HOBBS OCD
FEB 26 2020
RECEIVED

RECEIVED
FEB 10 2020
EMNRD-OCD ARTESIA

Form 3160-3
(June 2015)

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.	NMNM060393
6. If Indian, Allotee or Tribe Name	
7. If Unit or CA Agreement, Name and No.	
8. Lease Name and Well No.	BLACK & TAN 27 FEDERAL COM 203H (319564)
9. API Well No.	30-025-46915
10. Field and Pool, or Exploratory	BONE SPRING / LEA, BONE SPRING, S (37580)
11. Sec., T. R. M. or Blk. and Survey or Area	SEC 27 / T20S / R34E / NMP

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

2. Name of Operator: APACHE CORPORATION (873)

3a. Address: 303 Veterans Airpark Lane #1000 Midland TX 79705

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

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

At surface: SWSE / 215 FSL / 2152 FEL / LAT 32.5374367 / LONG -103.5464804

At proposed prod. zone: NWNE / 50 FNL / 1980 FEL / LAT 32.5512267 / LONG -103.5459287

14. Distance in miles and direction from nearest town or post office*		12. County or Parish	13. State
25 miles		LEA	NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 50 feet	16. No of acres in lease: 80	17. Spacing Unit dedicated to this well: 160	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 20 feet	19. Proposed Depth: 10542 feet / 15569 feet	20. BLM/BIA Bond No. in file: FED: NMB000736	
21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3715 feet	22. Approximate date work will start*: 01/15/2020	23. Estimated duration: 15 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: (Electronic Submission)	Name *(Printed/Typed)*: Sorina Flores / Ph: (432)818-1167	Date: 04/11/2019
Title: Supv of Drilling Services		
Approved by *(Signature)*: (Electronic Submission)	Name *(Printed/Typed)*: Cody Layton / Ph: (575)234-5959	Date: 02/03/2020
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.

OCD Rec 02/26/2020

KA 02/29/2020

APPROVED WITH CONDITIONS

Approval Date: 02/03/2020

SL

(Continued on page 2)

*(Instructions on page 2)

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**APACHE CORPORATION**
LEASE NO.:	**NMNM060393**
WELL NAME & NO.:	BLACK & TAN 27 FEDERAL COM 203H
SURFACE HOLE FOOTAGE:	215'/S & 2152'/E
BOTTOM HOLE FOOTAGE	50'/N & 1980'/E
LOCATION:	Section 27, T.20 S., R.34 E., NMPM
COUNTY:	Lea County, New Mexico

COA

H2S	(•) Yes	( ) No	
Potash	( ) None	( ) Secretary	(•) R-111-P
Cave/Karst Potential	(•) Low	( ) Medium	( ) High
Cave/Karst Potential	( ) Critical		
Variance	( ) None	(•) Flex Hose	( ) Other
Wellhead	( ) Conventional	( ) Multibowl	(•) Both
Other	[ ] 4 String Area	[x] Capitan Reef	[ ] WIPP
Other	[x] Fluid Filled	[ ] Cement Squeeze	[ ] Pilot Hole
Special Requirements	[ ] Water Disposal	[x] COM	[ ] Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the Yates-7 Rivers 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

Casing Design:

1. The **13-3/8** inch surface casing shall be set at approximately **1650** feet (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.

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

completing the cement job.

b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

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

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

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

2. The **9-5/8** inch intermediate casing shall be set at approximately **5650** feet. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash. Excess cement calculates to 18%, additional cement might be required.**

Option 2:

Operator has proposed a DV tool, 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. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash. Excess cement calculates to 12%, additional cement might be required.**

- ❖ In R111 Potash 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.
- ❖ In Secretary Potash 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.
- ❖ In Capitan Reef 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.
- ❖ **Special Capitan Reef requirements.** If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following:
  (Use this for 3 string wells in the Capitan Reef, if 4 string well ensure FW based mud used across the capitan interval)

  - Switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.
  - Daily drilling reports from the Base of the Salt to the setting of the intermediate casing are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning. Any lost circulation encountered is to be recorded on these drilling reports. The daily drilling report should show mud volume per shift/tour. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval. If not already planned, the operator shall run a caliper survey for the intermediate well bore and submit to the appropriate BLM office.

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

   - Cement should tie-back at least **50 feet** on top of Capitan Reef top. If cement does not circulate see B.1.a, c-d above.
     Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.
     Excess cement calculates to 10%, additional cement might be required.

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.

Option 1:

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

b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **5000 (5M)** psi.

Option 2:

1. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

    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.

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.

GENERAL REQUIREMENTS

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

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

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

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

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

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

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

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

A. CASING

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

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. 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. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

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

   a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

   b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, 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 not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

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

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

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

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

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

OTA01172020

AFMSS

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

Operator Certification Data Report

02/04/2020

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:** 04/09/2019

Title: Supv of Drilling Services

Street Address: 303 Veterans Airpark Ln #1000

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

Phone: (432)818-1167

Email address: sorina.flores@apachecorp.com

Field Representative

Representative Name:

Street Address:

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

Phone:

Email address:

AFMSS

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

Application Data Report
02/04/2020

APD ID: 10400040621 **Submission Date:** 04/11/2019

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

[redacted]

Show Final Text

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

Section 1 - General

APD ID: 10400040621 **Tie to previous NOS?** **Submission Date:** 04/11/2019

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: NMNM060393 **Lease Acres:** 80

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 **Master Development Plan name:**

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

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

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** BONE SPRING **Pool Name:** LEA, BONE SPRING, S

Is the proposed well in an area containing other mineral resources? POTASH

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

Is the proposed well in an area containing other mineral resources? POTASH

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** NO **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** BLACK & TAN 27 FED COM **Number:** PAD 3 EAST

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

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: OTHER

Describe sub-type: DEVELOPMENT

Distance to town: 25 Miles **Distance to nearest well:** 20 FT **Distance to lease line:** 50 FT

Reservoir well spacing assigned acres Measurement: 160 Acres

Well plat: BlkTan27FedCom203H_Plat_signed_20190411095039.pdf

Well work start Date: 01/15/2020 **Duration:** 15 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: **Reference Datum:**

Wellbore	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	Will this well produce from this lease?
SHL Leg #1	215	FSL	2152	FEL	20S	34E	27	Aliquot SWSE	32.5374367	-103.5464804	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 060393	3715	0	0	
KOP Leg #1	49	FSL	2031	FEL	20S	34E	27	Aliquot SWSE	32.5369806	-103.5460884	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 060393	-6391	10113	10106	
PPP Leg #1-1	2641	FNL	2004	FEL	20S	34E	27	Aliquot SWNE	32.5441062	-103.5460085	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 0000082	-6850	12978	10565	

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

Wellbore	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	Will this well produce from this lease?
PPP Leg #1-2	1321	FSL	2018	FEL	20S	34E	27	Aliquot SWSE	32.5404757	-103.5460493	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 0000897	-6862	11657	10577	
PPP Leg #1-3	100	FSL	2031	FEL	20S	34E	27	Aliquot SWSE	32.5371207	-103.5460868	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 060393	-6601	10331	10316	
EXIT Leg #1	50	FNL	1980	FEL	20S	34E	27	Aliquot NWNE	32.5512267	-103.5459287	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 0000082	-6827	15569	10542	
BHL Leg #1	50	FNL	1980	FEL	20S	34E	27	Aliquot NWNE	32.5512267	-103.5459287	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 0000082	-6827	15569	10542	

APD ID: 10400040621 **Submission Date:** 04/11/2019

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

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

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
433596	RUSTLER	3715	1608	1608		POTASH	N
433597	SALADO	1747	1967	1967		POTASH	N
433598	TANSILL	374	3340	3340		OIL	N
433599	YATES	171	3543	3543		NATURAL GAS, OIL	N
433603	CAPITAN REEF	-225	3939	3939		NATURAL GAS, OIL	N
433600	DELAWARE	-1989	5703	5703		OIL	N
433601	BONE SPRING	-4889	8603	8603		OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M **Rating Depth:** 11000

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

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:

BlkTan27FedCom_12.25Hole_BOP_2M_ChokeManifold_Schem_20190404161441.pdf

BOP Diagram Attachment:

BlkTan27FedCom_8.75Hole_BOP_5M_ChokeManifoldSchem_REV_20200107145622.pdf

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

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	INTERMEDIATE	12.25	9.625	NEW	API	N	0	800	0	800	-8196	-13076	800	J-55	40	BUTT	6.04	1.82	BUOY	2.27	BUOY	1.99
2	SURFACE	17.5	13.375	NEW	API	N	0	1650	0	1650	-7296	-8996	1650	J-55	54.5	BUTT	2.81	1.67	BUOY	4.1	BUOY	3.84
3	INTERMEDIATE	12.25	9.625	NEW	API	N	800	5650	800	5650	-7296	-8196	4850	J-55	40	LT&C	1.58	1.98	BUOY	1.8	BUOY	2.16
4	PRODUCTION	8.75	5.5	NEW	API	N	0	10867	0	10583	-7296	-23035	10867	P-110	17	BUTT	1.46	1.21	BUOY	2.18	BUOY	2.09
5	PRODUCTION	8.5	5.5	NEW	API	N	10867	15568	10583	10542		16367	4701	P-110	17	BUTT	1.46	1.21	BUOY	2.18	BUOY	2.09

Casing Attachments

Casing ID: 1 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BlkTan27FedCom_IntermCsgDesignAssumpt_20181121104400.pdf

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

Casing Attachments

Casing ID: 2 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BlkTan27FedCom_SurfCsgDesignAssumpt_20181121104411.pdf

Casing ID: 3 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BlkTan27FedCom_IntermCsgDesignAssumpt_20181121104424.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BlkTan27FedCom_ProdCsgDesignAssumpt_20181121104442.pdf

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

BlkTan27FedCom_ProdCsgDesignAssumpt_20181121104454.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	1320	672	1.73	13.5	1162.56	25	Cl C	4% Bentonite + 1% CaCl2
SURFACE	Tail		1320	1650	245	1.33	14.8	325.85	25	Cl C	1% CaCl2
INTERMEDIATE	Lead	3460	0	2780	525	1.99	12.7	1044.75	25	Cl C	5% NaCl + 6% bentonite + 0.2% anti-settling + 5% retarder + 0.4 #/sk defoamer
INTERMEDIATE	Tail		2780	3460	200	1.33	14.8	266	25	Cl C	0.3% retarder
INTERMEDIATE	Lead		0	4640	897	1.99	12.7	1785.03	25	Cl C	5% NaCl + 6% Bentonite + 2% anti-settling + 0.5% retarder + 0.4 #/sk defoamer
INTERMEDIATE	Tail		4640	5650	300	1.33	14.8	399	25	Cl C	0.2% Retarder
INTERMEDIATE	Lead		3460	4650	296	1.99	12.7	589.04	25	Cl C	5% NaCl + 6% Bentonite + 0.2% anti-settling + 0.5% retarder + 0.4 #/sk defoamer
INTERMEDIATE	Tail		4650	5650	300	1.33	14.8	399	25	Cl C	0.3% retarder
PRODUCTION	Lead		0	10112	1395	2.03	11.9	2831.85	20	H	4% gel, 5% salt, 0.5% CPT-19, 1% CPT-45, 0.4% CPT-503P, 0.2%

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
											CPT-20A, 0.2% citric acid
PRODUCTION	Tail		10112	15568	1070	1.43	13.2	1530.1	20	TXI Lite	1.3% Salt + 5% Expanding Agent + 0.5% Fluid Loss + 0.35% Retarder + 0.1% Anti Settling + 0.2% Dispersant + 0.4 #/sk Defoamer
PRODUCTION	Lead		0	10112	1395	2.03	11.9	2831.85	20	H	4% gel, 5% salt, 0.5% CPT-19, 1% CPT-45, 0.4% CPT-503P, 0.2% CPT-20A, 0.2% citric acid
PRODUCTION	Tail		10112	15568	1070	1.43	13.2	1530.1	20	TXI Lite	1.3% Salt + 5% Expanding Agent + 0.5% Fluid Loss + 0.35% Retarder + 0.1% Anti Settling + 0.2% Dispersant + 0.4 #/sk Defoamer

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: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times

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

Circulating Medium Table

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

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	1650	SPUD MUD	8.3	9							
1650	5650	SALT SATURATED	9.8	10.5							
5650	15568	OTHER : CUT BRINE	8.6	9.5							

Section 6 - Test, Logging, Coring

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

Onshore Order 2.111.D shall be followed. 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:

CNL/FDC,DS,GR,MWD,MUDLOG

Coring operation description for the well:

None planned

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 4640 **Anticipated Surface Pressure:** 2313.06

Anticipated Bottom Hole Temperature(F): 159

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

Describe:

Capitan reef poses lost circulation potential

Contingency Plans geoharzards description:

For Capitan Reef, Apache will switch over to FW system if lost circ is encountered. A 2-stage cmt job will be proposed to get cmt to surf.

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

BlkTan27FedCom_H2SOpsContPlan_20181121112018.pdf

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

BlkTan27FedCom203H_WallPlot_20190409104253.pdf

BlkTan27FedCom203H_DirSurvey_20190409104252.pdf

Other proposed operations facets description:

**Cement contingency plan attached if loss circulation is encountered. Prod cmt had to be duplicated due to system irregularities with csg. Complete csg & cmt plan attached.
**Apache request variance to use flexible hose between BOP & Choke Manifold, see attachment for additional information
*Estimated Completion Date: 9/2019
*Estimated First Production Date: 10/2019

Other proposed operations facets attachment:

BlkTan27FedCom_201H_202H_203H_204H_GasCapturePlan_20190411100413.pdf

BlackTan27FedCom203H_CmtDetail_REV_1.7.2020_20200114153752.pdf

BlkTan27FedCom203H_CsgDetail_20200114153801.pdf

Other Variance attachment:

BlkTan27FedCom_Flexline_20181121112354.pdf

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:

- SCBA 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 10 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
Larry VanGilder – Drlg Superintendent	432-818-1965	432-557-1097	
John Vacek – Drilling Engineer	432-818-1882	281-222-1812	
Bobby Smith – Drilling Manager	432-818-1020	432-556-7701	
Ted Ward – EH&S Coordinator		432-234-0600	
Erick Wood – EH&S Coordinator		432-250-5904	

***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 **LARRY VAN GILDER** is out of contact, **JOHN VACEK** will be notified.

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

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

EMERGENCY RESPONSE NUMBERS:

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

Apache Corporation
Black & Tan 27 Fed Com 203H
Lea Co, New Mexico

Weatherford

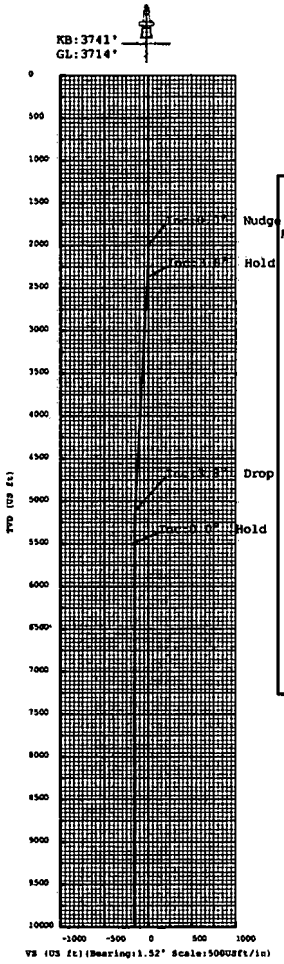
KB:3741'
GL:3714'

Grid Convergence:	0.42°
Mag Declination:	6.72°
Bearing:	
True = Mag + 6.72°	
Grid = True - 0.42°	
Total Correction	6.30°

Plan Data for Black & Tan 27 Fed Com 203H

Plan Point Information:
Dogleg Severity Unit: °/100.00ft Position offsets from Slot centre

MD (USft)	Inc (°)	Az (°)	TVD (USft)	+N/-S (USft)	+E/-W (USft)	Northing (USft)	Easting (USft)	VSec (USft)	DLS (DLSU)	Comments
0.00	0.00	0.00	-0.00	0.00	0.00	560145.70	783822.30	0.00	0.00	
2000.00	0.00	0.00	2000.00	0.00	0.00	560145.70	783822.30	0.00	0.00	Nudge
2376.70	3.77	143.52	2376.43	-9.95	7.36	560135.75	783829.66	-9.75	1.00	Hold
5123.27	3.77	143.52	5117.06	-155.05	114.64	559990.65	783936.94	-151.95	0.00	Drop
5499.97	0.00	0.00	5493.49	-165.00	122.00	559980.70	783944.30	-161.71	1.00	Hold
10112.96	0.00	0.00	10106.48	-165.00	122.00	559980.70	783944.30	-161.71	0.00	KOP
10867.12	90.50	0.12	10583.93	316.63	123.01	560462.33	783945.31	319.78	12.00	Landing Pt
15568.98	90.50	0.12	10542.90	5018.30	132.90	565164.00	783955.20	5020.06	0.00	B&T27FC203H PBHL



Plan Data for Black & Tan 27 Fed Com 203H

Field: Apache NM (Nad 83 NMEZ)
Map Unit: USFt Vertical Reference Datum (VRD): Mean Sea Level
Projected Coordinate System: NAD83 / New Mexico East (ftUS)

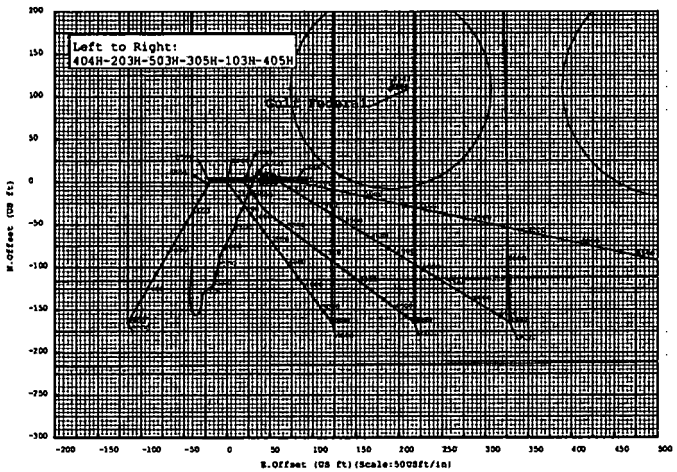
Site: Black & Tan 27 Fed Com Pad 3
Unit: USFeet TVD Reference:
Company Name: Apache Corporation
Position: Northing: 560146.00USft Latitude: 32.537437°
Easting: 783862.20USft Longitude: -103.546351°
North Reference: Grid Grid Convergence: 0.42°
Elevation Above VRD: 3714.00USft
Comment: Lea Co., NM

Slot: Black & Tan 27 Fed Com 203H
Position:
Offset is from Site centre
+N/-S: -0.30USft Northing: 560145.70USft Latitude: 32.537437°
+E/-W: -39.90USft Easting: 783822.30USft Longitude: -103.546480°
Elevation Above VRD: 3715.00USft

Well: Black & Tan 27 Fed Com 203H
Type: Main-Well
File Number:
Plan Folder: P1 Plan: P1:V1
Vertical Section: Position offset of origin from Slot centre:
+N/-S: 0.00USft Azimuth: 1.52°
+E/-W: 0.00USft
Magnetic Parameters:

Model:	Field Strength:	Declination:	Dip:	Date:
HDGM2016v6.0	47966(nT)	6.72°	59.93°	2018-12-13

Comment: H&P 482



Plan Data for Black & Tan 27 Fed Com 203H

Formation Point Information:

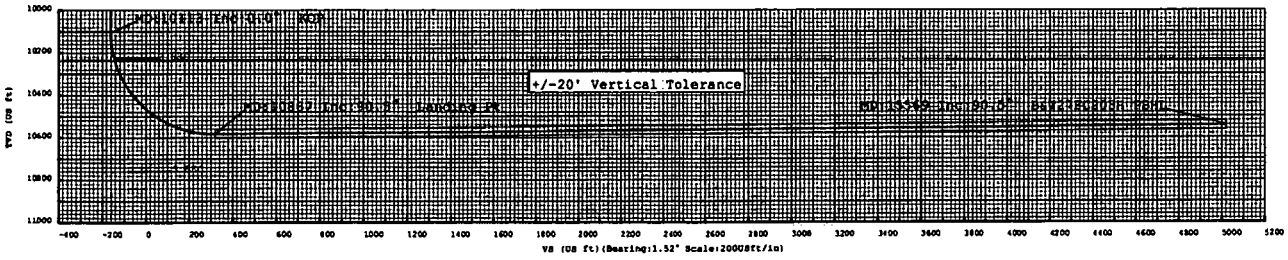
Name	TVD (USft)	Elevation (USft)	MD (USft)
3 BSC	10760.00	-7019.00	-1.00
RUSTLER	1625.00	2116.00	1625.00
SALADO	1955.00	1786.00	1955.00
TANSILL	3365.00	376.00	3367.41
YATES	3520.00	221.00	3522.75
SEVEN RIVERS	3921.00	-180.00	3924.62
DELAWARE	5665.00	-1924.00	5671.48
AVALON	8590.00	-4849.00	8596.48
1 BSC	9290.00	-5549.00	9296.48
1 BSS	9690.00	-5949.00	9696.48
2 BSC	9955.00	-6214.00	9961.48
2 BSS	10230.00	-6489.00	10237.90

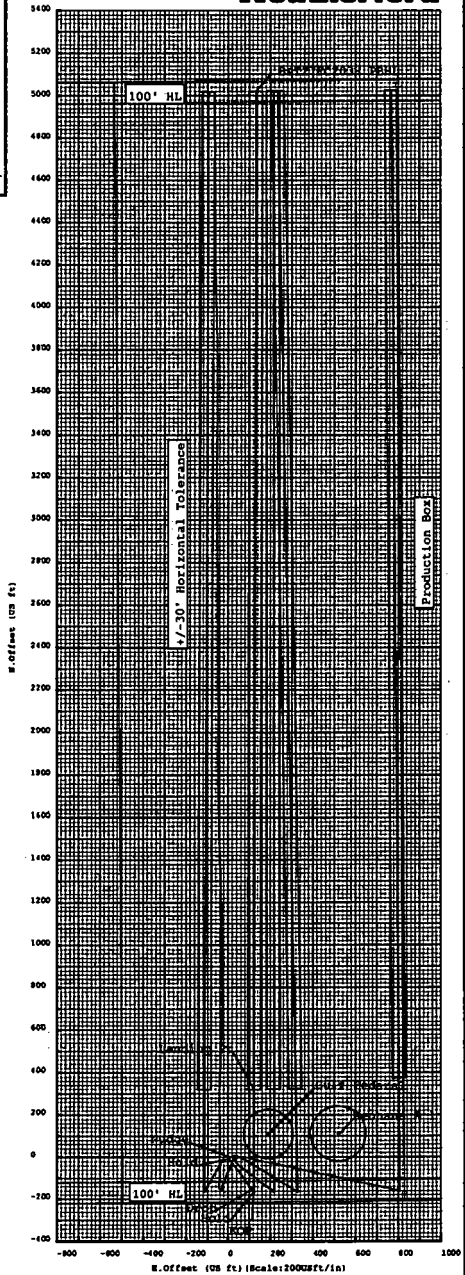
Plan Data for Black & Tan 27 Fed Com 203H

Target Set Information:
Name: B&T27FC203H
Position offsets from Slot centre

Name	TVD (USft)	Elevation (USft)	+N/-S (USft)	+E/-W (USft)	Northing (USft)	Easting (USft)
LTP	0.00	3741.00	4968.30	133.20	565114.00	783955.50
PBHL	10542.90	-6801.90	5018.30	132.90	565164.00	783955.20

- Black & Tan 27 Fed Com 203H
- Black & Tan 27 Fed Com 503H
- Black & Tan 27 Fed Com 305H
- Black & Tan 27 Fed Com 103H
- Black & Tan 27 Fed Com 405H
- Gulf Federal
- Keohane A 1
- Black & Tan 27 Fed Com 404H





Drawing By: Ty Hardin Date: 22 August 2018
Office Name: Drilling Services - Houston
Address: 12101 Cutten Road
Houston, TX 77066
Phone: Office: +1.832.955.0032 | Cell: +1.713.882.8256

Apache

5D Plan Report

Apache Corporation

Field Name: *Apache NM (Nad 83 NMEZ)*
Site Name: *Black & Tan 27 Fed Com Pad 3*
Well Name: *Black & Tan 27 Fed Com 203H*
Plan: *P1:V1*

23 August 2018

Weatherford®

5D Plan Report

Black & Tan 27 Fed Com 203H

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: Black & Tan 27 Fed Com Pad 3	**Units:** US ft **North Reference:** Grid **Convergence Angle:** 0.42 **Position:** **Northing:** 560146.00 US ft **Latitude:** 32.537436611 **Easting:** 783862.20 US ft **Longitude:** -103.546350856 **Elevation above MSL:** 3714.00 US ft **Comment:** Lea Co., NM
Slot: Black & Tan 27 Fed Com 203H	**Position (Relative to Site Centre)** **+N/-S:** -0.30 US ft **Northing:** 560145.70 US ft **Latitude:** 32.537436596 **+E/-W:** -39.90 US ft **Easting:** 783822.30 US ft **Longitude:** -103.546480326 **Elevation above MSL:** 3715.00 US ft **Comment:**
Well: Black & Tan 27 Fed Com 203H	**Type:** Main well **UWI:** **Plan:** P1:V1 **File Number:** **Comment:** H&P 482 **Closure Distance:** 5020.06US ft **Closure Azimuth:** 1.52° **Vertical Section: Position of Origin (Relative to Slot centre)** **+N/-S:** 0.00 US ft **+E/-W:** 0.00 US ft **Az:** 1.52° **Magnetic Parameters:** **Model:** HDGM2016v6.0 **Field Strength:** 47966.9nT **Declination:** 6.72° **Dip:** 59.93° **Date:** 13/Dec/2018

Drill floor: Plan: P1:V1

Rig Height (Well TVD Reference): 26.00US ft **Elevation above MSL:** 3741.00US ft **Inclination:** 0.00° **Azimuth:** 0.00°

Target set: B&T27FC203H Comment:

Target Name:	Shape:	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (USFt)	Easting (USFt)	C.Pt.Distance (US ft)	Comment
LTP	Point	0.00	4968.30	133.20	565114.00	783955.50	4970.09	
PBHL	Cuboid	10542.90	5018.30	132.90	565164.00	783955.20	0.00	

Wellpath created using minimum curvature.

5D Plan Report

Tie Point:

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

Salient Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (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	560145.70	783822.30	0.00	
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	560145.70	783822.30	0.00	Nudge
2376.70	3.77	143.52	2376.43	-9.75	-9.95	7.36	560135.75	783829.66	1.00	Hold
5123.27	3.77	143.52	5117.06	-151.95	-155.05	114.64	559990.65	783936.94	0.00	Drop
5499.97	0.00	0.00	5493.49	-161.71	-165.00	122.00	559980.70	783944.30	1.00	Hold
10112.96	0.00	0.00	10106.48	-161.71	-165.00	122.00	559980.70	783944.30	0.00	KOP
10867.12	90.50	0.12	10583.93	319.78	316.63	123.01	560462.33	783945.31	12.00	Landing Pt
15568.98	90.50	0.12	10542.90	5020.06	5018.30	132.90	565164.00	783955.20	0.00	B&T27FC203 H PBHL

Interpolated Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (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	560145.70	783822.30	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
1400.00	0.00	0.00	1400.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
1600.00	0.00	0.00	1600.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
1625.00	0.00	0.00	1625.00	0.00	0.00	0.00	560145.70	783822.30	0.00	RUSTLER :
1700.00	0.00	0.00	1700.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
1900.00	0.00	0.00	1900.00	0.00	0.00	0.00	560145.70	783822.30	0.00	
1955.00	0.00	0.00	1955.00	0.00	0.00	0.00	560145.70	783822.30	0.00	SALADO :
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	560145.70	783822.30	0.00	Nudge
2100.00	1.00	143.52	2099.99	-0.69	-0.70	0.52	560145.00	783822.82	1.00	
2200.00	2.00	143.52	2199.96	-2.75	-2.81	2.08	560142.89	783824.38	1.00	
2300.00	3.00	143.52	2299.86	-6.19	-6.31	4.67	560139.39	783826.97	1.00	
2376.70	3.77	143.52	2376.43	-9.75	-9.95	7.36	560135.75	783829.66	1.00	Hold
2400.00	3.77	143.52	2399.68	-10.96	-11.18	8.27	560134.52	783830.57	0.00	
2500.00	3.77	143.52	2499.46	-16.14	-16.47	12.18	560129.23	783834.48	0.00	
2600.00	3.77	143.52	2599.25	-21.32	-21.75	16.08	560123.95	783838.38	0.00	
2700.00	3.77	143.52	2699.03	-26.49	-27.03	19.99	560118.67	783842.29	0.00	
2800.00	3.77	143.52	2798.81	-31.67	-32.32	23.89	560113.38	783846.19	0.00	
2900.00	3.77	143.52	2898.60	-36.85	-37.60	27.80	560108.10	783850.10	0.00	
3000.00	3.77	143.52	2998.38	-42.02	-42.88	31.71	560102.82	783854.01	0.00	
3100.00	3.77	143.52	3098.17	-47.20	-48.16	35.61	560097.54	783857.91	0.00	
3200.00	3.77	143.52	3197.95	-52.38	-53.45	39.52	560092.25	783861.82	0.00	
3300.00	3.77	143.52	3297.73	-57.56	-58.73	43.42	560086.97	783865.72	0.00	
3367.41	3.77	143.52	3365.00	-61.05	-62.29	46.06	560083.41	783868.36	0.00	TANSILL :
3400.00	3.77	143.52	3397.52	-62.73	-64.01	47.33	560081.69	783869.63	0.00	
3500.00	3.77	143.52	3497.30	-67.91	-69.29	51.24	560076.41	783873.54	0.00	
3522.75	3.77	143.52	3520.00	-69.09	-70.50	52.12	560075.20	783874.42	0.00	YATES :
3600.00	3.77	143.52	3597.09	-73.09	-74.58	55.14	560071.12	783877.44	0.00	
3700.00	3.77	143.52	3696.87	-78.27	-79.86	59.05	560065.84	783881.35	0.00	

5D Plan Report

Interpolated Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
3800.00	3.77	143.52	3796.65	-83.44	-85.14	62.95	560060.56	783885.25	0.00	
3900.00	3.77	143.52	3896.44	-88.62	-90.42	66.86	560055.28	783889.16	0.00	
3924.62	3.77	143.52	3921.00	-89.89	-91.73	67.82	560053.97	783890.12	0.00	SEVEN RIVERS :
4000.00	3.77	143.52	3996.22	-93.80	-95.71	70.77	560049.99	783893.07	0.00	
4100.00	3.77	143.52	4096.01	-98.97	-100.99	74.67	560044.71	783896.97	0.00	
4200.00	3.77	143.52	4195.79	-104.15	-106.27	78.58	560039.43	783900.88	0.00	
4300.00	3.77	143.52	4295.57	-109.33	-111.56	82.48	560034.14	783904.78	0.00	
4400.00	3.77	143.52	4395.36	-114.51	-116.84	86.39	560028.86	783908.69	0.00	
4500.00	3.77	143.52	4495.14	-119.68	-122.12	90.30	560023.58	783912.60	0.00	
4600.00	3.77	143.52	4594.93	-124.86	-127.40	94.20	560018.30	783916.50	0.00	
4700.00	3.77	143.52	4694.71	-130.04	-132.69	98.11	560013.01	783920.41	0.00	
4800.00	3.77	143.52	4794.49	-135.21	-137.97	102.01	560007.73	783924.31	0.00	
4900.00	3.77	143.52	4894.28	-140.39	-143.25	105.92	560002.45	783928.22	0.00	
5000.00	3.77	143.52	4994.06	-145.57	-148.53	109.83	559997.17	783932.13	0.00	
5100.00	3.77	143.52	5093.84	-150.75	-153.82	113.73	559991.88	783936.03	0.00	
5123.27	3.77	143.52	5117.06	-151.95	-155.05	114.64	559990.65	783936.94	0.00	Drop
5200.00	3.00	143.52	5193.66	-155.52	-158.69	117.33	559987.01	783939.63	1.00	
5300.00	2.00	143.52	5293.56	-158.96	-162.19	119.93	559983.51	783942.23	1.00	
5400.00	1.00	143.52	5393.53	-161.02	-164.30	121.48	559981.40	783943.78	1.00	
5499.97	0.00	0.00	5493.49	-161.71	-165.00	122.00	559980.70	783944.30	1.00	Hold
5500.00	0.00	0.00	5493.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
5600.00	0.00	0.00	5593.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
5671.48	0.00	0.00	5665.00	-161.71	-165.00	122.00	559980.70	783944.30	0.00	DELAWARE :
5700.00	0.00	0.00	5693.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
5800.00	0.00	0.00	5793.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
5900.00	0.00	0.00	5893.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
6000.00	0.00	0.00	5993.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
6100.00	0.00	0.00	6093.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
6200.00	0.00	0.00	6193.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
6300.00	0.00	0.00	6293.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
6400.00	0.00	0.00	6393.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
6500.00	0.00	0.00	6493.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
6600.00	0.00	0.00	6593.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
6700.00	0.00	0.00	6693.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
6800.00	0.00	0.00	6793.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
6900.00	0.00	0.00	6893.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
7000.00	0.00	0.00	6993.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
7100.00	0.00	0.00	7093.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
7200.00	0.00	0.00	7193.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
7300.00	0.00	0.00	7293.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
7400.00	0.00	0.00	7393.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
7500.00	0.00	0.00	7493.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
7600.00	0.00	0.00	7593.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
7700.00	0.00	0.00	7693.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
7800.00	0.00	0.00	7793.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
7900.00	0.00	0.00	7893.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
8000.00	0.00	0.00	7993.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
8100.00	0.00	0.00	8093.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
8200.00	0.00	0.00	8193.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
8300.00	0.00	0.00	8293.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
8400.00	0.00	0.00	8393.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
8500.00	0.00	0.00	8493.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
8596.48	0.00	0.00	8590.00	-161.71	-165.00	122.00	559980.70	783944.30	0.00	AVALON :
8600.00	0.00	0.00	8593.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
8700.00	0.00	0.00	8693.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
8800.00	0.00	0.00	8793.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
8900.00	0.00	0.00	8893.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
9000.00	0.00	0.00	8993.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	

5D Plan Report

Interpolated Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
9100.00	0.00	0.00	9093.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
9200.00	0.00	0.00	9193.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
9296.48	0.00	0.00	9290.00	-161.71	-165.00	122.00	559980.70	783944.30	0.00	1 BSC :
9300.00	0.00	0.00	9293.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
9400.00	0.00	0.00	9393.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
9500.00	0.00	0.00	9493.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
9600.00	0.00	0.00	9593.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
9696.48	0.00	0.00	9690.00	-161.71	-165.00	122.00	559980.70	783944.30	0.00	1 BSS :
9700.00	0.00	0.00	9693.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
9800.00	0.00	0.00	9793.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
9900.00	0.00	0.00	9893.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
9961.48	0.00	0.00	9955.00	-161.71	-165.00	122.00	559980.70	783944.30	0.00	2 BSC :
10000.00	0.00	0.00	9993.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
10100.00	0.00	0.00	10093.52	-161.71	-165.00	122.00	559980.70	783944.30	0.00	
10112.96	0.00	0.00	10106.48	-161.71	-165.00	122.00	559980.70	783944.30	0.00	KOP
10200.00	10.45	0.12	10193.04	-153.80	-157.09	122.02	559988.61	783944.32	12.00	
10237.90	14.99	0.12	10230.00	-145.46	-148.75	122.03	559996.95	783944.33	12.00	2 BSS :
10300.00	22.45	0.12	10288.78	-125.55	-128.83	122.08	560016.87	783944.38	12.00	
10400.00	34.45	0.12	10376.54	-78.02	-81.29	122.18	560064.41	783944.48	12.00	
10500.00	46.45	0.12	10452.51	-13.28	-16.53	122.31	560129.17	783944.61	12.00	
10600.00	58.45	0.12	10513.35	65.83	62.60	122.48	560208.30	783944.78	12.00	
10700.00	70.45	0.12	10556.41	155.85	152.65	122.67	560298.35	783944.97	12.00	
10800.00	82.45	0.12	10579.80	252.86	249.69	122.87	560395.39	783945.17	12.00	
10867.12	90.50	0.12	10583.93	319.78	316.63	123.01	560462.33	783945.31	12.00	Landing Pt
10900.00	90.50	0.12	10583.64	352.65	349.51	123.08	560495.21	783945.38	0.00	
11000.00	90.50	0.12	10582.77	452.61	449.50	123.29	560595.20	783945.59	0.00	
11100.00	90.50	0.12	10581.89	552.58	549.50	123.50	560695.20	783945.80	0.00	
11200.00	90.50	0.12	10581.02	652.55	649.49	123.71	560795.19	783946.01	0.00	
11300.00	90.50	0.12	10580.15	752.51	749.49	123.92	560895.19	783946.22	0.00	
11400.00	90.50	0.12	10579.28	852.48	849.49	124.13	560995.19	783946.43	0.00	
11500.00	90.50	0.12	10578.40	952.45	949.48	124.34	561095.18	783946.64	0.00	
11600.00	90.50	0.12	10577.53	1052.41	1049.48	124.55	561195.18	783946.85	0.00	
11700.00	90.50	0.12	10576.66	1152.38	1149.47	124.76	561295.17	783947.06	0.00	
11800.00	90.50	0.12	10575.79	1252.34	1249.47	124.97	561395.17	783947.27	0.00	
11900.00	90.50	0.12	10574.91	1352.31	1349.47	125.18	561495.17	783947.48	0.00	
12000.00	90.50	0.12	10574.04	1452.28	1449.46	125.40	561595.16	783947.70	0.00	
12100.00	90.50	0.12	10573.17	1552.24	1549.46	125.61	561695.16	783947.91	0.00	
12200.00	90.50	0.12	10572.30	1652.21	1649.45	125.82	561795.15	783948.12	0.00	
12300.00	90.50	0.12	10571.42	1752.18	1749.45	126.03	561895.15	783948.33	0.00	
12400.00	90.50	0.12	10570.55	1852.14	1849.45	126.24	561995.15	783948.54	0.00	
12500.00	90.50	0.12	10569.68	1952.11	1949.44	126.45	562095.14	783948.75	0.00	
12600.00	90.50	0.12	10568.81	2052.08	2049.44	126.66	562195.14	783948.96	0.00	
12700.00	90.50	0.12	10567.93	2152.04	2149.43	126.87	562295.13	783949.17	0.00	
12800.00	90.50	0.12	10567.06	2252.01	2249.43	127.08	562395.13	783949.38	0.00	
12900.00	90.50	0.12	10566.19	2351.97	2349.43	127.29	562495.13	783949.59	0.00	
13000.00	90.50	0.12	10565.32	2451.94	2449.42	127.50	562595.12	783949.80	0.00	
13100.00	90.50	0.12	10564.44	2551.91	2549.42	127.71	562695.12	783950.01	0.00	
13200.00	90.50	0.12	10563.57	2651.87	2649.41	127.92	562795.11	783950.22	0.00	
13300.00	90.50	0.12	10562.70	2751.84	2749.41	128.13	562895.11	783950.43	0.00	
13400.00	90.50	0.12	10561.83	2851.81	2849.41	128.34	562995.11	783950.64	0.00	
13500.00	90.50	0.12	10560.95	2951.77	2949.40	128.55	563095.10	783950.85	0.00	
13600.00	90.50	0.12	10560.08	3051.74	3049.40	128.76	563195.10	783951.06	0.00	
13700.00	90.50	0.12	10559.21	3151.71	3149.39	128.97	563295.09	783951.27	0.00	
13800.00	90.50	0.12	10558.34	3251.67	3249.39	129.18	563395.09	783951.48	0.00	
13900.00	90.50	0.12	10557.46	3351.64	3349.38	129.39	563495.08	783951.69	0.00	
14000.00	90.50	0.12	10556.59	3451.60	3449.38	129.60	563595.08	783951.90	0.00	
14100.00	90.50	0.12	10555.72	3551.57	3549.38	129.81	563695.08	783952.11	0.00	
14200.00	90.50	0.12	10554.85	3651.54	3649.37	130.02	563795.07	783952.32	0.00	
14300.00	90.50	0.12	10553.97	3751.50	3749.37	130.23	563895.07	783952.53	0.00	

5D Plan Report

Interpolated Points: (Relative to Slot centre)(TVD relative to Well TVD Reference)										
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	VS (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	DLS (°/100US ft)	Comment
14400.00	90.50	0.12	10553.10	3851.47	3849.36	130.44	563995.06	783952.74	0.00	
14500.00	90.50	0.12	10552.23	3951.44	3949.36	130.65	564095.06	783952.95	0.00	
14600.00	90.50	0.12	10551.35	4051.40	4049.36	130.86	564195.06	783953.16	0.00	
14700.00	90.50	0.12	10550.48	4151.37	4149.35	131.07	564295.05	783953.37	0.00	
14800.00	90.50	0.12	10549.61	4251.34	4249.35	131.28	564395.05	783953.58	0.00	
14900.00	90.50	0.12	10548.74	4351.30	4349.34	131.49	564495.04	783953.79	0.00	
15000.00	90.50	0.12	10547.86	4451.27	4449.34	131.70	564595.04	783954.00	0.00	
15100.00	90.50	0.12	10546.99	4551.23	4549.34	131.91	564695.04	783954.21	0.00	
15200.00	90.50	0.12	10546.12	4651.20	4649.33	132.12	564795.03	783954.42	0.00	
15300.00	90.50	0.12	10545.25	4751.17	4749.33	132.33	564895.03	783954.63	0.00	
15400.00	90.50	0.12	10544.37	4851.13	4849.32	132.54	564995.02	783954.84	0.00	
15500.00	90.50	0.12	10543.50	4951.10	4949.32	132.75	565095.02	783955.05	0.00	
15568.98	90.50	0.12	10542.90	5020.06	5018.30	132.90	565164.00	783955.20	0.00	B&T27FC203 H PBHL

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Submit Original to Appropriate District Office

GAS CAPTURE PLAN

☒ Original Operator: Apache Corporation OGRID No: 873 Date: 4/3/2019

☐ Amended Date: _____

Reason for Amendment: _____

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

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

Well(s)/Production Facility – Name of facility

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

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Black & Tan 27 Fed Com 201H		Sec 27 T20S R34E	222' FSL & 650' FWL	1000	Flared	Flared only in emergency
Black & Tan 27 Fed Com 202H		Sec 27 T20S R34E	215' FSL & 2140' FWL	1000	Flared	Flared only in emergency
Black & Tan 27 Fed Com 203H		Sec 27 T20S R34E	215' FSL & 2152' FEL	1000	Flared	Flare only in emergency
Black & Tan 27 Fed Com 204H		Sec 27 T20S R34E	215' FSL & 822' FEL	1000	Flared	Flared only in emergency

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete if gas transporter system is in place. The gas produced from production facility is dedicated to **VERSADO GAS PROCESSORS, LLC** and will be connected to **VERSADO'S LOW** pressure gathering system located in **LEA** County, New Mexico. It will require **4700** ft of pipeline to connect the facility to **LOW** pressure gathering system. Apache Corporation provides (periodically) to **VERSADO GAS PROCESSORS, LLC** a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Apache Corporation and **VERSADO GAS PROCESSORS, LLC** have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at **VERSADO'S MONUMENT** Processing Plant located in **Sec. 36, Twp 19S, Rng 36E, LEA County**, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

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

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

Alternatives to Reduce Flaring

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

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

BlackTan27FedCom203H - Cmt detail - REVISED 1.7.2020

CEMENT: SURFACE

Stage Tool Depth: N/A

Lead:

Top MD of Segment:	0	Btm MD of Segment:	1320
Cmt Type:	C	Cmt Additives:	4% Bentonite + 1% CaCl2
Quantity (sks):	672		
Yield (cu/ft/sk):	1.73	Volume (cu/ft):	1162.56
Density (lbs/gal):	13.5	Percent OH Excess:	25%

Tail:

Top MD of Segment:	1320	Btm MD of Segment:	1650
Cmt Type:	C	Cmt Additives:	1% CaCl2
Quantity (sks):	245		
Yield (cu/ft/sk):	1.33	Volume (cu/ft):	325.85
Density (lbs/gal):	14.8	Percent OH Excess:	25%

CEMENT: INTERMEDIATE

Single Stage

Lead:

Top MD of Segment:	0	Btm MD of Segment:	4650
Cmt Type:	C	Cmt Additives:	5% NaCl + 6% Bentonite + 0.2% Anti-Settling + 0.5% Retarder + 0.4% Retarder
Quantity (sks):	897		
Yield (cu/ft/sk):	1.99	Volume (cu/ft):	1785.03
Density (lbs/gal):	12.7	Percent OH Excess:	25%

Tail:

Top MD of Segment:	4650	Btm MD of Segment:	5650
Cmt Type:	C	Cmt Additives:	0.2% Retarder

Quantity (sks):	300		
Yield (cu/ft/sk):	1.33	Volume (cu/ft):	399
Density (lbs/gal):	14.8	Percent OH Excess:	25%

2 Stage Cement Job

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

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

1st Stage

Lead:

Top MD of Segment:	3460	Btm MD of Segment:	4650
Cmt Type:	C	Cmt Additives:	5% NaCl + 6% Bentonite + 0.2% Anti-Settling + 0.5% Retarder + 0.4% Retarder

Quantity (sks):	296		
Yield (cu/ft/sk):	1.99	Volume (cu/ft):	589.04
Density (lbs/gal):	12.7	Percent OH Excess:	25%

Tail:

Top MD of Segment:	4650	Btm MD of Segment:	5650
Cmt Type:	C	Cmt Additives:	0.3% Retarder

Quantity (sks):	300		
Yield (cu/ft/sk):	1.33	Volume (cu/ft):	399
Density (lbs/gal):	14.8	Percent OH Excess:	25%

Stage Tool / ECP Depth: ± 3460'

2nd Stage

Lead:

Top MD of Segment:	0	Btm MD of Segment:	2780.55

Cmt Type: C

Cmt Additives: 5% NaCl + 6% Bentonite + 0.2% Anti-Settling + 0.5% Retarder + 0.4% Retarder

Quantity (sks): 525
Yield (cu/ft/sk): 1.99 Volume (cu/ft): 1044.75
Density (lbs/gal): 12.7 Percent OH Excess: 25%

Tail:

Top MD of Segment: 2780.55

Btm MD of Segment: 3460

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: [redacted]

Btm MD of Segment: 10112.96

Cmt Type: H

Cmt Additives: [redacted]

Quantity (sks): [redacted]
Yield (cu/ft/sk): Volume (cu/ft): [redacted]
Density (lbs/gal): 11.9 Percent OH Excess: 20%

Tail:

Top MD of Segment: 10112.96

Btm MD of Segment: 15568.98

Cmt Type: TXI Lite

Cmt Additives: 1.3% Salt + 5% Expanding Agent + 0.5% Fluid Loss + 0.35% Retarder + 0.1% Anti Settling + 0.2% Dispersant + 0.4 #/sk Defoamer

Quantity (sks): [redacted]
Yield (cu/ft/sk): Volume (cu/ft): [redacted]

Density (lbs/gal):	13.2	Percent OH Excess:	20%

BLACK & TAN 27 FEDERAL COM 203H - CSG DETAIL

String: SURFACE

Hole Size: 17.5

Top Setting Depth (MD):	0	Top Setting Depth (TVD):	0	Btm setting depth (MD):	1650	Btm setting depth (TVD):	1650
Size:	13-3/8"	Grade:	J-55	Weight (lbs/ft):	54.5	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	Buttress

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: 2.81 Burst Design Safety Factor: 1.67

Body Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Body Tensile Design Safety Factor: 3.84

Joint Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Joint Tensile Design Safety Factor: 4.1

String: INTERMEDIATE

Hole Size: 12.25

Top Setting Depth (MD):	0	Top Setting Depth (TVD):	0	Btm setting depth (MD):	800	Btm setting depth (TVD):	800
Size:	9-5/8"	Grade:	J-55	Weight (lbs/ft):	40	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	Buttress

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: 6.04 Burst Design Safety Factor: 1.82

Body Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Body Tensile Design Safety Factor: 1.98

Joint Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Joint Tensile Design Safety Factor: 2.27

Top Setting Depth (MD):	800	Top Setting Depth (TVD):	800	Btm setting depth (MD):	5650	Btm setting depth (TVD):	5643.5
Size:	9-5/8"	Grade:	J-55	Weight (lbs/ft):	40	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: 1.58 Burst Design Safety Factor: 1.98

Body Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Body Tensile Design Safety Factor: 2.16

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

String: PRODUCTION

Hole Size:	8.75						
Top Setting Depth (MD):	0	Top Setting Depth (TVD):	0	Btm setting depth (MD):	10867.12	Btm setting depth (TVD):	10583.93
Size:	5-1/2"	Grade:	P-110	Weight (lbs/ft):	17	Joint (Butt,FJ, LTC,STC, SLH, N/A, Other):	Buttress
Hole Size:	8.5						
Top Setting Depth (MD):	10867.12	Top Setting Depth (TVD):	10583.93	Btm setting depth (MD):	15568.98	Btm setting depth (TVD):	10542.9
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: 1.46 Burst Design Safety Factor: 1.21

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

Joint Tensile Design Safety Factor type?: Dry/Buoyant Buoyant
Joint Tensile Design Safety Factor: 2.18

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

AFMSS

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

PWD Data Report
02/04/2020

APD ID: 10400040621 **Submission Date:** 04/11/2019

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

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

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:

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

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

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?

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

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):

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

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

02/04/2020

APD ID: 10400040621 **Submission Date:** 04/11/2019

Operator Name: APACHE CORPORATION

Well Name: BLACK & TAN 27 FEDERAL COM **Well Number:** 203H

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

[redacted]

Show Final Text

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: