feed pump should be checked regularly through out a tour to ensure they are running properly. Call for a service man as soon as possible if they are found not to be working properly or at all.
- Check for and correct immediately any leaks in the feed pump suction and discharge lines.

Inspect the active system tanks at least every tour to ensure no drilling fluid is leaking onto the location. Check any dump valves and interconnecting pipes for leaks. Correct any leaks as soon as possible upon detection.

- Jet active mud system as required to maintain desired mud weight. Be sure the jetting lines are secure and do not cause excessive splash at the steel holding tank.

Monitor and know/plan the fluid level in the steel fluid containment pits. Call for vacuum trucks with enough lead time to allow for possible delays.

- Plan for displaced fluid during cement jobs. Ensure enough vacuum trucks are on hand as required before beginning your cementing job.
- Do not mix fresh water and brine water if possible. Completely empty fresh water from the steel tanks before converting the mud system to brine water.

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Inspect cuttings bins at least once per tour, noting their level, any spills and any damage to the containers that could result in loss of cutting containment.

- Ensure that you have enough empty volume to handle the high rates of penetration expected on surface holes and other portions of the wells.
- Ensure cuttings bin tops are closed before leaving location en route to the disposal site.

Check the condition of the splash containment liner daily. Look for any leaks and splash accumulation that needs to be cleaned up. Repair any leaks in the liner immediately.

- Clean up any splash accumulation on the liner using diaphragm pumps, vacuum trucks and other means as necessary.

Make every effort to operate and maintain the closed-loop system in a manner that puts no drilling fluid or well bore discharge/cuttings in contact with the location or surrounding area.

In the event of an oil spill that reaches water, or an oil spill to land over five (5) barrels take immediate action to contain the spill and make to following notifications;

- EHS Apache Hotline; 800 874-3262
- NMOCD

In the event of oil reaching water include the following notification;

- Environmental Protection Agency (EPA) National Response Center

#### Closure

The "closure" of the closed-loop system must be completed within six months of the date the drilling rig is released from the location. A Closure Report must be filed with the New Mexico Oil Conservation Division within 60 days of completing the closure.

"Closure" of a closed-loop system begins with the proper disposal of all liquid mud and cuttings that are on location upon rig release. The cuttings and liquid should be transported to an approved disposal facility. This includes any fluid or solids that may be on the surface of the splash containment liner. See operating instructions above.

Next all of the equipment associated with the closed-loop system must be removed. This includes steel tanks, cuttings bins and rails. Ensure that equipment being removed and transported to the next location or other facility is clean and in such a state that no waste will be discharged during transportation.

Once all of the equipment has been removed the splash containment liner material must be gathered up and disposed of in an approved disposal facility. Ensure the liner is recovered in such a manner that any contamination is "folded in" and no discharge will

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occur during transportation to the disposal facility. Visually search for any wet areas, discoloration or other evidence of a mud or cuttings release to the surface. If there is no evidence of any release proceed with filing the closure report.

If there is evidence of a release of mud or cuttings to the surface collect individual grab samples from the potentially contaminated area and analyze for benzene, total BTEX, THP, the GRO and DRO combined fraction and chlorides to demonstrate that benzene, as determined by EPA SW-846 method 8021B or 8260B or other EPA method that the division approves, does not exceed 0.2 mg/kg; total BTEX, as determined by EPA SW-846 method 8021B or 8260B or other EPA methods that the division approves, does not exceed 50 mg/kg; TPH, as determined by EPA SW-846 method 418.1 or other EPA method that the division approves does not exceed 2500 mg/kg; the GRO and DRO combined fraction determined by EPA SW-846 method 8015M, does not exceed 500 mg/kg; and chlorides as determined by EPA method 300.1 do not exceed 500 mg/kg or the background concentration, whichever is greater.

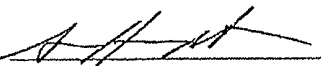
When closure is completed a closure report must be filed with the NMOCD within 60 days. The filing consists of printing a copy of the C-144 that was approved previously, completing the Closure Report on page 4 and submitting it to the NMOCD.

For our closed-loop systems in the Closure Report area of the form we will provide the closure completion date and check the "Closure Completion Date" box found approx. 2/3 of the way down the page. In the Closure Method area, check the "Waste Excavation and Removal" box. In the Closure Report Attachment Checklist put a check mark in the "Disposal Facilities Name and Permit Number". In the space to the right of the checklist write in the name(s) of the disposal facility or facilities used during both the drilling and the closure phase of the closed-loop operation. If there was no evidence of liner leakage of splashed mud or cuttings then complete the Operator Closure Certification box at the bottom of page 4 of Form C-144, sign and date it and submit it to the NMOCD.

If there was evidence of liner leakage requiring samples and analysis, in addition to the instructions for completing Form C-144 listed above, check the "Confirmation Sampling Analytical Results" box in the Closure Report Attachment Checklist and attach a copy of the soil analysis report.

Prepared by

July 2, 2008

  
Sam Hampton, P.E.  
Drilling Engineer

Attachment:

Figure 1. – New Mexico Typical Closed-Loop System

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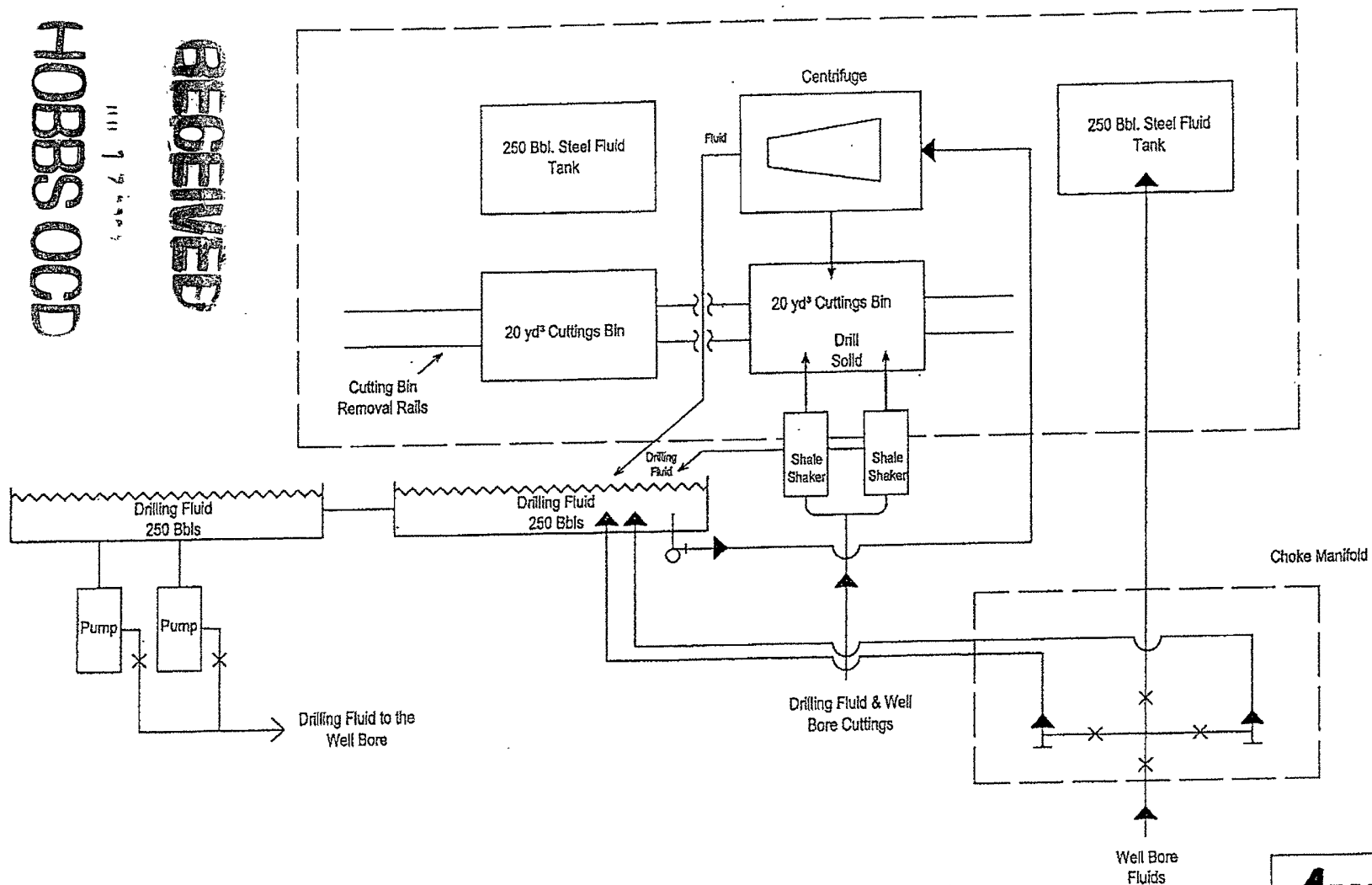
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20-mil liner for splash containment



**Apache**  
CORPORATION

Figure 1  
New Mexico Typical  
Closed-Loop System