Form 3160-3
(June 2015)

NM OIL CONSERVATION
ARTESIA DISTRICT
MAR 07 2019
RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM113962

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

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

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

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

8. Lease Name and Well No.
SALT FORK 3 4 FEDERAL COM
102H 316024

2. Name of Operator
APACHE CORPORATION 873

9. API Well No.
30-015-45774

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory
303 Veterans Airpark Lane #1000 Midland TX 79705	(432)818-1000	BONE SPRING / LEO;BONE SPRING, S

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NESW / 2205 FSL / 2284 FWL / LAT 32.6881936 / LONG -103.9609698
At proposed prod. zone SWSW / 610 FSL / 50 FWL / LAT 32.6838224 / LONG -103.9853877

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 3 / T19S / R30E / NMP

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State
18 miles	EDDY	NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
50 feet	400	240

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
25 feet	7572 feet / 15342 feet	FED: NMB000736

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3410 feet	10/17/2018	17 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

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 requested by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Sorina Flores / Ph: (432)818-1167	05/21/2018
Title: Supv of Drilling Services		
Approved by *(Signature)* (Electronic Submission)	Name *(Printed/Typed)* Cody Layton / Ph: (575)234-5959	Date 02/28/2019
Title: Assistant Field Manager Lands & Minerals	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.

APPROVED WITH CONDITIONS

Approval Date: 02/28/2019

RWP 3-7-19

(Continued on page 2)

*(Instructions on page 2)

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 I: 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 wen, 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 directionany 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.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

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 wen 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 win 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 conects this information to anow 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 Conection 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: NESW / 2205 FSL / 2284 FWL / TWSP: 19S / RANGE: 30E / SECTION: 3 / LAT: 32.6881936 / LONG: -103.9609698 (TVD: 0 feet, MD: 0 feet)
   PPP: NESW / 1672 FSL / 2124 FWL / TWSP: 19S / RANGE: 30E / SECTION: 3 / LAT: 32.6867311 / LONG: -103.9614905 (TVD: 7476 feet, MD: 7543 feet)
   BHL: SWSW / 610 FSL / 50 FWL / TWSP: 19S / RANGE: 30E / SECTION: 4 / LAT: 32.6838224 / LONG: -103.9853877 (TVD: 7572 feet, MD: 15342 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 OPERATIONS
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	APACHE CORPORATION
LEASE NO.:	NMNM113962
WELL NAME & NO.:	SALT FORK 3 4 FEDERAL COM 102H
SURFACE HOLE FOOTAGE:	2205'/S & 2284'/W
BOTTOM HOLE FOOTAGE	610'/S & 50'/W
LOCATION:	SECTION 3, T19S, R30E, NMP
COUNTY:	Eddy

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 **Yates** 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"** casing shall be set at approximately **459'** (a minimum of 25' into the Rustler Anhydrite and above the salt) and cemented to surface. **Excess cement calculates to 17% - additional cement might be required.**

   - **If cement does not circulate to 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 **6 hours** after pumping cement, ideally between 8-10 hours after completing the cement job.

   - WOC time for a primary cement job will be a minimum of **24 hours in Potash Area** or **500 psi** compressive strength, whichever is greater. This is to include the lead cement.

   - If cement falls back, remedial cementing will be done prior to drilling out that

string.

- WOC time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 psi compressive strength, whichever is greater.

Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

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

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Excess calculates to 22% - additional cement might be required. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

Operator must contact BLM before proceeding to option 2.

Option 2:

Operator has proposed a DV tool at a depth of **3500'**, 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 22% - additional cement might be required.**

❖ **In Medium/High Cave/Karst Areas if cement does not circulate to surface on the first two casing strings , the cement on the 3rd casing string must come to surface.**

3. The minimum required fill of cement behind the **7" X 5 ½** production casing is:

- Cement to **500 feet** into previous intermediate casing shoe. If cement does not circulate see B.1.a, c-d above.

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 **3000 (3M)** psi with **3M annular rated for 3,000 psi.**

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

JJP1292019

GENERAL REQUIREMENTS

1. 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

2. 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.

3. 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.

4. The record of the drilling rate along with the GR/N well log (one log per well pad is acceptable) 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. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

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. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

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: The flex line must meet the requirements of API 16C. 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. 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.
   e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

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, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.

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. 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.

f. 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. This test shall be performed prior to the test at full stack pressure.

g. 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.

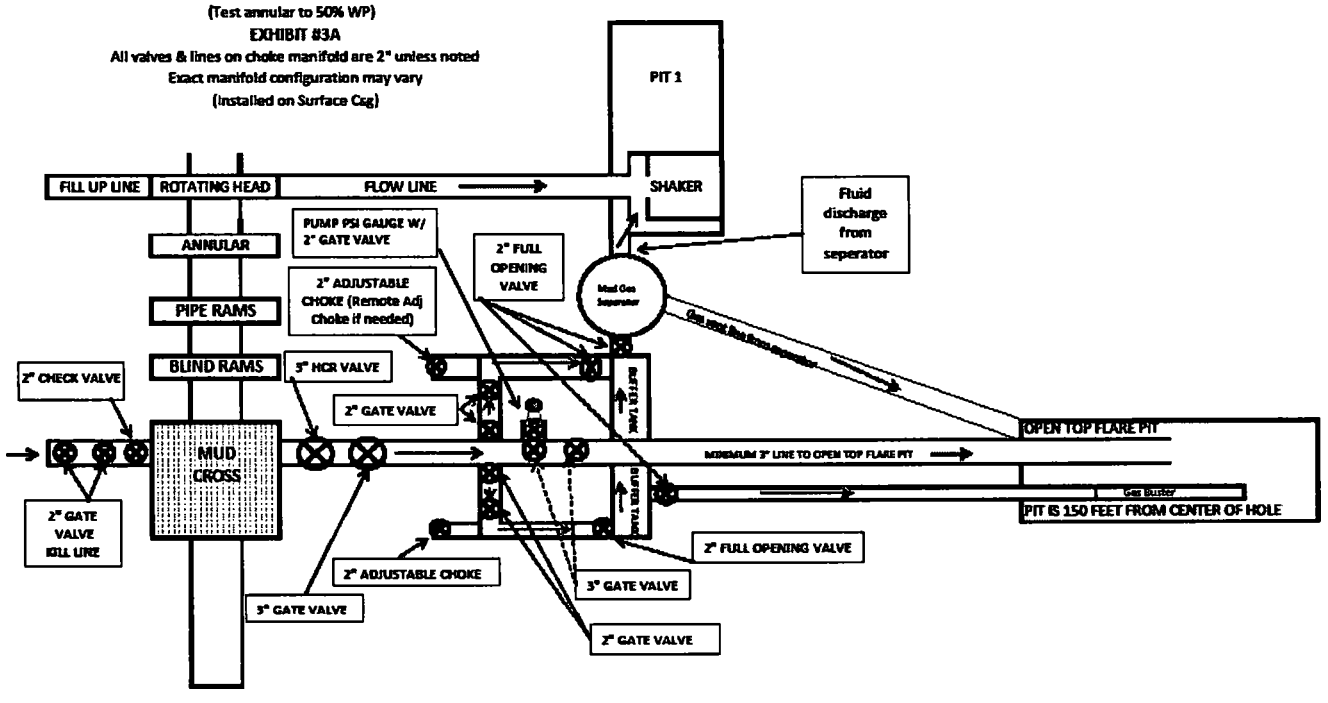
D. WASTE MATERIAL AND FLUIDS

1. 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.

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

APACHE BOP AND CHOKE MANIFOLD SCHEMATIC

13-5/8" 3M PSI BOP / 3M annular (to be tested as a 3M)
(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 ***

Approval Date: 02/28/2019

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Apache Corporation
LEASE NO.:	NMNM113962
WELL NAME & NO.:	Salt Fork 3 4 Federal Com 102H
SURFACE HOLE FOOTAGE:	2205'/S & 2284'/W
BOTTOM HOLE FOOTAGE	610'/S & 50'/W
LOCATION:	Section 3, T.19 S., R.30 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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)

Implementation Date
If the well has not been spud within 5 years of the previous well drilled on the exiting well pad, any approvals in place will no longer be valid and the operator is to cease all operations related to well drilling preparations. **The Salt Fork 3-4 Federal Com 101H and 102H must be spudded at this location by 7/17/2022, or this action will no longer be part of an excluded category.**

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.

Cave/Karst Surface Mitigation
The following stipulations will be applied to minimize impacts during construction, drilling and production:

Construction:
In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:
No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:
- The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.
- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g., caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.

- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised. (Any access road crossing the berm cannot be lower than the berm height.)
- Following a rain event, all fluids will vacuumed off of the pad and hauled off-site and disposed at a proper disposal facility.

Tank Battery Liners and Berms:
Tank battery locations and all facilities will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing, or equivalent, to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:
A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:
Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation
The following stipulations will be applied to protect cave/karst and ground water concerns:
Rotary Drilling with Fresh Water:
Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:
Upon well abandonment in cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:
The operator will perform annual pressure monitoring on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

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.

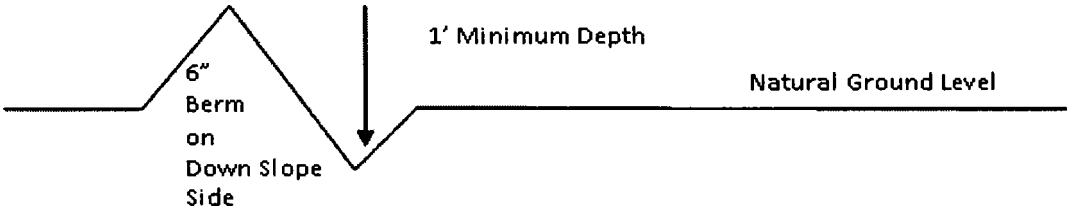
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

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

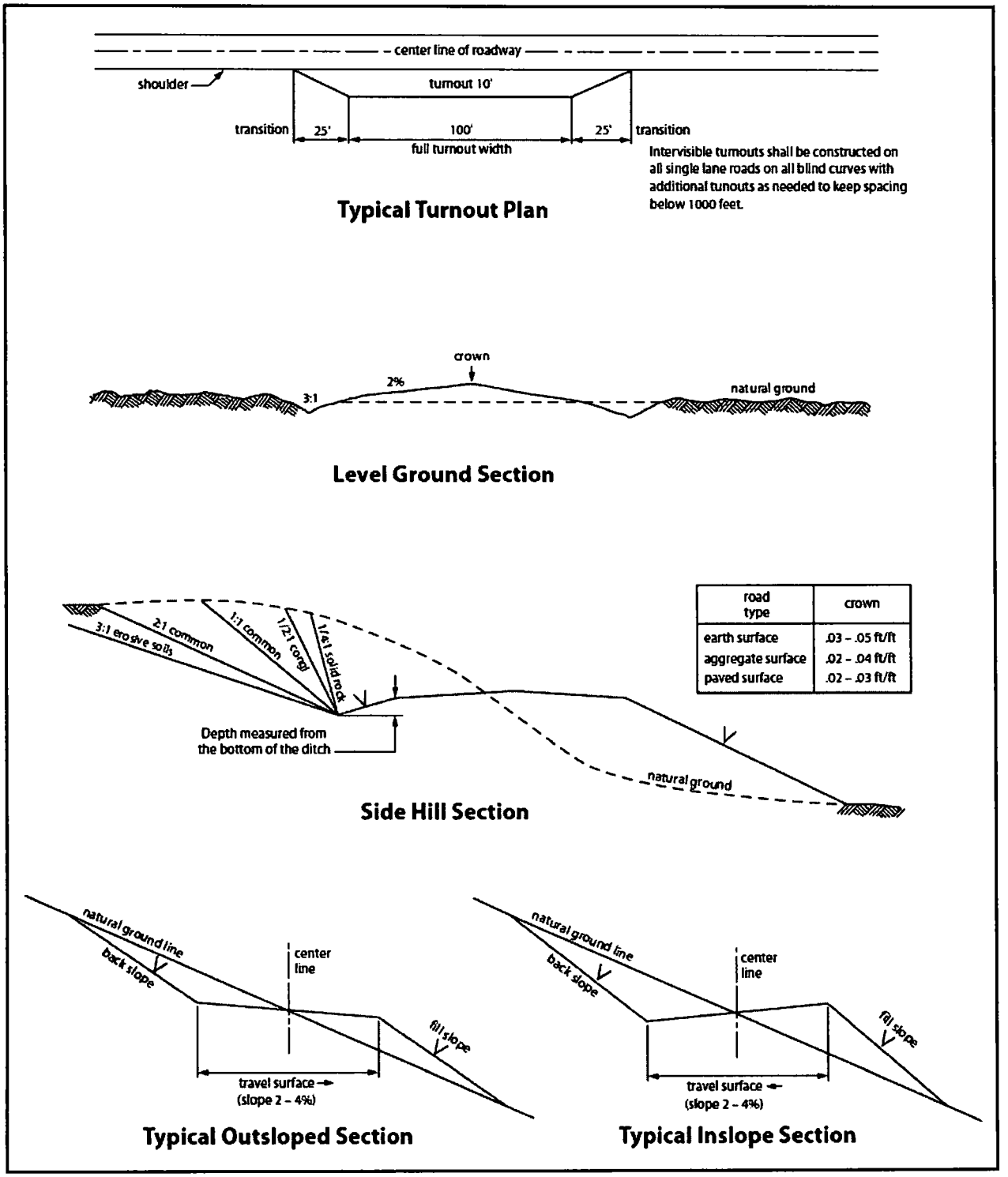


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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).

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 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

AFMSS

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

ator Certification Data Report

03/04/2019

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:** 05/21/2018

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:

APD ID: 10400030371
Submission Date: 05/21/2018
Operator Name: APACHE CORPORATION
Well Name: SALT FORK 3 4 FEDERAL COM
Well Number: 102H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes
Show Final Text

Section 1 - General

APD ID: 10400030371
Tie to previous NOS?
Submission Date: 05/21/2018
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: NMNM113962
Lease Acres: 400
Surface access agreement in place?
Allotted?
Reservation:
Agreement in place? NO
Federal or Indian agreement:
Agreement number:
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: SALT FORK 3 4 FEDERAL COM
Well Number: 102H
Well API Number:
Field/Pool or Exploratory? Field and Pool
Field Name: BONE SPRING
Pool Name: LEO;BONE SPRING, S
Is the proposed well in an area containing other mineral resources? POTASH

Operator Name: APACHE CORPORATION

Well Name: SALT FORK 3 4 FEDERAL COM **Well Number:** 102H

Describe other minerals:

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

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** SALT FORK PAD **Number:** 1

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

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: OTHER

Describe sub-type: DEVELOPMENT WELL

Distance to town: 18 Miles **Distance to nearest well:** 25 FT **Distance to lease line:** 50 FT

Reservoir well spacing assigned acres Measurement: 240 Acres

Well plat: PlatREV3_SaltFork3_4FedCom102H_Signed_12.17.18_20181217133523.pdf

Well work start Date: 10/17/2018 **Duration:** 17 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number:

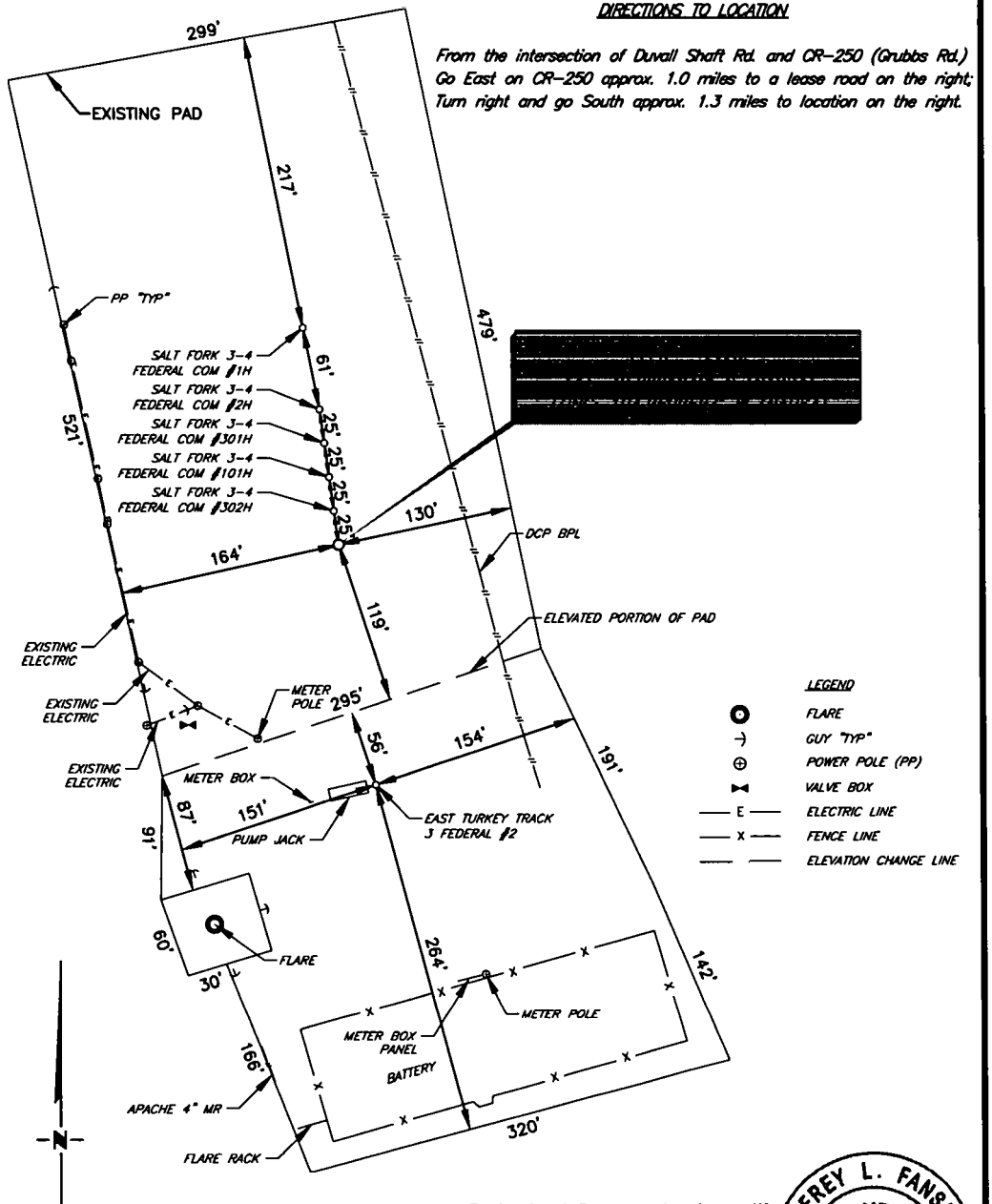
	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	2205	FSL	2284	FWL	19S	30E	3	Aliquot NESW	32.6881936	-103.9609698	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 113962	3410	0	0
KOP Leg #1	1820	FSL	2215	FWL	19S	30E	3	Aliquot NESW	32.6871363	-103.9611948	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 113962	-3709	7139	7119
PPP Leg #1	1672	FSL	2124	FWL	19S	30E	3	Aliquot NESW	32.6867311	-103.9614905	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 113962	-4066	7543	7476

Operator Name: APACHE CORPORATION

Well Name: SALT FORK 3 4 FEDERAL COM **Well Number:** 102H

	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	610	FSL	50	FWL	19S	30E	4	Aliquot SWSW	32.6838224	-103.9853877	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 113962	-4162	15342	7572
BHL Leg #1	610	FSL	50	FWL	19S	30E	4	Aliquot SWSW	32.6838224	-103.9853877	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 113962	-4162	15342	7572

APACHE CORPORATION, LLC
SALT FORK 3 4 FEDERAL COM #102H
(2205' FSL & 2284' FWL)
SECTION 3, T19S, R30E
N. M. P. M., EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

From the intersection of Duvall Shaft Rd. and CR-250 (Grubbs Rd.) Go East on CR-250 approx. 1.0 miles to a lease road on the right; Turn right and go South approx. 1.3 miles to location on the right.

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

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

I, Jeffrey L. Fansler, 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.

Jeffrey L. Fansler NM PS 10034

JEFFREY L. FANSLER NEW MEXICO 10034 3/19/18 PROFESSIONAL SURVEYOR

NO.	REVISION	DATE

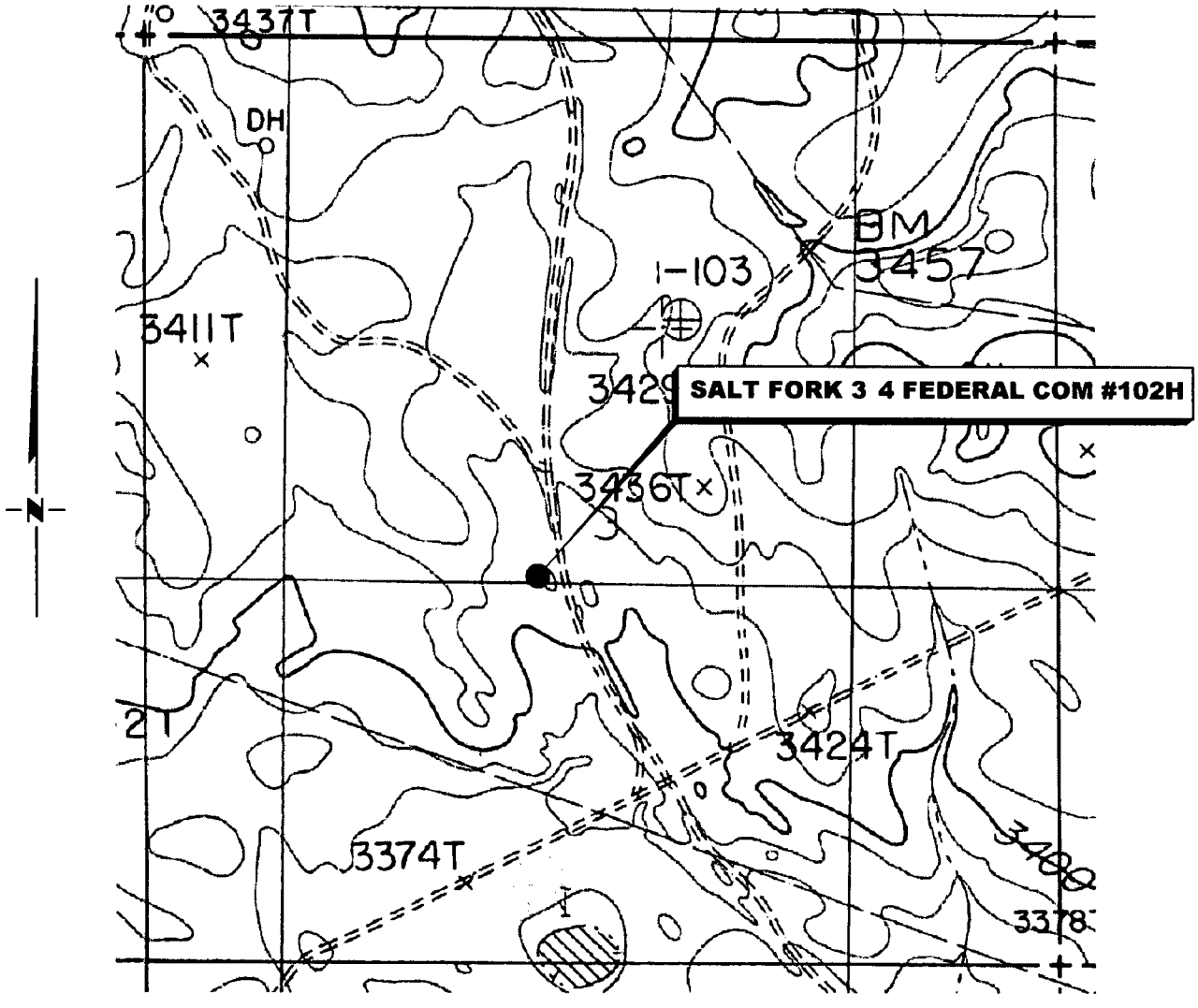
JOB NO.: LS1803340
DWG. NO.: 1803340PAD

RRC

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

SCALE: 1" = 100'
DATE: 03-08-2018
SURVEYED BY: BC
DRAWN BY: AiAC
APPROVED BY: JLF
SHEET : 1 OF 1

LOCATION VERIFICATION MAP



SECTION 3, TWP. 19 SOUTH, RGE. 30 EAST,
N. M. P. M., EDDY COUNTY, NEW MEXICO

OPERATOR: Apache Corporation
LEASE: Salt Fork 3 4 Federal Com
WELL NO.: 102H
ELEVATION: 3410'

LOCATION: 2205' FSL & 2284' FWL
CONTOUR INTERVAL: 10'
USGS TOPO. SOURCE MAP:
Hackberry Lake, NM (P. E. 1985)

NO.	REVISION	DATE

JOB NO.: LS1803340
DWG. NO.: 1803340LVM

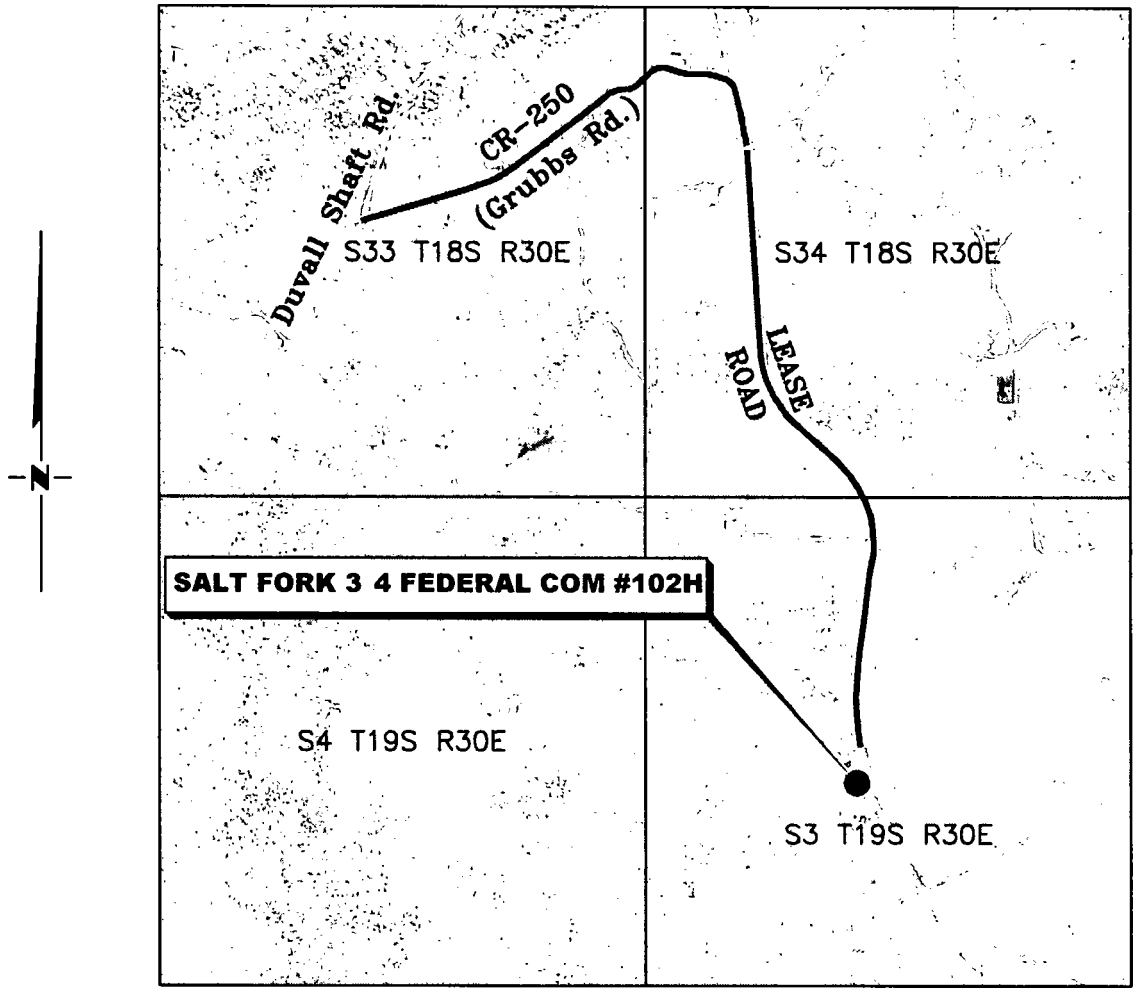
RRC

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

SCALE: 1" = 1000'
DATE: 03-08-2018
SURVEYED BY: BC
DRAWN BY: CMB
APPROVED BY: JLF
SHEET: 1 OF 1

VICINITY MAP

NOT TO SCALE



SECTION 3, TWP. 19 SOUTH, RGE. 30 EAST, N. M. P. M., EDDY COUNTY, NEW MEXICO

OPERATOR: Apache Corporation
LEASE: Salt Fork 3 4 Federal Com
WELL NO.: 102H

LOCATION: 2205' FSL & 2284' FWL
ELEVATION: 3410'

NO.	REVISION	DATE

JOB NO.: LS1803340
DWG. NO.: 1803340VM

RRC

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

SCALE: N / A
DATE: 03-08-2018
SURVEYED BY: BC
DRAWN BY: CMB
APPROVED BY: JLF
SHEET: 1 OF 1

APD ID: 10400030371
Submission Date: 05/21/2018
Highlighted data reflects the most recent changes
Operator Name: APACHE CORPORATION
Well Name: SALT FORK 3 4 FEDERAL COM
Well Number: 102H
Show Final Text
Well Type: OIL WELL
Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	QUATERNARY	3436	0	0		NONE	No
2	RUSTLER	3047	389	389		POTASH	No
3	SALADO	2907	529	529		POTASH	No
4	TANSILL	1684	1752	1752		NONE	No
5	YATES	1522	1914	1914		NATURAL GAS,OIL	No
6	SEVEN RIVERS	1079	2357	2357		NATURAL GAS,OIL	No
7	QUEEN	545	2891	2891		NATURAL GAS,OIL	No
8	GRAYBURG	62	3374	3374		OIL	No
9	SAN ANDRES	-138	3574	3574		OIL	No
10	DELAWARE SAND	-383	3819	3819		OIL	No
11	BONE SPRING	-2396	5832	5832		OIL	Yes

Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M
Rating Depth: 9700

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 and Choke Manifold. Flex hose may vary pending availability. A quality control inspection and 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_3M_2M_Annular_Manifold_Schematic_20180521122003.pdf

BOP Diagram Attachment:

BOP_3M_2M_Inst_on_Surf_Manifold_Schem_20180521122011.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	459	0	459			459	H-40	48	STC	3.47	1.43	BUOY	2.04	BUOY	3.43
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	3950	0	3950			3950	J-55	36	LTC	1.77	1.4	BUOY	1.88	BUOY	2.32
3	PRODUCTION	8.75	7.0	NEW	API	N	0	7139	0	7119			7139	P-110	26	BUTT	19.95	1.5	BUOY	3.06	BUOY	2.95
4	PRODUCTION	8.75	5.5	NEW	API	Y	7139	7990	7119	7638			851	P-110	17	BUTT	2.17	1.6	BUOY	2.54	BUOY	2.46
5	PRODUCTION	8.5	5.5	NEW	API	Y	7990	15342	7638	7572			7352	P-110	17	BUTT	2.17	1.6	BUOY	2.54	BUOY	2.46

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

SaltFork3_4FedCom101H_ProdCsgTaperedSpecs_20180515134945.pdf

Casing Design Assumptions and Worksheet(s):

SaltFork3_4FedCom102H_SurfCsgAssumption_20180521122334.pdf

Operator Name: APACHE CORPORATION

Well Name: SALT FORK 3 4 FEDERAL COM **Well Number:** 102H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

SaltFork3_4FedCom101H_ProdCsgTaperedSpecs_20180515134957.pdf

Casing Design Assumptions and Worksheet(s):

SaltFork3_4FedCom102H_IntermCsgAssump_20180521122419.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

SaltFork3_4FedCom102H_ProdCsgAssump_20180521122542.pdf

Casing ID: 4 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

SaltFork3_4FedCom102H_ProdCsgTaperedSpecs_20180521122903.pdf

Casing Design Assumptions and Worksheet(s):

SaltFork3_4FedCom102H_ProdCsgAssump_20180521122648.pdf

Operator Name: APACHE CORPORATION

Well Name: SALT FORK 3 4 FEDERAL COM **Well Number:** 102H

Casing Attachments

Casing ID: 5 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

SaltFork3_4FedCom102H_ProdCsgTaperedSpecs_20180521122915.pdf

Casing Design Assumptions and Worksheet(s):

SaltFork3_4FedCom102H_ProdCsgAssump_20180521122735.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	459	330	1.33	14.8	405.65	25	Cl C	1% CaCl2
INTERMEDIATE	Lead	3500	0	2820	585	1.89	12.9	1105	25	Cl C	5% NaCl + 6% Bentonite
INTERMEDIATE	Tail		2820	3500	200	1.33	14.8	266	25	Cl C	0.3% Retarder
INTERMEDIATE	Lead	3500	0	3160	655	1.89	12.9	1237.95	25	Cl C	5% NaCl + 6% Bentonite
INTERMEDIATE	Tail		3160	3950	250	1.33	14.8	332.5	25	Cl C	0.2% Retarder
INTERMEDIATE	Lead	3500	3500	3950	150	1.33	14.8	199.5	25	Cl C	0.2% Retarder
PRODUCTION	Lead		3450	7139	285	2.32	11.9	661.2	20	Cl H	10% Gel + 5% Salt
PRODUCTION	Tail		7139	15342	1610	1.42	13.2	2286.2	20	TXI Lite	0.3%Fluid Loss + 0.2% Retarder
PRODUCTION	Lead		3450	7139	285	2.32	11.9	661.2	20	H	10% Gel + 5% Salt

Operator Name: APACHE CORPORATION

Well Name: SALT FORK 3 4 FEDERAL COM **Well Number:** 102H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Tail		7139	15342	1610	1.42	13.2	2286.2	20	TXI Lite	0.3% Fluid Loss + 0.2% Retarder
PRODUCTION	Lead		3450	7139	285	2.32	11.9	661	20	H	10% Gel + 5% Salt
PRODUCTION	Tail		7139	15342	1610	1.42	13.2	2286.2	20	TXI Lite	0.3% Fluid Loss + 0.2% Retarder

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

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	415	SPUD MUD	8.3	9							
415	3950	SALT SATURATED	9.8	10.5							
3950	7640	OIL-BASED MUD	7.9	9.5							

Operator Name: APACHE CORPORATION

Well Name: SALT FORK 3 4 FEDERAL COM **Well Number:** 102H

Section 6 - Test, Logging, Coring

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

Will run GR/CNL from TD to surf (horizontal well - vertical portion of hole). Stated logs run will be in the completion report & submitted to BLM.

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

DS,GR,MWD,MUDLOG

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 3337 **Anticipated Surface Pressure:** 1671.16

Anticipated Bottom Hole Temperature(F): 138

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

SaltForkFed3_4Com102H_H2SOpsContgPlan_20180521124314.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

SaltFork3_4FedCom102H_DirSurvey_20180521124340.pdf

SaltFork3_4FedCom102H_WallPlot_20180521124347.pdf

Other proposed operations facets description:

Apache Corp respectfully request approval to utilize a spudder rig to pre-set surf csg. Please see attachment for procedure.

Other proposed operations facets attachment:

SaltFork3_4FedCom102H_CmtDetail_REV_12.17.18_20181217133856.pdf

SaltFork3_4FedCom102H_CsgDetail_REV_12.17.18_20181217133856.pdf

SaltFork3_4FedCom101H_102H_301H_302H_GasCapturePlan_20181217162045.pdf

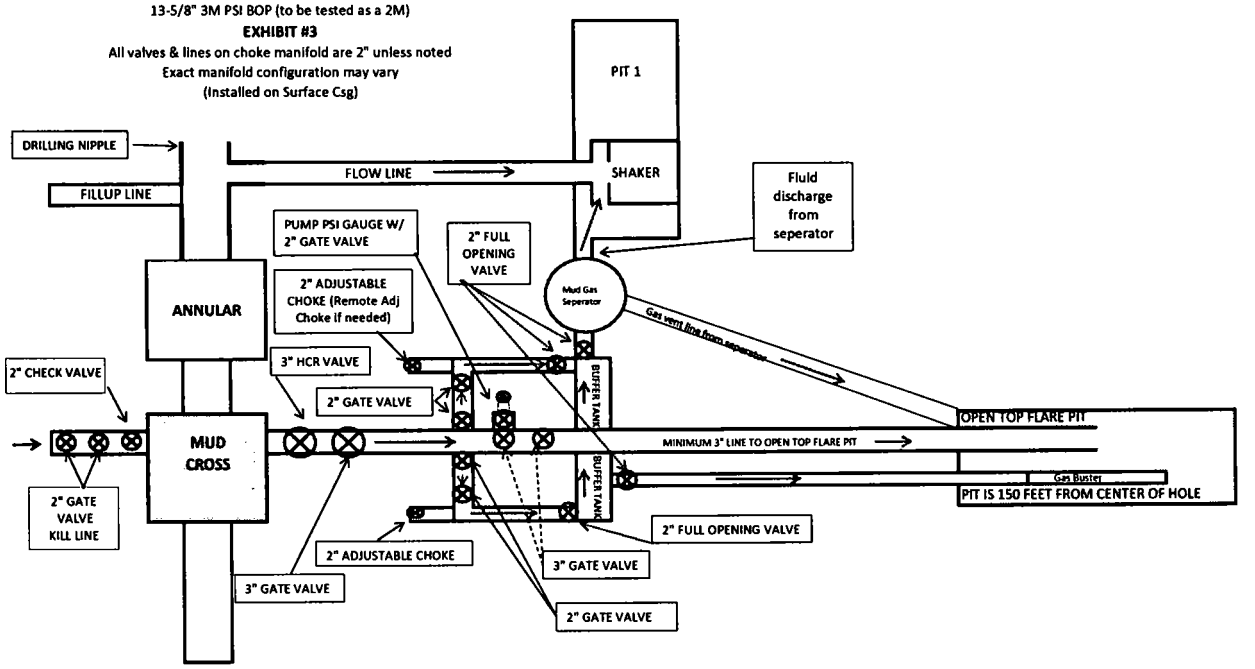
Other Variance attachment:

Flexline_20180516103502.pdf

SaltFork3_4FedCom102H_SpudderRigProcedure_20180521124437.pdf

APACHE BOP AND CHOKE MANIFOLD SCHEMATIC

13-5/8" 3M PSI BOP (to be tested as a 2M)
EXHIBIT #3
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 ***

APACHE BOP AND CHOKE MANIFOLD SCHEMATIC

13-5/8" 3M PSI BOP (to be tested as a 2M)
EXHIBIT #3
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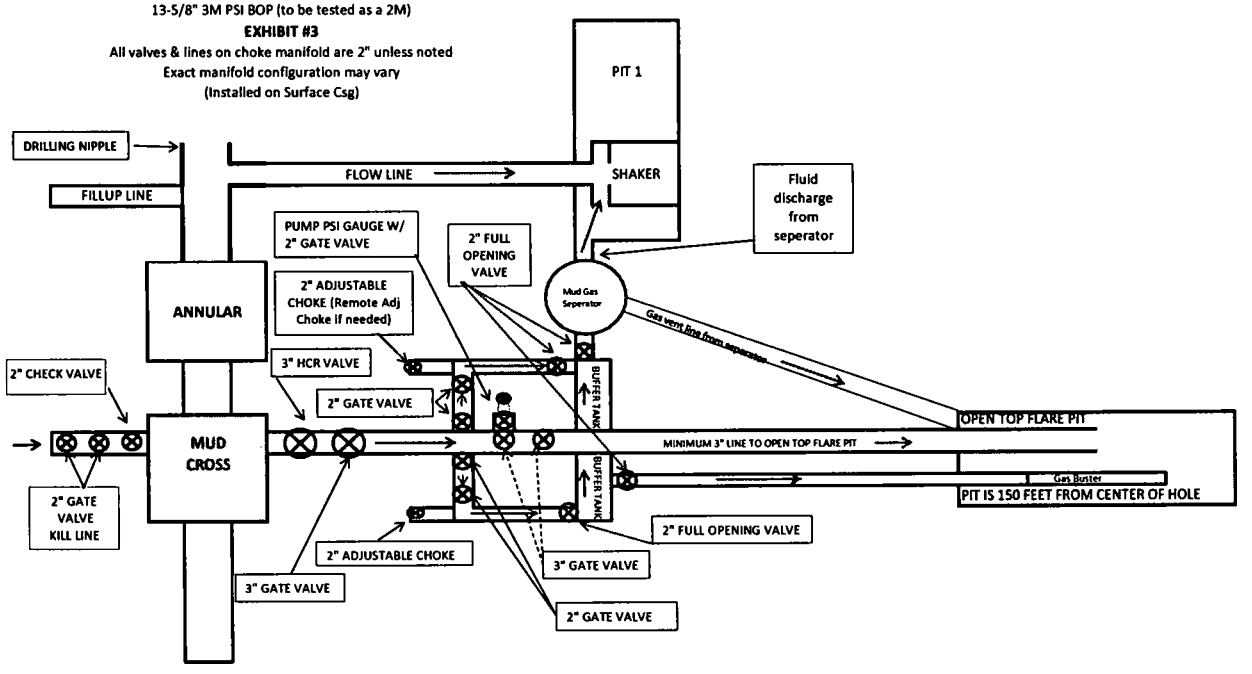
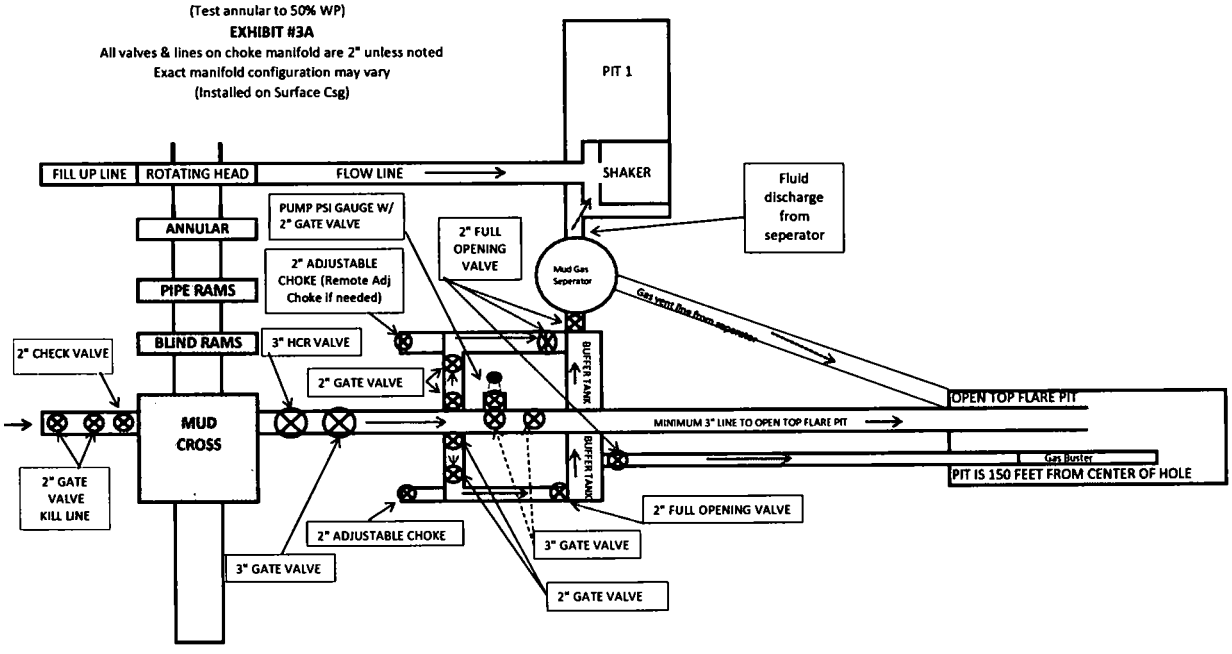


*** If H2S is encountered in quantities greater than 100ppm, Apache will shut in well & install a remote operated choke ***

APACHE BOP AND CHOKE MANIFOLD SCHEMATIC

13-5/8" 3M 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)



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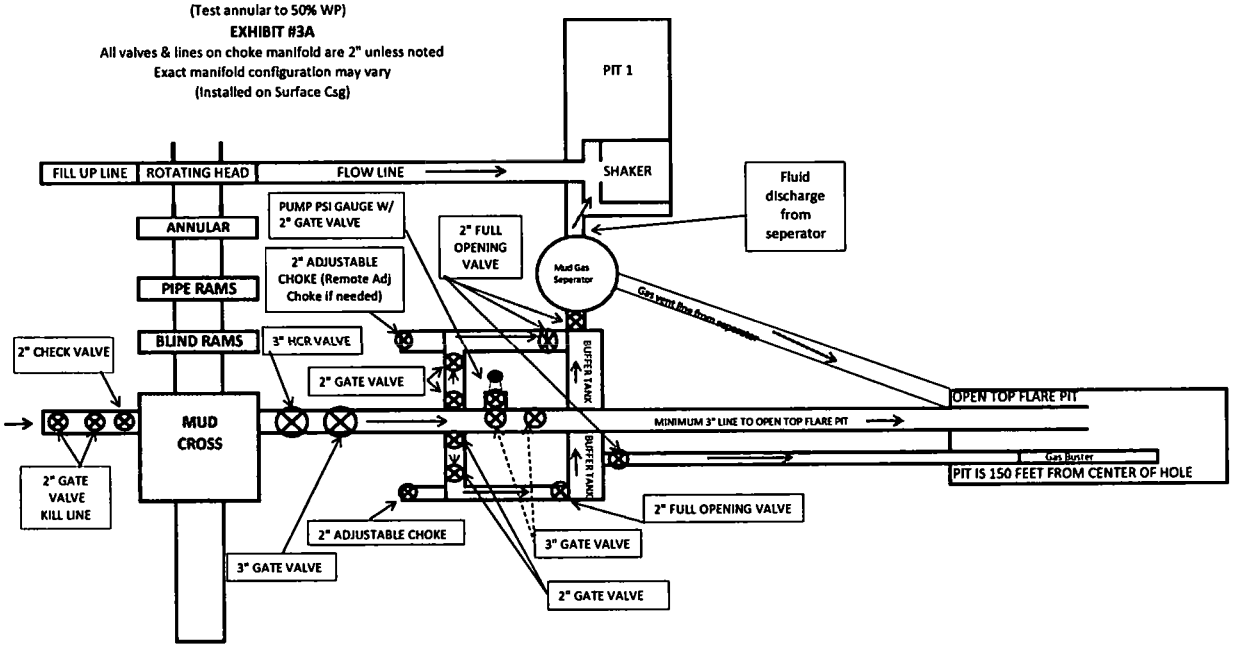
APACHE BOP AND CHOKE MANIFOLD SCHEMATIC

13-5/8" 3M 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 ***

Salt Fork 3-4 Federal COM 102H Production Casing Tapered String Specs

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", 26 ppf, P-110	BTC, P-110	0-7139'	1.5	1.95	2.95
	5 ½", 17 ppf, P-110	BTC, P-110	7139'-15342'	1.6	2.17	2.46

*This will be a cemented tapered casing string. 5-1/2" will crossover to 7" at KOP. (KOP @~7139').

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
Tubing Leak	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
Stimulation	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
Green Cement Pressure Test	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

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

Salt Fork 3-4 Federal COM 102H Production Casing Tapered String Specs

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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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
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Green Cement Pressure Test	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

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

Salt Fork 3-4 Federal COM 101H Production Casing Tapered String Specs

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", 26 ppf, P-110	BTC, P-110	0-7060'	1.5	1.92	2.95
	5 ½", 17 ppf, P-110	BTC, P-110	7060'-15011'	1.6	2.12	2.46

*This will be a cemented tapered casing string. 5-1/2" will crossover to 7" at KOP. (KOP @~7060').

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
Tubing Leak	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
Stimulation	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
Green Cement Pressure Test	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

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

Salt Fork 3-4 Federal COM 101H Production Casing Tapered String Specs

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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Stimulation	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
Green Cement Pressure Test	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

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

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
Tubing Leak	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
Stimulation	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
Green Cement Pressure Test	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

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

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
Tubing Leak	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
Stimulation	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
Green Cement Pressure Test	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

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

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
Tubing Leak	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
Stimulation	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
Green Cement Pressure Test	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

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

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 and 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	Lost returns at intermediate casing point with brine
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 intermediate mud inside casing
Lost Returns with Mud Drop	Mud weight string was set in	Lost returns at TD with 9.2 ppg mud
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

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

5D Plan Report

Apache Corporation

Field Name: *Apache NM (Nad 83 NMEZ)*
Site Name: *Salt Fork 3-4 FC Pad (101,102,301,302)*
Well Name: *Salt Fork 3-4 Federal COM 102H*
Plan: *P1:V1*

19 April 2018

5D Plan Report

Salt Fork 3-4 Federal COM 102H

Field Name: Apache NM (Nad 83 NMEZ)	**Map Units:** US ft	**Company Name:** Apache Corporation
	Vertical Reference Datum (VRD): Mean Sea Level	
	Projected Coordinate System: NAD83 / New Mexico East (ftUS)	
	Comment:	

Site: Salt Fork 3-4 FC Pad (101,102,301,302)	**Units:** US ft	**North Reference:** Grid	**Convergence Angle:** 0.20
	Position:	**Northing:** 614346.60 US ft	**Latitude:** 32° 41' 17.99"
		Easting: 655888.70 US ft	**Longitude:** -103° 57' 39.57"
	Elevation above MSL: 3410.00 US ft		
	Comment: Eddy Co., New Mexico		

Slot: Salt Fork 3-4 Federal COM 102H	**Position (Relative to Site Centre)**		
	+N/-S: -49.50 US ft	**Northing:** 614297.10 US ft	**Latitude:** 32°41'17.50"
	+E/-W: 6.90 US ft	**Easting:** 655895.60 US ft	**Longitude:** -103°57'39.49"
	Slot TVD Reference: Ground Elevation		
	Elevation above MSL: 3410.00 US ft		
	Comment:		

Well: Salt Fork 3-4 Federal COM 102H	**Type:** Main well	**UWI:**	**Plan:** P1:V1	
	File Number:	**Comment:** H&P 482		
	Closure Distance: 7678.92US ft	**Closure Azimuth:** 257.85°		
	Vertical Section: Position of Origin (Relative to Slot centre)			
		+N/-S: 0.00 US ft	**+E/-W:** -0.00 US ft	**Az:** 270.00°
	Magnetic Parameters:			
	Model: bggm2017	**Field Strength:** 48113.2nT	**Declination:** 7.09°	**Dip:** 60.39° **Date:** 01/Dec/2018

Drill floor: Plan: P1:V1

Rig Height (Drill Floor):	**Elevation above MSL:**	**Inclination:**	**Azimuth:**
26.00US ft	3436.00US ft	0.00°	0.00°

Target set: SF 3-4 FC 102H Comment:

Target Name:	Shape:	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (USFt)	Easting (USFt)	C.Pt.Distance (US ft)	C.Pt.TVD (US ft)	Comment
PBHL 102H	Point	7572.86	-1615.80	-7507.00	612681.30	648388.60	0.00	7572.86	

Casing Points: (Relative to Slot centre)(TVD relative to Drill Floor)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Name
3952.48	6.00	190.00	3950.00	-56.90	514.00	614240.20	655885.57	9 5/8 in

Wellpath created using minimum curvature.

Tie Point:

MD: 0.00USFt **Inclination:** 0.00° **Azimuth:** 0.00° **TVD:** 0.00USFt **North Offset:** 0.00USFt **East Offset:** - 0.00USFt

Salient Points: (Relative to Slot centre)(TVD relative to Drill Floor)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	T.Face (°)	DLS (°/100US ft)	Comment
0.00	0.00	0.00	0.00	-0.00	0.00	-0.00	0.00	0.00	0.00	0.00	
3100.00	0.00	0.00	3100.00	-0.00	0.00	-0.00	0.00	0.00	0.00	0.00	Nudge
3700.00	6.00	190.00	3698.90	5.45	-30.91	-5.45	1.00	0.00	190.00	1.00	Hold
3952.48	6.00	190.00	3950.00	10.03	-56.90	-10.03	0.00	0.00	0.00	0.00	9 5/8 in
7139.00	6.00	190.00	7119.06	67.87	-384.92	-67.87	0.00	0.00	0.00	0.00	KOP
7990.62	90.50	217.14	7638.10	395.31	-858.82	-395.31	9.92	3.19	27.24	10.00	LP/Turn
9752.45	90.50	270.00	7621.55	1917.55	-1615.51	-1917.55	-0.00	3.00	89.75	3.00	Hold
15342.12	90.50	270.00	7572.86	7507.00	-1615.80	-7507.00	0.00	0.00	0.00	0.00	PBHL 102H

Interpolated Points: (Relative to Slot centre)(TVD relative to Drill Floor)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
0.00	0.00	0.00	0.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
100.00	0.00	0.00	100.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
200.00	0.00	0.00	200.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
300.00	0.00	0.00	300.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
400.00	0.00	0.00	400.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
500.00	0.00	0.00	500.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
600.00	0.00	0.00	600.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
700.00	0.00	0.00	700.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
800.00	0.00	0.00	800.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
900.00	0.00	0.00	900.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
1000.00	0.00	0.00	1000.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
1100.00	0.00	0.00	1100.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
1200.00	0.00	0.00	1200.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
1300.00	0.00	0.00	1300.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
1400.00	0.00	0.00	1400.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
1500.00	0.00	0.00	1500.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
1600.00	0.00	0.00	1600.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
1700.00	0.00	0.00	1700.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
1800.00	0.00	0.00	1800.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
1900.00	0.00	0.00	1900.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
2000.00	0.00	0.00	2000.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
2100.00	0.00	0.00	2100.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
2200.00	0.00	0.00	2200.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
2300.00	0.00	0.00	2300.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
2400.00	0.00	0.00	2400.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
2500.00	0.00	0.00	2500.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
2600.00	0.00	0.00	2600.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
2700.00	0.00	0.00	2700.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
2800.00	0.00	0.00	2800.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
2900.00	0.00	0.00	2900.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
3000.00	0.00	0.00	3000.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	
3100.00	0.00	0.00	3100.00	0.00	-0.00	-0.00	614297.10	655895.60	0.00	Nudge
3200.00	1.00	190.00	3199.99	-0.86	-0.15	0.15	614296.24	655895.45	1.00	
3300.00	2.00	190.00	3299.96	-3.44	-0.61	0.61	614293.66	655894.99	1.00	
3400.00	3.00	190.00	3399.86	-7.73	-1.36	1.36	614289.37	655894.24	1.00	
3500.00	4.00	190.00	3499.68	-13.74	-2.42	2.42	614283.36	655893.18	1.00	
3600.00	5.00	190.00	3599.37	-21.47	-3.79	3.79	614275.63	655891.81	1.00	
3700.00	6.00	190.00	3698.90	-30.91	-5.45	5.45	614266.19	655890.15	1.00	Hold
3800.00	6.00	190.00	3798.36	-41.20	-7.27	7.27	614255.90	655888.33	0.00	
3900.00	6.00	190.00	3897.81	-51.50	-9.08	9.08	614245.60	655886.52	0.00	

5D Plan Report

Interpolated Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
3952.48	6.00	190.00	3950.00	-56.90	-10.03	10.03	614240.20	655885.57	0.00	9 5/8 in
4000.00	6.00	190.00	3997.26	-61.79	-10.90	10.90	614235.31	655884.70	0.00	
4100.00	6.00	190.00	4096.71	-72.09	-12.71	12.71	614225.01	655882.89	0.00	
4200.00	6.00	190.00	4196.16	-82.38	-14.53	14.53	614214.72	655881.07	0.00	
4300.00	6.00	190.00	4295.62	-92.67	-16.34	16.34	614204.43	655879.26	0.00	
4400.00	6.00	190.00	4395.07	-102.97	-18.16	18.16	614194.13	655877.44	0.00	
4500.00	6.00	190.00	4494.52	-113.26	-19.97	19.97	614183.84	655875.63	0.00	
4600.00	6.00	190.00	4593.97	-123.56	-21.79	21.79	614173.54	655873.81	0.00	
4700.00	6.00	190.00	4693.43	-133.85	-23.60	23.60	614163.25	655872.00	0.00	
4800.00	6.00	190.00	4792.88	-144.14	-25.42	25.42	614152.96	655870.18	0.00	
4900.00	6.00	190.00	4892.33	-154.44	-27.23	27.23	614142.66	655868.37	0.00	
5000.00	6.00	190.00	4991.78	-164.73	-29.05	29.05	614132.37	655866.55	0.00	
5100.00	6.00	190.00	5091.23	-175.03	-30.86	30.86	614122.07	655864.74	0.00	
5200.00	6.00	190.00	5190.69	-185.32	-32.68	32.68	614111.78	655862.92	0.00	
5300.00	6.00	190.00	5290.14	-195.62	-34.49	34.49	614101.48	655861.11	0.00	
5400.00	6.00	190.00	5389.59	-205.91	-36.31	36.31	614091.19	655859.29	0.00	
5500.00	6.00	190.00	5489.04	-216.20	-38.12	38.12	614080.90	655857.48	0.00	
5600.00	6.00	190.00	5588.50	-226.50	-39.94	39.94	614070.60	655855.66	0.00	
5700.00	6.00	190.00	5687.95	-236.79	-41.75	41.75	614060.31	655853.85	0.00	
5800.00	6.00	190.00	5787.40	-247.09	-43.57	43.57	614050.01	655852.03	0.00	
5900.00	6.00	190.00	5886.85	-257.38	-45.38	45.38	614039.72	655850.22	0.00	
6000.00	6.00	190.00	5986.30	-267.67	-47.20	47.20	614029.43	655848.40	0.00	
6100.00	6.00	190.00	6085.76	-277.97	-49.01	49.01	614019.13	655846.59	0.00	
6200.00	6.00	190.00	6185.21	-288.26	-50.83	50.83	614008.84	655844.77	0.00	
6300.00	6.00	190.00	6284.66	-298.56	-52.64	52.64	613998.54	655842.96	0.00	
6400.00	6.00	190.00	6384.11	-308.85	-54.46	54.46	613988.25	655841.14	0.00	
6500.00	6.00	190.00	6483.57	-319.14	-56.27	56.27	613977.96	655839.33	0.00	
6600.00	6.00	190.00	6583.02	-329.44	-58.09	58.09	613967.66	655837.51	0.00	
6700.00	6.00	190.00	6682.47	-339.73	-59.90	59.90	613957.37	655835.70	0.00	
6800.00	6.00	190.00	6781.92	-350.03	-61.72	61.72	613947.07	655833.88	0.00	
6900.00	6.00	190.00	6881.37	-360.32	-63.53	63.53	613936.78	655832.07	0.00	
7000.00	6.00	190.00	6980.83	-370.61	-65.35	65.35	613926.49	655830.25	0.00	
7100.00	6.00	190.00	7080.28	-380.91	-67.16	67.16	613916.19	655828.44	0.00	
7139.00	6.00	190.00	7119.06	-384.92	-67.87	67.87	613912.18	655827.73	0.00	KOP
7200.00	11.76	203.81	7179.31	-393.76	-70.94	70.94	613903.34	655824.66	10.00	
7300.00	21.61	210.17	7275.00	-419.06	-84.34	84.34	613878.04	655811.26	10.00	
7400.00	31.55	212.64	7364.32	-457.10	-107.76	107.76	613840.00	655787.84	10.00	
7500.00	41.51	214.01	7444.58	-506.72	-140.49	140.49	613790.38	655755.11	10.00	
7600.00	51.49	214.93	7513.32	-566.42	-181.53	181.53	613730.68	655714.07	10.00	
7700.00	61.47	215.62	7568.47	-634.38	-229.65	229.65	613662.72	655665.95	10.00	
7800.00	71.46	216.20	7608.35	-708.53	-283.36	283.36	613588.57	655612.24	10.00	
7900.00	81.45	216.70	7631.74	-786.63	-341.06	341.06	613510.47	655554.54	10.00	
7990.62	90.50	217.14	7638.10	-858.82	-395.31	395.31	613438.28	655500.29	10.00	LP/Turn
8000.00	90.50	217.42	7638.02	-866.28	-400.99	400.99	613430.82	655494.61	3.00	
8100.00	90.51	220.42	7637.13	-944.07	-463.80	463.80	613353.03	655431.80	3.00	
8200.00	90.52	223.42	7636.22	-1018.47	-530.60	530.60	613278.63	655365.00	3.00	
8300.00	90.53	226.42	7635.30	-1089.26	-601.21	601.21	613207.84	655294.39	3.00	
8400.00	90.54	229.42	7634.36	-1156.27	-675.42	675.42	613140.83	655220.18	3.00	
8500.00	90.55	232.42	7633.41	-1219.30	-753.03	753.03	613077.80	655142.57	3.00	
8600.00	90.55	235.42	7632.45	-1278.17	-833.84	833.84	613018.93	655061.76	3.00	
8700.00	90.56	238.42	7631.49	-1332.74	-917.62	917.62	612964.36	654977.98	3.00	
8800.00	90.56	241.42	7630.52	-1382.85	-1004.14	1004.14	612914.25	654891.46	3.00	
8900.00	90.56	244.42	7629.54	-1428.37	-1093.17	1093.17	612868.73	654802.43	3.00	
9000.00	90.56	247.42	7628.57	-1469.16	-1184.45	1184.45	612827.94	654711.15	3.00	
9100.00	90.55	250.42	7627.60	-1505.11	-1277.75	1277.75	612791.99	654617.85	3.00	
9200.00	90.55	253.42	7626.64	-1536.14	-1372.80	1372.80	612760.96	654522.80	3.00	
9300.00	90.54	256.42	7625.68	-1562.15	-1469.34	1469.34	612734.95	654426.26	3.00	
9400.00	90.54	259.42	7624.74	-1583.06	-1567.11	1567.11	612714.04	654328.49	3.00	
9500.00	90.53	262.42	7623.81	-1598.84	-1665.84	1665.84	612698.26	654229.76	3.00	

5D Plan Report

Interpolated Points: (Relative to Slot centre)(TVD relative to Drill Floor)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
9600.00	90.52	265.42	7622.90	-1609.42	-1765.26	1765.26	612687.68	654130.34	3.00	
9700.00	90.51	268.42	7622.01	-1614.79	-1865.10	1865.10	612682.31	654030.50	3.00	
9752.45	90.50	270.00	7621.55	-1615.51	-1917.55	1917.55	612681.59	653978.05	3.00	Hold
9800.00	90.50	270.00	7621.13	-1615.51	-1965.09	1965.09	612681.59	653930.51	0.00	
9900.00	90.50	270.00	7620.26	-1615.52	-2065.09	2065.09	612681.58	653830.51	0.00	
10000.00	90.50	270.00	7619.39	-1615.52	-2165.09	2165.09	612681.58	653730.51	0.00	
10100.00	90.50	270.00	7618.52	-1615.53	-2265.08	2265.08	612681.57	653630.52	0.00	
10200.00	90.50	270.00	7617.65	-1615.53	-2365.08	2365.08	612681.57	653530.52	0.00	
10300.00	90.50	270.00	7616.78	-1615.54	-2465.08	2465.08	612681.56	653430.52	0.00	
10400.00	90.50	270.00	7615.91	-1615.54	-2565.07	2565.07	612681.56	653330.53	0.00	
10500.00	90.50	270.00	7615.04	-1615.55	-2665.07	2665.07	612681.55	653230.53	0.00	
10600.00	90.50	270.00	7614.16	-1615.55	-2765.06	2765.06	612681.55	653130.54	0.00	
10700.00	90.50	270.00	7613.29	-1615.56	-2865.06	2865.06	612681.54	653030.54	0.00	
10800.00	90.50	270.00	7612.42	-1615.56	-2965.06	2965.06	612681.54	652930.54	0.00	
10900.00	90.50	270.00	7611.55	-1615.57	-3065.05	3065.05	612681.53	652830.55	0.00	
11000.00	90.50	270.00	7610.68	-1615.58	-3165.05	3165.05	612681.52	652730.55	0.00	
11100.00	90.50	270.00	7609.81	-1615.58	-3265.04	3265.04	612681.52	652630.56	0.00	
11200.00	90.50	270.00	7608.94	-1615.59	-3365.04	3365.04	612681.51	652530.56	0.00	
11300.00	90.50	270.00	7608.07	-1615.59	-3465.04	3465.04	612681.51	652430.56	0.00	
11400.00	90.50	270.00	7607.20	-1615.60	-3565.03	3565.03	612681.50	652330.57	0.00	
11500.00	90.50	270.00	7606.33	-1615.60	-3665.03	3665.03	612681.50	652230.57	0.00	
11600.00	90.50	270.00	7605.45	-1615.61	-3765.03	3765.03	612681.49	652130.57	0.00	
11700.00	90.50	270.00	7604.58	-1615.61	-3865.02	3865.02	612681.49	652030.58	0.00	
11800.00	90.50	270.00	7603.71	-1615.62	-3965.02	3965.02	612681.48	651930.58	0.00	
11900.00	90.50	270.00	7602.84	-1615.62	-4065.01	4065.01	612681.48	651830.59	0.00	
12000.00	90.50	270.00	7601.97	-1615.63	-4165.01	4165.01	612681.47	651730.59	0.00	
12100.00	90.50	270.00	7601.10	-1615.63	-4265.01	4265.01	612681.47	651630.59	0.00	
12200.00	90.50	270.00	7600.23	-1615.64	-4365.00	4365.00	612681.46	651530.60	0.00	
12300.00	90.50	270.00	7599.36	-1615.64	-4465.00	4465.00	612681.46	651430.60	0.00	
12400.00	90.50	270.00	7598.49	-1615.65	-4565.00	4565.00	612681.45	651330.60	0.00	
12500.00	90.50	270.00	7597.62	-1615.65	-4664.99	4664.99	612681.45	651230.61	0.00	
12600.00	90.50	270.00	7596.74	-1615.66	-4764.99	4764.99	612681.44	651130.61	0.00	
12700.00	90.50	270.00	7595.87	-1615.66	-4864.98	4864.98	612681.44	651030.62	0.00	
12800.00	90.50	270.00	7595.00	-1615.67	-4964.98	4964.98	612681.43	650930.62	0.00	
12900.00	90.50	270.00	7594.13	-1615.67	-5064.98	5064.98	612681.43	650830.62	0.00	
13000.00	90.50	270.00	7593.26	-1615.68	-5164.97	5164.97	612681.42	650730.63	0.00	
13100.00	90.50	270.00	7592.39	-1615.68	-5264.97	5264.97	612681.42	650630.63	0.00	
13200.00	90.50	270.00	7591.52	-1615.69	-5364.97	5364.97	612681.41	650530.63	0.00	
13300.00	90.50	270.00	7590.65	-1615.69	-5464.96	5464.96	612681.41	650430.64	0.00	
13400.00	90.50	270.00	7589.78	-1615.70	-5564.96	5564.96	612681.40	650330.64	0.00	
13500.00	90.50	270.00	7588.91	-1615.70	-5664.95	5664.95	612681.40	650230.65	0.00	
13600.00	90.50	270.00	7588.03	-1615.71	-5764.95	5764.95	612681.39	650130.65	0.00	
13700.00	90.50	270.00	7587.16	-1615.72	-5864.95	5864.95	612681.38	650030.65	0.00	
13800.00	90.50	270.00	7586.29	-1615.72	-5964.94	5964.94	612681.38	649930.66	0.00	
13900.00	90.50	270.00	7585.42	-1615.73	-6064.94	6064.94	612681.37	649830.66	0.00	
14000.00	90.50	270.00	7584.55	-1615.73	-6164.93	6164.93	612681.37	649730.67	0.00	
14100.00	90.50	270.00	7583.68	-1615.74	-6264.93	6264.93	612681.36	649630.67	0.00	
14200.00	90.50	270.00	7582.81	-1615.74	-6364.93	6364.93	612681.36	649530.67	0.00	
14300.00	90.50	270.00	7581.94	-1615.75	-6464.92	6464.92	612681.35	649430.68	0.00	
14400.00	90.50	270.00	7581.07	-1615.75	-6564.92	6564.92	612681.35	649330.68	0.00	
14500.00	90.50	270.00	7580.19	-1615.76	-6664.92	6664.92	612681.34	649230.68	0.00	
14600.00	90.50	270.00	7579.32	-1615.76	-6764.91	6764.91	612681.34	649130.69	0.00	
14700.00	90.50	270.00	7578.45	-1615.77	-6864.91	6864.91	612681.33	649030.69	0.00	
14800.00	90.50	270.00	7577.58	-1615.77	-6964.90	6964.90	612681.33	648930.70	0.00	
14900.00	90.50	270.00	7576.71	-1615.78	-7064.90	7064.90	612681.32	648830.70	0.00	
15000.00	90.50	270.00	7575.84	-1615.78	-7164.90	7164.90	612681.32	648730.70	0.00	
15100.00	90.50	270.00	7574.97	-1615.79	-7264.89	7264.89	612681.31	648630.71	0.00	
15200.00	90.50	270.00	7574.10	-1615.79	-7364.89	7364.89	612681.31	648530.71	0.00	
15300.00	90.50	270.00	7573.23	-1615.80	-7464.89	7464.89	612681.30	648430.71	0.00	

5D Plan Report

Interpolated Points: (Relative to Slot centre)(TVD relative to Drill Floor)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
15342.12	90.50	270.00	7572.86	-1615.80	-7507.00	7507.00	612681.30	648388.60	0.00	PBHL 102H

Formation Points: (Relative to Slot centre)(TVD relative to Drill Floor)

Name	MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	TVD (MSL) (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Comment
2ND BONE SPRING CARB	N/A	3.36	190.00	7750.00	4314.00	-9.71	-1.71	614287.39	655893.89	
RUSTLER	388.60	0.00	0.00	388.60	-3047.40	0.00	-0.00	614297.10	655895.60	
SALADO	528.60	0.00	0.00	528.60	-2907.40	0.00	-0.00	614297.10	655895.60	
TANSILL	1751.60	0.00	0.00	1751.60	-1684.40	0.00	-0.00	614297.10	655895.60	
YATES	1913.60	0.00	0.00	1913.60	-1522.40	0.00	-0.00	614297.10	655895.60	
SEVEN RIVERS	2356.60	0.00	0.00	2356.60	-1079.40	0.00	-0.00	614297.10	655895.60	
QUEEN	2890.60	0.00	0.00	2890.60	-545.40	0.00	-0.00	614297.10	655895.60	
GRAYEURG	3373.70	2.74	190.00	3373.60	-62.40	-6.44	-1.14	614290.66	655894.46	
SAN ANDRES	3574.14	4.74	190.00	3573.60	137.60	-19.31	-3.40	614277.79	655892.20	
DELAWARE SANDS	3820.36	6.00	190.00	3818.60	382.60	-43.30	-7.63	614253.80	655887.97	
1ST BONE SPRING CARB	5844.44	6.00	190.00	5831.60	2395.60	-251.66	-44.37	614045.44	655851.23	
1ST BONE SPRING SAND	7543.46	45.85	214.45	7476.00	4040.00	-531.53	-157.37	613765.57	655738.23	

SALT FORK 3-4 FEDERAL COM 102H-CmtDetail_Revised 12.17.18

CEMENT: SURFACE

Stage Tool Depth: N/A

Tail:

Top MD of Segment:	0	Btm MD of Segment:	459
Cmt Type:	C	Cmt Additives:	1% CaCl2
Quantity (sks):	330		
Yield (cu/ft/sk):	1.33	Volume (cu/ft):	405.65
Density (lbs/gal):	14.8	Percent OH Excess:	25%

CEMENT: INTERMEDIATE

Single Stage

Lead:

Top MD of Segment:	0	Btm MD of Segment:	3160
Cmt Type:	C	Cmt Additives:	5% NaCl + 6% Bentonite
Quantity (sks):	655		
Yield (cu/ft/sk):	1.89	Volume (cu/ft):	1237.95
Density (lbs/gal):	12.9	Percent OH Excess:	25%

Tail:

Top MD of Segment:	3160	Btm MD of Segment:	3950
Cmt Type:	C	Cmt Additives:	0.2% Retarder
Quantity (sks):	250		
Yield (cu/ft/sk):	1.33	Volume (cu/ft):	332.5
Density (lbs/gal):	14.8	Percent OH Excess:	25%

2 Stage Cement Job

* 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 strenght 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 and ECP may be placed below DVT.

1st Stage

Tail:

Top MD of Segment: 3500 Btm MD of Segment: 3950

Cmt Type: C Cmt Additives: 0.2% Retarder

Quantity (sks): 150
Yield (cu/ft/sk): 1.33 Volume (cu/ft): 199.5
Density (lbs/gal): 14.8 Percent OH Excess: 25%

Stage Tool / ECP Depth: ± 3500'

2nd Stage

Lead:

Top MD of Segment: 0 Btm MD of Segment: 2820.55

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

Quantity (sks): 585
Yield (cu/ft/sk): 1.89 Volume (cu/ft): 1105.65
Density (lbs/gal): 12.9 Percent OH Excess: 25%

Tail:

Top MD of Segment: 2820.55 Btm MD of Segment: 3500

Cmt Type: C Cmt Additives: 0.3% Retarder

Quantity (sks): 200
Yield (cu/ft/sk): 1.33 Volume (cu/ft): 266
Density (lbs/gal): 14.8 Percent OH Excess: 25%

CEMENT: PRODUCTION

Single Stage

Lead:

Top MD of Segment:	3450	Btm MD of Segment:	7139
Cmt Type:	H	Cmt Additives:	10% gel + 5% Salt
Quantity (sks):	285		
Yield (cu/ft/sk):	2.32	Volume (cu/ft):	661.2
Density (lbs/gal):	11.9	Percent OH Excess:	20%

Tail:

Top MD of Segment:	7139	Btm MD of Segment:	15342.12
Cmt Type:	TXI Lite	Cmt Additives:	0.3% Fluid Loss + 0.2% Retarder
Quantity (sks):	1610		
Yield (cu/ft/sk):	1.42	Volume (cu/ft):	2286.2
Density (lbs/gal):	13.2	Percent OH Excess:	20%

SALT FORK 3-4 FEDERAL COM 102H-CsgDetail Revised 12.17.18

String:	**SURFACE**						
Hole Size:	17.5						
Top Setting Depth (MD):	0	Top Setting Depth (TVD):	0	Btm setting depth (MD):	459	Btm setting depth (TVD):	459
Size:	13-3/8"	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:	3.47			Burst Design Safety Factor:	1.43		
Body Tensile Design Safety Factor type?:	Dry/Buoyant				Buoyant		
Body Tensile Design Safety Factor:	3.43						
Joint Tensile Design Safety Factor type?:	Dry/Buoyant				Buoyant		
Joint Tensile Design Safety Factor:							

String:	**INTERMEDIATE**						
Hole Size:	12.25						
Top Setting Depth (MD):	0	Top Setting Depth (TVD):	0	Btm setting depth (MD):	3950	Btm setting depth (TVD):	3950
Size:	9-5/8"	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: 1.77 Burst Design Safety Factor: 1.4

Body Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Body Tensile Design Safety Factor: 2.32

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

String: **PRODUCTION**

Hole Size: 8.75

Top Setting Depth (MD):	0	Top Setting Depth (TVD):	0	Btm setting depth (MD):	7139	Btm setting depth (TVD):	7119.06
Size:	7"	Grade:	P-110	Weight (lbs/ft):	26	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	Buttress

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

Safety Factors

Collapse Design Safety Factor: 1.95 Burst Design Safety Factor: 1.5

Body Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Body Tensile Design Safety Factor: 2.95

Joint Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Joint Tensile Design Safety Factor: 3.06

Tapered String (Y/N)?: Y

If yes, need spec attachment

Hole Size: 8.75

Top Setting Depth (MD):	7139	Top Setting Depth (TVD):	7119.06	Btm setting depth (MD):	7990.62	Btm setting depth (TVD):	7638.1
Size:	5-1/2"	Grade:	P-110	Weight (lbs/ft):	17	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	Buttress

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

Safety Factors

Collapse Design Safety Factor: 2.17 Burst Design Safety Factor: 1.6

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: 2.54

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

Hole Size: 8.5

Top Setting Depth (MD):	7990.62	Top Setting Depth (TVD):	7638.1	Btm setting depth (MD):	15342.12	Btm setting depth (TVD):	7572.86
Size:	5-1/2"	Grade:	P-110	Weight (lbs/ft):	17	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	Buttress

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

Safety Factors

Collapse Design Safety Factor:	2.17	Burst Design Safety Factor:	1.6
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:	2.54		

ContiTech

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 Industrial Kft. Quality Control Dept. (1)

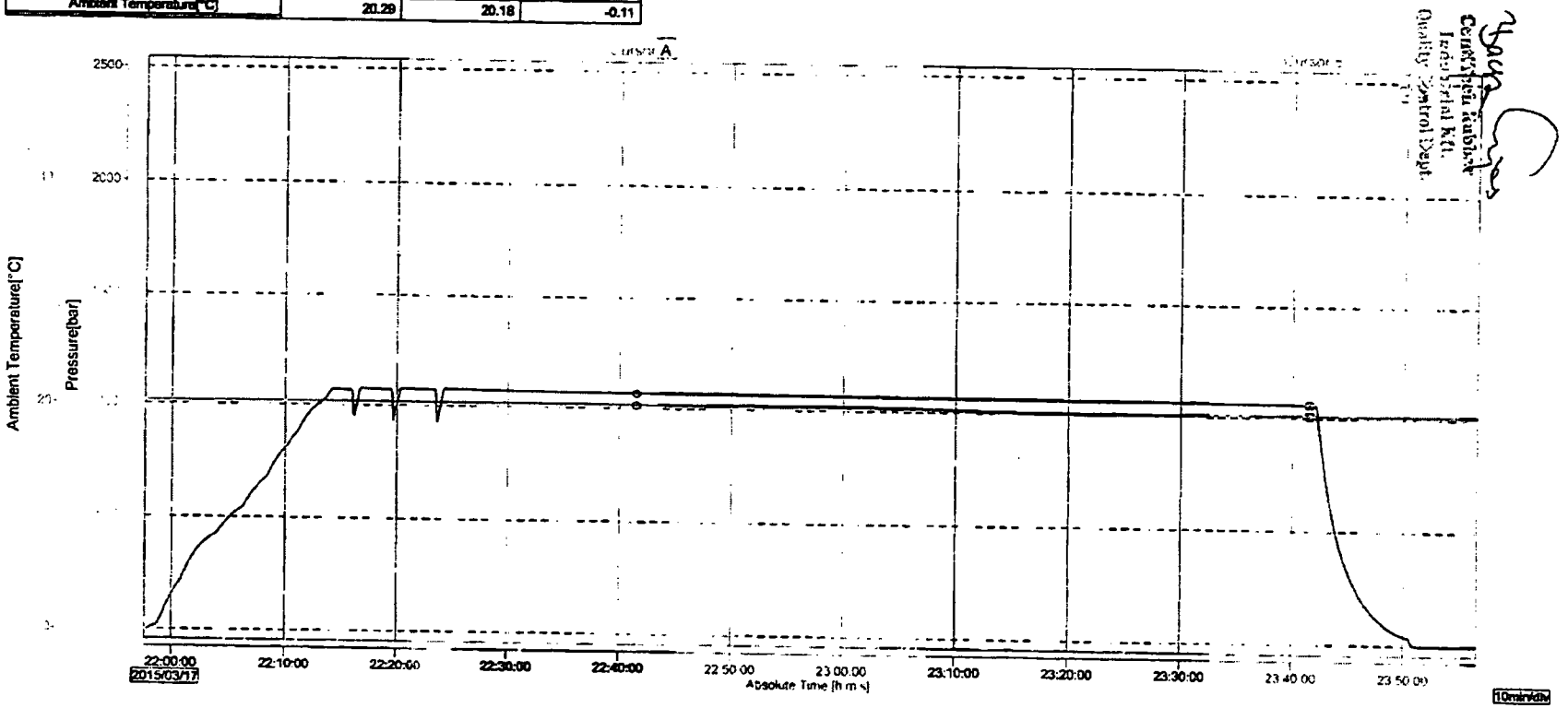
ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE No: 579, 580, 581

File Name : 004409_69913,-914,-915.GEV,...,004420_69913,-914,-915.GEV
File Message : 69913,69914,69915
Device Type : GX10
Serial No. : S5P606399
Data Count 1428

Sampling Int. : 5.000 sec
Start Time 2015/03/17 21:57:40.000
Stop Time : 2015/03/17 23:56:25.000

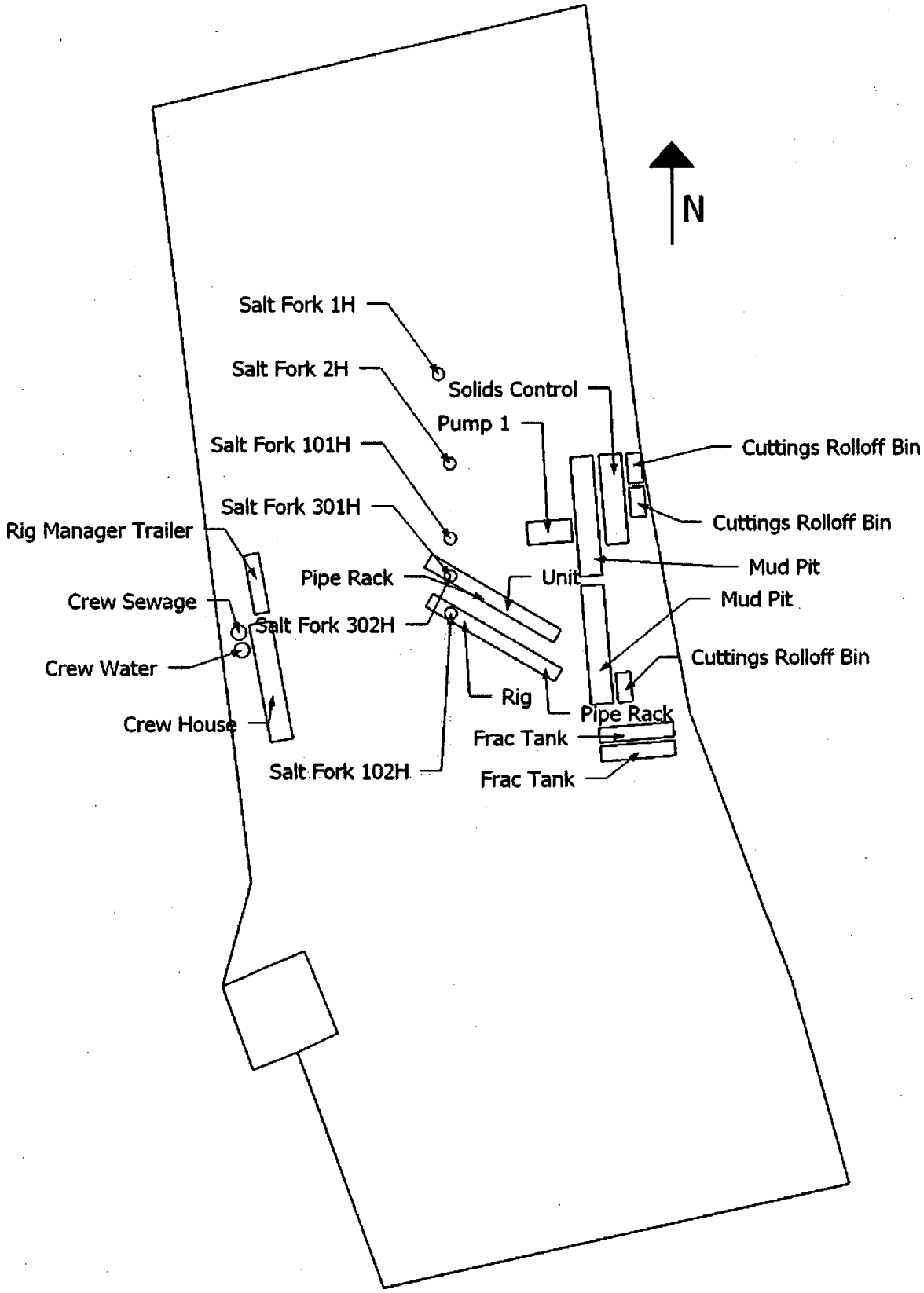
Print Group Press-Temp
Print Range : 2015/03/17 21:57:40.000 - 2015/03/17 23:56:25.000
Comment : 69913,69914,69915

	Cursor A	Cursor B	Difference
Data No.	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]	1069.30	1057.33	-11.97
Ambient Temperature[°C]	20.29	20.18	-0.11



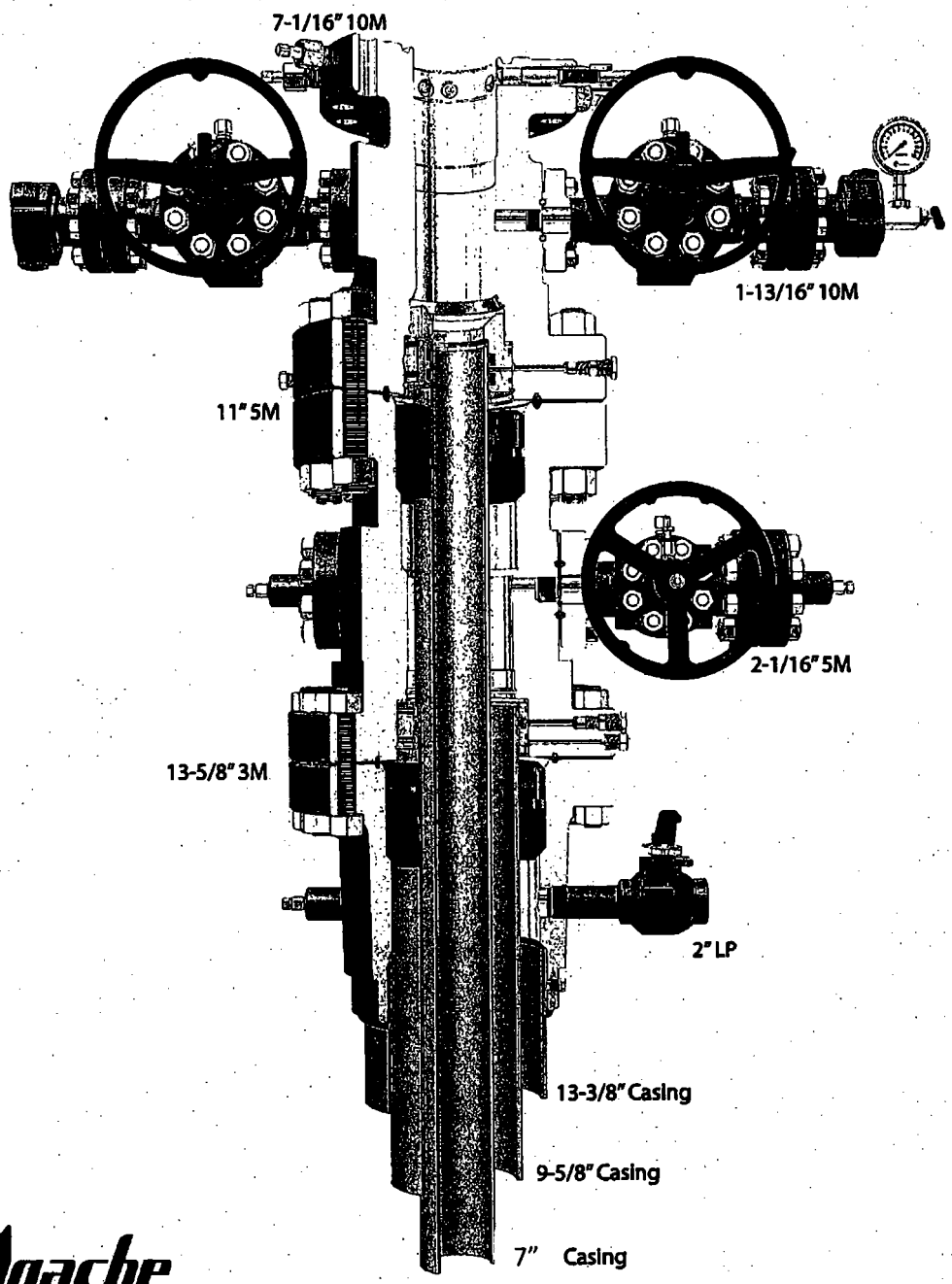
Apache Corp respectfully requests approval for the following changes and additions to the drilling plan:

1. Utilize a spudder rig to pre-set surface casing.
2. Description of Operations
    1. Spudder rig will move in their rig to drill the surface hole section and pre-set surface casing on the Salt Fork 3-4 Federal COM 102H.
        a. After drilling the surface hole section, the rig will run casing and cement following all of the applicable rules and regulations (Onshore Oil and Gas Order No. 2).
        b. Rig will utilize fresh water based mud to drill 17-1/2" surface hole to TD. Solids control will be handled entirely on a closed loop basis.
    2. The wellhead (page 3) will be installed and tested once the 13-3/8" surface casing is cut off and the WOC time has been reached.
    3. A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
        a. A means for intervention will be maintained while the drilling rig is not over the well.
    4. Spudder rig operations is expected to take 1-2 days on a single well pad.
    5. The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
    6. Drilling operations will be performed with the drilling rig. At that time an approved BOP stack will be nippled up and tested on the wellhead before drilling operations commences on each well.
        a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.
    7. Apache Corp will have supervision over the rig to ensure compliance with all NMOCD regulations and to oversee operations.
    8. Once the rig is removed, Apache Corp will secure the wellhead area by placing a guard rail around the cellar area.


N
Salt Fork 1H
Salt Fork 2H
Solids Control
Pump 1
Salt Fork 101H
Cuttings Rolloff Bin
Salt Fork 301H
Cuttings Rolloff Bin
Rig Manager Trailer
Mud Pit
Pipe Rack
Unit
Crew Sewage
Mud Pit
Salt Fork 302H
Cuttings Rolloff Bin
Crew Water
Rig
Pipe Rack
Crew House
Frac Tank
Salt Fork 102H
Frac Tank

CAMERON
A Schlumberger Company

5M Conventional Wellhead
3-String



Apache

2017-168-02

APD ID: 10400030371 **Submission Date:** 05/21/2018

Operator Name: APACHE CORPORATION

Well Name: SALT FORK 3 4 FEDERAL COM **Well Number:** 102H

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:

SaltFork3_4FedCom102H_ExistingRoads_20180521124502.pdf

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

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

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:

SaltFork3_4FedCom102H_1MiRadius_20180521124543.pdf

Operator Name: APACHE CORPORATION

Well Name: SALT FORK 3 4 FEDERAL COM **Well Number:** 102H

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: Production facilities previously approved. This well location on existing well pad. Please see map for battery location.

Production Facilities map:

SaltForkAsBuiltDrillPad_5.15.18_20180515142514.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): 2214.2856

Source volume (acre-feet): 0.28540614

Source volume (gal): 93000

Water source use type: INTERMEDIATE/PRODUCTION CASING

Water source type: OTHER

Describe type: BRINE

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): 2214.2856

Source volume (acre-feet): 0.28540614

Source volume (gal): 93000

Water source and transportation map:

SaltFork3_4FedCom102H_BrineWtrSource_20180521124813.pdf
SaltFork3_4FedCom102H_FW_Source_20180521124826.pdf

Water source comments:

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.
Construction Materials source location attachment:

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Drilling fluid from well, during drilling ops, 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

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

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 Cuttings 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

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

SaltFork3_4FedCom102H_WellsiteLayout_20180521124902.pdf

Comments:

Operator Name: APACHE CORPORATION

Well Name: SALT FORK 3 4 FEDERAL COM **Well Number:** 102H

Section 10 - Plans for Surface Reclamation

Type of disturbance: No New Surface Disturbance **Multiple Well Pad Name:** SALT FORK PAD

Multiple Well Pad Number: 1

Recontouring attachment:

Drainage/Erosion control construction: Slight slope for water drainage

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

Well pad proposed disturbance (acres): 0	**Well pad interim reclamation (acres):**	**Well pad long term disturbance (acres):**
Road proposed disturbance (acres): 0	**Road interim reclamation (acres):**	**Road long term disturbance (acres):**
Powerline proposed disturbance (acres): 0	**Powerline interim reclamation (acres):** 0	**Powerline long term disturbance (acres):** 0
Pipeline proposed disturbance (acres): 0	**Pipeline interim reclamation (acres):**	**Pipeline long term disturbance (acres):**
Other proposed disturbance (acres): 0	**Other interim reclamation (acres):**	**Other long term disturbance (acres):**
Total proposed disturbance: 0	**Total interim reclamation:**	**Total long term disturbance:**

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?

Non native seed description:

Seedling transplant description:

Operator Name: APACHE CORPORATION

Well Name: SALT FORK 3 4 FEDERAL COM **Well Number:** 102H

Will seedlings be transplanted for this project?

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation?

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

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:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Operator Name: APACHE CORPORATION

Well Name: SALT FORK 3 4 FEDERAL COM **Well Number:** 102H

Disturbance type: EXISTING ACCESS ROAD

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:

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:

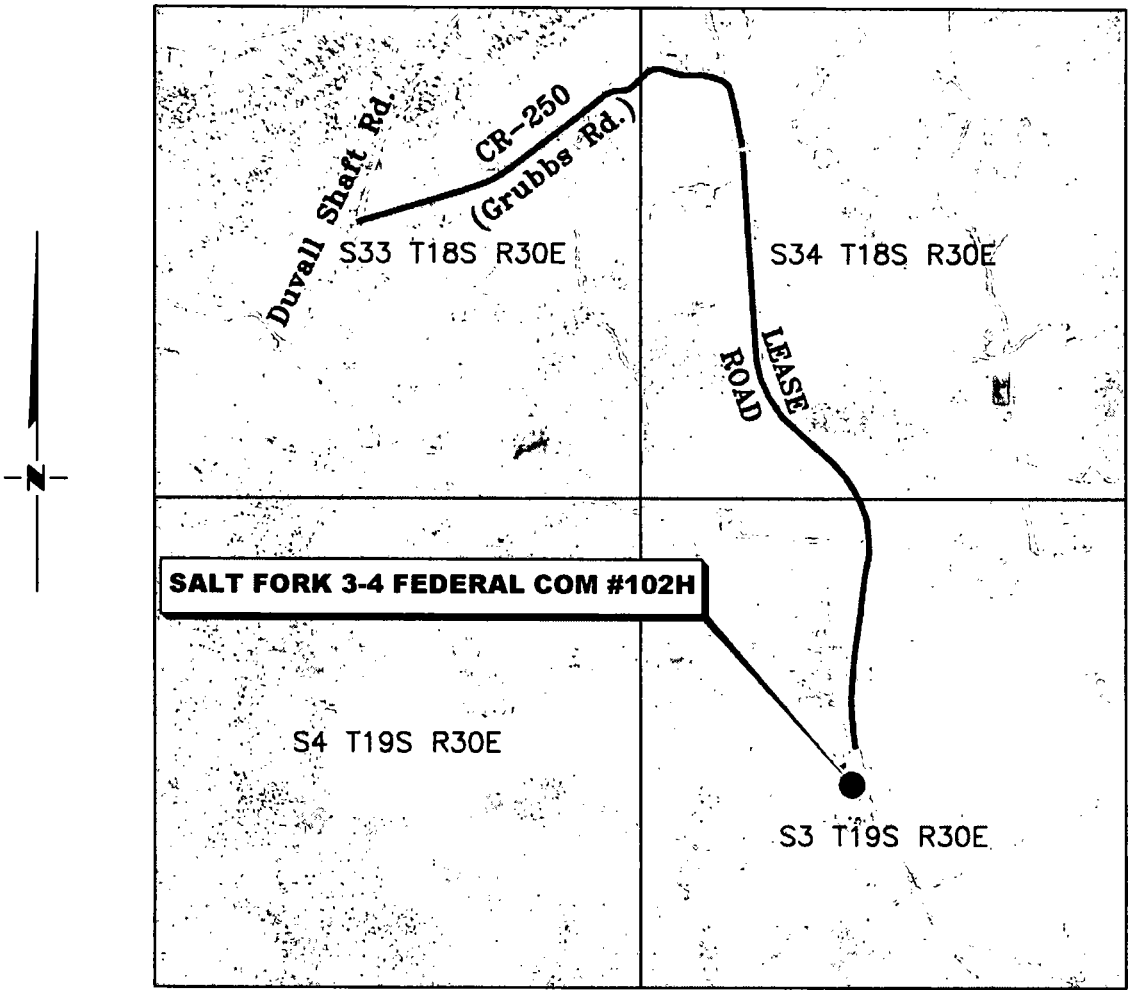
Use a previously conducted onsite? YES

Previous Onsite information: Onsite for the Salt Fork 3-4 Fed Com 1H & 2H conducted on 4/2/15. These wells already drilled. Adding 4 more wells to this pad. Sundry to extend pad has been approved (6/27/2017, #368780). Onsite for new wells conducted 3/9/2018.

Other SUPO Attachment

VICINITY MAP

NOT TO SCALE



SECTION 3, TWP. 19 SOUTH, RGE. 30 EAST, N. M. P. M., EDDY COUNTY, NEW MEXICO

OPERATOR: Apache Corporation
LEASE: Salt Fork 3-4 Federal Com
WELL NO.: 102H

LOCATION: 2205' FSL & 2284' FWL
ELEVATION: 3410'

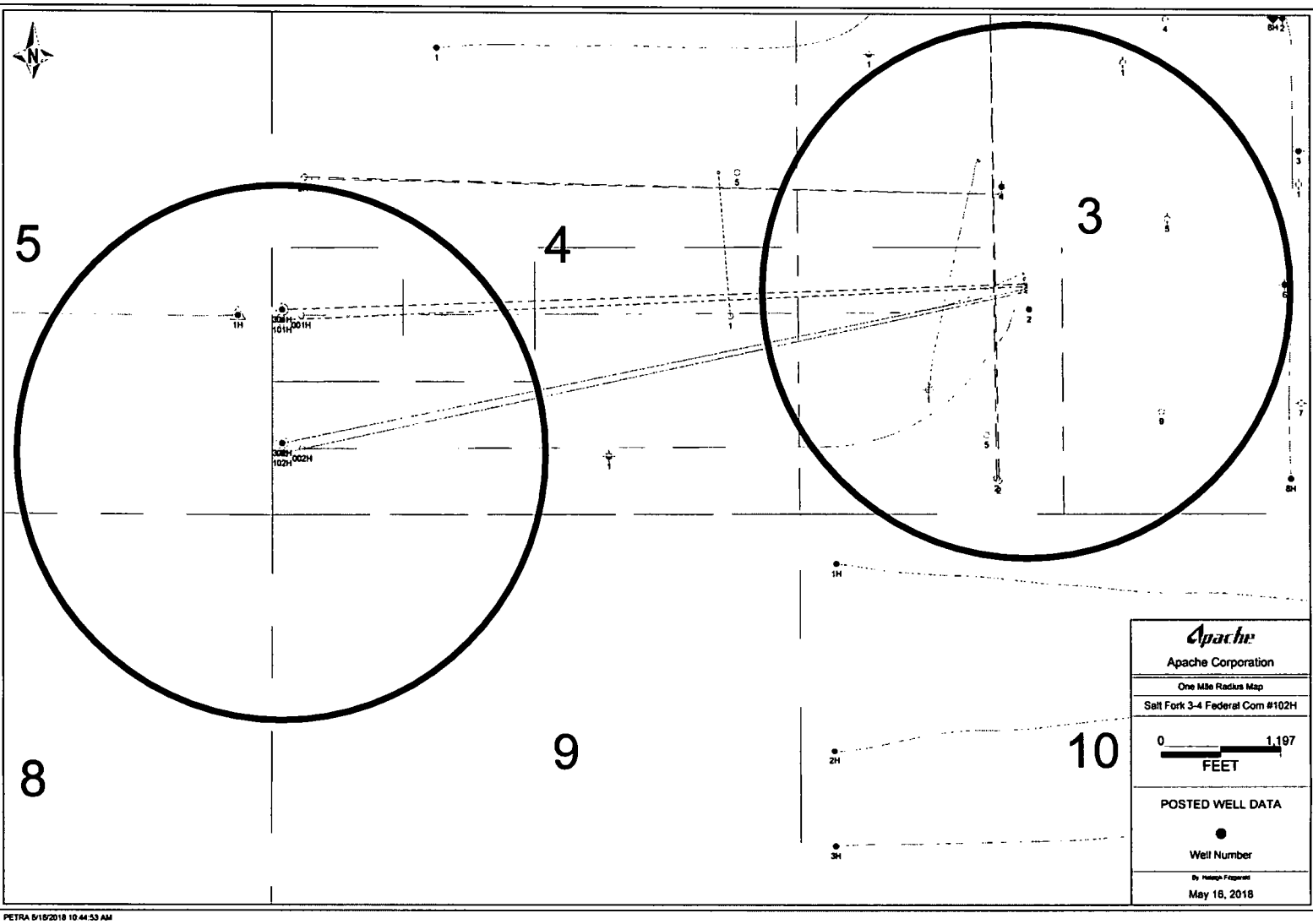
NO.	REVISION	DATE

JOB NO.: LS1803340
DWG. NO.: 1803340VM

RRC

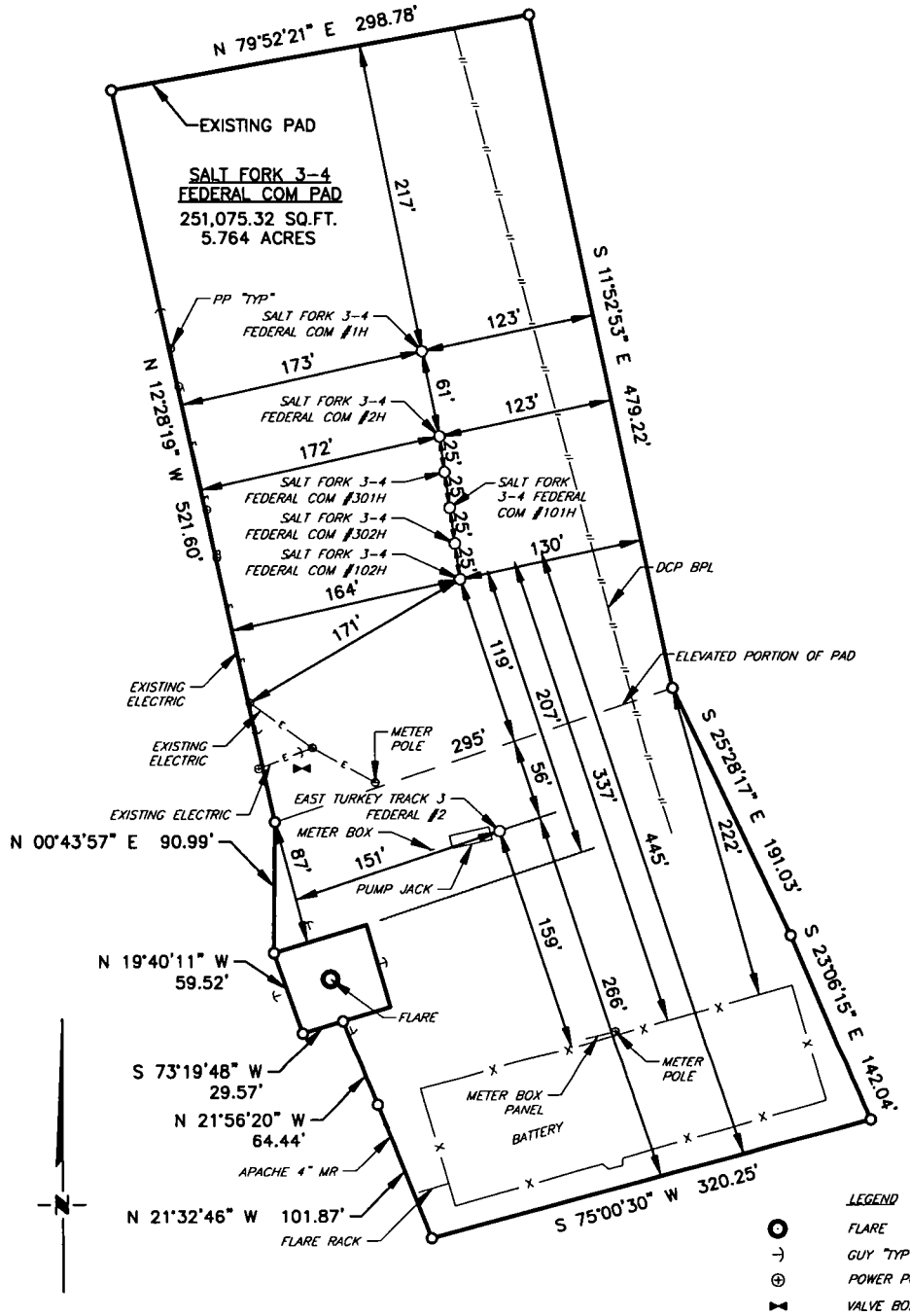
308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: N / A
DATE: 03-08-2018
SURVEYED BY: BC
DRAWN BY: CMB
APPROVED BY: JLF
SHEET: 1 OF 1



PETRA 5/15/2018 10:44:53 AM

APACHE CORPORATION, LLC
AS-BUILT SURVEY OF THE
SALT FORK 3-4 FEDERAL COM WELL LOCATIONS
SECTION 3, T19S, R30E
N. M. P. M., EDDY COUNTY, NEW MEXICO



NO.	REVISION	DATE

JOB NO.: LS1802172
DWG. NO.: 1802172PAD

RRC

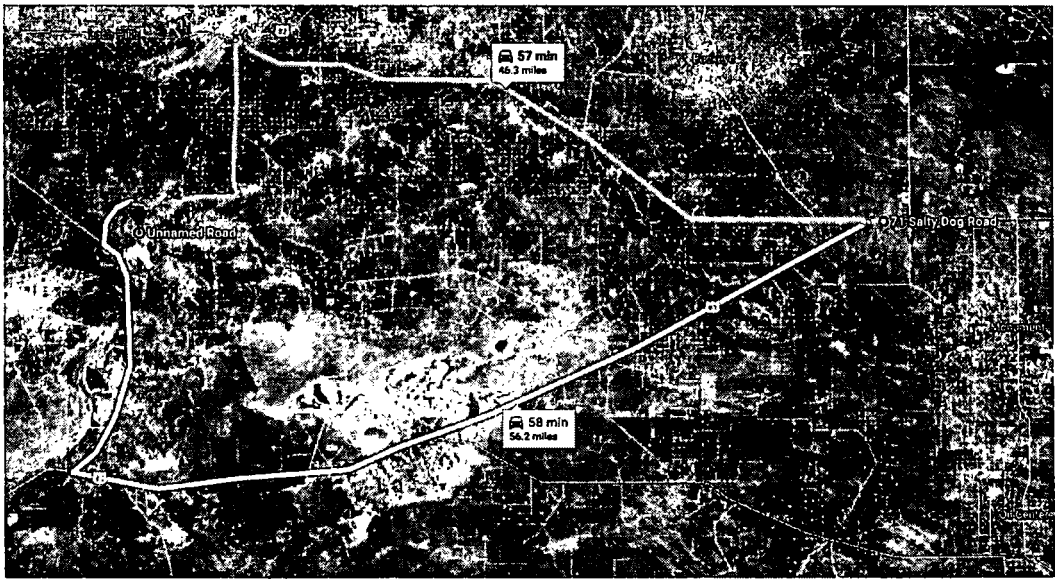
308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 100'
DATE: 03-08-2018
SURVEYED BY: BC
DRAWN BY: AiAC
APPROVED BY: JLF
SHEET : 1 OF 1

Salt Fork 3-4 Federal COM 102H Brine Water Sources

Source:

Salty Dog 32.87279 / -103.5045



71 Salty Dog Rd
Hobbs, NM 88240

1. Head north on Salty Dog Rd toward US-180 E/US-62 E
25 s (482 ft)

Follow NM-529 to Shugart Rd in Eddy County
31 min (32.3 mi)

2. Turn left at the 1st cross street onto US-180 W/US-62 W
0.8 mi
3. Turn right onto NM-529
31.1 mi
4. Turn left onto US-82 W
0.5 mi

Follow Shugart Rd and Grubbs Rd to your destination
26 min (13.9 mi)

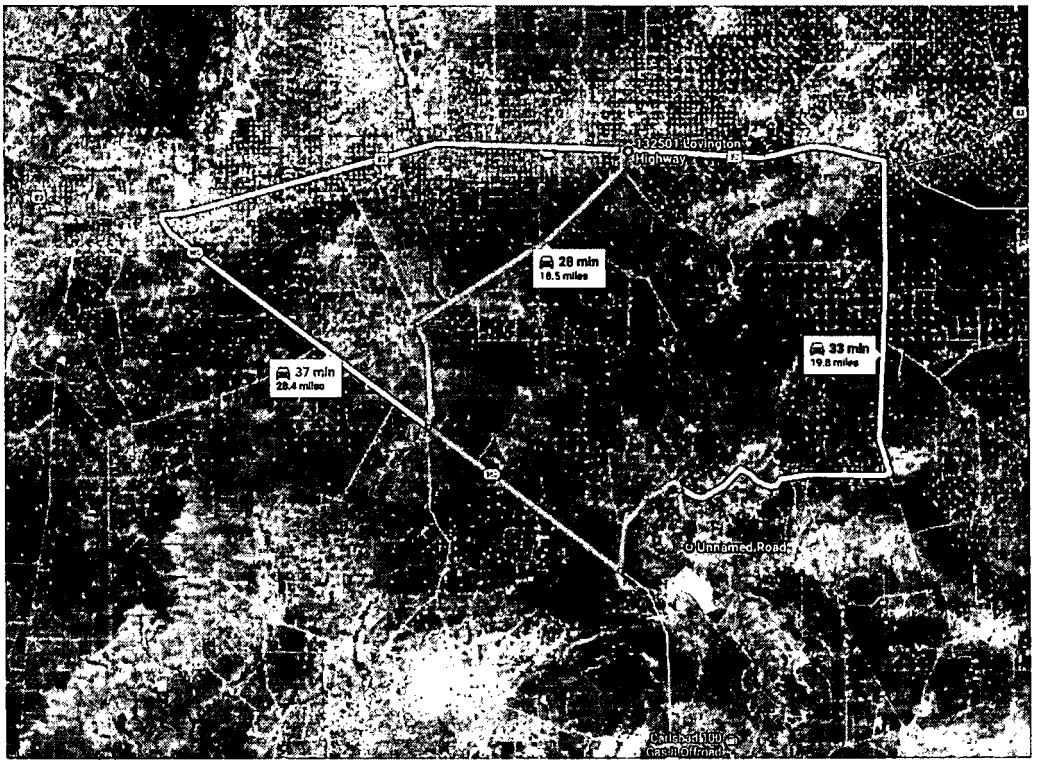
5. Turn left onto Shugart Rd
7.1 mi
6. Turn right onto Grubbs Rd
3.4 mi
7. Turn left to stay on Grubbs Rd
1.4 mi
8. Keep right to stay on Grubbs Rd
0.5 mi
9. Keep left to stay on Grubbs Rd
0.1 mi
10. Turn left
Destination will be on the right
1.4 mi

Destination: Salt Fork 3-4 Federal COM 102H

Salt Fork 3-4 Federal COM 102H Fresh Water Sources

Source:

Morwest Fresh Water 32.819386 / -103.98483

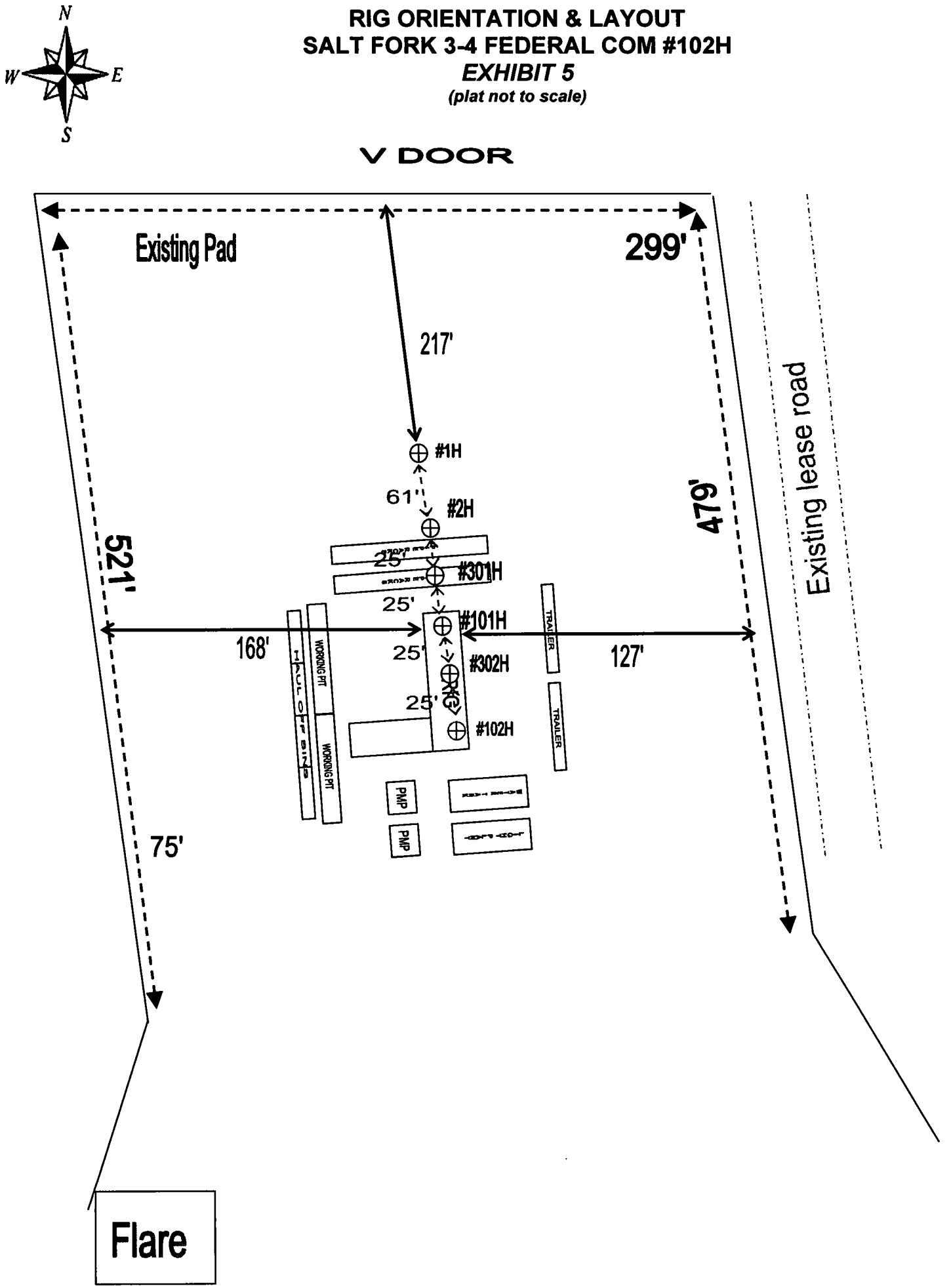


132501 Lovington Hwy
Loco Hills, NM 88255

- Head west on US-82 W toward Hagerman Cutoff Rd
  0.1 mi
- Turn left at the 1st cross street onto Hagerman Cutoff Rd
  6.3 mi
- Turn left onto S Old Loco Rd
  2.4 mi
- Turn left onto NM-360 S
  5.4 mi
- Turn left onto Duvall Shaft Rd
  1.8 mi
- Turn right onto Grubbs Rd
  1.0 mi
- Continue straight
  Destination will be on the right
  1.4 mi

Destination: Salt Fork 3-4 Federal COM 102H

RIG ORIENTATION & LAYOUT
SALT FORK 3-4 FEDERAL COM #102H
EXHIBIT 5
(plat not to scale)



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

03/04/2019

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: