

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

Form C-144  
June 1, 2004

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

For drilling and production facilities, submit to appropriate NMOCD District Office.  
For downstream facilities, submit to Santa Fe office

Pit or Below-Grade Tank Registration or Closure

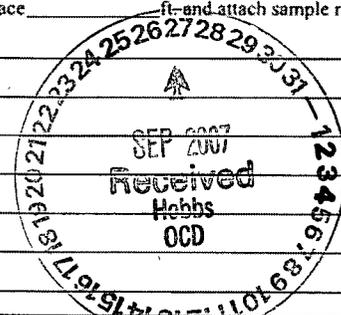
Is pit or below-grade tank covered by a "general plan"? Yes  No   
Type of action: Registration of a pit or below-grade tank  Closure of a pit or below-grade tank

Operator: Apache Corporation Telephone: 918-491-4952 e-mail address: david.woolf@apachecorp.com  
Address: Two Warren Place / 6120 South Yale, Ste. 1500 / Tulsa Oklahoma 74136  
Facility or well name: Federal CST #1 API #: 30-025-25138 U/L or Qtr:Qtr \_\_\_\_\_ Sec 31 T 18 S R 32 E  
County: Lea Latitude 32° 41' 54.9" Longitude 103° 48' 13.4" NAD: 1927  1983   
Surface Owner: Federal  State  Private  Indian

<b>Pit</b> Type: Drilling <input type="checkbox"/> Production <input type="checkbox"/> Disposal <input checked="" type="checkbox"/> Workover <input type="checkbox"/> Emergency <input type="checkbox"/> Lined <input checked="" type="checkbox"/> Unlined <input type="checkbox"/> Liner type: Synthetic <input checked="" type="checkbox"/> Thickness <u>60</u> mil Clay <input type="checkbox"/> Pit Volume <u>1090</u> bbl	<b>Below-grade tank</b> Volume: _____ bbl Type of fluid: _____ Construction material: _____ Double-walled, with leak detection? Yes <input type="checkbox"/> If not, explain why not. _____	
	Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)	Less than 50 feet (20 points) 50 feet or more, but less than 100 feet (10 points) <u>100 feet or more</u> (0 points) <input checked="" type="checkbox"/>
Wellhead protection area: (Less than 200 feet from a private domestic water source, or less than 1000 feet from all other water sources.)	Yes <u>No</u> (0 points) <input checked="" type="checkbox"/>	
Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)	Less than 200 feet (20 points) 200 feet or more, but less than 1000 feet (10 points) <u>1000 feet or more</u> (0 points) <input checked="" type="checkbox"/>	
<b>Ranking Score (Total Points)</b>		<u>0</u>

If this is a pit closure: (1) Attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location: (check the onsite box if you are burying in place) onsite  offsite  If offsite, name of facility \_\_\_\_\_ (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No  Yes  If yes, show depth below ground surface \_\_\_\_\_ ft. and attach sample results. (5) Attach soil sample results and a diagram of sample locations and excavations.

Additional Comments:  
See attached proposed work plan.



I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that the above described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines , a general permit , or an (attached) alternative OCD-approved plan .

Date: 9/24/07  
Printed Name/Title: David Woolf Signature: [Signature]

Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

**DENIED**  
Printed Name/Title: \_\_\_\_\_ Signature: [Signature] ENVIRONMENTAL ENGINEER Date: 10.1.07

IRP 917

# Site Restoration Work Plan

## Federal CST #1

## Oil and Gas Production Facility

Lea County, New Mexico

*Prepared for:*

**Apache Corporation  
Two Warren Place  
6120 South Yale, #1500  
Tulsa, Oklahoma 74136**

**September 2007**

*Prepared by:*



Kane Environmental Engineering, Inc.  
5307 Oakdale Creek Court  
Spring, Texas 77379  
Project No. 06-467



---

## TABLE OF CONTENTS

---

### SECTIONS

1.0	SITE HISTORY .....	1
2.0	ASSESSMENT AND SAMPLING PROGRAM.....	3
3.0	QUALITY CONTROL .....	4
4.0	RESTORATION PROCEDURE.....	5

### FIGURES

Figure 1	USGS Topographic Map, Federal CST #1 Oil and Gas Production Facility
Figure 2	Facility Plot Plan

### APPENDICES

Appendix A	Selected Photographs
Appendix B	BLM Form 3160-5 Sundry Notices and Reports on Wells
Appendix C	OCD Form C-144 Pit or Below-Grade Tank Registration or Closure
Appendix D	OCD Ranking Support Information
Appendix E	Seeding Requirements
Appendix F	Safety Protocols

## 1.0 SITE HISTORY

At the request of Apache Corporation (Apache), Kane Environmental Engineering, Inc. (Kane Environmental) conducted a site visit of the Federal CST #1 Oil and Gas Production Facility to assess the current condition of the site. The visit was made on June 6, 2006. This property is identified as being located in Section 31, Township 18 South, Range 32 East, Lea County, New Mexico, at a global position of North 32° 41' 54.9", West 103° 48' 13.4". A topographic map of the location is shown as Figure 1, a layout of the facility equipment is depicted in Figure 2 and selected photographs of the site provided in Appendix A.

According to the lease identification sign the property was reportedly last operated by CW Stumhoffer. According to the Notice of Written Order dated 5/10/2006 the current operator of record is General Operating Company. Several attempts by the Bureau of Land Management Service (BLM) to contact this operator were unsuccessful. As a result it appears that Apache is the solvent operator of record and is responsible for restoring this facility in accordance with appropriate BLM rules and practices. The resolution of this situation has led to the lapse in time from the initial review and the submission of this proposed site restoration workplan.

The BLM Notice of Written Order received by Apache specifies that a workplan be developed to sample and subsequently restore the Federal CST #1 Oil and Gas Production Facility. The plan is to be submitted to and approved by both BLM and New Mexico Oil Conservation Division personnel. Apache retained Kane Environmental to prepare this Site Restoration Workplan to comply with the BLM Notice of Written Order. Notification to the BLM concerning proposed restoration activities is provided in Appendix B (Sundry Notice). Additional information requested by OCD personnel is provided in Appendix C (Release Notification). The following section addresses the proposed plan to assess, sample and restore the site.

## 2.0 Assessment and Sampling Program

During the site visit conducted on June 6, 2006 a Naturally Occurring Radioactive Material (NORM) survey was completed. The survey was performed by Alan J. Kane, P.E., of Kane Environmental, using a Ludlum Model 3 meter (S/N PR182792) with a Ludlum Model 44-2 detector (S/N 175532) that was calibrated on 4/6/2006. The highest reading of 20 uR/hr was observed on the drain valve on the fiberglass produced water storage tank. All other areas of the site were at the background NORM reading for the site of 5 uR/hr.

The New Mexico Oil Conservation Guidelines for Remediation of Leaks, Spills and Releases utilize a site ranking protocol for determining the remediation requirements for hydrocarbon-impacted soil. Based on this guidance and available hydrogeologic information, this site is ranked as follows:

<b>Criterion</b>	<b>Measured Value</b>	<b>Ranking Score</b>
Depth to groundwater	>100 ft	0
Distance to wellhead protection area	>1000 ft, >200 ft	0
Distance to surface water	>1000 ft	0
<b>Total Ranking Score:</b>		<b>0</b>

The site sensitivity ranking for Federal CST #1 Oil and Gas Production Facility is rated at 0. This ranking score yields the following remediation thresholds:

<b>Constituent</b>	<b>Remediation Threshold</b>
Total Petroleum Hydrocarbons	5,000 ppm
Benzene	10 ppm
BTEX	50 ppm
Chloride	250 ppm

Information used to evaluate the ranking is provided in Appendix D.

Several areas of weathered oil and stained soil observed during the site visit with representative photographs provided in Appendix A. There were no visible signs of recent releases of oil and/or produced water. The proposed sampling and analysis program will be addressed in the restoration procedure section below.

## Field Investigation Protocols

Soil logs will be prepared during sample collection and field headspace readings will be collected on each 1-foot sample interval using a Thermo Environmental 580-B photo-ionization detector (PID). Sample collection and headspace readings will be conducted according to the procedures outlined in NMOCD's Guidelines for Remediation of Leaks, Spills, and Releases. A threshold value of 100 ppm will be used to estimate compliance with applicable BTEX standards and as a guide for the need to collect additional samples.

The sample interval demonstrating a maximum field headspace reading and the terminal depth sample interval will be submitted to OilLab, Inc. in Midland Texas under Chain of Custody transport for the analysis of the following constituents:

- TPH-GRO
- TPH-DRO
- BTEX
- Chlorides

Typical soils encountered in this area can range from sandy loam surface soils to silty clay subsurface (generally), overlying hard to very hard but friable caliche. Actual soil types will be classified using the Unified Soil Classification System.

### 3.0 QUALITY CONTROL

All sample collection equipment will be decontaminated between intervals by washing with soap and water followed by a clean-water rinse.

All soil samples to be submitted for laboratory analysis will be immediately packed on ice for shipment to the laboratory under a Chain of Custody transport. EPA approved pre-cleaned and certified containers will be used for sample collection.

The PID used for headspace analysis will be calibrated to assume a benzene response factor prior to arrival on location.

Laboratory quality control measures used to insure the precision and accuracy of the data will include:

- matrix spike analyses to demonstrate the effectiveness of the extraction procedures
- known standard sample analyses and quality control spike analyses to demonstrate the accuracy of the equipment used for laboratory analyses
- method blank analyses to demonstrate the purity of reagents used

All analytical quality control measures must be within acceptable limits for the data to be accepted as valid.

All laboratory analyses must be completed within required sample holding times, using EPA or OCD approved analytical methods for the data to be accepted as valid.

#### 4.0 RESTORATION PROCEDURE

The plugging and abandonment of the CST Federal #1 Well and removal of all surface equipment and flowlines will be completed before restoration activities commence. Based on site conditions, information provided by BLM and OCD personnel, and pending approval by BLM and OCD personnel, Apache Corporation proposes the following sampling and restoration procedures for this site.

1. Prior to initiation of remediation activities, samples of the weathered oil on the soil surface, and the soil underlying the weathered oil will be collected. Four composite samples comprised of five randomly spaced boring will be collected, with samples collected to a depth of one-foot (or until refusal if less than one foot) below the weathered oil. The samples will be submitted to the laboratory for TPH-GRO, TPH-DRO, BTEX, and chloride analyses. The results will be compared to the clean up threshold determined in section 2.0 above. In the event any of the sample results are above the cleanup thresholds both BLM and OCD personnel will be consulted to determine the appropriate remedial action.
2. A back-hoe will be used to excavate a hole of approximately (35) foot by (35) foot to a depth of 60 inches. The excavated soil will be stockpiled for use as soil cover and for contouring the site to limit erosion.
3. The bottom and sides of the excavation will be lined with a 12 millimeter HDPE or equivalent liner.
4. The back-hoe will remove the mixed weathered oil around the wellhead, heater-treater and storage tanks (approximately 2,450 cubic feet ft<sup>3</sup>). The excavated material will be placed in the excavation and covered with the synthetic liner. Finally the excavated material will be covered with approximately (36) thirty six inches of clean excavated material.
5. Samples will be collected of the remaining stained soil areas as well as the soil underlying the excavated areas for TPH-GRO, TPH-DRO, BTEX, and chloride analyses. The analytical results will be compared to the predetermined clean-up criteria to demonstrate compliance.
6. A maintainer fitted with a scarifying attachment will be used to break the ground surface across the entire site including roadbed to a depth of approximately eighteen (18) inches. A dozer will be used to contour the site to limit the potential for erosion. Fill material will be placed as needed.
7. A tractor powered tiller will be used to till the entire site. The site will be either broadcast seeded or seeded using a drill system. The seed mixture and rate will be as directed by BLM (requirements provided in Appendix E). The approximate requirements for broadcast seeding are (if drill seeding method is used the requirements will be ½ of those specified below);

- 20 lbs Plains Bristle Grass
  - 20 lbs Sand Bluestem
  - 12 lbs Little Bluestem
  - 24 lbs Big Bluestem
  - 4 lbs Plains Coreopsis
  - 4 lbs Sand Dropseed
  - 20 lbs Four-winged Saltbrush
8. A balanced fertilizer (13-13-13) will be applied to the entire site including road beds at a rate of 150 pounds per acre (approximately 300 lbs). The site will then be watered as needed.
9. Safety Protocols are provided in Appendix F

Safety Protocol:

1. All work will be performed in a safe manner.
2. A tailgate safety meeting will be conducted each morning prior to initiation of work. A limited hazard analysis will be done based on the scheduled tasks.
3. No excavation or sampling will be performed without clearing the area of utility lines.
4. Boom up/down will not be performed without visual confirmation that the overhead area is clear of obstructions.
5. Call sheet and directions to local hospital will be available to all on-site personnel.