Form 3160-3
(March 2012)

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMLC0029426B

6. If Indian, Allotee or Tribe Name:

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.: NMNM134086

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

8. Lease Name and Well No.: CEDAR LAKE FEDERAL CA 954H 315935

2. Name of Operator: APACHE CORPORATION 873

9. API Well No.: 30-015-45029

3a. Address: 303 Veterans Airpark Lane #1000 Midland TX

3b. Phone No. (include area code): (432)818-1000

10. Field and Pool, or Exploratory: YESO / FREN;GLORIETA-YESO

4. Location of Well (Report location clearly and in accordance with any State requirements.*)

At surface: NWNW / 1039 FNL / 510 FWL / LAT 32.8534674 / LONG -103.8816233

At proposed prod. zone: SWNW / 1335 FNL / 330 FWL / LAT 32.8525747 / LONG -103.9157099

11. Sec., T. R. M. or Blk. and Survey or Area: SEC 9 / T17S / R31E / NMP

14. Distance in miles and direction from nearest town or post office*: 7.9 miles

12. County or Parish: EDDY

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 485 feet

16. No. of acres in lease: 1919.88

17. Spacing Unit dedicated to this well: 311.57

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 30 feet

19. Proposed Depth: 5565 feet / 15708 feet

20. BLM/BIA Bond No. on file: FED: NMB000736

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3875 feet

22. Approximate date work will start*: 04/15/2018

23. Estimated duration: 20 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature	Name (Printed/Typed)	Date
(Electronic Submission)	Sorina Flores / Ph: (432)818-1167	12/14/2017
Title: Supv of Drilling Services		
Approved by (Signature): (Electronic Submission)	Name (Printed/Typed): Cody Layton / Ph: (575)234-5959	Date: 05/23/2018
Title: Supervisor Multiple Resources	Office: CARLSBAD	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

APPROVED WITH CONDITIONS

Approval Date: 05/23/2018

NM OIL CONSERVATION
ARTESIA DISTRICT
JUN 07 2018
RECEIVED

RJS 6-7-18

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM 1: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.
AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160
PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.
ROUTINE USE: Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.
EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:
The BLM collects this information to allow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

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Additional Operator Remarks

Location of Well

1. SHL: NWNW / 1039 FNL / 510 FWL / TWSP: 17S / RANGE: 31E / SECTION: 9 / LAT: 32.8534674 / LONG: -103.8816233 (TVD: 0 feet, MD: 0 feet)
   PPP: NENE / 1065 FNL / 96 FEL / TWSP: 17S / RANGE: 31E / SECTION: 8 / LAT: 32.8534162 / LONG: -103.883595 (TVD: 5565 feet, MD: 5840 feet)
   BHL: SWNW / 1335 FNL / 330 FWL / TWSP: 17S / RANGE: 31E / SECTION: 7 / LAT: 32.8525747 / LONG: -103.9157099 (TVD: 5565 feet, MD: 15708 feet)

BLM Point of Contact

Name: Katrina Ponder
Title: Geologist
Phone: 5752345969
Email: kponder@blm.gov

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Apache Corporation
LEASE NO.:	NMLC0029426B
WELL NAME & NO.:	Cedar Lake Federal CA 954H
SURFACE HOLE FOOTAGE:	1039'/N & 510'/W
BOTTOM HOLE FOOTAGE	1335'/N & 330'/W
LOCATION:	Section 9, T.17 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	◉ Conventional	○ Multibowl	
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

1. A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Grayburg** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

1. The **13 3/8** inch surface casing shall be set at approximately **545** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **Excess calculates to 5% - additional cement will be required.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

2. The minimum required fill of cement behind the **9 5/8** inch intermediate casing is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above.

Option 2:

Operator has proposed a DV tool at a depth of **700'**, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Excess calculates to 13% - additional cement might be required.**

3. The minimum required fill of cement behind the **7 X 5 1/2** inch production casing is:

Operator has proposed DV tool at depth of 5465' (KOP)

a. First stage to DV tool: - Cement not required

b. Second stage above DV tool:

- Cement as proposed. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.

D. SPECIAL REQUIREMENT (S)

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ Chaves and Roosevelt Counties
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

☒ Eddy County
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
    e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the

plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. The results of the test shall be reported to the appropriate BLM office.

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., 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

Submit Original to Appropriate District Office

GAS CAPTURE PLAN

☒ Original Operator: Apache Corporation OGRID No: 873 Date: 5/16/2018

☐ Amended Date: _____

Reason for Amendment: _____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

Note: A C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule 19.15.18.12.A

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Cedar Lake Fed CA 953H		Sec 9 T17S R31E	1130' FNL & 508' FWL	2000	Flared	Flared only in emergency
Cedar Lake Fed CA 954H		Sec 9 T17S R31E	1039' FNL & 510' FWL	2000	Flared	Flared only in emergency

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to **FRONTIER FIELD SERVICES, LLC** and will be connected to **FRONTIER'S LOW** pressure gathering system located in **EDDY** County, New Mexico. It will require **1000** ft of pipeline to connect the facility to **LOW** pressure gathering system. Apache Corporation provides (periodically) to **FRONTIER FIELD SERVICES, LLC** a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Apache Corporation and **FRONTIER FIELD SERVICES, LLC** have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at **FRONTIER'S MALJAMAR** Processing Plant located in **Sec. 28, Twp 17S, Rng 32E, LEA County**, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on **FRONTIER FIELD SERVICES, LLC** system at that time. Based on current information, it is Apache Corporation's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

Approval Date: 05/23/2018

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Apache Corporation
LEASE NO.:	NMLC0029426B
WELL NAME & NO.:	Cedar Lake Federal CA 954H
SURFACE HOLE FOOTAGE:	1039'/N & 510'/W
BOTTOM HOLE FOOTAGE	1335'/N & 330'/W
LOCATION:	Section 9, T.17 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

Dunes Sagebrush Lizard Trench Stipulation:

- Pre-construction contact with a BLM wildlife biologist is required within 5 days before any ground disturbing activities associated with the project occurs.
- Successful completion of the BLM Trench Stipulation Workshop is required for a non-agency person to be approved as a monitor.
- Any trench left open for (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, an agency approved monitor shall walk the entire length of the open trench and remove all trapped vertebrates. The bottom surface of the trench will be disturbed a minimum of 2 inches in order to arouse any buried vertebrates. All vertebrates will be released a minimum of 100 yards from the trench.
- For trenches left open for eight (8) hours or more the following requirements apply:
    - Earthen escape ramps and/or structures (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench. Metal structures will not be authorized. Options will be discussed in detail at the required Trench Stipulation Workshop.
    - One approved monitor shall be required to survey up to three miles of trench between the hours of 11 AM-2 PM. A daily report (consolidate if

there is more than one monitor) on the vertebrates found and removed from the trench shall be provided to the BLM (email/fax is acceptable) the following morning.

- Prior to backfilling of the trench all structures used as escape ramps will be removed and the bottom surface of the trench will be disturbed a minimum of 2 inches in order to arouse any buried vertebrates. All vertebrates will be released a minimum of 100 yards from the trench.

- This stipulation shall apply to the entire length of the project in the DSL habitat polygon regardless of land ownership or CCA/CCAA enrollment status.
- A project closeout will be required within three business days of the completion of the project.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching
Ditching shall be required on both sides of the road.

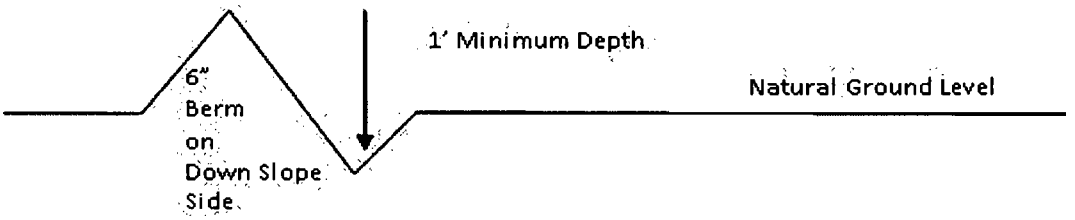
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

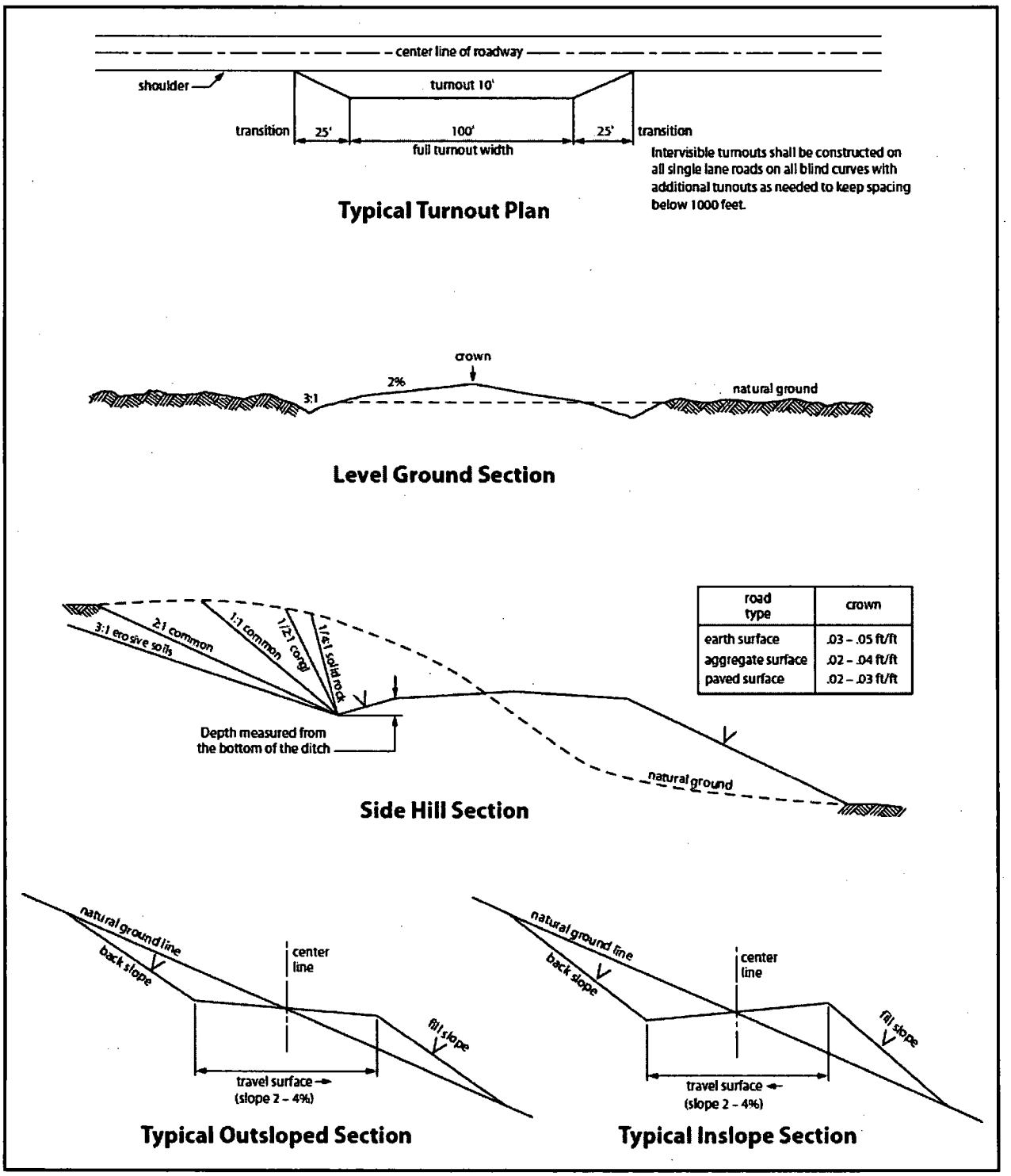


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. PIPELINES

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting

Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of **36** inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be **30** feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed **20** feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)

- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed **30** feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

(**X**) seed mixture 1	( ) seed mixture 3
( ) seed mixture 2	( ) seed mixture 4
( ) seed mixture 2/LPC	( ) Aplomado Falcon Mixture

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Cattleguards: An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s). Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

20. Any damage to structures that provide water to livestock throughout the life of the well, caused by operations from the well site, must be immediately corrected by the operator. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for

production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture 1 for Loamy Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed shall be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed shall be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture shall be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed shall be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre shall be doubled. The seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains lovegrass (Eragrostis intermedia)	0.5
Sand dropseed (Sporobolus cryptandrus)	1.0
Sideoats grama (Bouteloua curtipendula)	5.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

Seed Mixture for LPC Sand/Shinnery Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

APACHE CORPORATION
CEDAR LAKE FEDERAL CA #953H
(1130' FNL & 508' FWL)
SECTION 9, T17S, R31E
N. M. P. M., EDDY COUNTY, NEW MEXICO

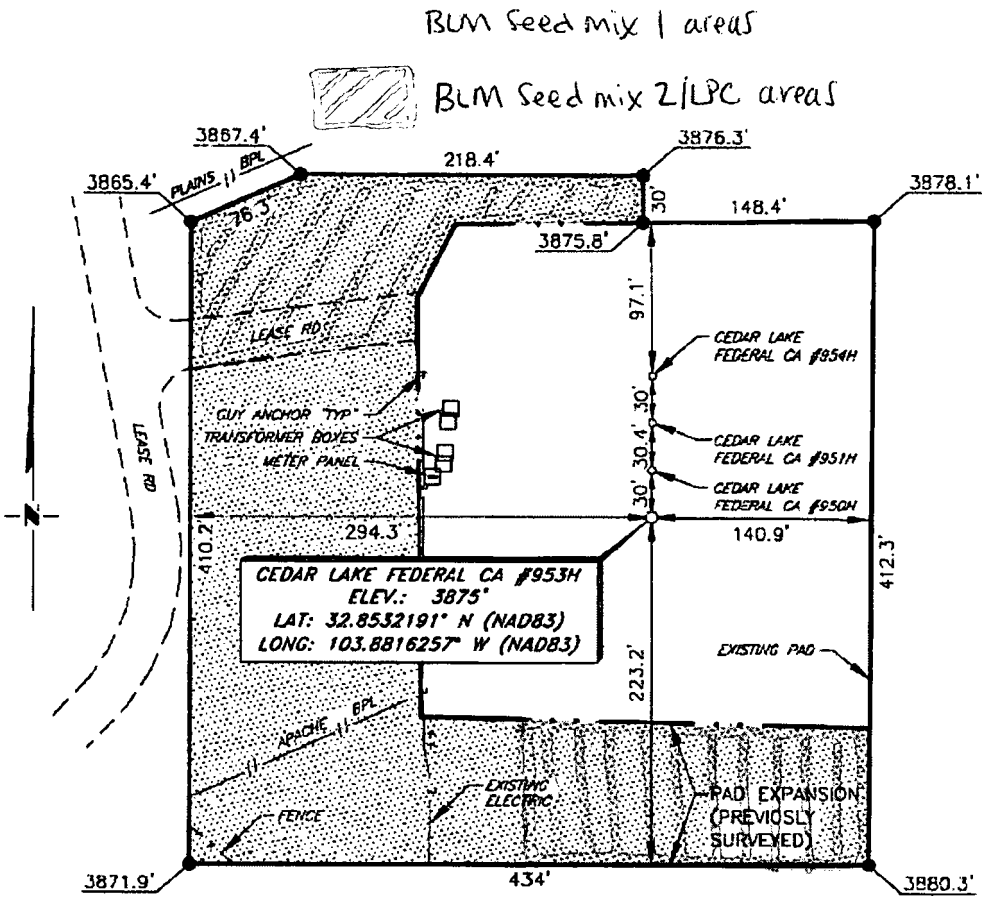


Figure 2: BLM Seed Mixture 1 for Loamy Sites should be planted in the west and southwestern areas during interim reclamation. BLM seed mixture 2 for LPC/Sand Shinnery Sites should be planted in the southeastern and northwestern areas during interim reclamation, and along the buried pipeline route.

Approval Date: 05/23/2018

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

ator Certification Data Report

05/30/2018

Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: Sorina Flores **Signed on:** 12/14/2017

Title: Supv of Drilling Services

Street Address: 303 Veterans Airpark Ln #1000

City: Midland **State:** TX **Zip:** 79705

Phone: (432)818-1167

Email address: sorina.flores@apachecorp.com

Field Representative

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Application Data Report

05/30/2018

APD ID: 10400025084 **Submission Date:** 12/14/2017

Operator Name: APACHE CORPORATION

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400025084 **Tie to previous NOS?** **Submission Date:** 12/14/2017

BLM Office: CARLSBAD **User:** Sorina Flores **Title:** Supv of Drilling Services

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMLC0029426B **Lease Acres:** 1919.88

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? YES **Federal or Indian agreement:** FEDERAL

Agreement number: NMNM134086

Agreement name:

Keep application confidential? YES

Permitting Agent? NO **APD Operator:** APACHE CORPORATION

Operator letter of designation:

Operator Info

Operator Organization Name: APACHE CORPORATION

Operator Address: 303 Veterans Airpark Lane #1000 **Zip:** 79705

Operator PO Box:

Operator City: Midland **State:** TX

Operator Phone: (432)818-1000

Operator Internet Address:

Section 2 - Well Information

Well in Master Development Plan? NO **Mater Development Plan name:**

Well in Master SUPO? NO **Master SUPO name:**

Well in Master Drilling Plan? NO **Master Drilling Plan name:**

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** YESO **Pool Name:** FREN;GLORIETA-YESO

Is the proposed well in an area containing other mineral resources? NATURAL GAS,OIL

Operator Name: APACHE CORPORATION

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H

Describe other minerals:

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** YES **New surface disturbance?** Y

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** PAD 25W **Number:** 954H

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 7.9 Miles **Distance to nearest well:** 30 FT **Distance to lease line:** 485 FT

Reservoir well spacing assigned acres Measurement: 311.57 Acres

Well plat: PlatRev_CedarLakeFedCA954H_signed_20171214124207.pdf

Well work start Date: 04/15/2018 **Duration:** 20 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number:

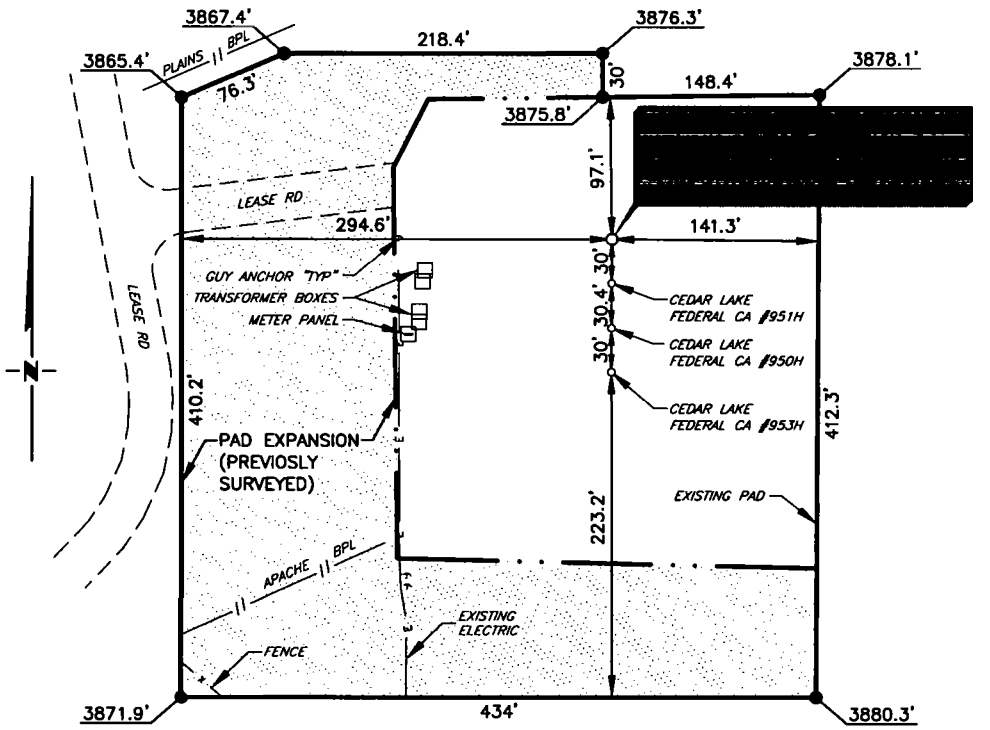
	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	1039	FNL	510	FWL	17S	31E	9	Aliquot NWNW	32.8534674	-103.8816233	EDDY	NEW MEXICO	NEW MEXICO	F	NMLC0029426B	3875	0	0
KOP Leg #1	1039	FNL	510	FWL	17S	31E	9	Aliquot NWNW	32.8534674	-103.8816233	EDDY	NEW MEXICO	NEW MEXICO	F	NMLC0029426B	3875	0	0
PPP Leg #1	1065	FNL	96	FEL	17S	31E	8	Aliquot NENE	32.8534162	-103.8835195	EDDY	NEW MEXICO	NEW MEXICO	F	NMLC0029435B	-1690	5840	5565

Operator Name: APACHE CORPORATION

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	1335	FNL	330	FWL	17S	31E	7	Aliquot SWNW	32.8525747	-103.9157099	EDDY	NEW MEXICO	NEW MEXICO	F	NMLC0029435A	-1690	15708	5565
BHL Leg #1	1335	FNL	330	FWL	17S	31E	7	Aliquot SWNW	32.8525747	-103.9157099	EDDY	NEW MEXICO	NEW MEXICO	F	NMLC0029435A	-1690	15708	5565

APACHE CORPORATION
CEDAR LAKE FEDERAL CA #954H
(1039' FNL & 510' FWL)
SECTION 9, T17S, R31E
N. M. P. M., EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

From the intersection of HWY-82 (Lovington Hwy.) and CR-221 (Skelly Rd.),
Go North on CR-221 approx. 1.4 miles to a lease road on the right;
Turn right on lease road and go Northeast approx. 0.6 miles to a "Y";
Turn right at "Y" and go East on lease road approx. 0.6 miles to a bend to the left;
Continue on lease road and go North approx. 0.5 miles to a lease road on the right;
Turn right on lease road and go East approx. 0.9 miles to a lease on the right;
Turn right on lease road and go South approx. 334 feet to a lease road on the left;
Turn left and go East on lease road approx. 314 feet to proposed location on the right.

SCALE: 1" = 100'
0 50' 100'

BEARINGS ARE GRID NAD 83 NM EAST
DISTANCES ARE HORIZ. GROUND.

I, R. M. Howett, a N. M. Professional Surveyor, hereby certify that I prepared this unclassified survey of a well location from an actual survey made on the ground under my direct supervision, said survey and plat meet the Min. Stds. for Land Surveying in the State of N. M. and are true and correct to the best of my knowledge and belief.

Robert M. Howett
Robert M. Howett NM PS 19680

ROBERT M. HOWETT
NEW MEXICO
19680
11/8/17
PROFESSIONAL SURVEYOR

NO.	REVISION	DATE

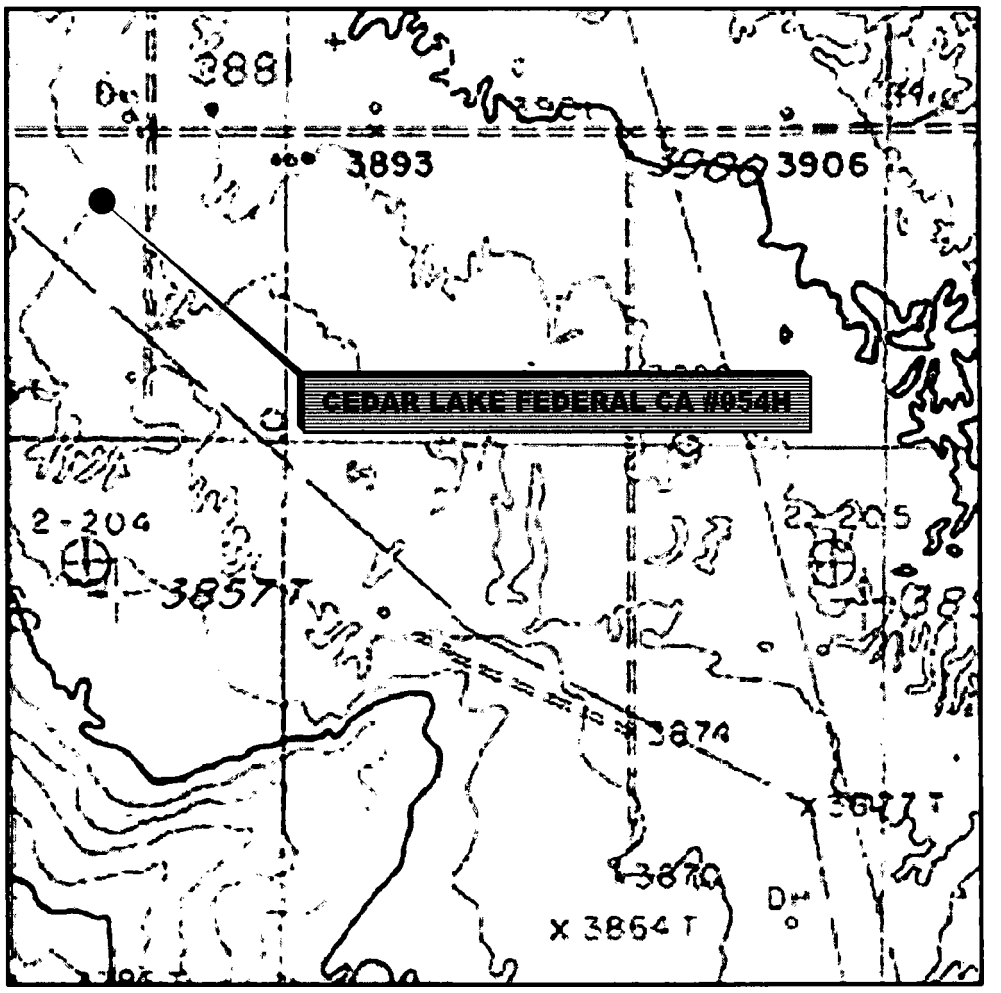
JOB NO.: LS1710702
DWG. NO.: 1710702PAD

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 100'
DATE: 10-31-2017
SURVEYED BY: BC/AS
DRAWN BY: AiAC
APPROVED BY: RMH
SHEET : 1 OF 1

LOCATION VERIFICATION MAP



SECTION 9, TWP. 17 SOUTH, RGE. 31 EAST,
N. M. P. M., EDDY COUNTY, NEW MEXICO

OPERATOR: Apache Corporation
LEASE: Cedar Lake Federal CA
WELL NO.: 954H
ELEVATION: 3875'

LOCATION: 1039' FNL & 510' FWL
CONTOUR INTERVAL: 10'
USGS TOPO. SOURCE MAP:
Loco Hills & Maljamar, NM (P.E.1985)

NO.	REVISION	DATE

JOB NO.: LS1710702
DWG. NO.: 1710702LVM

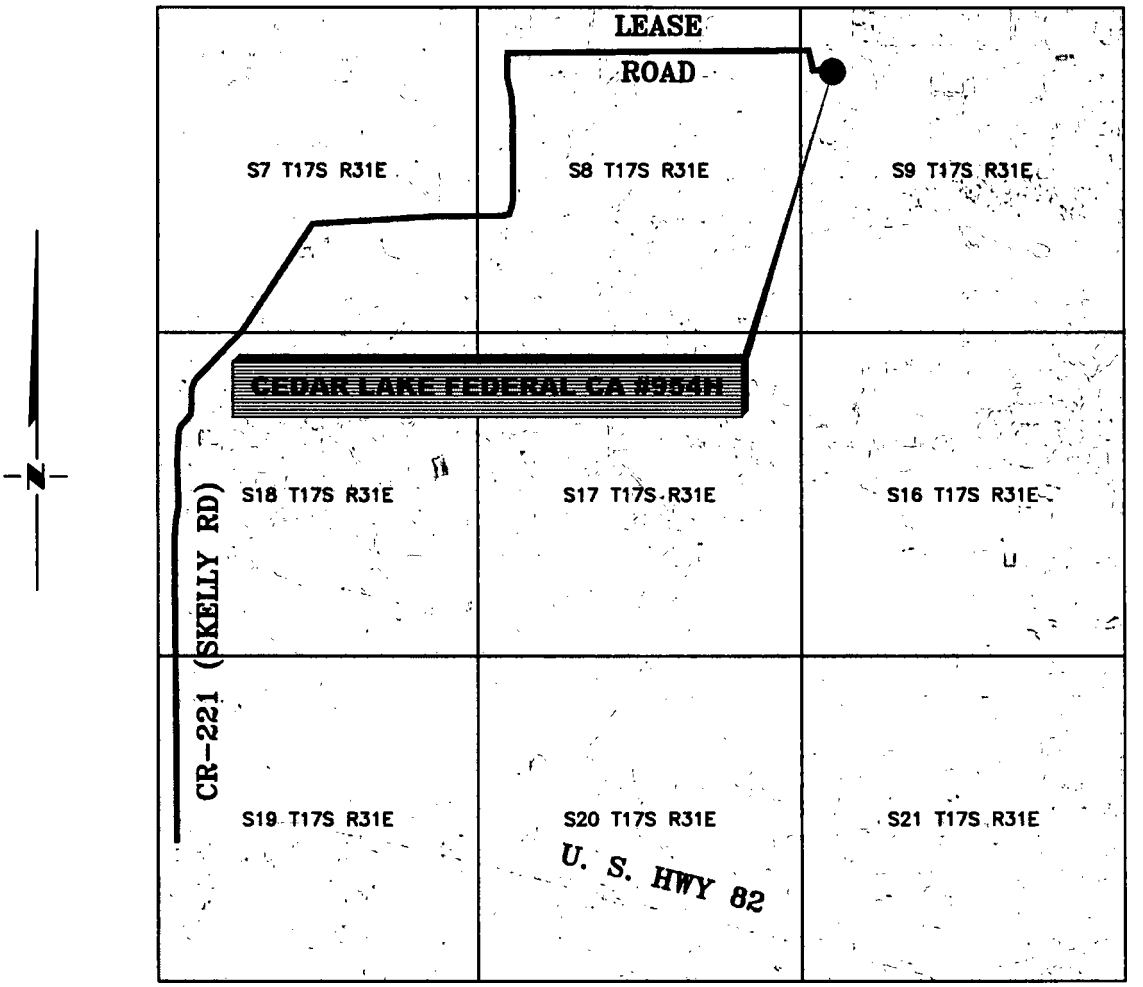
RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 1000'
DATE: 10-31-2017
SURVEYED BY: BC/AS
DRAWN BY: AiAC
APPROVED BY: RMH
SHEET: 1 OF 1

VICINITY MAP

NOT TO SCALE



SECTION 9, TWP. 17 SOUTH, RGE. 31 EAST, N. M. P. M., EDDY COUNTY, NEW MEXICO

OPERATOR: Apache Corporation
LEASE: Cedar Lake Federal CA
WELL NO.: 954H

LOCATION: 1039' FNL & 510' FWL
ELEVATION: 3875'

NO.	REVISION	DATE

JOB NO.: LS1710702
DWG. NO.: 1710702VM

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: N / A
DATE: 10-31-2017
SURVEYED BY: BC/AS
DRAWN BY: AiAC
APPROVED BY: RMH
SHEET: 1 OF 1

Drilling Plan Data Report
05/30/2018

APD ID: 10400025084
Submission Date: 12/14/2017
Operator Name: APACHE CORPORATION
Well Name: CEDAR LAKE FEDERAL CA
Well Number: 954H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	RUSTLER	3875	431	431		POTASH,TRONA	No
2	SALADO	3286	589	589		POTASH,TRONA	No
3	TANSILL	2271	1604	1604		POTASH,TRONA	No
4	YATES	2134	1741	1741		NATURAL GAS,OIL	No
5	SEVEN RIVERS	1854	2021	2021		NATURAL GAS,OIL	No
6	QUEEN	1233	2642	2642		NATURAL GAS,OIL	No
7	GRAYBURG	804	3071	3071		NATURAL GAS,OIL	No
8	SAN ANDRES	344	3531	3531		NATURAL GAS,OIL	No
9	GLORIETA	-976	4851	4851		NATURAL GAS,OIL	No
10	PADDOCK	-1041	4916	4916		NATURAL GAS,OIL	Yes
11	BLINEBRY	-1562	5437	5437		NATURAL GAS,OIL	No
12	TUBB	-1792	5667	5667		NATURAL GAS,OIL	No

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M **Rating Depth:** 12000

Equipment: Rotating Head, Mud Gas Separator, Blow Down Pit, Flare Line, Ignitor.

Requesting Variance? YES

Variance request: Apache request a variance to use a flexible hose between BOP & Choke Manifold. Flex hose may vary pending availability. A quality control inspection & test certificate will be available for review.
Testing Procedure: BOP/BOPE will be tested by independent service company to 250psi low and high pressure indicated above per Onshore Order 2 requirements. System may be upgraded to higher pressure but sill tested to WP listed . If system is upgraded, all components installed will be functional and tested. Pipe rams will be operationally checked each 24 hr period.

Blind rams will be operationally checked on each TOOH. These checks will be noted on daily tour sheets. Other accessories to BOP equipment will include Kelly cock and floor safety valve (inside BOP), choke lines and choke manifold. (see attached schematic)

Choke Diagram Attachment:

BOP_ChokeManif_3M_2M_InstOnSurf_Schem_20171212162938.pdf

BOP Diagram Attachment:

BOP_ChokeManif_3M_2M_InstOnSurf_Schem_20171212162958.pdf

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	400	0	400			400	H-40	48	STC	5.53	1.44	BUOY	1.88	BUOY	3.17
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	3500	0	3500			3500	J-55	36	LTC	1.84	1.89	BUOY	1.99	BUOY	2.46
3	PRODUCTION	8.5	7.0	NEW	API	N	0	5465	0	5425			5465	L-80	29	LTC	2.92	1.36	BUOY	1.8	BUOY	2.71
4	OTHER	8.5	5.5	NEW	API	Y	5465	15708	5425	5565			10243	L-80	17	LTC	2.4	1.13	BUOY	1.8	BUOY	2.09

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CedarLakeFedCA954H_SurfCsgAssumpt_20171214160107.pdf

Operator Name: APACHE CORPORATION

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H

Casing Attachments

Casing ID: 2 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CedarLakeFedCA954H_IntermCsgAssumpt_20171214160126.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

CedarLakeFedCA954H_ProdCsgAssumpt_20171214160149.pdf

Casing ID: 4 **String Type:** OTHER - TAPERED

Inspection Document:

Spec Document:

Tapered String Spec:

CedarLakeFedCA954H_ProdCsgTaperedSpecs_20171214160047.pdf

Casing Design Assumptions and Worksheet(s):

CedarLakeFedCA954H_ProdCsgAssumpt_20171214160219.pdf

Section 4 - Cement

Operator Name: APACHE CORPORATION

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	400	342	1.33	14.8	455	50	Cl C	1% Calcium Chloride
INTERMEDIATE	Lead		0	2575	570	1.84	12.9	1050	30	Cl C	5% Salt + 6% Bentonite + 1#/sk Kolseal + 0.125#/sk CF
INTERMEDIATE	Tail		2575	3500	300	1.32	14.8	396	30	Cl C	0.1% Retarder
PRODUCTION	Lead	5465	0	2988	245	1.97	12.6	475.69	20	Cl C	5% Salt, 6% Bentonite
PRODUCTION	Tail		2988	4980	215	1.44	13	310	20	TXI Lite	3% Gas Migration Expansion Additive + 0.3% Fluid Loss Agent + 1.5% Sodium Metasilicate
OTHER	Lead	5465	0	2988	245	1.97	12.6	475.69	20	Cl C	5% Salt + 6% Bentonite
OTHER	Tail		2988	4980	215	1.44	13	310	20	TXI Light	3% Gas Migration Expansion Additive + 0.3% Fluid Loss Agent + 1.5% Sodium Metasilicate

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: BOP, Choke Manifold, Gas Buster, Blow Down Pit, Flare Line with Igniter, Pre-Mix Pit, Rotating Head

Describe the mud monitoring system utilized: PVT/Pason/Visual Monitoring

Circulating Medium Table

Operator Name: APACHE CORPORATION

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	400	SPUD MUD	8.3	9							
400	3500	SALT SATURATED	9.8	10.5							
3500	5339	OTHER : Cut Brine	7.5	9.5							

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

If drill stem tests are performed, Onshore Order 2.111.D shall be followed.

List of open and cased hole logs run in the well:

CBL,DS,GR,MWD,MUDLOG

Coring operation description for the well:

n/a

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 2350 **Anticipated Surface Pressure:** 572.4

Anticipated Bottom Hole Temperature(F): 117

Anticipated abnormal pressures, temperatures, or potential geologic hazards? YES

Describe:

There may be water flows encountered from 600' to 3600' due to offset waterflood.

Contingency Plans geoharzards description:

The plan will be to set intermediate deeper than deepest offset injector. Wrapped pipe will be used for intermediate csg around water flow zone to help preserve life of casing. Depending on severity of flow, a DVT may be used and a 2 stage cement job will be performed. May also use a 12 ppg spacer ahead of cement to help control water flow utilizing top kill method. H2S may be encountered, but there will be H2S equipment on location along with a detection system. See attached H2S drilling ops plan.

Contingency Plans geohazards attachment:

CedarLakeFedCA954H_CmtDesign_20171214160731.pdf

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

H2SOpsContgPlan_CedarLakeFedCA954H_20171214133529.pdf

Operator Name: APACHE CORPORATION

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

CedarLakeFedCA954H_Plot_20171214133836.pdf

CedarLakeFedCA954H_Wellpath_20171214133837.pdf

Other proposed operations facets description:

**Cement 2 stage contingency plan attached. 5-1/2" tapered string will be open hole -uncemented. 7" from DVT to surf will be cemented.
**Cmt info is duplicated in Sec 4 for Prod Cmt. AFMSS requires equal segments in cmt & csg. AFMS application is needing to correlate Sec 3 & Sec 4. Lucinda Lewis with AFMSS is aware of issue. Team working on issue.
**Pending tool availability, Apache may drill this well using a conventional assembly. Csg design and all cmt volumes will stay the same. No changes other than tools being run: conventional assbly or RSS system.

Other proposed operations facets attachment:

Flexline_12.5.17_20171205115919.pdf

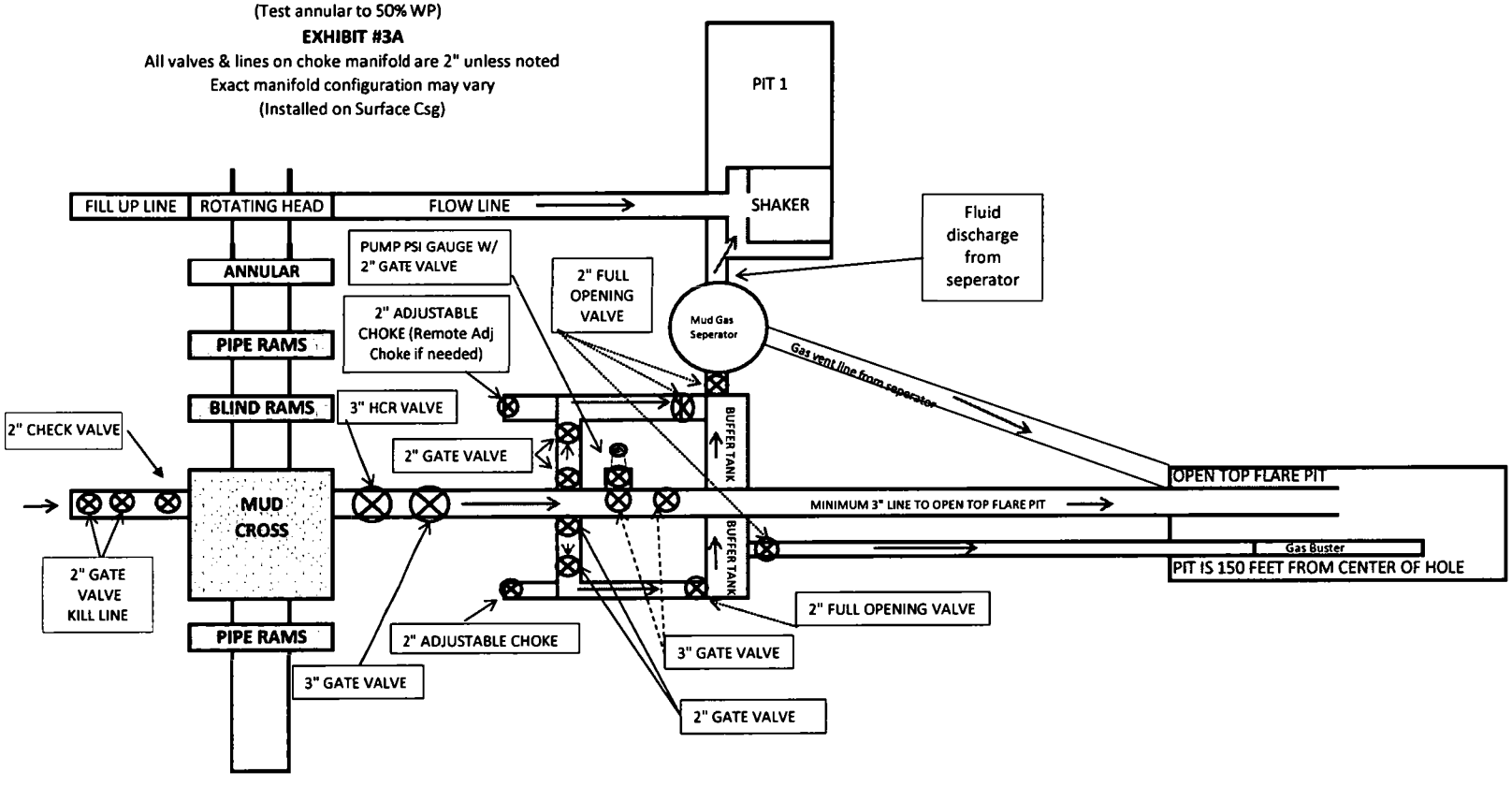
CedarLakeFedCA954H_CmtDesign_20171214160804.pdf

CedarLakeFedCA954H_CsgDesign_20171214160805.pdf

Other Variance attachment:

APACHE BOP AND CHOKE MANIFOLD SCHEMATIC

13-5/8" 10M PSI BOP (to be tested as a 2M)
(Test annular to 50% WP)
EXHIBIT #3A
All valves & lines on choke manifold are 2" unless noted
Exact manifold configuration may vary
(Installed on Surface Csg)



*** If H2S is encountered in quantities greater than 100ppm, Apache will shut in well & install a remote operated choke ***

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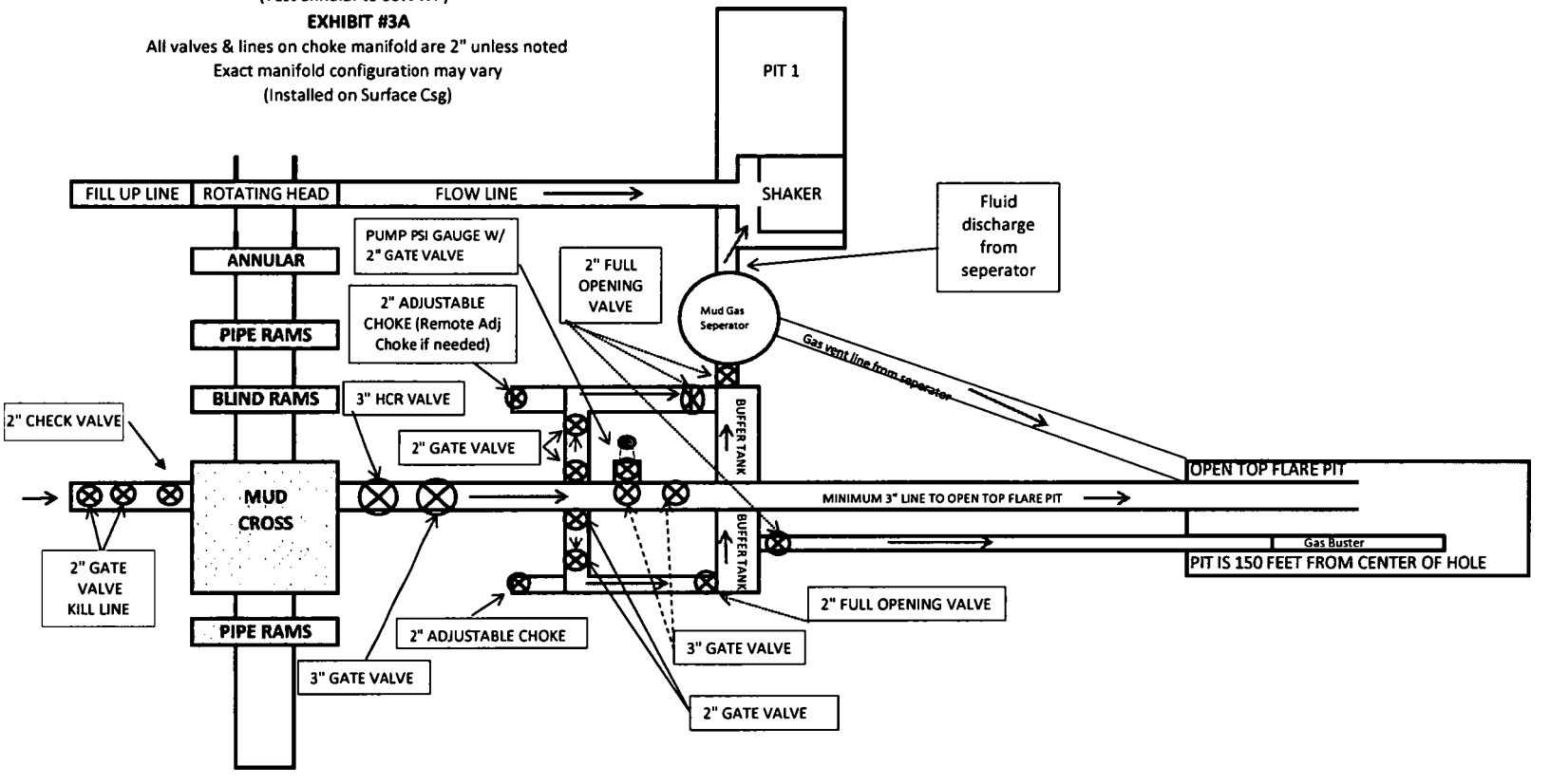

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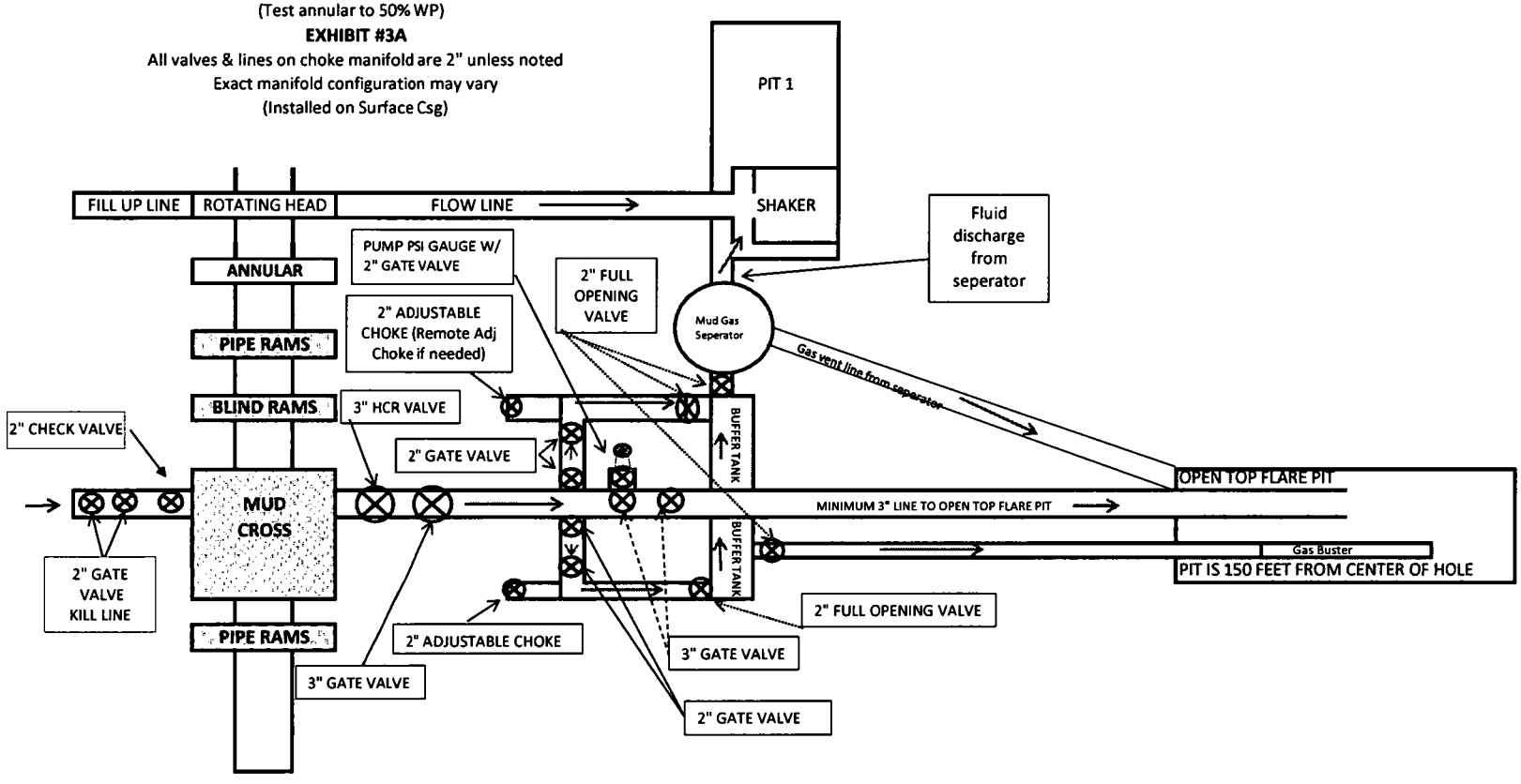

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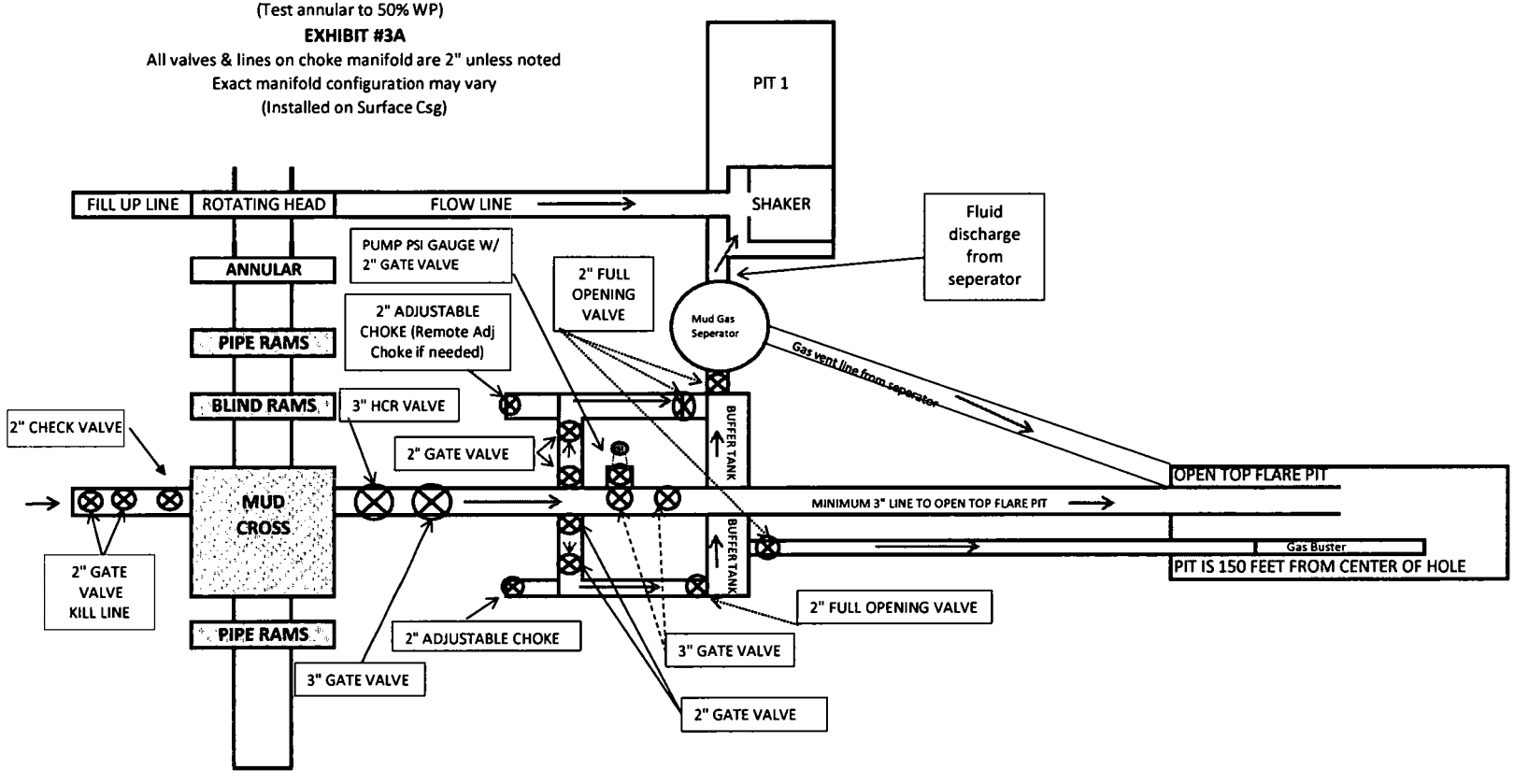

*** If H2S is encountered in quantities greater than 100ppm, Apache will shut in well & install a remote operated choke ***

Tapered Casing Design Assumptions and Load Cases

Production

All casing design assumptions were ran in StressCheck to determine safety factors which meet or exceed both Apache Corp and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the casing.

String	OD/Weight/Grade	Connection	MD Interval (ft)	Minimum Safety Factor (Abs)		
				Burst	Collapse	Axial
Production Casing	7", 29.000 ppf, L-80	LTC, L-80	0-5465'	1.36	2.92	2.71
	5 ½", 17.000 ppf, L-80	LTC, L-80	5465'-15708'	1.13	2.4	2.09

*This will have an open hole completion consisting of open hole hydraulic packers and sliding sleeves attached to the 5-1/2" casing. 5-1/2" will crossover to 7" where a DV tool will be placed at the bottom of the 7" (KOP @~5465'). The 5-1/2" casing will be uncemented and the 7" from the DV tool to surface will be cemented.

Tapered Production Casing Burst Design		
Load Case	External Pressure	Internal Pressure
Pressure Test	Mud base fluid density to TOC, cement mix-water gradient to outer shoe and pore pressure to TD	Fluid in hole (water or produced water)+ test psi
Gas Kick	Mud base fluid density to TOC, cement mix-water gradient to outer shoe and pore pressure to TD	Packer @ KOP, leak below surface 8.6 ppg packer fluid
Green Cement Pressure Test	Mud base fluid density to TOC, cement mix-water gradient to outer shoe and pore pressure to TD	Max frac pressure with heaviest frac fluid
Lost Returns with Water	Mud base fluid density to TOC, cement mix-water gradient to outer shoe and pore pressure to TD	Max pressure used to bump the plug during cement job

Tapered Production Casing Collapse Design		
Load Case	External Pressure	Internal Pressure
Full Evacuation	Mud weight string was set in	None
Cementing	Wet cement weight	Water (8.33 ppg)

Tapered Production Casing Axial Design	
Load Case	**Assumptions**
Overpull	100 kips
Running in hole	2 ft/s
Green Cement Pressure Test	Max pressure when bumping plug
Service Loads	N/A

Casing Design Assumptions and Load Cases

Surface

All casing design assumptions were ran in StressCheck to determine safety factors which meet or exceed both Apache Corp and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the casing.

Surface Casing Burst Design		
Load Case	**External Pressure**	**Internal Pressure**
Pressure Test	Mud and Cement Mix Water	Test psi with Mud Weight of Displacement Fluid
Fracture @ Shoe w/ Gas Gradient Above	Mud and Cement Mix Water	Fracture psi at shoe an 0.7 gas gravity above shoe
Green Cement Pressure Test	Mud and Cement Mix Water	Max pressure used to bump the plug during cement job
Lost Returns with Water	Mud and Cement Mix Water	Pressure to fracture shoe with water hydrostatic

Surface Casing Collapse Design		
Load Case	**External Pressure**	**Internal Pressure**
Full/Partial Evacuation	Mud weight string was set in	50% casing evacuation with surface mud inside casing
Lost Returns with Mud Drop	Mud weight string was set in	Losses at 750' with mud weight at 10.2 ppg
Cementing	Wet cement weight	Water (8.33 ppg)

Surface Casing Axial Design	
Load Case	**Assumptions**
Overpull	100 kips
Running in hole	2 ft/s
Green Cement Pressure Test	Max pressure when bumping plug
Service Loads	N/A

Casing Design Assumptions and Load Cases

Intermediate

All casing design assumptions were ran in StressCheck to determine safety factors which meet or exceed both Apache Corp and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the casing.

Intermediate Casing Burst Design		
Load Case	**External Pressure**	**Internal Pressure**
Pressure Test	Mud and Cement Mix Water	Test psi with Mud Weight of Displacement Fluid
Gas Kick	Mud and Cement Mix Water	Pressure seen while circulating out a 30 bbl 0.5 ppg kick intensity influx from well TD to surface while using current mud weight
Green Cement Pressure Test	Mud and Cement Mix Water	Max pressure used to bump the plug during cement job
Lost Returns with Water	Mud and Cement Mix Water	Pressure to fracture shoe with water hydrostatic

Intermediate Casing Collapse Design		
Load Case	**External Pressure**	**Internal Pressure**
Full/Partial Evacuation	Mud weight string was set in	50% casing evacuation with surface mud inside casing
Lost Returns with Mud Drop	Mud weight string was set in	Losses at 9401.9' with mud weight at 9.0 ppg
Cementing	Wet cement weight	Water (8.33 ppg)

Intermediate Casing Axial Design	
Load Case	**Assumptions**
Overpull	100 kips
Running in hole	2 ft/s
Green Cement Pressure Test	Max pressure when bumping plug
Service Loads	N/A

Casing Design Assumptions and Load Cases

Production

All casing design assumptions were ran in StressCheck to determine safety factors which meet or exceed both Apache Corp and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the casing.

Production Casing Burst Design		
Load Case	**External Pressure**	**Internal Pressure**
Pressure Test	Mud base fluid density to TOC, cement mix-water gradient to outer shoe and pore pressure to TD	Fluid in hole (water or produced water)+ test psi
Gas Kick	Mud base fluid density to TOC, cement mix-water gradient to outer shoe and pore pressure to TD	Packer @ KOP, leak below surface 8.6 ppg packer fluid
Green Cement Pressure Test	Mud base fluid density to TOC, cement mix-water gradient to outer shoe and pore pressure to TD	Max frac pressure with heaviest frac fluid
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Production Casing Collapse Design		
Load Case	**External Pressure**	**Internal Pressure**
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Cementing	Wet cement weight	Water (8.33 ppg)

Production Casing Axial Design	
Load Case	**Assumptions**
Overpull	100 kips
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Green Cement Pressure Test	Max pressure when bumping plug
Service Loads	N/A

Casing Design Assumptions and Load Cases

Production

All casing design assumptions were ran in StressCheck to determine safety factors which meet or exceed both Apache Corp and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the casing.

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Production Casing Collapse Design		
Load Case	**External Pressure**	**Internal Pressure**
Full Evacuation	Mud weight string was set in	None
Cementing	Wet cement weight	Water (8.33 ppg)

Production Casing Axial Design	
Load Case	**Assumptions**
Overpull	100 kips
Running in hole	2 ft/s
Green Cement Pressure Test	Max pressure when bumping plug
Service Loads	N/A

CEMENT: SURFACE

Stage Tool Depth: N/A

Lead:

Top MD of Segment:	0	Btm MD of Segment:	400
Cmt Type:	C	Cmt Additives:	1% CaCL
Quantity (sks):	342		
Yield (cu/ft/sk):	1.33	Volume (cu/ft):	455
Density (lbs/gal):	14.8	Percent Excess:	50%

Tail:

Top MD of Segment:		Btm MD of Segment:	
Cmt Type:		Cmt Additives:	
Quantity (sks):			
Yield (cu/ft/sk):		Volume (cu/ft):	
Density (lbs/gal):		Percent Excess:	

CEMENT: INTERMEDIATE

Single Stage

Lead:

Top MD of Segment:	0	Btm MD of Segment:	2575
Cmt Type:	C	Cmt Additives:	5% Salt + 6% Bentonite + 1#/sk Kolseal + 0.125#/sk Celloflake
Quantity (sks):	570		
Yield (cu/ft/sk):	1.84	Volume (cu/ft):	1050
Density (lbs/gal):	12.9	Percent Excess:	30%

Tail:

Top MD of Segment:	2575	Btm MD of Segment:	3500
Cmt Type:	C	Cmt Additives:	0.1% Retarder

Quantity (sks):	300		
Yield (cu/ft/sk):	1.32	Volume (cu/ft):	396
Density (lbs/gal):	14.8	Percent Excess:	30%

2 Stage Cement Job CONTINGENCY

* DVT depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DVT will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with 500psi comp strength time for cmt will be onsite for review.

*If lost circulation is encountered, Apache may 2-stage Interm csg. A DVT may be used in the 9-5/8" csg & ECP may be placed below DVT.

1st Stage

Lead:

Top MD of Segment:	700	Btm MD of Segment:	2575
Cmt Type:	C	Cmt Additives:	5% Salt + 6% Bentonite + 1#/sk Kolseal + 0.125#/sk Celloflake

Quantity (sks):	425		
Yield (cu/ft/sk):	1.84	Volume (cu/ft):	785
Density (lbs/gal):	12.9	Percent Excess:	30%

Tail:

Top MD of Segment:	2575	Btm MD of Segment:	3500
Cmt Type:	C	Cmt Additives:	0.1% Retarder

Quantity (sks):	300		
Yield (cu/ft/sk):	1.32	Volume (cu/ft):	396
Density (lbs/gal):	14.8	Percent Excess:	30%

Stage Tool Depth: 700'

2nd Stage

Lead:

Top MD of Segment:	N/A	Btm MD of Segment:	N/A

Cmt Type: N/A Cmt Additives: N/A

Quantity (sks): N/A
Yield (cu/ft/sk): N/A Volume (cu/ft): N/A
Density (lbs/gal): N/A Percent Excess: N/A

Tail:

Top MD of Segment: 0 Btm MD of Segment: 700

Cmt Type: C Cmt Additives: 1-2% Calcium Chloride

Quantity (sks): 215
Yield (cu/ft/sk): 1.33 Volume (cu/ft): 285
Density (lbs/gal): 14.8 Percent Excess: 30%

CEMENT: PRODUCTION

Stage Tool Depth: 5465

This will have an openhole completion attached to the 5-1/2" casing. 5-1/2" will crossover to 7" where a DVT will be placed at the bottom of the 7". The 5-1/2" casing will be uncemented and the 7" from the DVT to surface will be cemented.

Lead:

Top MD of Segment: 0 Btm MD of Segment: 2900

Cmt Type: C Cmt Additives: 5% Salt + 6% Bentonite

Quantity (sks): 245
Yield (cu/ft/sk): 1.97 Volume (cu/ft): 484
Density (lbs/gal): 12.6 Percent Excess: 20%

Tail:

Top MD of Segment: 2900 Btm MD of Segment: 5465

Cmt Type: TXI Lite Cmt Additives: 3% Gas Migration Expansion Additive + 0.3% Fluid Loss Agent + 1.5% Sodium Metasilicate

Quantity (sks): 305
Yield (cu/ft/sk): 1.44 Volume (cu/ft): 440

Density (lbs/gal):	13	Percent Excess:	20%

HYDROGEN SULFIDE (H_2S) DRILLING OPERATIONS PLAN

Hydrogen Sulfide Training:

All regularly assigned personnel, contracted or employed by Apache Corporation will receive training from qualified instructor(s) in the following areas prior to commencing drilling possible hydrogen sulfide bearing formations in this well:

- The hazards and characteristics of hydrogen sulfide (H_2S)
- The proper use and maintenance of personal protective equipment and life support systems.
- The proper use of H_2S detectors, alarms, warning systems, briefing area, evacuation procedures & prevailing winds.
- The proper techniques for first aid and rescue procedures.

Supervisory personnel will be trained in the following areas:

- The effects of H_2S on metal components. If high tensile tubulars are to be utilized, personnel will be trained in their special maintenance requirements.
- Corrective action & shut-in procedures when drilling or reworking a well & blowout prevention / well control procedures.
- The contents and requirements of the H_2S Drilling Operations Plan

There will be an initial training session just prior to encountering a known or probable H_2S zone (within 3 days or 500') and weekly H_2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H_2S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received proper training.

H_2S SAFETY EQUIPMENT AND SYSTEMS:

Well Control Equipment that will be available & installed if H_2S is encountered:

- Flare Line with electronic igniter or continuous pilot.
- Choke manifold with a minimum of one remote choke.
- Blind rams & pipe rams to accommodate all pipe sizes with properly sized closing unit.
- Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head & flare gun with flares

Protective Equipment for Essential Personnel:

- Mark II Survive-air 30 minute units located in dog house & at briefing areas, as indicated on wellsite diagram.

H2S Dection and Monitoring Equipment:

- Two portable H_2S monitors positioned on location for best coverage & response. These units have warning lights & audible sirens when H_2S levels of 20 ppm are reached.
- One portable H_2S monitor positioned near flare line.

H2S Visual Warning Systems:

- Wind direction indicators are shown on wellsite diagram.
- Caution / Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

Mud Program:

- The Mud Program has been designed to minimize the volume of H_2S circulated to the surface. Proper mud weights, safe drilling practices & the use of H_2S scavengers will minimize hazards when penetrating H_2S bearing zones.
- A mud-gas separator and H_2S gas buster will be utilized as needed.

Metallurgy:

- All drill strings, casing, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold & lines, & valves will be suitable for H_2S service.
- All elastomers used for packing & seals shall be H_2S trim.

Communication:

- Cellular telephone and 2-way radio communications in company vehicles, rig floor and mud logging trailer.

HYDROGEN SULFIDE (H_2S) CONTINGENCY PLAN

Assumed 100 ppm ROE = 3000'

100 ppm H_2S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H_2S, the first responder(s) must

- Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- Evacuate any public places encompassed by the 100 ppm ROE.
- Be equipped with H_2S monitors and air packs in order to control the release.
- Use the "buddy system" to ensure no injuries occur during the response
- Take precautions to avoid personal injury during this operation.
- Contact operators and/or local officials to aid in operation. See list of phone numbers attached.
- Have received training in the :
    - Detection of H_2S, and
    - Measures for protection against the gas,
    - Equipment used for protection and emergency response.

Ignition of Gas source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO_2). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever this is an ignition of the gas.

Characteristics of H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air = I	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	2.21 Air = I	2 ppm	N/A	1000 ppm

Contacting Authorities

Apache Corporation personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Apache's response must be in coordination with the State of New Mexico's *"Hazardous Materials Emergency Response Plan" (HMER).*

WELL CONTROL EMERGENCY RESPONSE PLAN

I. GENERAL PHILOSOPHY

Our objective is to ensure that during an emergency, a predetermined procedure is followed so that prompt decisions can be made based on accurate information.

The best way to handle and emergency is with an experienced organization set up for the sole purpose of solving the problem. The *Well Control Emergency Response Team* was organized to handle dangerous & expensive well control problems. The *Team* is structured such that each individual can contribute the most from his area of expertise. Key decision-makers are determined prior to an emergency to avoid confusion about who is in charge.

If the well is flowing uncontrolled at the surface or subsurface, *The Emergency Response Team* will be mobilized. The *Team* is customized for the people currently on the Apache staff. Staff changes may require a change in the plan.

II. EMERGENCY PROCEDURE ON DRILLING OR COMPLETION OPERATIONS

A. In the event of an emergency the *Drilling Foreman or Tool-Pusher* will immediately contact only one of the following starting with the first name listed:

Name	Office	Mobile	Home
Danny Laman – Drlg Superintendent	432-818-1022	432-634-0288	
John Vacek – Drilling Engineer	432-818-1882	281-222-1812	
Bobby Smith – Drilling Manager	432-818-1020	432-556-7701	
Bill Jones – EH&S Coordinator		432-967-9576	

***This one phone call will free the Drilling Foreman to devote his full time to securing the safety of personnel & equipment. This call will initiate the process to mobilize the Well Control Emergency Response Team. Apache maintains an Emergency Telephone Conference Room in the Houston office. This room is available for us by the Permian Region. The room has 50 separate telephone lines.*

B. The Apache employee contacted by the Drilling Foreman will begin contacting the rest of the *Team*. If **DANNY LAMAN** is out of contact, **JOHN VACEK** will be notified.

C. If a member of the *Emergency Response Team* is away from the job, he must be available for call back. Telephone numbers should be left with secretaries or a key decision-maker.

D. Apache's reporting procedure for spills or releases of oil or hazardous materials will be implemented when spills or releases have occurred or are probable.

EMERGENCY RESPONSE NUMBERS:

SHERIFF DEPARTMENT	
Eddy County	575-887-7551
Lea County	575-396-3611
FIRE DEPARTMENT	911
Artesia	575-746-5050
Carlsbad	575-885-2111
Eunice	575-394-2111
Hobbs	575-397-9308
Jal	575-395-2221
Lovington	575-396-2359
HOSPITALS	911
Artesia Medical Emergency	575-746-5050
Carlsbad Medical Emergency	575-885-2111
Eunice Medical Emergency	575-394-2112
Hobbs Medical Emergency	575-397-9308
Jal Medical Emergency	575-395-2221
Lovington Medical Emergency	575-396-2359
AGENT NOTIFICATIONS	
Bureau of Land Management	575-393-3612
New Mexico Oil Conservation Division	575-393-6161

Apache Corporation

Location: Eddy County, NM
Field: Eddy County, NM NAD83
Facility: Cedar Lake Federal CA Pad
Slot: Cedar Lake Federal CA No. 954H
Well: Cedar Lake Federal CA No. 954H
Wellbore: Cedar Lake Federal CA No. 954H PWB

BAKER HUGHES a GE company

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	25.00	0.000	268.000	25.00	0.00	0.00	0.00	0.00
End of Tangent	2500.00	0.000	268.000	2500.00	0.00	0.00	0.00	0.00
End of Build	2800.00	3.000	268.000	2799.86	-0.27	-7.85	1.00	7.85
End of Tangent	5115.83	3.000	268.000	5112.52	-4.50	-128.97	0.00	129.05
End of 3D Arc	5465.83	45.000	267.987	5425.15	-9.39	-268.08	12.00	268.25
End of 3D Arc	5840.83	90.000	267.987	5565.00	-21.25	-605.49	12.00	605.86
End of Tangent	15708.47	90.000	267.987	5565.00	-367.93	-10467.04	0.00	10473.51

Bottom Hole Location

MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
15708.47	90.000	267.987	5565.00	-367.93	-10467.04	669584.00	674153.50	32°51'09.269"N	103°54'56.556"W

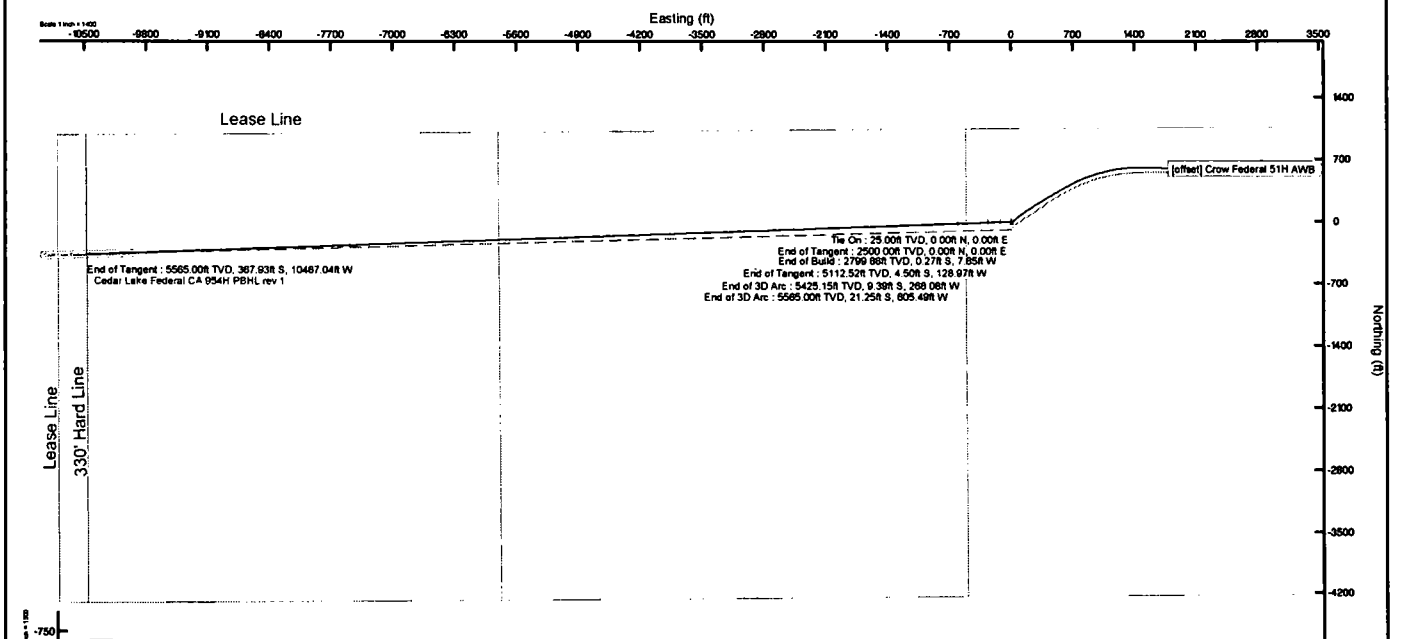
Location Information

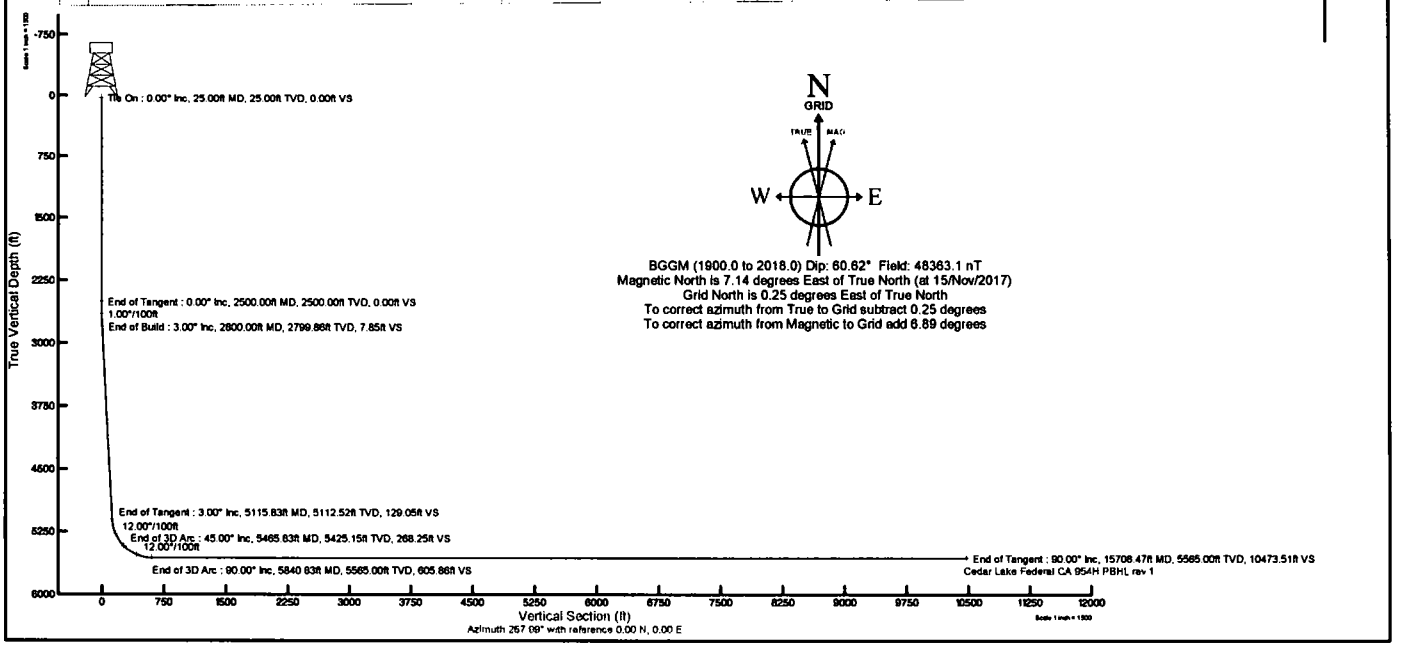
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Cedar Lake Federal CA Pad	680049.900	674431.000	32°51'11.589"N	103°52'53.853"W

Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Cedar Lake Federal CA No. 954H	90.41	0.40	680050.300	674521.400	32°51'12.483"N	103°52'53.843"W

Rig on Cedar Lake Federal CA No. 954H (KB) to Ground level (At Slot: Cedar Lake Federal CA No. 954H)	25ft
Mean Sea Level to Ground level (At Slot: Cedar Lake Federal CA No. 954H)	-3875ft
Rig on Cedar Lake Federal CA No. 954H (KB) to Mean Sea Level	3900ft

Plot reference wellpath is Cedar Lake Federal CA No. 954H Rev A.0	Grid System: NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet
True vertical depths are referenced to Rig on Cedar Lake Federal CA No. 954H (KB)	North Reference: Grid north
Measured depths are referenced to Rig on Cedar Lake Federal CA No. 954H (KB)	Scale: True distance
Rig on Cedar Lake Federal CA No. 954H (KB) to Mean Sea Level: 3900 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot: Cedar Lake Federal CA No. 954H): -3875 feet	Created by: buiduyh on 2017-11-15
Coordinates are in feet referenced to Slot	Database: WellArchitectDB





BGGM (1900.0 to 2018.0) Dip: 60.62° Field: 48363.1 nT
Magnetic North is 7.14 degrees East of True North (at 15/Nov/2017)
Grid North is 0.25 degrees East of True North
To correct azimuth from True to Grid subtract 0.25 degrees
To correct azimuth from Magnetic to Grid add 6.89 degrees

Planned Wellpath Report

Cedar Lake Federal CA No. 954H Rev A.0

CORPORATION

BAKER HUGHES a GE company

REFERENCE WELLPATH IDENTIFICATION			
Operator	**Apache Corporation**	Slot	**Cedar Lake Federal CA No. 954H**
Area	**Eddy County, NM**	Well	**Cedar Lake Federal CA No. 954H**
Field	**Eddy County, NM NAD83**	Wellbore	**Cedar Lake Federal CA No. 954H PWB**
Facility	**Cedar Lake Federal CA Pad**		

REPORT SETUP INFORMATION			
Projection System	**NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet**	Software System	**WellArchitect® 5.1**
North Reference	**Grid**	User	**Buiduyh**
Scale	**0.999931**	Report Generated	**15/Nov/2017 at 15:03**
Convergence at slot	**0.25° East**	Database/Source file	**WellArchitectDB/Cedar_Lake_Federal_CA_No._954H_Rev_A.0.xml**

WELLPATH LOCATION	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	90.41	0.40	**680050.30**	**674521.40**	32°51'12.483"N	103°52'53.843"W
Facility Reference Pt			**680049.90**	**674431.00**	32°51'11.589"N	103°52'53.853"W
Field Reference Pt			**165000.00**	**0.00**	30°59'39.893"N	105°32'03.866"W

WELLPATH DATUM			
Calculation method	**Minimum curvature**	Rig on Cedar Lake Federal CA No. 954H (KB) to Facility Vertical Datum	**3900.00ft**
Horizontal Reference Pt	**Slot**	Rig on Cedar Lake Federal CA No. 954H (KB) to Mean Sea Level	**3900.00ft**
Vertical Reference Pt	**Rig on Cedar Lake Federal CA No. 954H (KB)**	Rig on Cedar Lake Federal CA No. 954H (KB) to Ground Level at Slot (Cedar Lake Federal CA No. 954H)	**25.00ft**
MD Reference Pt	**Rig on Cedar Lake Federal CA No. 954H (KB)**	Section Origin	**N 0.00, E 0.00 ft**
Field Vertical Reference	**Mean Sea Level**	Section Azimuth	**267.99°**

Planned Wellpath Report

Cedar Lake Federal CA No. 954H Rev A.0

REFERENCE WELLPATH IDENTIFICATION			
Operator	Apache Corporation	Slot	Cedar Lake Federal CA No. 954H
Area	Eddy County, NM	Well	Cedar Lake Federal CA No. 954H
Field	Eddy County, NM NAD83	Wellbore	Cedar Lake Federal CA No. 954H PWB
Facility	Cedar Lake Federal CA Pad		

WELLPATH DATA (164 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
0.00†	0.000	268.000	0.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
25.00	0.000	268.000	25.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	Tie On
125.00†	0.000	268.000	125.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
225.00†	0.000	268.000	225.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
325.00†	0.000	268.000	325.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
425.00†	0.000	268.000	425.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
525.00†	0.000	268.000	525.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
625.00†	0.000	268.000	625.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
725.00†	0.000	268.000	725.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
825.00†	0.000	268.000	825.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
925.00†	0.000	268.000	925.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
1025.00†	0.000	268.000	1025.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
1125.00†	0.000	268.000	1125.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
1225.00†	0.000	268.000	1225.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
1325.00†	0.000	268.000	1325.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
1425.00†	0.000	268.000	1425.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
1525.00†	0.000	268.000	1525.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
1625.00†	0.000	268.000	1625.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
1725.00†	0.000	268.000	1725.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
1825.00†	0.000	268.000	1825.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
1925.00†	0.000	268.000	1925.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
2025.00†	0.000	268.000	2025.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
2125.00†	0.000	268.000	2125.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
2225.00†	0.000	268.000	2225.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
2325.00†	0.000	268.000	2325.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
2425.00†	0.000	268.000	2425.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	
2500.00	0.000	268.000	2500.00	0.00	0.00	0.00	680050.30	674521.40	32°51'12.483"N	103°52'53.843"W	0.00	0.00	0.00	End of Tangent
2525.00†	0.250	268.000	2525.00	0.05	0.00	-0.05	680050.25	674521.40	32°51'12.483"N	103°52'53.844"W	1.00	1.00	-368.00	
2625.00†	1.250	268.000	2624.99	1.36	-0.05	-1.36	680048.94	674521.35	32°51'12.483"N	103°52'53.859"W	1.00	1.00	0.00	
2725.00†	2.250	268.000	2724.94	4.42	-0.15	-4.41	680045.89	674521.25	32°51'12.482"N	103°52'53.895"W	1.00	1.00	0.00	

Planned Wellpath Report

Cedar Lake Federal CA No. 954H Rev A.0

REFERENCE WELLPATH IDENTIFICATION			
Operator	Apache Corporation	Slot	Cedar Lake Federal CA No. 954H
Area	Eddy County, NM	Well	Cedar Lake Federal CA No. 954H
Field	Eddy County, NM NAD83	Wellbore	Cedar Lake Federal CA No. 954H PWB
Facility	Cedar Lake Federal CA Pad		

WELLPATH DATA (164 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
2800.00	3.000	268.000	2799.86	7.85	-0.27	-7.85	680042.45	674521.13	32°51'12.481"N	103°52'53.935"W	1.00	1.00	0.00	End of Build
2825.00†	3.000	268.000	2824.83	9.16	-0.32	-9.16	680041.15	674521.08	32°51'12.480"N	103°52'53.951"W	0.00	0.00	0.00	
2925.00†	3.000	268.000	2924.69	14.39	-0.50	-14.39	680035.92	674520.90	32°51'12.479"N	103°52'54.012"W	0.00	0.00	0.00	
3025.00†	3.000	268.000	3024.55	19.63	-0.68	-19.62	680030.69	674520.72	32°51'12.477"N	103°52'54.073"W	0.00	0.00	0.00	
3125.00†	3.000	268.000	3124.42	24.86	-0.87	-24.85	680025.46	674520.53	32°51'12.475"N	103°52'54.135"W	0.00	0.00	0.00	
3225.00†	3.000	268.000	3224.28	30.09	-1.05	-30.08	680020.23	674520.35	32°51'12.474"N	103°52'54.196"W	0.00	0.00	0.00	
3325.00†	3.000	268.000	3324.14	35.33	-1.23	-35.31	680015.00	674520.17	32°51'12.472"N	103°52'54.257"W	0.00	0.00	0.00	
3425.00†	3.000	268.000	3424.01	40.56	-1.42	-40.54	680009.77	674519.98	32°51'12.471"N	103°52'54.319"W	0.00	0.00	0.00	
3525.00†	3.000	268.000	3523.87	45.80	-1.60	-45.77	680004.54	674519.80	32°51'12.469"N	103°52'54.380"W	0.00	0.00	0.00	
3625.00†	3.000	268.000	3623.73	51.03	-1.78	-51.00	679999.31	674519.62	32°51'12.468"N	103°52'54.441"W	0.00	0.00	0.00	
3725.00†	3.000	268.000	3723.60	56.26	-1.96	-56.23	679994.08	674519.44	32°51'12.466"N	103°52'54.503"W	0.00	0.00	0.00	
3825.00†	3.000	268.000	3823.46	61.50	-2.15	-61.46	679988.85	674519.25	32°51'12.464"N	103°52'54.564"W	0.00	0.00	0.00	
3925.00†	3.000	268.000	3923.32	66.73	-2.33	-66.69	679983.62	674519.07	32°51'12.463"N	103°52'54.625"W	0.00	0.00	0.00	
4025.00†	3.000	268.000	4023.18	71.96	-2.51	-71.92	679978.39	674518.89	32°51'12.461"N	103°52'54.687"W	0.00	0.00	0.00	
4125.00†	3.000	268.000	4123.05	77.20	-2.69	-77.15	679973.16	674518.71	32°51'12.460"N	103°52'54.748"W	0.00	0.00	0.00	
4225.00†	3.000	268.000	4222.91	82.43	-2.88	-82.38	679967.93	674518.52	32°51'12.458"N	103°52'54.809"W	0.00	0.00	0.00	
4325.00†	3.000	268.000	4322.77	87.66	-3.06	-87.61	679962.70	674518.34	32°51'12.456"N	103°52'54.871"W	0.00	0.00	0.00	
4425.00†	3.000	268.000	4422.64	92.90	-3.24	-92.84	679957.47	674518.16	32°51'12.455"N	103°52'54.932"W	0.00	0.00	0.00	
4525.00†	3.000	268.000	4522.50	98.13	-3.42	-98.07	679952.24	674517.98	32°51'12.453"N	103°52'54.993"W	0.00	0.00	0.00	
4625.00†	3.000	268.000	4622.36	103.37	-3.61	-103.30	679947.00	674517.79	32°51'12.452"N	103°52'55.055"W	0.00	0.00	0.00	
4725.00†	3.000	268.000	4722.22	108.60	-3.79	-108.53	679941.77	674517.61	32°51'12.450"N	103°52'55.116"W	0.00	0.00	0.00	
4825.00†	3.000	268.000	4822.09	113.83	-3.97	-113.76	679936.54	674517.43	32°51'12.449"N	103°52'55.177"W	0.00	0.00	0.00	
4925.00†	3.000	268.000	4921.95	119.07	-4.16	-118.99	679931.31	674517.24	32°51'12.447"N	103°52'55.238"W	0.00	0.00	0.00	
5025.00†	3.000	268.000	5021.81	124.30	-4.34	-124.22	679926.08	674517.06	32°51'12.445"N	103°52'55.300"W	0.00	0.00	0.00	
5115.83	3.000	268.000	5112.52	129.05	-4.50	-128.97	679921.33	674516.90	32°51'12.444"N	103°52'55.355"W	0.00	0.00	0.00	End of Tangent
5125.00†	4.100	267.996	5121.67	129.62	-4.52	-129.54	679920.77	674516.88	32°51'12.444"N	103°52'55.362"W	12.00	12.00	-0.04	
5225.00†	16.100	267.989	5219.94	147.13	-5.14	-147.04	679903.27	674516.26	32°51'12.438"N	103°52'55.567"W	12.00	12.00	-0.01	
5325.00†	28.100	267.988	5312.43	184.68	-6.46	-184.57	679865.75	674514.94	32°51'12.427"N	103°52'56.007"W	12.00	12.00	0.00	
5425.00†	40.100	267.987	5395.08	240.64	-8.42	-240.50	679809.82	674512.98	32°51'12.410"N	103°52'56.663"W	12.00	12.00	0.00	
5465.83	45.000	267.987	5425.15	268.25	-9.39	-268.08	679782.24	674512.01	32°51'12.401"N	103°52'56.986"W	12.00	12.00	0.00	End of 3D Arc

Planned Wellpath Report

Cedar Lake Federal CA No. 954H Rev A.0

REFERENCE WELLPATH IDENTIFICATION			
Operator	Apache Corporation	Slot	Cedar Lake Federal CA No. 954H
Area	Eddy County, NM	Well	Cedar Lake Federal CA No. 954H
Field	Eddy County, NM NAD83	Wellbore	Cedar Lake Federal CA No. 954H PWB
Facility	Cedar Lake Federal CA Pad		

WELLPATH DATA (164 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
5525.00†	52.100	267.987	5464.29	312.57	-10.95	-312.37	679737.95	674510.45	32°51'12.388"N	103°52'57.506"W	12.00	12.00	0.00	
5625.00†	64.100	267.987	5517.04	397.31	-13.92	-397.06	679653.26	674507.48	32°51'12.362"N	103°52'58.499"W	12.00	12.00	0.00	
5725.00†	76.100	267.987	5551.02	491.17	-17.22	-490.86	679559.47	674504.18	32°51'12.333"N	103°52'59.598"W	12.00	12.00	0.00	
5825.00†	88.100	267.987	5564.73	590.04	-20.70	-589.67	679460.67	674500.71	32°51'12.303"N	103°53'00.757"W	12.00	12.00	0.00	
5840.83	90.000	267.987	5565.00	605.86	-21.25	-605.49	679444.85	674500.15	32°51'12.298"N	103°53'00.942"W	12.00	12.00	0.00	End of 3D Arc
5925.00†	90.000	267.987	5565.00	690.03	-24.21	-689.61	679360.74	674497.19	32°51'12.273"N	103°53'01.928"W	0.00	0.00	0.00	
6025.00†	90.000	267.987	5565.00	790.03	-27.72	-789.55	679260.81	674493.68	32°51'12.242"N	103°53'03.100"W	0.00	0.00	0.00	
6125.00†	90.000	267.987	5565.00	890.03	-31.24	-889.48	679160.88	674490.17	32°51'12.211"N	103°53'04.272"W	0.00	0.00	0.00	
6225.00†	90.000	267.987	5565.00	990.03	-34.75	-989.42	679060.95	674486.65	32°51'12.181"N	103°53'05.443"W	0.00	0.00	0.00	
6325.00†	90.000	267.987	5565.00	1090.03	-38.26	-1089.36	678961.02	674483.14	32°51'12.150"N	103°53'06.615"W	0.00	0.00	0.00	
6425.00†	90.000	267.987	5565.00	1190.03	-41.77	-1189.30	678861.08	674479.63	32°51'12.120"N	103°53'07.787"W	0.00	0.00	0.00	
6525.00†	90.000	267.987	5565.00	1290.03	-45.29	-1289.24	678761.15	674476.12	32°51'12.089"N	103°53'08.958"W	0.00	0.00	0.00	
6625.00†	90.000	267.987	5565.00	1390.03	-48.80	-1389.18	678661.22	674472.60	32°51'12.059"N	103°53'10.130"W	0.00	0.00	0.00	
6725.00†	90.000	267.987	5565.00	1490.03	-52.31	-1489.11	678561.29	674469.09	32°51'12.028"N	103°53'11.301"W	0.00	0.00	0.00	
6825.00†	90.000	267.987	5565.00	1590.03	-55.83	-1589.05	678461.36	674465.58	32°51'11.997"N	103°53'12.473"W	0.00	0.00	0.00	
6925.00†	90.000	267.987	5565.00	1690.03	-59.34	-1688.99	678361.43	674462.06	32°51'11.967"N	103°53'13.645"W	0.00	0.00	0.00	
7025.00†	90.000	267.987	5565.00	1790.03	-62.85	-1788.93	678261.50	674458.55	32°51'11.936"N	103°53'14.816"W	0.00	0.00	0.00	
7125.00†	90.000	267.987	5565.00	1890.03	-66.37	-1888.87	678161.57	674455.04	32°51'11.906"N	103°53'15.988"W	0.00	0.00	0.00	
7225.00†	90.000	267.987	5565.00	1990.03	-69.88	-1988.81	678061.64	674451.52	32°51'11.875"N	103°53'17.160"W	0.00	0.00	0.00	
7325.00†	90.000	267.987	5565.00	2090.03	-73.39	-2088.74	677961.70	674448.01	32°51'11.845"N	103°53'18.331"W	0.00	0.00	0.00	
7425.00†	90.000	267.987	5565.00	2190.03	-76.91	-2188.68	677861.77	674444.50	32°51'11.814"N	103°53'19.503"W	0.00	0.00	0.00	
7525.00†	90.000	267.987	5565.00	2290.03	-80.42	-2288.62	677761.84	674440.99	32°51'11.783"N	103°53'20.675"W	0.00	0.00	0.00	
7625.00†	90.000	267.987	5565.00	2390.03	-83.93	-2388.56	677661.91	674437.47	32°51'11.753"N	103°53'21.846"W	0.00	0.00	0.00	
7725.00†	90.000	267.987	5565.00	2490.03	-87.45	-2488.50	677561.98	674433.96	32°51'11.722"N	103°53'23.018"W	0.00	0.00	0.00	
7825.00†	90.000	267.987	5565.00	2590.03	-90.96	-2588.44	677462.05	674430.45	32°51'11.692"N	103°53'24.190"W	0.00	0.00	0.00	
7925.00†	90.000	267.987	5565.00	2690.03	-94.47	-2688.37	677362.12	674426.93	32°51'11.661"N	103°53'25.361"W	0.00	0.00	0.00	
8025.00†	90.000	267.987	5565.00	2790.03	-97.99	-2788.31	677262.19	674423.42	32°51'11.630"N	103°53'26.533"W	0.00	0.00	0.00	
8125.00†	90.000	267.987	5565.00	2890.03	-101.50	-2888.25	677162.25	674419.91	32°51'11.600"N	103°53'27.705"W	0.00	0.00	0.00	
8225.00†	90.000	267.987	5565.00	2990.03	-105.01	-2988.19	677062.32	674416.39	32°51'11.569"N	103°53'28.876"W	0.00	0.00	0.00	
8325.00†	90.000	267.987	5565.00	3090.03	-108.53	-3088.13	676962.39	674412.88	32°51'11.538"N	103°53'30.048"W	0.00	0.00	0.00	

Planned Wellpath Report

Cedar Lake Federal CA No. 954H Rev A.0

BAKER HUGHES a GE company

REFERENCE WELLPATH IDENTIFICATION			
Operator	Apache Corporation	Slot	Cedar Lake Federal CA No. 954H
Area	Eddy County, NM	Well	Cedar Lake Federal CA No. 954H
Field	Eddy County, NM NAD83	Wellbore	Cedar Lake Federal CA No. 954H PWB
Facility	Cedar Lake Federal CA Pad		

WELLPATH DATA (164 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
8425.00†	90.000	267.987	5565.00	3190.03	-112.04	-3188.06	676862.46	674409.37	32°51'11.508"N	103°53'31.220"W	0.00	0.00	0.00	
8525.00†	90.000	267.987	5565.00	3290.03	-115.55	-3288.00	676762.53	674405.86	32°51'11.477"N	103°53'32.391"W	0.00	0.00	0.00	
8625.00†	90.000	267.987	5565.00	3390.03	-119.07	-3387.94	676662.60	674402.34	32°51'11.447"N	103°53'33.563"W	0.00	0.00	0.00	
8725.00†	90.000	267.987	5565.00	3490.03	-122.58	-3487.88	676562.67	674398.83	32°51'11.416"N	103°53'34.735"W	0.00	0.00	0.00	
8825.00†	90.000	267.987	5565.00	3590.03	-126.09	-3587.82	676462.74	674395.32	32°51'11.385"N	103°53'35.906"W	0.00	0.00	0.00	
8925.00†	90.000	267.987	5565.00	3690.03	-129.61	-3687.76	676362.81	674391.80	32°51'11.355"N	103°53'37.078"W	0.00	0.00	0.00	
9025.00†	90.000	267.987	5565.00	3790.03	-133.12	-3787.69	676262.87	674388.29	32°51'11.324"N	103°53'38.249"W	0.00	0.00	0.00	
9125.00†	90.000	267.987	5565.00	3890.03	-136.63	-3887.63	676162.94	674384.78	32°51'11.293"N	103°53'39.421"W	0.00	0.00	0.00	
9225.00†	90.000	267.987	5565.00	3990.03	-140.15	-3987.57	676063.01	674381.26	32°51'11.263"N	103°53'40.593"W	0.00	0.00	0.00	
9325.00†	90.000	267.987	5565.00	4090.03	-143.66	-4087.51	675963.08	674377.75	32°51'11.232"N	103°53'41.764"W	0.00	0.00	0.00	
9425.00†	90.000	267.987	5565.00	4190.03	-147.17	-4187.45	675863.15	674374.24	32°51'11.201"N	103°53'42.936"W	0.00	0.00	0.00	
9525.00†	90.000	267.987	5565.00	4290.03	-150.69	-4287.39	675763.22	674370.73	32°51'11.171"N	103°53'44.108"W	0.00	0.00	0.00	
9625.00†	90.000	267.987	5565.00	4390.03	-154.20	-4387.32	675663.29	674367.21	32°51'11.140"N	103°53'45.279"W	0.00	0.00	0.00	
9725.00†	90.000	267.987	5565.00	4490.03	-157.71	-4487.26	675563.36	674363.70	32°51'11.109"N	103°53'46.451"W	0.00	0.00	0.00	
9825.00†	90.000	267.987	5565.00	4590.03	-161.23	-4587.20	675463.42	674360.19	32°51'11.079"N	103°53'47.623"W	0.00	0.00	0.00	
9925.00†	90.000	267.987	5565.00	4690.03	-164.74	-4687.14	675363.49	674356.67	32°51'11.048"N	103°53'48.794"W	0.00	0.00	0.00	
10025.00†	90.000	267.987	5565.00	4790.03	-168.25	-4787.08	675263.56	674353.16	32°51'11.017"N	103°53'49.966"W	0.00	0.00	0.00	
10125.00†	90.000	267.987	5565.00	4890.03	-171.76	-4887.02	675163.63	674349.65	32°51'10.987"N	103°53'51.138"W	0.00	0.00	0.00	
10225.00†	90.000	267.987	5565.00	4990.03	-175.28	-4986.95	675063.70	674346.13	32°51'10.956"N	103°53'52.309"W	0.00	0.00	0.00	
10325.00†	90.000	267.987	5565.00	5090.03	-178.79	-5086.89	674963.77	674342.62	32°51'10.925"N	103°53'53.481"W	0.00	0.00	0.00	
10425.00†	90.000	267.987	5565.00	5190.03	-182.30	-5186.83	674863.84	674339.11	32°51'10.895"N	103°53'54.653"W	0.00	0.00	0.00	
10525.00†	90.000	267.987	5565.00	5290.03	-185.82	-5286.77	674763.91	674335.60	32°51'10.864"N	103°53'55.824"W	0.00	0.00	0.00	
10625.00†	90.000	267.987	5565.00	5390.03	-189.33	-5386.71	674663.97	674332.08	32°51'10.833"N	103°53'56.996"W	0.00	0.00	0.00	
10725.00†	90.000	267.987	5565.00	5490.03	-192.84	-5486.65	674564.04	674328.57	32°51'10.803"N	103°53'58.167"W	0.00	0.00	0.00	
10825.00†	90.000	267.987	5565.00	5590.03	-196.36	-5586.58	674464.11	674325.06	32°51'10.772"N	103°53'59.339"W	0.00	0.00	0.00	
10925.00†	90.000	267.987	5565.00	5690.03	-199.87	-5686.52	674364.18	674321.54	32°51'10.741"N	103°54'00.511"W	0.00	0.00	0.00	
11025.00†	90.000	267.987	5565.00	5790.03	-203.38	-5786.46	674264.25	674318.03	32°51'10.710"N	103°54'01.682"W	0.00	0.00	0.00	
11125.00†	90.000	267.987	5565.00	5890.03	-206.90	-5886.40	674164.32	674314.52	32°51'10.680"N	103°54'02.854"W	0.00	0.00	0.00	
11225.00†	90.000	267.987	5565.00	5990.03	-210.41	-5986.34	674064.39	674311.00	32°51'10.649"N	103°54'04.026"W	0.00	0.00	0.00	
11325.00†	90.000	267.987	5565.00	6090.03	-213.92	-6086.27	673964.46	674307.49	32°51'10.618"N	103°54'05.197"W	0.00	0.00	0.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	Apache Corporation	Slot	Cedar Lake Federal CA No. 954H
Area	Eddy County, NM	Well	Cedar Lake Federal CA No. 954H
Field	Eddy County, NM NAD83	Wellbore	Cedar Lake Federal CA No. 954H PWB
Facility	Cedar Lake Federal CA Pad		

WELLPATH DATA (164 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
11425.00†	90.000	267.987	5565.00	6190.03	-217.44	-6186.21	673864.53	674303.98	32°51'10.588"N	103°54'06.369"W	0.00	0.00	0.00	
11525.00†	90.000	267.987	5565.00	6290.03	-220.95	-6286.15	673764.59	674300.47	32°51'10.557"N	103°54'07.541"W	0.00	0.00	0.00	
11625.00†	90.000	267.987	5565.00	6390.03	-224.46	-6386.09	673664.66	674296.95	32°51'10.526"N	103°54'08.712"W	0.00	0.00	0.00	
11725.00†	90.000	267.987	5565.00	6490.03	-227.98	-6486.03	673564.73	674293.44	32°51'10.495"N	103°54'09.884"W	0.00	0.00	0.00	
11825.00†	90.000	267.987	5565.00	6590.03	-231.49	-6585.97	673464.80	674289.93	32°51'10.465"N	103°54'11.056"W	0.00	0.00	0.00	
11925.00†	90.000	267.987	5565.00	6690.03	-235.00	-6685.90	673364.87	674286.41	32°51'10.434"N	103°54'12.227"W	0.00	0.00	0.00	
12025.00†	90.000	267.987	5565.00	6790.03	-238.52	-6785.84	673264.94	674282.90	32°51'10.403"N	103°54'13.399"W	0.00	0.00	0.00	
12125.00†	90.000	267.987	5565.00	6890.03	-242.03	-6885.78	673165.01	674279.39	32°51'10.372"N	103°54'14.571"W	0.00	0.00	0.00	
12225.00†	90.000	267.987	5565.00	6990.03	-245.54	-6985.72	673065.08	674275.87	32°51'10.342"N	103°54'15.742"W	0.00	0.00	0.00	
12325.00†	90.000	267.987	5565.00	7090.03	-249.06	-7085.66	672965.14	674272.36	32°51'10.311"N	103°54'16.914"W	0.00	0.00	0.00	
12425.00†	90.000	267.987	5565.00	7190.03	-252.57	-7185.60	672865.21	674268.85	32°51'10.280"N	103°54'18.085"W	0.00	0.00	0.00	
12525.00†	90.000	267.987	5565.00	7290.03	-256.08	-7285.53	672765.28	674265.34	32°51'10.249"N	103°54'19.257"W	0.00	0.00	0.00	
12625.00†	90.000	267.987	5565.00	7390.03	-259.60	-7385.47	672665.35	674261.82	32°51'10.219"N	103°54'20.429"W	0.00	0.00	0.00	
12725.00†	90.000	267.987	5565.00	7490.03	-263.11	-7485.41	672565.42	674258.31	32°51'10.188"N	103°54'21.600"W	0.00	0.00	0.00	
12825.00†	90.000	267.987	5565.00	7590.03	-266.62	-7585.35	672465.49	674254.80	32°51'10.157"N	103°54'22.772"W	0.00	0.00	0.00	
12925.00†	90.000	267.987	5565.00	7690.03	-270.14	-7685.29	672365.56	674251.28	32°51'10.126"N	103°54'23.944"W	0.00	0.00	0.00	
13025.00†	90.000	267.987	5565.00	7790.03	-273.65	-7785.23	672265.63	674247.77	32°51'10.096"N	103°54'25.115"W	0.00	0.00	0.00	
13125.00†	90.000	267.987	5565.00	7890.03	-277.16	-7885.16	672165.70	674244.26	32°51'10.065"N	103°54'26.287"W	0.00	0.00	0.00	
13225.00†	90.000	267.987	5565.00	7990.03	-280.68	-7985.10	672065.76	674240.74	32°51'10.034"N	103°54'27.459"W	0.00	0.00	0.00	
13325.00†	90.000	267.987	5565.00	8090.03	-284.19	-8085.04	671965.83	674237.23	32°51'10.003"N	103°54'28.630"W	0.00	0.00	0.00	
13425.00†	90.000	267.987	5565.00	8190.03	-287.70	-8184.98	671865.90	674233.72	32°51'09.973"N	103°54'29.802"W	0.00	0.00	0.00	
13525.00†	90.000	267.987	5565.00	8290.03	-291.22	-8284.92	671765.97	674230.21	32°51'09.942"N	103°54'30.974"W	0.00	0.00	0.00	
13625.00†	90.000	267.987	5565.00	8390.03	-294.73	-8384.85	671666.04	674226.69	32°51'09.911"N	103°54'32.145"W	0.00	0.00	0.00	
13725.00†	90.000	267.987	5565.00	8490.03	-298.24	-8484.79	671566.11	674223.18	32°51'09.880"N	103°54'33.317"W	0.00	0.00	0.00	
13825.00†	90.000	267.987	5565.00	8590.03	-301.76	-8584.73	671466.18	674219.67	32°51'09.849"N	103°54'34.488"W	0.00	0.00	0.00	
13925.00†	90.000	267.987	5565.00	8690.03	-305.27	-8684.67	671366.25	674216.15	32°51'09.819"N	103°54'35.660"W	0.00	0.00	0.00	
14025.00†	90.000	267.987	5565.00	8790.03	-308.78	-8784.61	671266.31	674212.64	32°51'09.788"N	103°54'36.832"W	0.00	0.00	0.00	
14125.00†	90.000	267.987	5565.00	8890.03	-312.29	-8884.55	671166.38	674209.13	32°51'09.757"N	103°54'38.003"W	0.00	0.00	0.00	
14225.00†	90.000	267.987	5565.00	8990.03	-315.81	-8984.48	671066.45	674205.61	32°51'09.726"N	103°54'39.175"W	0.00	0.00	0.00	
14325.00†	90.000	267.987	5565.00	9090.03	-319.32	-9084.42	670966.52	674202.10	32°51'09.695"N	103°54'40.347"W	0.00	0.00	0.00	

Planned Wellpath Report

Cedar Lake Federal CA No. 954H Rev A.0

REFERENCE WELLPATH IDENTIFICATION			
Operator	Apache Corporation	Slot	Cedar Lake Federal CA No. 954H
Area	Eddy County, NM	Well	Cedar Lake Federal CA No. 954H
Field	Eddy County, NM NAD83	Wellbore	Cedar Lake Federal CA No. 954H PWB
Facility	Cedar Lake Federal CA Pad		

WELLPATH DATA (164 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
14425.00†	90.000	267.987	5565.00	9190.03	-322.83	-9184.36	670866.59	674198.59	32°51'09.665"N	103°54'41.518"W	0.00	0.00	0.00	
14525.00†	90.000	267.987	5565.00	9290.03	-326.35	-9284.30	670766.66	674195.08	32°51'09.634"N	103°54'42.690"W	0.00	0.00	0.00	
14625.00†	90.000	267.987	5565.00	9390.03	-329.86	-9384.24	670666.73	674191.56	32°51'09.603"N	103°54'43.862"W	0.00	0.00	0.00	
14725.00†	90.000	267.987	5565.00	9490.03	-333.37	-9484.18	670566.80	674188.05	32°51'09.572"N	103°54'45.033"W	0.00	0.00	0.00	
14825.00†	90.000	267.987	5565.00	9590.03	-336.89	-9584.11	670466.87	674184.54	32°51'09.541"N	103°54'46.205"W	0.00	0.00	0.00	
14925.00†	90.000	267.987	5565.00	9690.03	-340.40	-9684.05	670366.93	674181.02	32°51'09.511"N	103°54'47.376"W	0.00	0.00	0.00	
15025.00†	90.000	267.987	5565.00	9790.03	-343.91	-9783.99	670267.00	674177.51	32°51'09.480"N	103°54'48.548"W	0.00	0.00	0.00	
15125.00†	90.000	267.987	5565.00	9890.03	-347.43	-9883.93	670167.07	674174.00	32°51'09.449"N	103°54'49.720"W	0.00	0.00	0.00	
15225.00†	90.000	267.987	5565.00	9990.03	-350.94	-9983.87	670067.14	674170.48	32°51'09.418"N	103°54'50.891"W	0.00	0.00	0.00	
15325.00†	90.000	267.987	5565.00	10090.03	-354.45	-10083.81	669967.21	674166.97	32°51'09.387"N	103°54'52.063"W	0.00	0.00	0.00	
15425.00†	90.000	267.987	5565.00	10190.03	-357.97	-10183.74	669867.28	674163.46	32°51'09.356"N	103°54'53.235"W	0.00	0.00	0.00	
15525.00†	90.000	267.987	5565.00	10290.03	-361.48	-10283.68	669767.35	674159.95	32°51'09.326"N	103°54'54.406"W	0.00	0.00	0.00	
15625.00†	90.000	267.987	5565.00	10390.03	-364.99	-10383.62	669667.42	674156.43	32°51'09.295"N	103°54'55.578"W	0.00	0.00	0.00	
15708.47	90.000	267.987	5565.00	10473.51	-367.93	-10467.04	669584.00	674153.50	32°51'09.269"N	103°54'56.556"W	0.00	0.00	0.00	End of Tangent

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) Cedar Lake Federal CA 954H PBHL rev 1	15708.47	5565.00	-367.93	-10467.04	**669584.00**	**674153.50**	32°51'09.269"N	103°54'56.556"W	point

SURVEY PROGRAM - Ref Wellbore: Cedar Lake Federal CA No. 954H PWB Ref Wellpath: Cedar Lake Federal CA No. 954H Rev A.0

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
25.00	4500.00	BHI NaviTrak (Standard)		Cedar Lake Federal CA No. 954H PWB
4500.00	15833.58	BHI AutoTrak Curve (Short)		Cedar Lake Federal CA No. 954H PWB

Continental

ContiTech

CONTITECH RUBBER Industrial Kft.	No: QC-DB-205 / 2015
	Page: 8 / 128

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°:	581	
PURCHASER:	ContiTech Oil & Marine Corp.			P.O. N°:	4500511543	
CONTITECH RUBBER order N°:	540352	HOSE TYPE:	3" ID	Choke and Kill Hose		
HOSE SERIAL N°:	69915	NOMINAL / ACTUAL LENGTH:		10,67 m / 10,76 m		
W.P. 68,9 MPa	10000 psi	T.P. 103,4 MPa	15000 psi	Duration:	60	min.

Pressure test with water at ambient temperature

See attachment. (1 page)

COUPLINGS Type	Serial N°		Quality	Heat N°
3" coupling with	7563	7565	AISI 4130	A0996X
4 1/16" 10K API b.w. Flange end			AISI 4130	036282

NOT DESIGNED FOR WELL TESTING

API Spec 16 C

Temperature rate:"B"

All metal parts are flawless

WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.

STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

COUNTRY OF ORIGIN HUNGARY/EU

Date:	Inspector	Quality Control
18. March 2015.		ContiTech Rubber Ipari Kft. Quality Control Dept. (1)

ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE *No: 579, 580, 581*

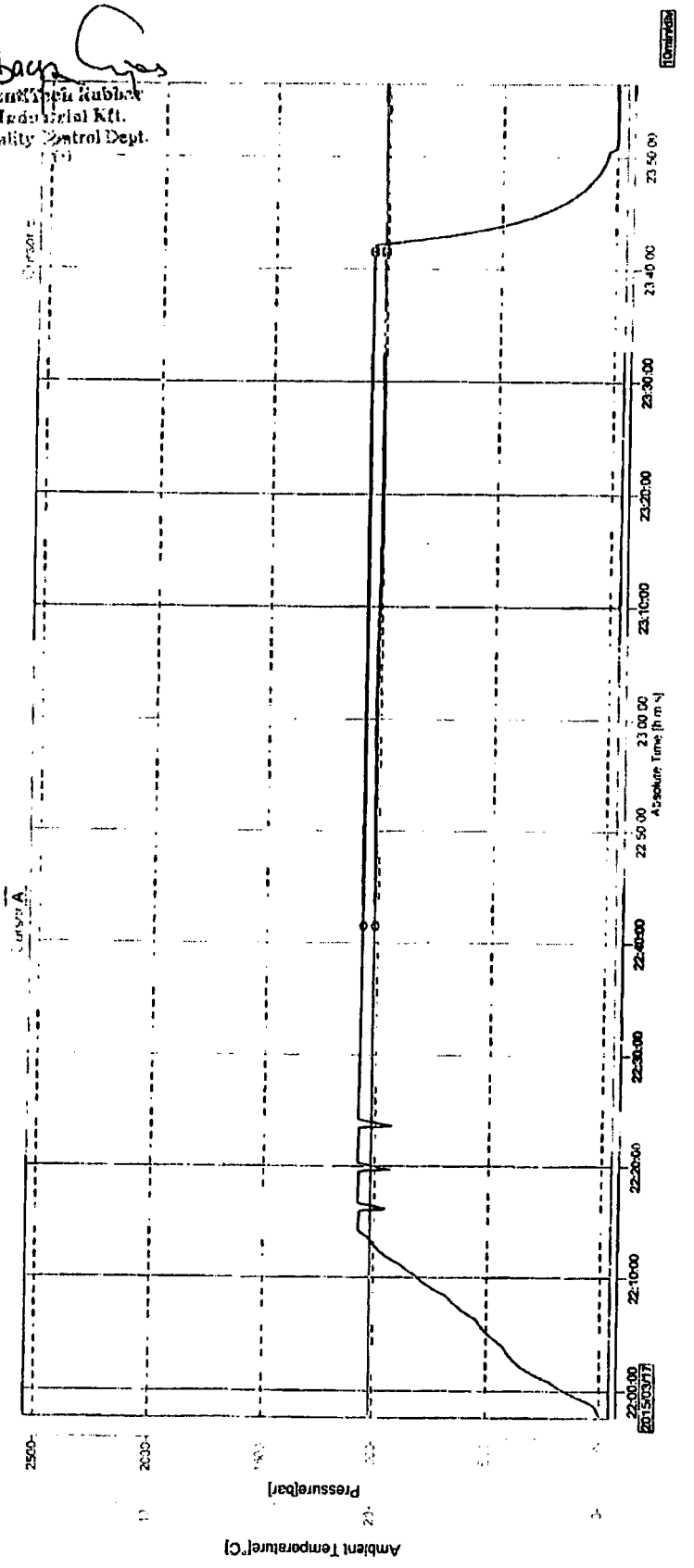
Centrotech Rubber Industrial Kft.
Quality Control Dept.

File Name : 004409_69913,-914,-915.GEV,...,004420_69913,-914,-915.GEV
File Message : 69913,69914,69915
Device Type : GX10
Serial No. : SSP608399
Data Count : 1426

Sampling Int. : 5.000 sec
Start Time : 2015/03/17 21:57:40.000
Stop Time : 2015/03/17 23:58:25.000

Print Group : Press-Temp
Print Range : 2015/03/17 21:57:40.000 - 2015/03/17 23:58:25.000
Comment : 69913,69914,69915

Data No.	Cursor A	Cursor B	Difference
	526	1246	720
Absolute Time	2015/03/17 22:41:30.000	2015/03/17 23:41:30.000	01:00:00.000
Tag Comment	Value A	Value B	Value B-A
Pressure[bar]	1068.30	1057.33	-11.97
Ambient Temperature[°C]	20.29	20.18	-0.11



CEMENT: SURFACE

Stage Tool Depth: N/A

Lead:

Top MD of Segment: 0 | Btm MD of Segment: 400

Cmt Type: C | Cmt Additives: 1% CaCL

Quantity (sks): 342
Yield (cu/ft/sk): 1.33 | Volume (cu/ft): 455
Density (lbs/gal): 14.8 | Percent Excess: 50%

Tail:

Top MD of Segment: | Btm MD of Segment:

Cmt Type: | Cmt Additives:

Quantity (sks):
Yield (cu/ft/sk): | Volume (cu/ft):
Density (lbs/gal): | Percent Excess:

CEMENT: INTERMEDIATE

Single Stage

Lead:

Top MD of Segment: 0 | Btm MD of Segment: 2575

Cmt Type: C | Cmt Additives: 5% Salt + 6% Bentonite + 1#/sk Kolseal + 0.125#/sk Celloflake

Quantity (sks): 570
Yield (cu/ft/sk): 1.84 | Volume (cu/ft): 1050
Density (lbs/gal): 12.9 | Percent Excess: 30%

Tail:

Top MD of Segment: 2575 | Btm MD of Segment: 3500

Cmt Type: C | Cmt Additives: 0.1% Retarder

Quantity (sks):	300		
Yield (cu/ft/sk):	1.32	Volume (cu/ft):	396
Density (lbs/gal):	14.8	Percent Excess:	30%

2 Stage Cement Job CONTINGENCY

* DVT depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DVT will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with 500psi comp strength time for cmt will be onsite for review.

*If lost circulation is encountered, Apache may 2-stage Interm csg. A DVT may be used in the 9-5/8" csg & ECP may be placed below DVT.

1st Stage

Lead:

Top MD of Segment:	700	Btm MD of Segment:	2575
Cmt Type:	C	Cmt Additives:	5% Salt + 6% Bentonite + 1#/sk Kolseal + 0.125#/sk Celloflake

Quantity (sks):	425		
Yield (cu/ft/sk):	1.84	Volume (cu/ft):	785
Density (lbs/gal):	12.9	Percent Excess:	30%

Tail:

Top MD of Segment:	2575	Btm MD of Segment:	3500
Cmt Type:	C	Cmt Additives:	0.1% Retarder

Quantity (sks):	300		
Yield (cu/ft/sk):	1.32	Volume (cu/ft):	396
Density (lbs/gal):	14.8	Percent Excess:	30%

Stage Tool Depth: 700'

2nd Stage

Lead:

Top MD of Segment:	N/A	Btm MD of Segment:	N/A

Cmt Type: N/A Cmt Additives: N/A

Quantity (sks): N/A
Yield (cu/ft/sk): N/A Volume (cu/ft): N/A
Density (lbs/gal): N/A Percent Excess: N/A

Tail:

Top MD of Segment: 0 Btm MD of Segment: 700

Cmt Type: C Cmt Additives: 1-2% Calcium Chloride

Quantity (sks): 215
Yield (cu/ft/sk): 1.33 Volume (cu/ft): 285
Density (lbs/gal): 14.8 Percent Excess: 30%

CEMENT: PRODUCTION

Stage Tool Depth: 5465

This will have an openhole completion attached to the 5-1/2" casing. 5-1/2" will crossover to 7" where a DVT will be placed at the bottom of the 7". The 5-1/2" casing will be uncemented and the 7" from the DVT to surface will be cemented.

Lead:

Top MD of Segment: 0 Btm MD of Segment: 2900

Cmt Type: C Cmt Additives: 5% Salt + 6% Bentonite

Quantity (sks): 245
Yield (cu/ft/sk): 1.97 Volume (cu/ft): 484
Density (lbs/gal): 12.6 Percent Excess: 20%

Tail:

Top MD of Segment: 2900 Btm MD of Segment: 5465

Cmt Type: TXI Lite Cmt Additives: 3% Gas Migration Expansion Additive + 0.3% Fluid Loss Agent + 1.5% Sodium Metasilicate

Quantity (sks): 305
Yield (cu/ft/sk): 1.44 Volume (cu/ft): 440

Density (lbs/gal):	13	Percent Excess:	20%

String: SURFACE

Hole Size: 17.5

Top Setting Depth (MD):	0	Top Setting Depth (TVD):	0	Btm setting depth (MD):	400	Btm setting depth (TVD):	400
Size:	13.375	Grade:	H-40	Weight (lbs/ft):	48	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	STC

Condition (New/Used): New Standard (API/Non-API): API

Tapered String (Y/N)?: N
If yes, need spec attachment

Safety Factors

Collapse Design Safety Factor: 5.53 Burst Design Safety Factor: 1.44

Body Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Body Tensile Design Safety Factor: 3.17

Joint Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Joint Tensile Design Safety Factor: 1.88

String: INTERMEDIATE

Hole Size: 12.25

Top Setting Depth (MD):	0	Top Setting Depth (TVD):	0	Btm setting depth (MD):	3500	Btm setting depth (TVD):	3500
Size:	9.625	Grade:	J-55	Weight (lbs/ft):	36	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	LTC

Condition (New/Used): New Standard (API/Non-API): API

Tapered String (Y/N)?: N

If yes, need spec attachment

Safety Factors

Collapse Design Safety Factor: 1.84 Burst Design Safety Factor: 1.89

Body Tensile Design Safety Factor type?: Dry/Buoyant Buoyant

Body Tensile Design Safety Factor: 2.46

Joint Tensile Design Safety Factor type?: Dry/Buoyant Buoyant

Joint Tensile Design Safety Factor: 1.99

String: **PRODUCTION**

Hole Size: 8.5

Top Setting Depth (MD):	0	Top Setting Depth (TVD):	0	Btm setting depth (MD):	5465	Btm setting depth (TVD):	5425
Size:	7	Grade:	L-80	Weight (lbs/ft):	29	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	LTC

Condition (New/Used): New Standard (API/Non-API): API

Safety Factors

Collapse Design Safety Factor: 2.92 Burst Design Safety Factor: 1.36

Body Tensile Design Safety Factor type?: Dry/Buoyant Buoyant

Body Tensile Design Safety Factor: 2.71

Joint Tensile Design Safety Factor type?: Dry/Buoyant Buoyant

Joint Tensile Design Safety Factor: 1.8

Hole Size: 8.5

String **TAPERED**

Top Setting Depth (MD):	5465	Top Setting Depth (TVD):	5425	Btm setting depth (MD):	15708	Btm setting depth (TVD):	5565
Size:	5.5	Grade:	L-80	Weight (lbs/ft):	17	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	LTC

Condition (New/Used): New Standard (API/Non-API): API

Tapered String (Y/N)?: Y
If yes, need spec attachment

Safety Factors

Collapse Design Safety Factor: 2.4 Burst Design Safety Factor: 1.13

Body Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Body Tensile Design Safety Factor: 2.09

Joint Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Joint Tensile Design Safety Factor: 1.8

APD ID: 10400025084 **Submission Date:** 12/14/2017

Operator Name: APACHE CORPORATION

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

CedarLakeFedCA954H_ExistingRoads_20171214131731.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT **Row(s) Exist?** NO

ROW ID(s)

ID:

Do the existing roads need to be improved? YES

Existing Road Improvement Description: Roads will be improved by patching, compacting and blading.

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? NO

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

CedarLakeFedCA954H_1MiRadius_20171214131753.PDF

Operator Name: APACHE CORPORATION

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H

Existing Wells description:

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: A pipeline to transport production will be installed from proposed well to proposed production facility. Apache plans to install a 4 inch buried polyethylene pipeline from proposed well to offsite production facility. The proposed length of the pipeline will be 363.31 feet with WP of 750psi. A 30 feet wide disturbance will be needed to install buried pipeline. In areas where blading is allowed, topsoil will be stockpiled and separated from excavated trench mineral material. Final reclamation procedures will match procedures in plans for surface reclamation. When excavated soil is backfilled, it will be compacted to prevent subsidence. No berm over pipeline will be evident. Proposed pipeline does not cross lease boundaries, so a ROW will not need to be acquired from BLM. Proposed production facility will have a secondary containment structure that is constructed to hold the capacity of 1-1/2 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Production Facilities map:

CedarLakeFedCom953H_954H_Flowline_20171212153424.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source use type: DUST CONTROL, INTERMEDIATE/PRODUCTION CASING, SURFACE CASING

Water source type: GW WELL

Describe type:

Source latitude: 32.819386

Source longitude: -103.98483

Source datum: NAD83

Water source permit type: PRIVATE CONTRACT

Source land ownership: PRIVATE

Water source transport method: TRUCKING

Source transportation land ownership: PRIVATE

Water source volume (barrels): 22142.857

Source volume (acre-feet): 2.8540614

Source volume (gal): 930000

Water source use type: INTERMEDIATE/PRODUCTION CASING

Water source type: OTHER

Describe type:

Source latitude: 32.87279

Source longitude: -103.5045

Source datum: NAD83

Water source permit type: PRIVATE CONTRACT

Source land ownership: STATE

Water source transport method: TRUCKING

Source transportation land ownership: STATE

Water source volume (barrels): 22142.857 **Source volume (acre-feet):** 2.8540614

Source volume (gal): 930000

Water source and transportation map:

CedarLakeFedCA954H_FreshWtrBrineWtrSource_20171214132030.pdf

Water source comments: Water source may vary pending availability.

New water well? NO

New Water Well Info

Well latitude: **Well Longitude:** **Well datum:**

Well target aquifer:

Est. depth to top of aquifer(ft): **Est thickness of aquifer:**

Aquifer comments:

Aquifer documentation:

Well depth (ft): **Well casing type:**

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Construction Materials description: Caliche will be hauled /trucked from a BLM approved pit. No surface materials will be distributed except those necessary for actual grading and construction of the drill site and access road
Construction Materials source location attachment:

Operator Name: APACHE CORPORATION

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Drilling fluid from well, during drilling operations, will be stored safely and recycled to next well. Any excess will be hauled to approved NMOCD disposal facility
Amount of waste: 2500 barrels

Waste disposal frequency : One Time Only

Safe containment description: Drilling fluids will be stored in sealed frac tanks

Safe containmant attachment:

Waste disposal type: RECYCLE **Disposal location ownership:** OTHER

Disposal type description:

Disposal location description: Operators next well

Waste type: GARBAGE

Waste content description: Garbage and trash produced during drilling and completion operations will be collected in a trash container and disposed of at a state approved disposal facility. All trash on and around well site will be collected for disposal
Amount of waste: 1500 pounds

Waste disposal frequency : Weekly

Safe containment description: Garbage will be disposed of in portable trash trailers

Safe containmant attachment:

Waste disposal type: OTHER **Disposal location ownership:** STATE

Disposal type description: land fill

Disposal location description: Lea County landfill

Waste type: SEWAGE

Waste content description: Human waste and grey water will be properly contained and disposed of at a state approved facility
Amount of waste: 2000 gallons

Waste disposal frequency : Weekly

Safe containment description: Sewage will be stored in steel waste tanks

Safe containmant attachment:

Waste disposal type: OTHER **Disposal location ownership:** STATE

Disposal type description: Municipal waste facility

Disposal location description: Hobbs Municipal Waste Facility

Operator Name: APACHE CORPORATION

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H

Waste type: DRILLING

Waste content description: Excess cement returns

Amount of waste: 40 barrels

Waste disposal frequency : Weekly

Safe containment description: Cement returns will be stored in steel roll off bins then transferred to disposal vacuum trucks

Safe containmant attachment:

Waste disposal type: OTHER **Disposal location ownership:** PRIVATE

Disposal type description: Haul to private facility

Disposal location description: R360, 6601 W. Hobbs Hwy, Carlsbad, NM 88220

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.) **Reserve pit width (ft.)**

Reserve pit depth (ft.) **Reserve pit volume (cu. yd.)**

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? YES

Description of cuttings location Cutting will be stored in steel haul off bins and taken to an NMOCD approved disposal facility

Cuttings area length (ft.) **Cuttings area width (ft.)**

Cuttings area depth (ft.) **Cuttings area volume (cu. yd.)**

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Operator Name: APACHE CORPORATION

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

CedarLakeFedCA954H_RigLayout_20171214132127.pdf

Comments: Rig configuration may change pending rig availability.

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance **Multiple Well Pad Name:** PAD 25W

Multiple Well Pad Number: 954H

Recontouring attachment:

Drainage/Erosion control construction: Slight slope for water drainage

Drainage/Erosion control reclamation: Reclamation is going to follow natural terrain to control erosion, runoff and siltation of surrounding area

Well pad proposed disturbance (acres): 2.17
Road proposed disturbance (acres): 0
Powerline proposed disturbance (acres): 0
Pipeline proposed disturbance (acres): 0
Other proposed disturbance (acres): 0
Total proposed disturbance: 2.17

Well pad interim reclamation (acres): 0
Road interim reclamation (acres): 0
Powerline interim reclamation (acres): 0
Pipeline interim reclamation (acres): 0
Other interim reclamation (acres): 0
Total interim reclamation: 0

Well pad long term disturbance (acres): 2.17
Road long term disturbance (acres): 0
Powerline long term disturbance (acres): 0
Pipeline long term disturbance (acres): 0
Other long term disturbance (acres): 0
Total long term disturbance: 2.17

Disturbance Comments:

Reconstruction method: Areas planned for interim reclamation will be contoured to original contour if feasible, or if not feasible, to an interim contour that blends with surrounding topography as much as possible. Where applicable, fill material of well pad will be back filled into the cut to bring area back to original contour.
Topsoil redistribution: Topsoil that was spread over interim reclamation areas will be stockpiled prior to recontouring. Topsoil will be redistributed evenly over entire disturbed site to ensure successful revegetation
Soil treatment: No soil treatment expected.

Existing Vegetation at the well pad:

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road:

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline:

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances:

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary

Total pounds/Acre:

Seed Type	Pounds/Acre

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

Operator Name: APACHE CORPORATION

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H

First Name: **Last Name:**

Phone: **Email:**

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: Operator will consult with authorized officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.
Weed treatment plan attachment:

Monitoring plan description: No interim reclamation required for this pad, but if needed, reclaimed areas will be monitored periodically to ensure vegetation has re-established, that area is not re-disturbed, and erosion is controlled
Monitoring plan attachment:

Success standards: Objective of interim reclamation is to restore vegetative cover and a portion of landform sufficient to maintain healthy, biologically active topsoil, control erosion, and minimize habitat and forage loss, visual impact, and weed infestation during life of well or facilities. Long term objective of final reclamation is to return land to a condition similar to what existed prior to disturbance. This includes restoration of landform and natural vegetative community, hydrologic systems, visual resources, and wildlife habitats. To ensure that the long term objective will be reached through human and natural processes, actions will be taken to ensure standards are met for site stability, visual quality, hydrological functioning, and vegetative productivity. BLM will be notified 3 days prior to commencement of any reclamation procedures. If circumstances allow, interim and/or final reclamation actions will be completed no later than 6 months from when the final well on location has been completed or plugged. We will gain written permission from BLM if more time is needed.
Pit closure description: Not applicable

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

Operator Name: APACHE CORPORATION

Well Name: CEDAR LAKE FEDERAL CA **Well Number:** 954H

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Section 12 - Other Information

Right of Way needed? NO **Use APD as ROW?**

ROW Type(s):

ROW Applications

SUPO Additional Information: An additional 30' to the North, approx 148' to the West and approx 143' to the South will be added to the existing pad per sundry filed on 11/6/17 (#394127 / Apl #30-015-43326). Expansion approved during onsite by Jeffery Robertson on 9/14/17.
Use a previously conducted onsite? YES

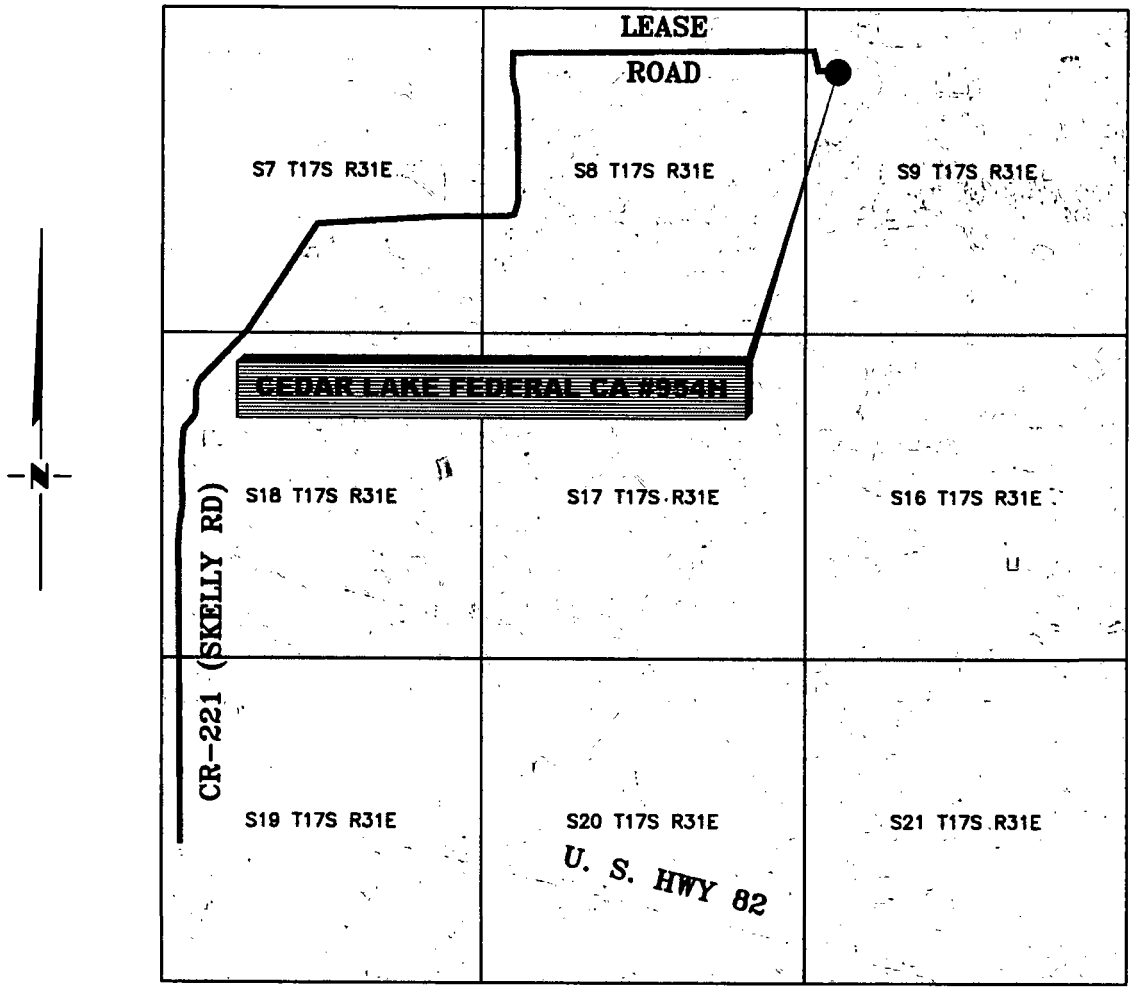
Previous Onsite information: Onsite conducted on 9/14/17 with BLM rep: Jeffery Robertson.

Other SUPO Attachment

Plat_PadExpansion_CedarLakeFedCA950H_11.6.17_20171205130049.pdf

VICINITY MAP

NOT TO SCALE



SECTION 9, TWP. 17 SOUTH, RGE. 31 EAST, N. M. P. M., EDDY COUNTY, NEW MEXICO

OPERATOR: Apache Corporation
LEASE: Cedar Lake Federal CA
WELL NO.: 954H

LOCATION: 1039' FNL & 510' FWL
ELEVATION: 3875'

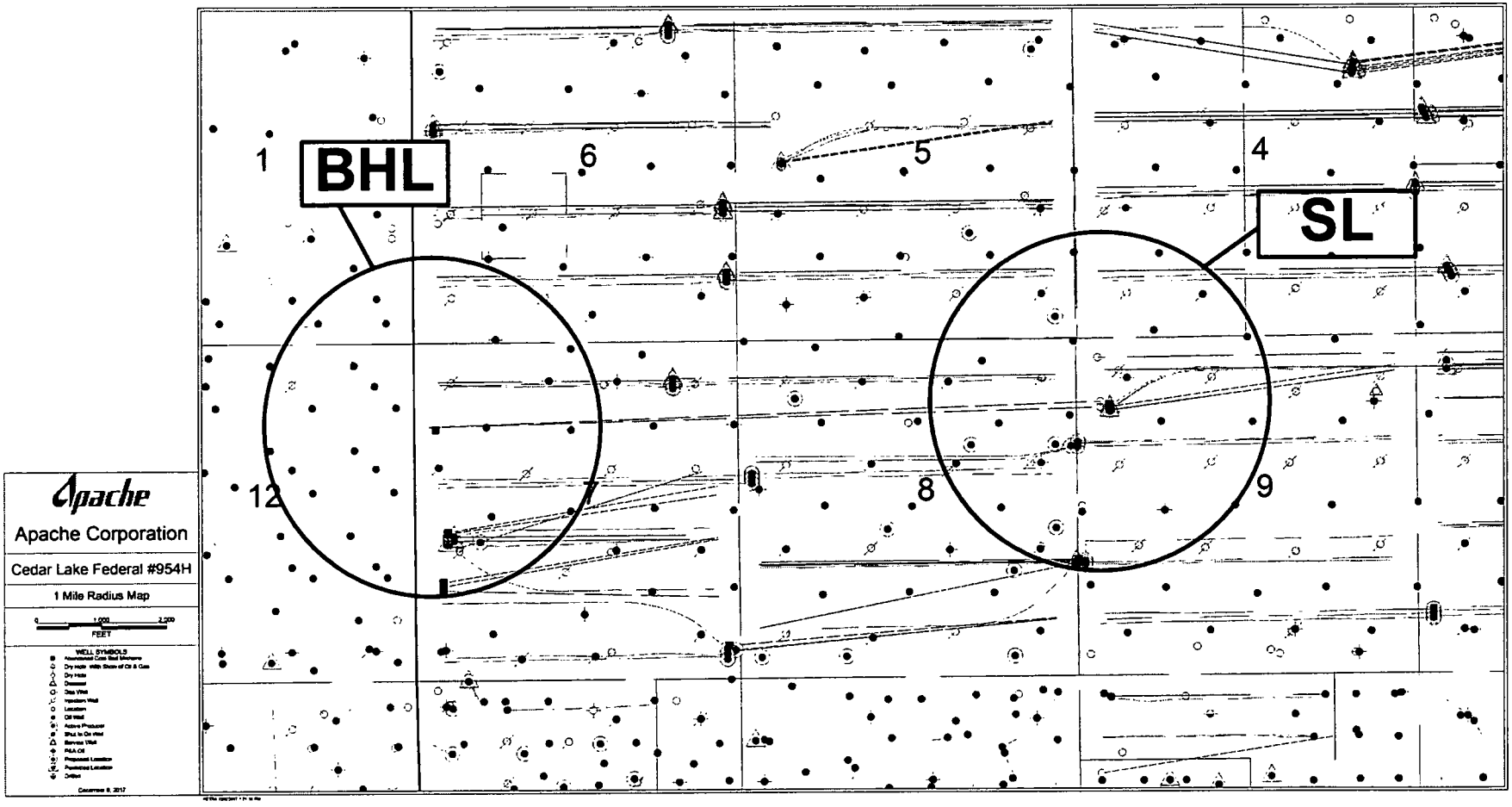
NO.	REVISION	DATE

JOB NO.: LS1710702
DWG. NO.: 1710702VM

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

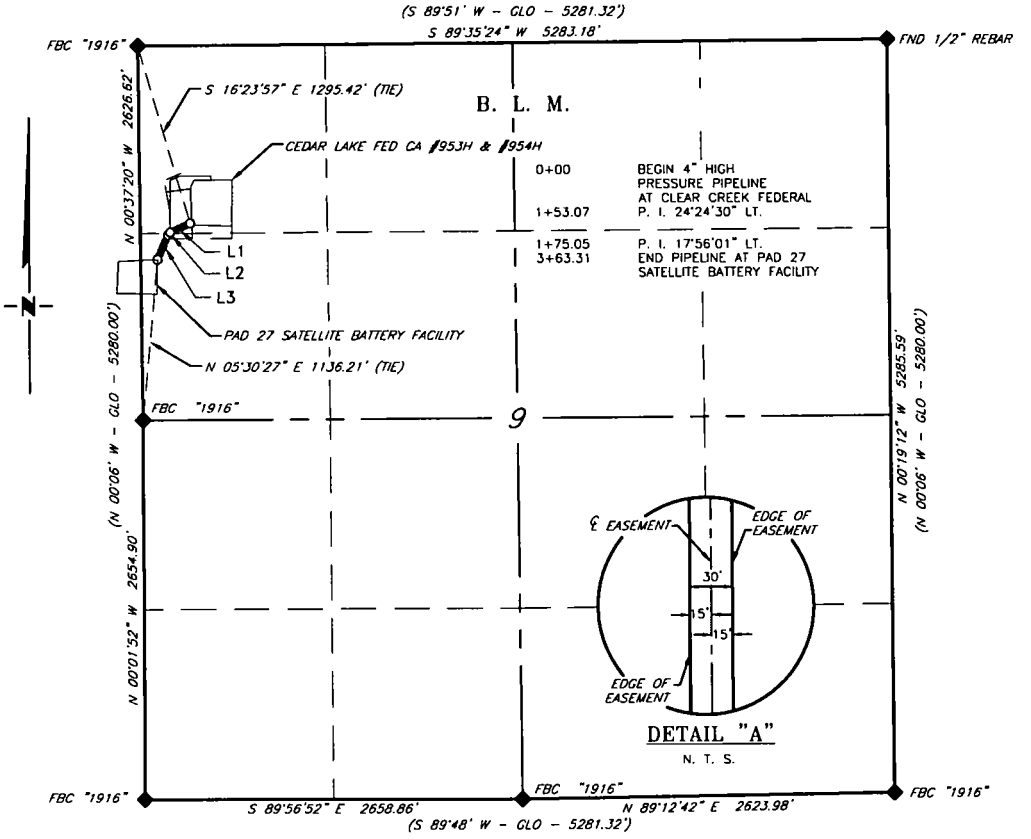
SCALE: N / A
DATE: 10-31-2017
SURVEYED BY: BC/AS
DRAWN BY: AiAC
APPROVED BY: RMH
SHEET: 1 OF 1


BHL
SL
1
6
5
4
12
7
8
9
Apache
Apache Corporation
Cedar Lake Federal #954H
1 Mile Radius Map
FEET
WELL SYMBOLS

APACHE CORPORATION

4" HIGH PRESSURE BURIED POLYLINES FROM THE CEDAR LAKE FED CA #953H & #954H PAD TO THE PAD 27 SATELLITE BATTERY FACILITY

SECTION 9, T17S, R31E, N. M. P. M., EDDY CO., NEW MEXICO



LINE TABLE		
LINE	BEARING	LENGTH
L1	S 65°35'15" W	153.07'
L2	S 41°10'45" W	21.98'
L3	S 23°14'44" W	188.26'

SCALE: 1" = 1000'
0 500' 1000'

BEARINGS ARE GRID NAD 83 NM EAST
DISTANCES ARE HORIZ. GROUND.

LEGEND

( ) RECORD DATA - GLO

◆ FOUND MONUMENT AS NOTED

PROPOSED PIPELINE

I, R. M. Howett, a N. M. Professional Surveyor, hereby certify that I prepared this plat from an actual survey made on the ground under my direct supervision, said survey and plat meet the Min. Stds. for Land Surveying in the State of N. M. and are true and correct to the best of my knowledge and belief.

Robert M. Howett

Robert M. Howett NM PS 19680

ROBERT M. HOWETT NEW MEXICO 19680 12/8/17 PROFESSIONAL SURVEYOR

NO.	REVISION	DATE

JOB NO.: LS1709599
DWG. NO.: 1709599-1

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 1000'
DATE: 12-8-2017
SURVEYED BY: BC/AS
DRAWN BY: JC
APPROVED BY: RMH
SHEET: 1 OF 2

APACHE CORPORATION

4" HIGH PRESSURE BURIED POLYLINES FROM THE CEDAR LAKE FED CA #953H AND THE CEDAR LAKE FED CA #954H TO PAD 27 SATELLITE BATTERY FACILITY

SECTION 9, T17S, R31E,
N. M. P. M., EDDY CO., NEW MEXICO

DESCRIPTION

A strip of land 30 feet wide, being 363.31 feet or 22.019 rods in length, lying in Section 9, Township 17 South, Range 31 East, N. M. P. M., Eddy County, New Mexico, being 15 feet left and 15 feet right of the following described survey of a centerline across B. L. M. land:

BEGINNING at Engr. Sta. 0+00, a point in the Northwest quarter of Section 9, which bears, S 16°23'57" E, 1,295.42 feet from a brass cap, stamped "1916" found for the Northwest corner of Section 9;

Thence S 65°35'15" W, 153.07 feet, to Engr. Sta. 1+53.07, a P. I. of 24°24'30" left;

Thence S 41°10'45" W, 21.98 feet, to Engr. Sta. 1+75.05, a P. I. of 17°56'01" left;

Thence S 23°14'44" W, 188.26 feet, to Engr. Sta. 3+63.31, the End of Survey a point in the Northwest quarter of Section 9, which bears, N 05°30'27" E, 1,136.21 feet from a brass cap, stamped "1916", found for the West quarter corner of Section 9;

Said strip of land contains 0.250 acres, more or less, and is allocated by forties as follows:

NW 1/4 NW 1/4	9.767 Rods	0.111 Acres
SW 1/4 NW 1/4	12.252 Rods	0.139 Acres

NO.	REVISION	DATE

JOB NO.: LS1709599
DWG. NO.: 1709599-2

RRC

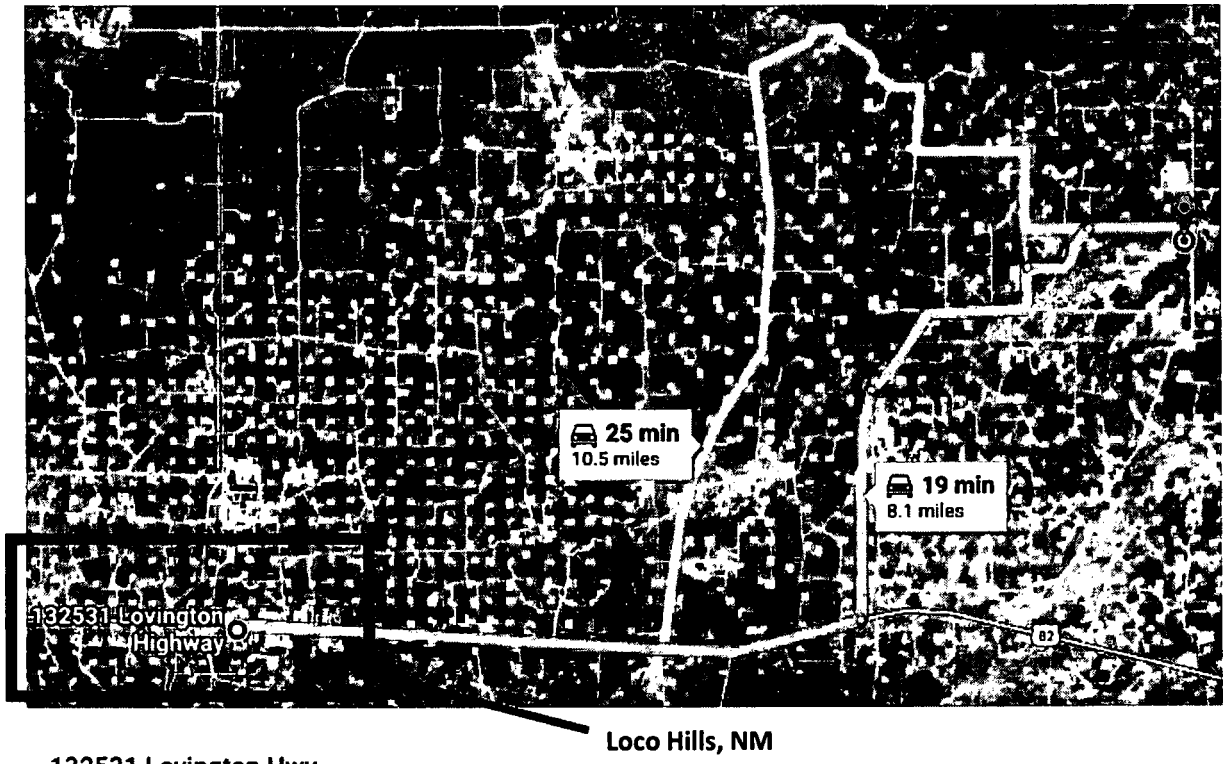
308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 1000'
DATE: 12-8-2017
SURVEYED BY: BC/AS
DRAWN BY: JC
APPROVED BY: RMH
SHEET: 2 OF 2

Cedar Lake Federal CA 954H Fresh Water Source

Source:

Mor-West Corporation



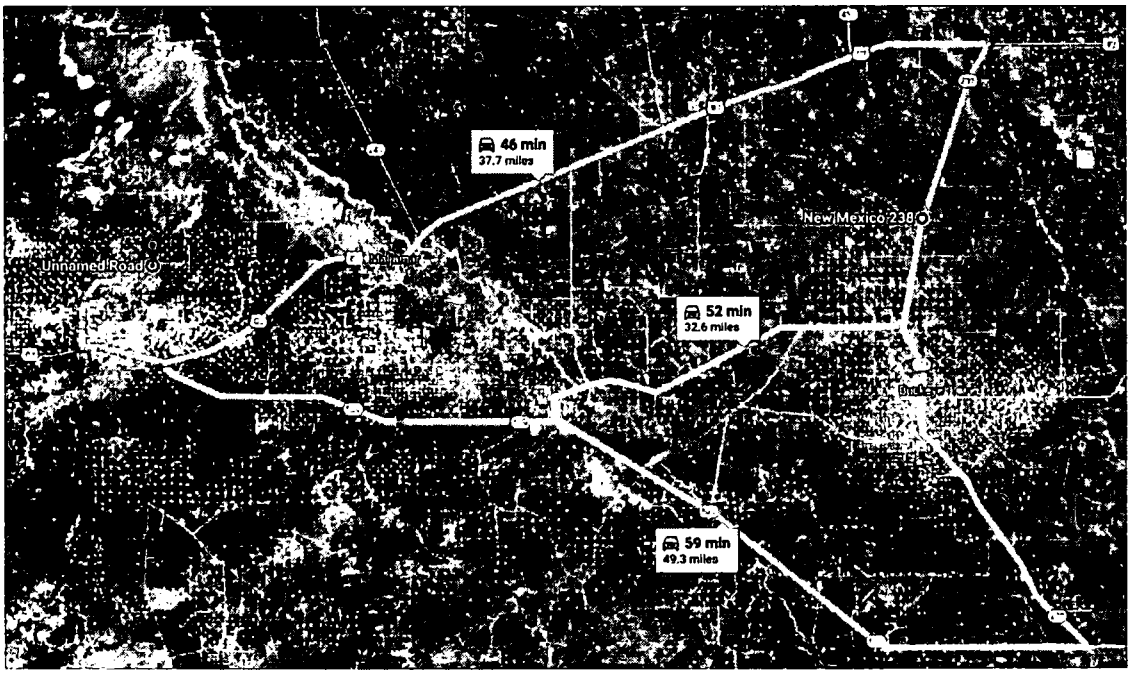
132531 Lovington Hwy
Loco Hills, NM 88255

- Head east on US-82 E toward Goat Ropers Rd
  3.9 mi
- Turn left onto Skelly Rd
  1.5 mi
- Slight right
  1.5 mi
- Turn right
  0.5 mi
- Turn right
  0.6 mi

Destination: Cedar Lake Federal CA 954H

Cedar Lake Federal CA 954H Brine Water Source

Source: Wesserhund



NM-238
Lovington, NM 88260

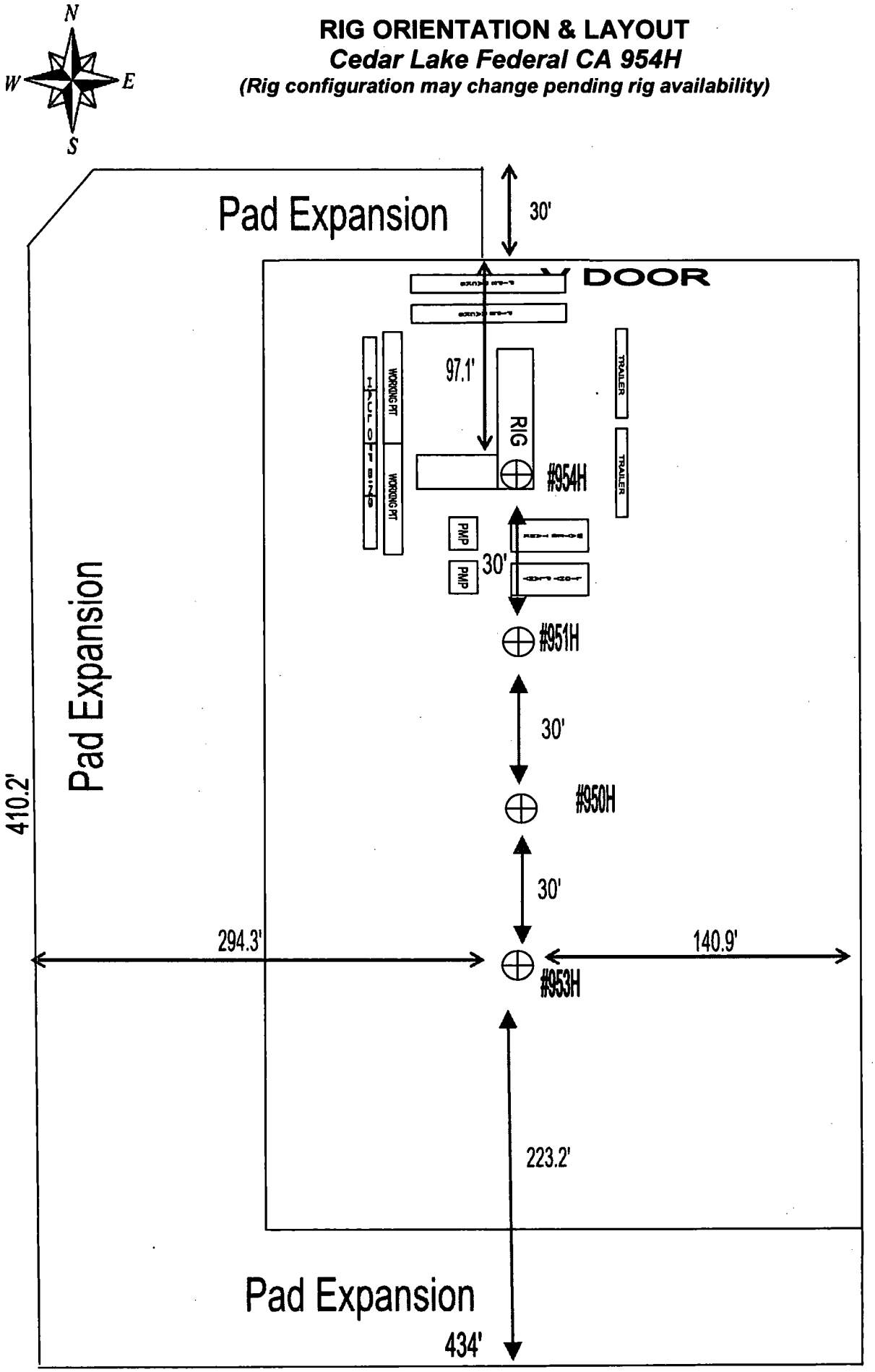
- **Head north on NM-238 N**
  5.3 mi
- **Turn left onto US-82 W**
  28.3 mi
- **Turn right onto Skelly Rd**
  1.5 mi
- **Slight right**
  1.5 mi
- **Turn right**
  0.5 mi
- **Turn right**
  0.6 mi

Destination: Cedar Lake Federal CA 954H

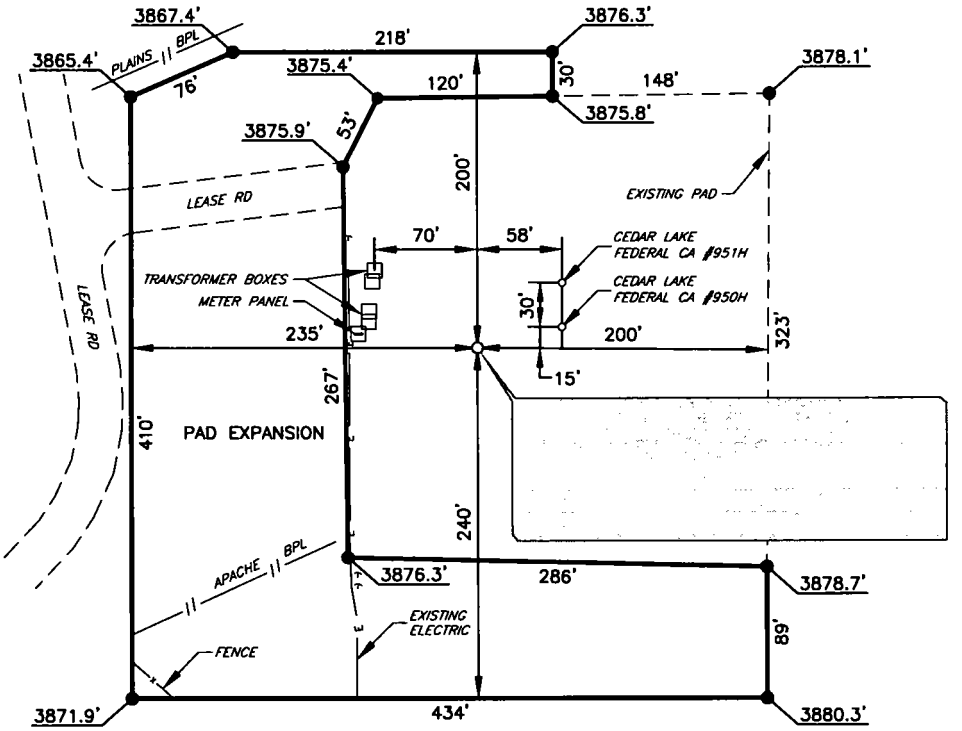
RIG ORIENTATION & LAYOUT

Cedar Lake Federal CA 954H

(Rig configuration may change pending rig availability)



APACHE CORPORATION
CEDAR LAKE FEDERAL CA #953H
(1113' FNL & 451' FWL)
SECTION 9, T17S, R31E
N. M. P. M., EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

From the intersection of Hwy 82 (Lovington Hwy.) and CR-221 (Skelly Rd.),
Go North on CR-221 approx. 1.4 miles to a lease road on the right;
Turn right and go Northeast on lease road approx. 1.7 miles to a lease road on the right;
Turn right and go East on lease road approx. 0.9 miles to lease road on the right;
Turn right and go Southeast on lease road approx. 336 feet to proposed location on the left.

SCALE: 1" = 100'
0 50' 100'

BEARINGS ARE GRID NAD 83 NM EAST
DISTANCES ARE HORIZ. GROUND.

I, R. M. Howett, a N. M. Professional Surveyor, hereby certify that I prepared this unclassified survey of a well location from an actual survey made on the ground under my direct supervision, said survey and plat meet the Min. Stds. for Land Surveying in the State of N. M. and are true and correct to the best of my knowledge and belief.

Robert M. Howett
Robert M. Howett NM PS 19680

ROBERT M. HOWETT NEW MEXICO 19680 10/10/17 PROFESSIONAL SURVEYOR

NO.	REVISION	DATE

JOB NO.: LS1709599
DWG. NO.: 1709599PAD

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 100'
DATE: 9-14-2017
SURVEYED BY: AS/BC
DRAWN BY: AiAC
APPROVED BY: RMH
SHEET : 1 OF 1

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Other PWD discharge volume (bbl/day):

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Bond Info Data Report

05/30/2018

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB000736

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: