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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.
NMNM086024

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.
CYPRESS 34 FEDERAL
207H 319943

2. Name of Operator
TAP ROCK OPERATING LLC

9. API Well No.
30-015-46823

3a. Address
602 Park Point Drive Suite 200, Golden, CO 80401

3b. Phone No. *(include area code)*
(720) 460-3316

10. Field and Pool, or Exploratory
PURPLE SAGE/WOLFCAMP

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NWNE / 621 FNL / 2579 FEL / LAT 32.2668836 / LONG -103.972345
At proposed prod. zone SESW / 30 FSL / 2310 FWL / LAT 32.2540973 / LONG -103.9735023

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 34/T23S/R29E/NMP

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

12. County or Parish
EDDY

13. State
NM

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

16. No of acres in lease
1440

17. Spacing Unit dedicated to this well
320.0

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

19. Proposed Depth
10242 feet / 15215 feet

20. BLM/BIA Bond No. in file
FED: NMB001443

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3046 feet

22. Approximate date work will start*
02/01/2020

23. Estimated duration
90 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)	Brian Wood / Ph: (720) 460-3316	11/05/2019

Title
President

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575) 234-5959	02/27/2020

Title	Office
Assistant Field Manager Lands & Minerals	Carlsbad Field Office

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.

RWP 3-11-20

APPROVED WITH CONDITIONS
Approval Date: 02/27/2020

NSL Required.

(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

0. SHL: NWNE / 621 FNL / 2579 FEL / TWSP: 23S / RANGE: 29E / SECTION: 34 / LAT: 32.2668836 / LONG: -103.972345 (TVD: 0 feet, MD: 0 feet)

PPP: NENW / 293 FNL / 2279 FWL / TWSP: 23S / RANGE: 29E / SECTION: 34 / LAT: 32.2677816 / LONG: -103.9737092 (TVD: 10097 feet, MD: 10198 feet)

BHL: SESW / 30 FSL / 2310 FWL / TWSP: 23S / RANGE: 29E / SECTION: 34 / LAT: 32.2540973 / LONG: -103.9735023 (TVD: 10242 feet, MD: 15215 feet)

BLM Point of Contact

Name: Candy Vigil

Title: LIE

Phone: (575) 234-5982

Email: cvigil@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
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Tap Rock Operating LLC
LEASE NO.:	NMNM086024
COUNTY:	Eddy

Wells:

Cypress 34 Federal 207H
Surface Hole Location: 521' FNL & 2579' FEL, Section 34, T. 23 S., R. 29 E.
Bottom Hole Location: 30' FSL & 2310' FWL, Section 34, T. 23 S., R. 29 E.

Cypress 34 Federal 212H
Surface Hole Location: 646' FNL & 2579' FEL, Section 34, T. 23 S., R. 29 E.
Bottom Hole Location: 30' FSL & 1650' FWL, Section 34, T. 23 S., R. 29 E.

Cypress 34 Federal 232H
Surface Hole Location: 546' FNL & 2578' FEL, Section 34, T. 23 S., R. 29 E.
Bottom Hole Location: 200' FSL & 2430' FWL, Section 34, T. 23 S., R. 29 E.

Cypress 34 Federal 242H
Surface Hole Location: 571' FNL & 2578' FEL, Section 34, T. 23 S., R. 29 E.
Bottom Hole Location: 200' FSL & 2010' FWL, Section 34, T. 23 S., R. 29 E.

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

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	TAP ROCK OPERATING LLC
WELL NAME & NO.:	CYPRESS 34 FEDERAL 212H
SURFACE HOLE FOOTAGE:	564'/N & 2578'/E
BOTTOM HOLE FOOTAGE	200'/S & 2430'/W
LOCATION:	Section 34, T.23 S., R.29 E., NMP
COUNTY:	Eddy 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	☐ Capitan Reef	☐ WIPP
Other	☑ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☑ COM	☐ Unit

A. HYDROGEN SULFIDE

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately 350 feet (a minimum of 70 feet (Eddy 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 minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

   - 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.**

❖ In Medium 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.

❖ 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.

3. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:

   - Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification.
     Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

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

   - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

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

2. 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)

Well Logs
Ensure GR and CNL logs or comparable logs are run to surface for future development. One per well pad with no more than 250' distance.

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.

AFMSS

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

Operator Certification Data Report

02/27/2020

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: Brian Wood

Signed on: 07/03/2019

Title: President

Street Address: 37 Verano Looop

City: Santa Fe **State:** NM **Zip:** 87508

Phone: (505)466-8120

Email address: afmss@permitswest.com

Field Representative

Representative Name:

Street Address:

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

Phone: (505)466-8120

Email address: afmss@permitswest.com

AFMSS

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

Application Data Report
02/27/2020

APD ID: 10400050029 **Submission Date:** 11/05/2019

Operator Name: TAP ROCK OPERATING LLC

Well Name: CYPRESS 34 FEDERAL **Well Number:** 207H

Well Type: CONVENTIONAL GAS WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400050029 **Tie to previous NOS?** N **Submission Date:** 11/05/2019

BLM Office: CARLSBAD **User:** Brian Wood **Title:** President

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

Lease number: NMNM086024 **Lease Acres:** 1440

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

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? N

Permitting Agent? YES **APD Operator:** TAP ROCK OPERATING LLC

Operator letter of designation:

Operator Info

Operator Organization Name: TAP ROCK OPERATING LLC

Operator Address: 602 Park Point Drive Suite 200 **Zip:** 80401

Operator PO Box:

Operator City: Golden **State:** CO

Operator Phone: (720)460-3316

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: CYPRESS 34 FEDERAL **Well Number:** 207H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** PURPLE SAGE **Pool Name:** WOLFCAMP

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

Operator Name: TAP ROCK OPERATING LLC

Well Name: CYPRESS 34 FEDERAL **Well Number:** 207H

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

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

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** CYPRESS 34 FEDERAL **Number:** Slot 2

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

Well Work Type: Drill

Well Type: CONVENTIONAL GAS WELL

Describe Well Type:

Well sub-Type: INFILL

Describe sub-type:

Distance to town: 6.5 Miles **Distance to nearest well:** 25 FT **Distance to lease line:** 621 FT

Reservoir well spacing assigned acres Measurement: 320 Acres

Well plat: Cypress_207H_C102_GCP_20191024114749.pdf

Well work start Date: 02/01/2020 **Duration:** 90 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 11401 **Reference Datum:** KELLY BUSHING

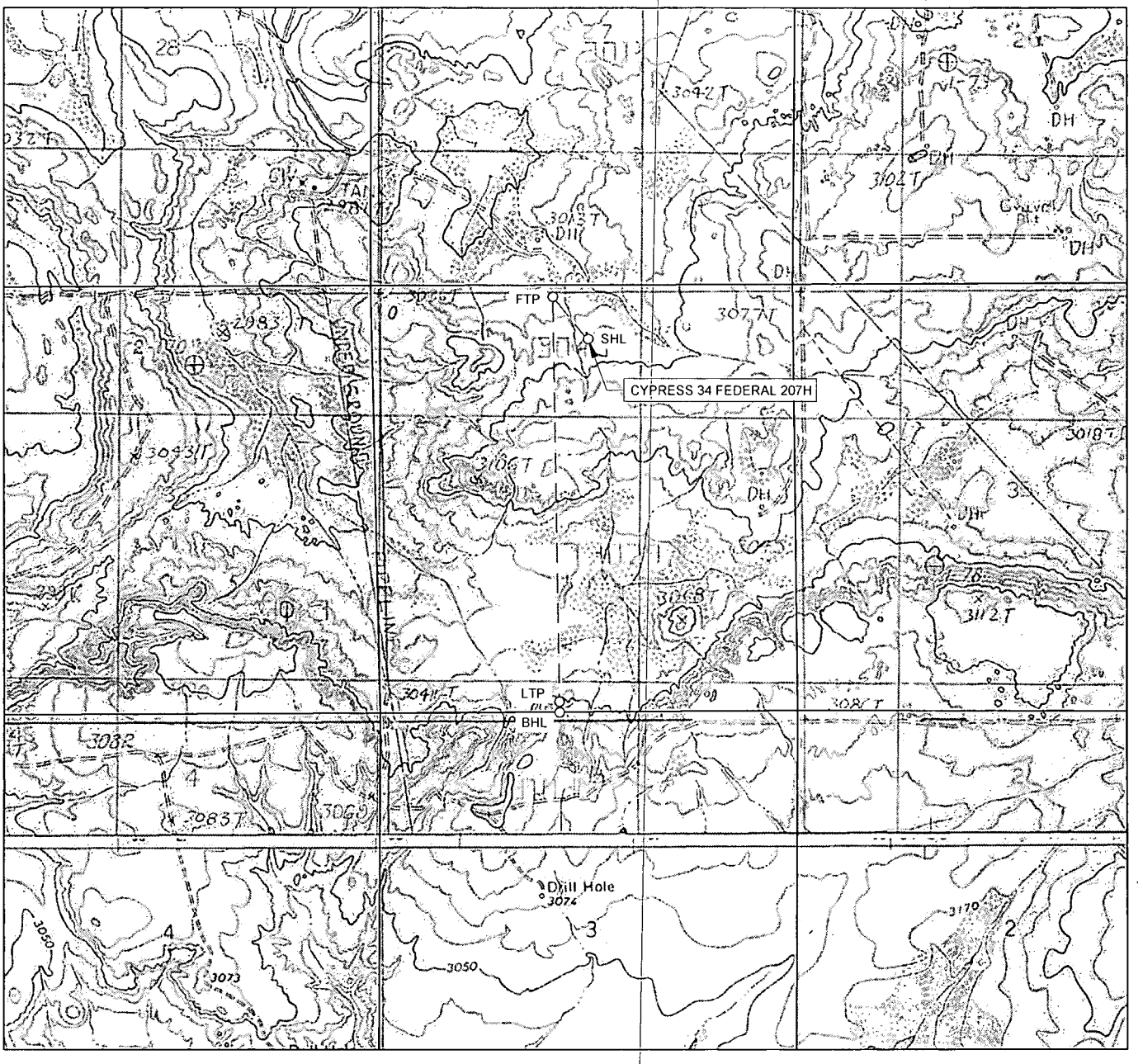
Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
SHL Leg #1	621	FNL	2579	FEL	23S	29E	34	Aliquot NWNE	32.2668836	-103.972345	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 086024	3046	0	0	Y
KOP Leg #1	100	FNL	2276	FWL	23S	29E	34	Aliquot NENW	32.2683073	-103.9737189	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 086024	-6623	9714	9669	Y
PPP Leg #1-1	293	FNL	2279	FWL	23S	29E	34	Aliquot NENW	32.2677816	-103.9737092	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 086024	-7051	10198	10097	Y

Operator Name: TAP ROCK OPERATING LLC

Well Name: CYPRESS 34 FEDERAL **Well Number:** 207H

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?
EXIT Leg #1	30	FSL	2310	FWL	23S	29E	34	Aliquot SESW	32.2540973	-103.9735023	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 086024	-7196	15242	10242	Y
BHL Leg #1	30	FSL	2310	FWL	23S	29E	34	Aliquot SESW	32.2540973	-103.9735023	EDDY	NEW MEXICO	NEW MEXICO	F	NMNM 086024	-7196	15242	10242	Y

LOCATION & ELEVATION VERIFICATION MAP



TAP ROCK

LEASE NAME & WELL NO.: CYPRESS 34 FEDERAL 207H

SECTION 34 TWP 23-S RGE 29-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM ELEVATION 3046'
DESCRIPTION 621' FNL & 2579' FEL

LATITUDE N 32.2668836 LONGITUDE W 103.9723450

–N–

SCALE: 1" = 2000'

0' 1000' 2000'

THIS EASEMENT/SERVITUDE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY TAP ROCK OPERATING, LLC. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET.

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
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2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
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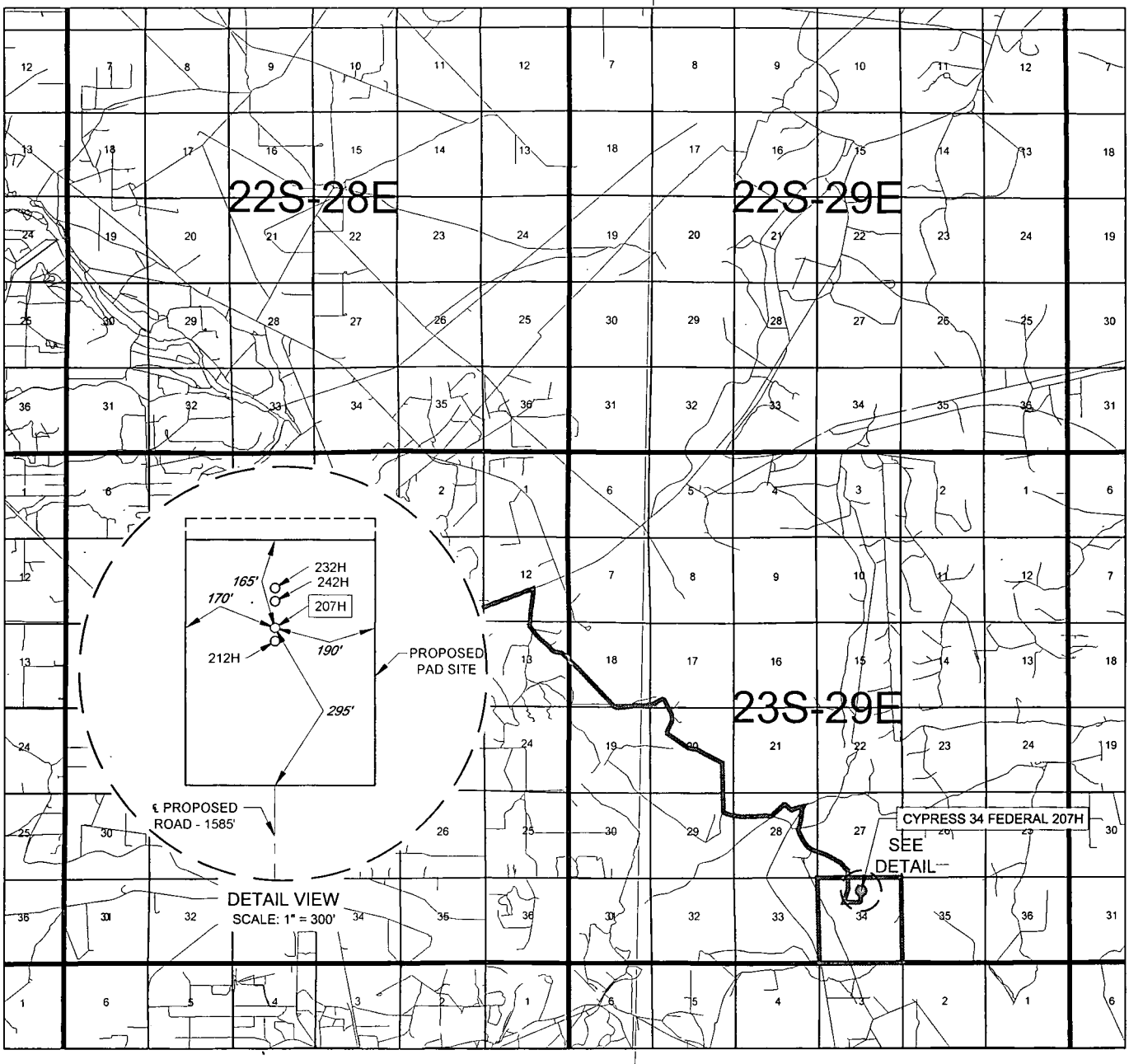
EXHIBIT 2

VICINITY MAP



TAP ROCK

LEASE NAME & WELL NO.: CYPRESS 34 FEDERAL 207H

SECTION 34 TWP 23-S RGE 29-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM
DESCRIPTION 621' FNL & 2579' FEL

DISTANCE & DIRECTION

FROM INT. OF NM-31, & STATE HWY 387, GO EAST ON NM-31 ±1.7 MILES, THENCE SOUTH (RIGHT) ON FISHERMANS LN. ±0.5 MILES, THENCE CONTINUE STRAIGHT ON A LEASE RD. ±4.8 MILES, THENCE SOUTH (RIGHT) ON A LEASE RD. ± 0.6 MILES, THENCE EAST (LEFT) ON A LEASE RD. ±0.3 MILES, THENCE SOUTH (RIGHT) ON A LEASE RD. ±0.6 MILES, THENCE EAST (LEFT) ON A PROPOSED RD. ±1585 FEET TO A POINT ±295 FEET SOUTH OF THE LOCATION.

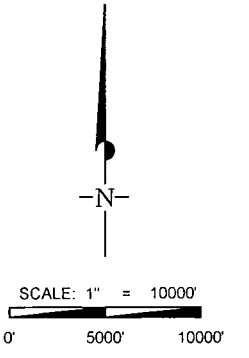


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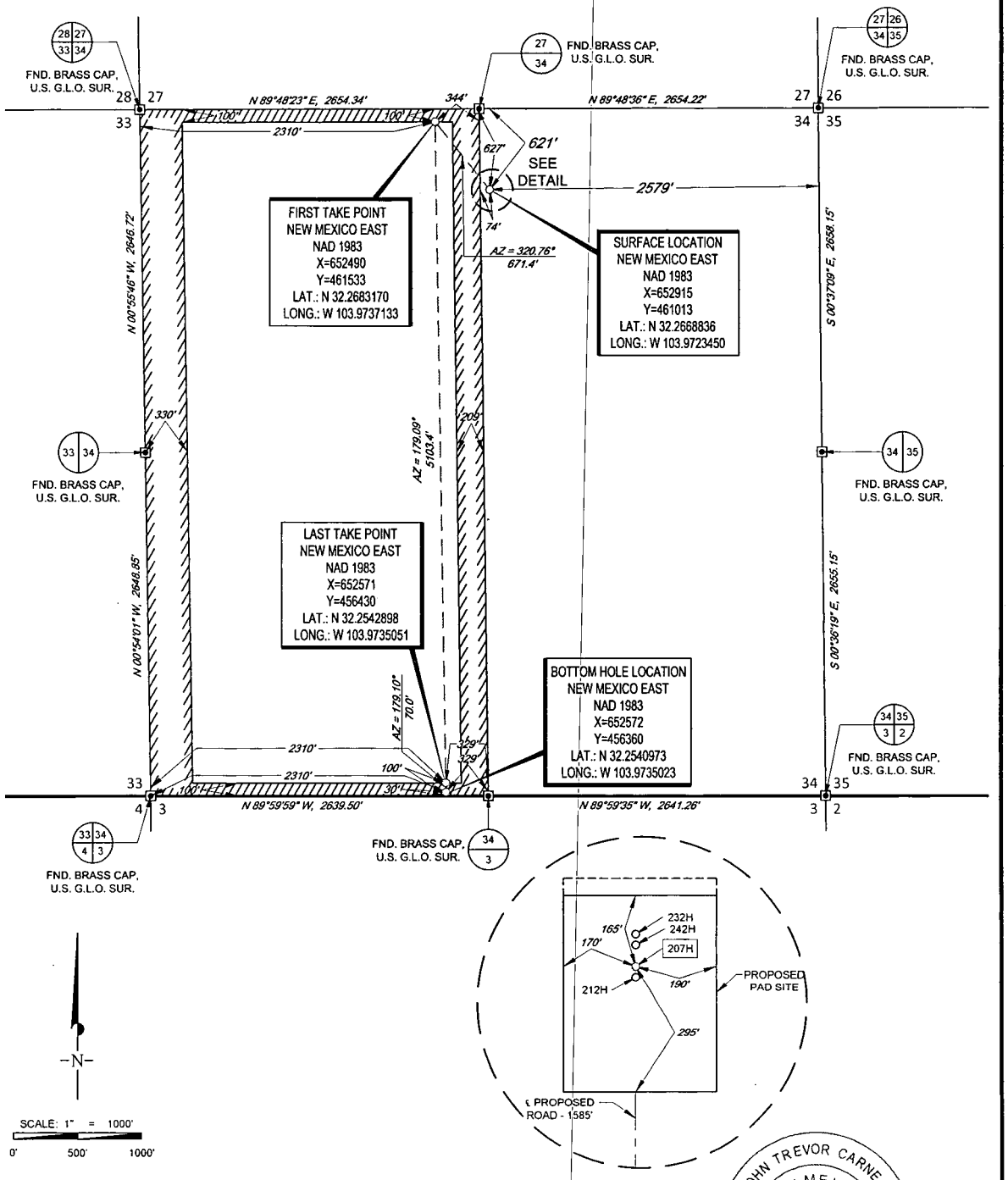
EXHIBIT 2A

SECTION 34, TOWNSHIP 23-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO



DETAIL VIEW
SCALE: 1" = 300'

LEASE NAME & WELL NO.: CYPRESS 34 FEDERAL 207H

SECTION 34 TWP 23-S RGE 29-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM
DESCRIPTION 621' FNL & 2579' FEL

DISTANCE & DIRECTION
FROM INT. OF NM-31, & STATE HWY 387, GO EAST ON NM-31 ±1.7 MILES, THENCE SOUTH (RIGHT) ON FISHERMANS LN. ±0.5 MILES, THENCE CONTINUE STRAIGHT ON A LEASE RD. ±4.8 MILES, THENCE SOUTH (RIGHT) ON A LEASE RD. ± 0.6 MILES, THENCE EAST (LEFT) ON A LEASE RD. ±0.3 MILES, THENCE SOUTH (RIGHT) ON A LEASE RD. ±0.6 MILES, THENCE EAST (LEFT) ON A PROPOSED RD. ±1585 FEET TO A POINT ±295 FEET SOUTH OF THE LOCATION.

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JOHN TREVOR CARNEGIE
NEW MEXICO
11401
REGISTERED PROFESSIONAL SURVEYOR

John Trevor Carnegie, P.S. No. 11401
AUGUST 15, 2019

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
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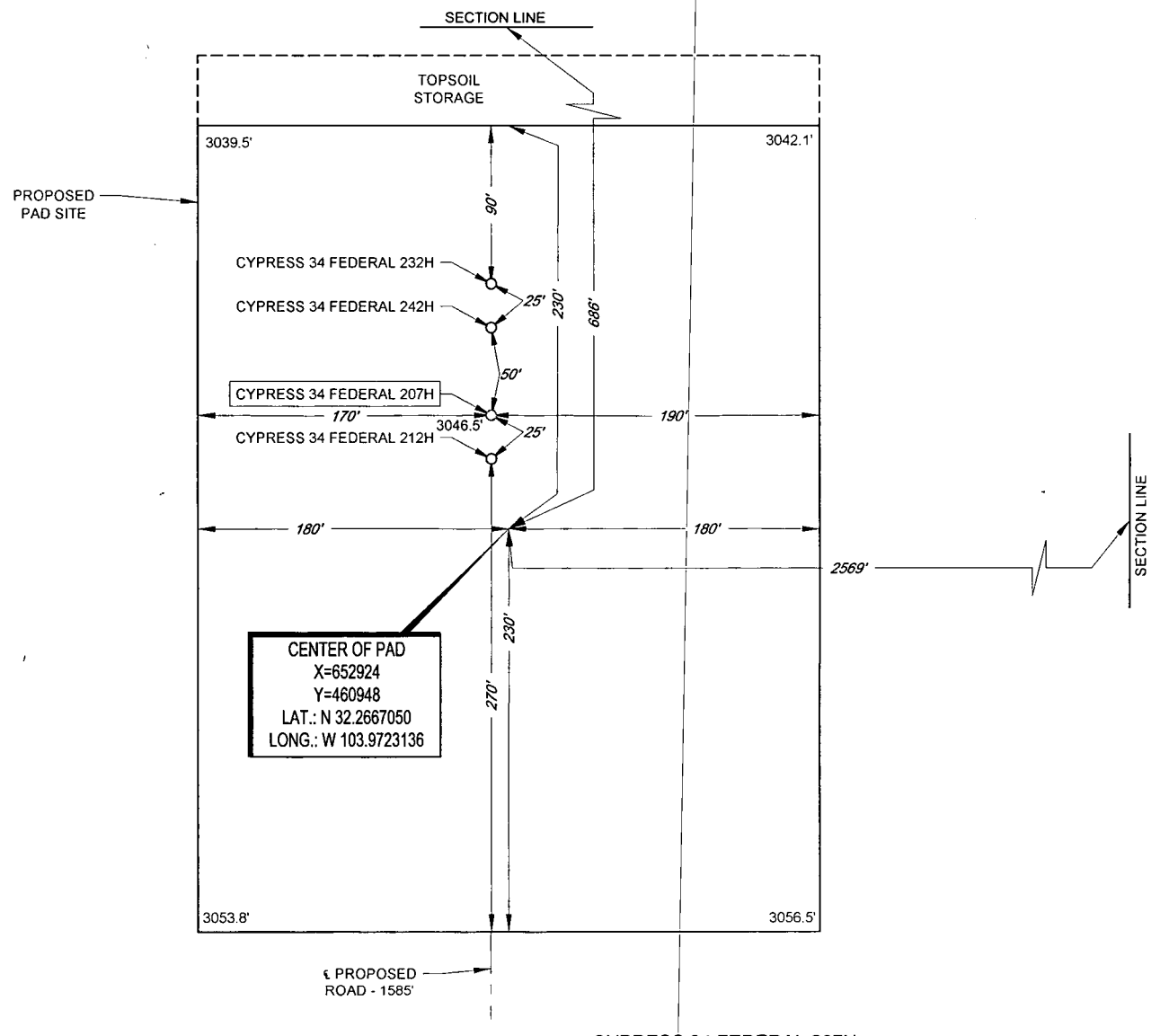
EXHIBIT 2B

TAP ROCK

SECTION 34, TOWNSHIP 23-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

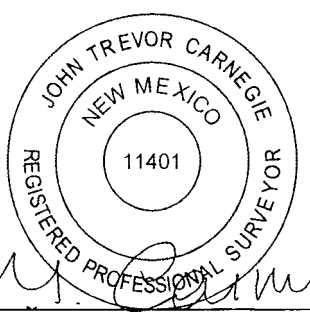
DETAIL VIEW
SCALE: 1" = 100'



LEASE NAME & WELL NO.: CYPRESS 34 FEDERAL 207H

207H LATITUDE N 32.2668836 207H LONGITUDE W 103.9723450

CENTER OF PAD IS 686' FNL & 2569' FEL



John Trevor Carnegie, P.S. No. 11401

-N-

SCALE: 1" = 100'

0' 50' 100'

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET. ELEVATIONS USED ARE NAVD88, OBTAINED THROUGH AN OPUS SOLUTION.

THIS PROPOSED PAD SITE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY TAP ROCK OPERATING, LLC. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

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ORIGINAL DOCUMENT SIZE: 8.5" X 11"

Drilling Plan Data Report
02/27/2020

APD ID: 10400050029 **Submission Date:** 11/05/2019

Operator Name: TAP ROCK OPERATING LLC

Well Name: CYPRESS 34 FEDERAL **Well Number:** 207H

Well Type: CONVENTIONAL GAS WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
570994	QUATERNARY	3046	0	0	OTHER : None	NONE, OTHER, USEABLE WATER	N
571001	RUSTLER	2794	252	252	ANHYDRITE	OTHER : SALT	N
570996	SALADO	2434	612	612	SALT	OTHER : SALT	N
571002	BASE OF SALT	189	2857	2857	SALT	OTHER : SALT	N
571003	LAMAR	-51	3097	3110	LIMESTONE	NATURAL GAS, OIL	N
571000	BELL CANYON	-56	3102	3115	SANDSTONE	NATURAL GAS, OIL	N
571004	CHERRY CANYON	-951	3997	3998	SANDSTONE	NATURAL GAS, OIL	N
570997	BRUSHY CANYON	-2096	5142	5175	SANDSTONE	NATURAL GAS, OIL	N
570998	BONE SPRING	-3781	6827	6872	LIMESTONE	NATURAL GAS, OIL	N
571005	BONE SPRING 1ST	-4766	7812	7857	SANDSTONE	NATURAL GAS, OIL	N
570995	BONE SPRING 2ND	-5051	8097	8142	SANDSTONE	NATURAL GAS, OIL	N
570999	BONE SPRING 3RD	-5911	8957	9002	SANDSTONE	NATURAL GAS, OIL	N
571006	WOLFCAMP	-7051	10097	10198	OTHER : Shale	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Operator Name: TAP ROCK OPERATING LLC

Well Name: CYPRESS 34 FEDERAL **Well Number:** 207H

Pressure Rating (PSI): 5M **Rating Depth:** 15000

Equipment: A 15,000, 5,000 psi BOP stack consisting of 3 rams with 2 pipe rams, 1 blind ram, and 1 annular preventer will be used below surface casing to TD. See attachments for BOP and choke manifold diagrams. Also present will be an accumulator that meets the requirements of Onshore Order #2 for the pressure rating of the BOP stack. A rotating head will also be installed as needed. BOP will be inspected and operated as recommended in Onshore Order #2. A top drive check valve and sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the rig floor in the open position. The wellhead will be a multi-bowl speed head.

Requesting Variance? YES

Variance request: Tap Rock requests a variance to run a multi-bowl speed head for setting the Intermediate 1, Intermediate 2, and Production Strings. Tap Rock requests a variance to drill this well using a co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used. Tap Rock requests a variance to have the option of batch drilling this well with other wells on the same pad. In the event that this well is batch drilled, after drilling surface, 1st intermediate, and 2nd intermediate hole sections and cementing 2nd intermediate casing, a 10M dry hole cap with bleed off valve will be installed. The rig will then walk to another well on the pad. When the rig returns to this well and BOPs are installed, the operator will perform a full BOP test. Due to the Potash, Tap Rock will cement the 7-5/8" string to surface. Tap Rock requests approval to possibly utilize a spudder rig to drill and set casing for the surface interval on this well. The spudder rig will be possibly utilized in order to reduce cost and save time. The wellhead will be installed and tested as soon as the surface casing is cut off per the existing COAs. A blind flange with the same pressure rating as the wellhead will be installed on the well. Once the spudder rig is removed, Tap Rock will secure the wellhead area by placing a guard rail around the cellar. Pressure will be monitored and a means for intervention will be maintained while the drilling rig is not over the well. Spudder rig operations are expected to take 2-3 days per well. Three wells on the pad will have surface casing set by the spudder rig as a part of this operation. The BLM will be notified 24 hours prior to commencing spudder rig operations. Within 90 days of the departure of the spudder rig, drilling operations will recommence on these wells. This rig will have a BOP stack equal or greater to the pressure rating required in the COAs. The BLM will be notified 24 hours before the larger rig moves on the pre-set wells. Tap Rock will have supervision on the spudder rig to ensure compliance with all BLM and NMOCD regulations.

Testing Procedure: After surface casing is set and the BOP is nippled up, the BOP pressure tests will be made with a third party tester to 250 psi low, 5000 psi high, and the annular preventer will be tested to 2,500 psi. The BOP will be tested in this manner after nipple-up if any break of the stack occurs.

Choke Diagram Attachment:

Cypress_Choke_032918_20191024120206.pdf

BOP Diagram Attachment:

Cypress_BOP_Diagram_101619_20191024120234.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	350	0	350	3046	2696	350	J-55	54.5	BUTT	1.13	1.15	DRY	1.6	DRY	1.6

Operator Name: TAP ROCK OPERATING LLC

Well Name: CYPRESS 34 FEDERAL **Well Number:** 207H

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
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	3150	0	3137		-91	3150	J-55	40	BUTT	1.13	1.15	DRY	1.6	DRY	1.6
3	PRODUCTION	6.75	5.5	NEW	API	N	0	9400	0	9354		-6308	9400	P-110	20	OTHER - TXP	1.13	1.15	DRY	1.6	DRY	1.6
4	INTERMEDIATE	8.75	7.625	NEW	API	Y	0	9600	0	9554		-6508	9600	P-110	29.7	OTHER - W-513	1.13	1.15	DRY	1.6	DRY	1.6
5	PRODUCTION	6.75	5.0	NEW	API	Y	9400	15215	9354	10242	-6308	-7196	5815	P-110	18	OTHER - W-521	1.13	1.15	DRY	1.6	DRY	1.6

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Cypress_Casing_Design_Assumptions_20191024120307.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Cypress_Casing_Design_Assumptions_20191024120753.pdf

Operator Name: TAP ROCK OPERATING LLC

Well Name: CYPRESS 34 FEDERAL **Well Number:** 207H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Cypress_5.5in_TXP_Casing_Spec_20191024120622.PDF

Cypress_Casing_Design_Assumptions_20191024120628.pdf

Casing ID: 4 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Cypress_7.625in_W513_Casing_Spec_20191024120817.pdf

Casing Design Assumptions and Worksheet(s):

Cypress_Casing_Design_Assumptions_20191024120349.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Cypress_5in_W521_Casing_Spec_20191024120702.pdf

Casing Design Assumptions and Worksheet(s):

Cypress_Casing_Design_Assumptions_20191024120717.pdf

Section 4 - Cement

Operator Name: TAP ROCK OPERATING LLC

Well Name: CYPRESS 34 FEDERAL **Well Number:** 207H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		0	0	0	0	0	0	0	None	None
SURFACE	Lead		0	350	360	1.35	14.8	486	100	C	5% NCl +LCM
INTERMEDIATE	Lead		0	2363	560	2.18	12.7	1221	65	Class C	Bentonite + 1% CaCL2 + 8% NaCl + LCM
INTERMEDIATE	Tail		2363	3150	306	1.33	14.8	407	65	Class C	5% NaCl + LCM
INTERMEDIATE	Lead		0	8600	406	2.87	11.5	1166	35	TXI	Fluid Loss + Dispersant + Retarder + LCM
INTERMEDIATE	Tail		8600	9600	107	1.27	15	136	35	Class H	Fluid Loss + Dispersant + Retarder + LCM
PRODUCTION	Lead		8900	15215	518	1.71	14.2	885	25	Class H	Fluid Loss + Dispersant + Retarder + LCM

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: Electronic Pason mud monitor system complying with Onshore Order 1 will be used.

Describe the mud monitoring system utilized: All necessary mud products (e. g., barite, cedar bark) for weight addition and fluid loss control will always be on site. Mud program is subject to change due to hole conditions. A closed loop system will be used.

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
3150	9600	OTHER : FW and Cut Brine	9	9							
0	350	OTHER : FW Spud Mud	8.3	8.3							
350	3150	OTHER : Brine Water	10	10							
9600	15215	OIL-BASED MUD	11.5	11.5							

Section 6 - Test, Logging, Coring

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

Electric Logging Program: No open-hole logs are planned at this time for the pilot hole. GR will be collected while drilling through the MWD tools from 9.625 casing shoe to TD. A 2-person mud logging program will be used from 9.625 casing shoe to TD. CBL w/ CCL from as far as gravity will let it fall to TOC

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

CEMENT BOND LOG,GAMMA RAY LOG,

Coring operation description for the well:

No DSTs or cores are planned at this time.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 6125 **Anticipated Surface Pressure:** 3871

Anticipated Bottom Hole Temperature(F): 170

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:

Cypress_H2S_Plan_20191024121553.pdf

Operator Name: TAP ROCK OPERATING LLC

Well Name: CYPRESS 34 FEDERAL **Well Number:** 207H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

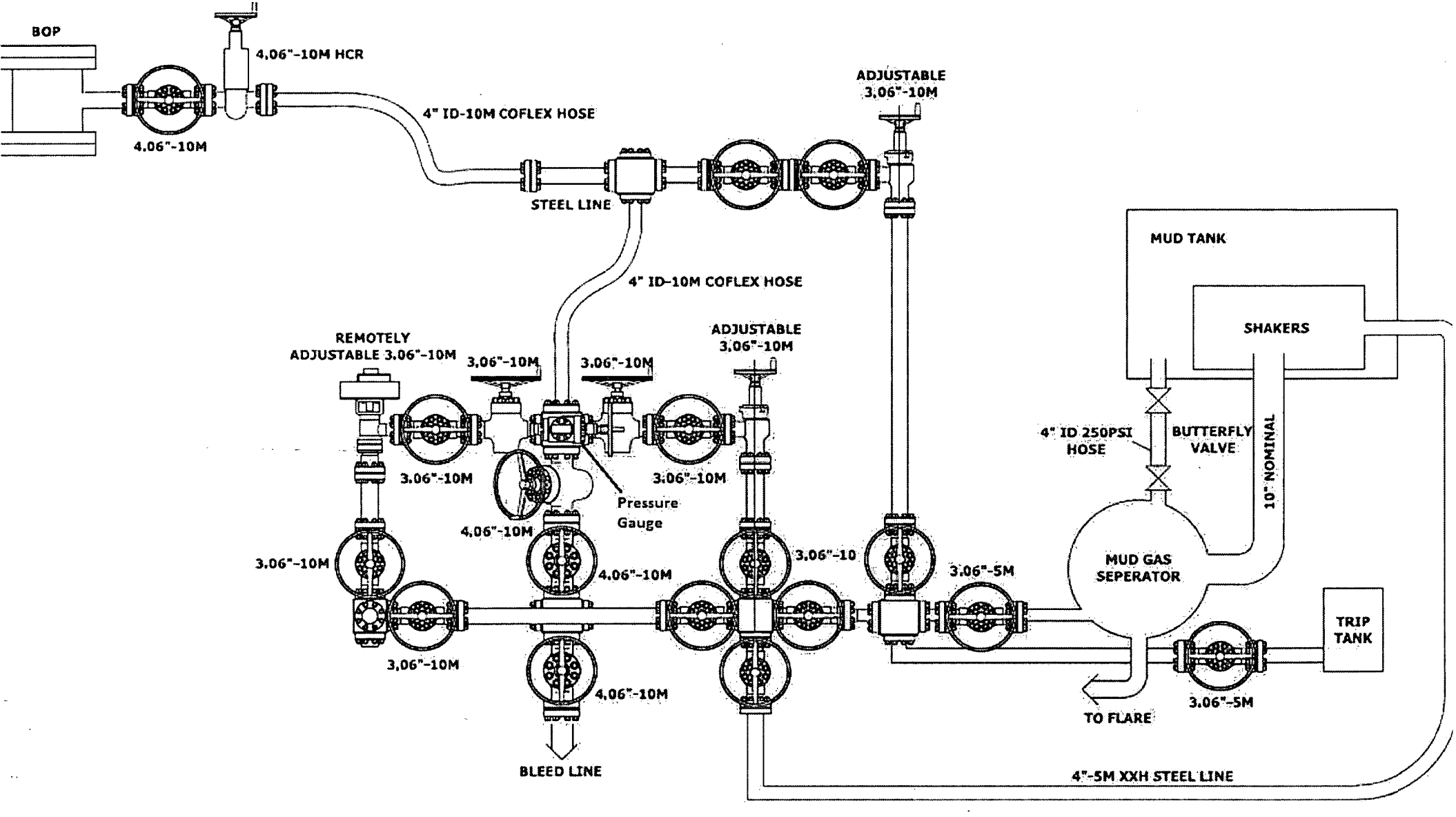
Cypress_207H_Horizontal_Plan_20191024121608.pdf

Other proposed operations facets description:

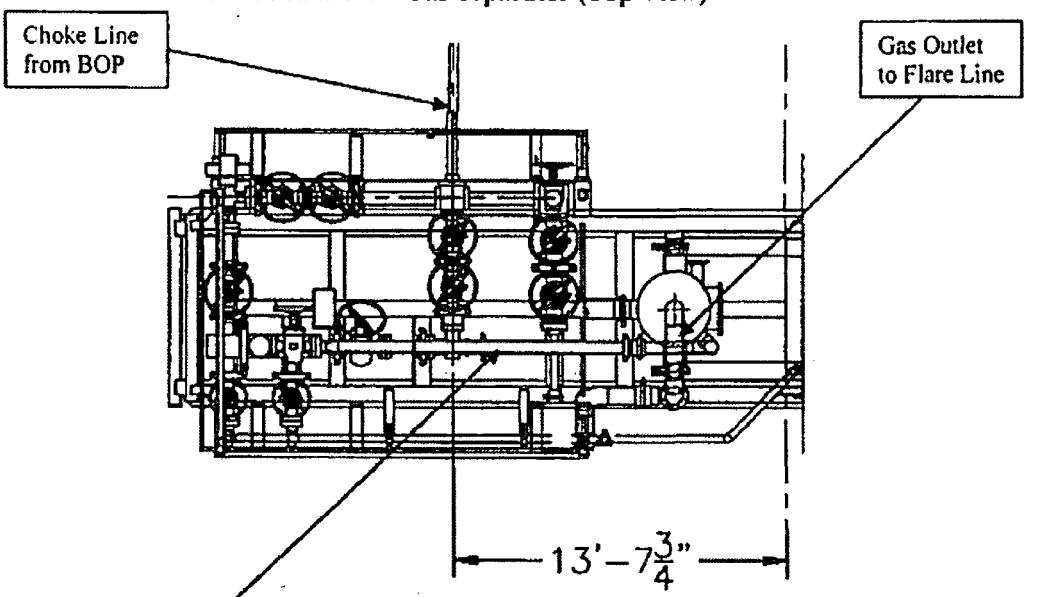
Other proposed operations facets attachment:

Cypress_207H_Drill_Plan_101619_20191024121645.pdf
Cypress_Speedhead_Specs_033018_20191024121732.pdf
Cypress_207H_Anticollision_Report_20191024121741.pdf
CoFlex_Certs_20191024122228.pdf

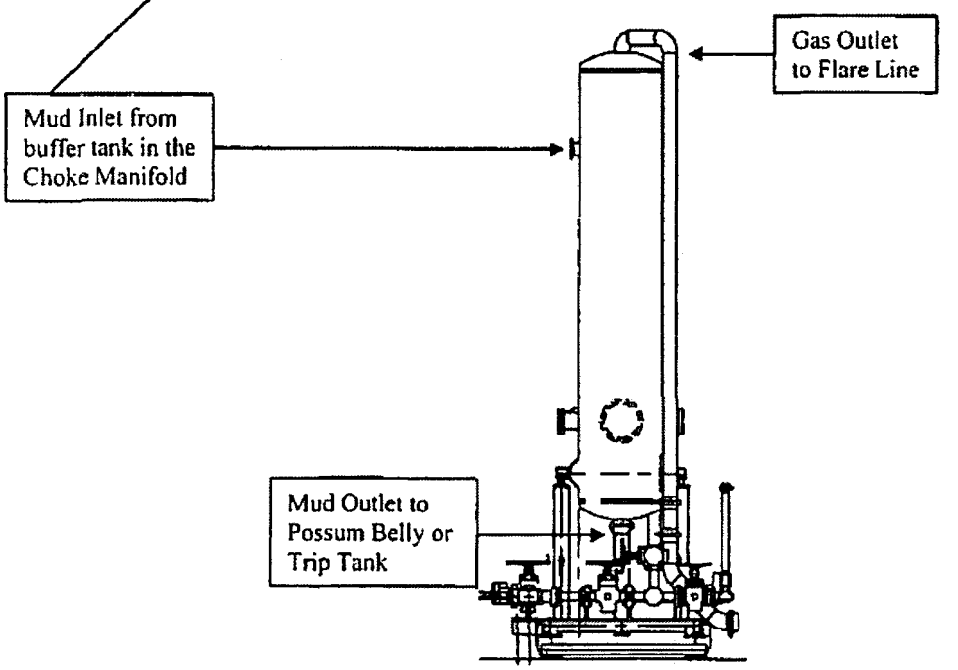
Other Variance attachment:


BOP
4.06"-10M HCR
4.06"-10M
4" ID-10M COFLEX HOSE
STEEL LINE
ADJUSTABLE
3.06"-10M
4" ID-10M COFLEX HOSE
REMOTELY
ADJUSTABLE 3.06"-10M
3.06"-10M
3.06"-10M
ADJUSTABLE
3.06"-10M
3.06"-10M
3.06"-10M
Pressure
Gauge
4.06"-10M
3.06"-10M
4.06"-10M
3.06"-10
3.06"-5M
3.06"-10M
4.06"-10M
BLEED LINE
MUD TANK
SHAKERS
4" ID 250PSI
HOSE
BUTTERFLY
VALVE
10" NOMINAL
MUD GAS
SEPERATOR
TRIP
TANK
3.06"-5M
TO FLARE
4"-5M XXH STEEL LINE

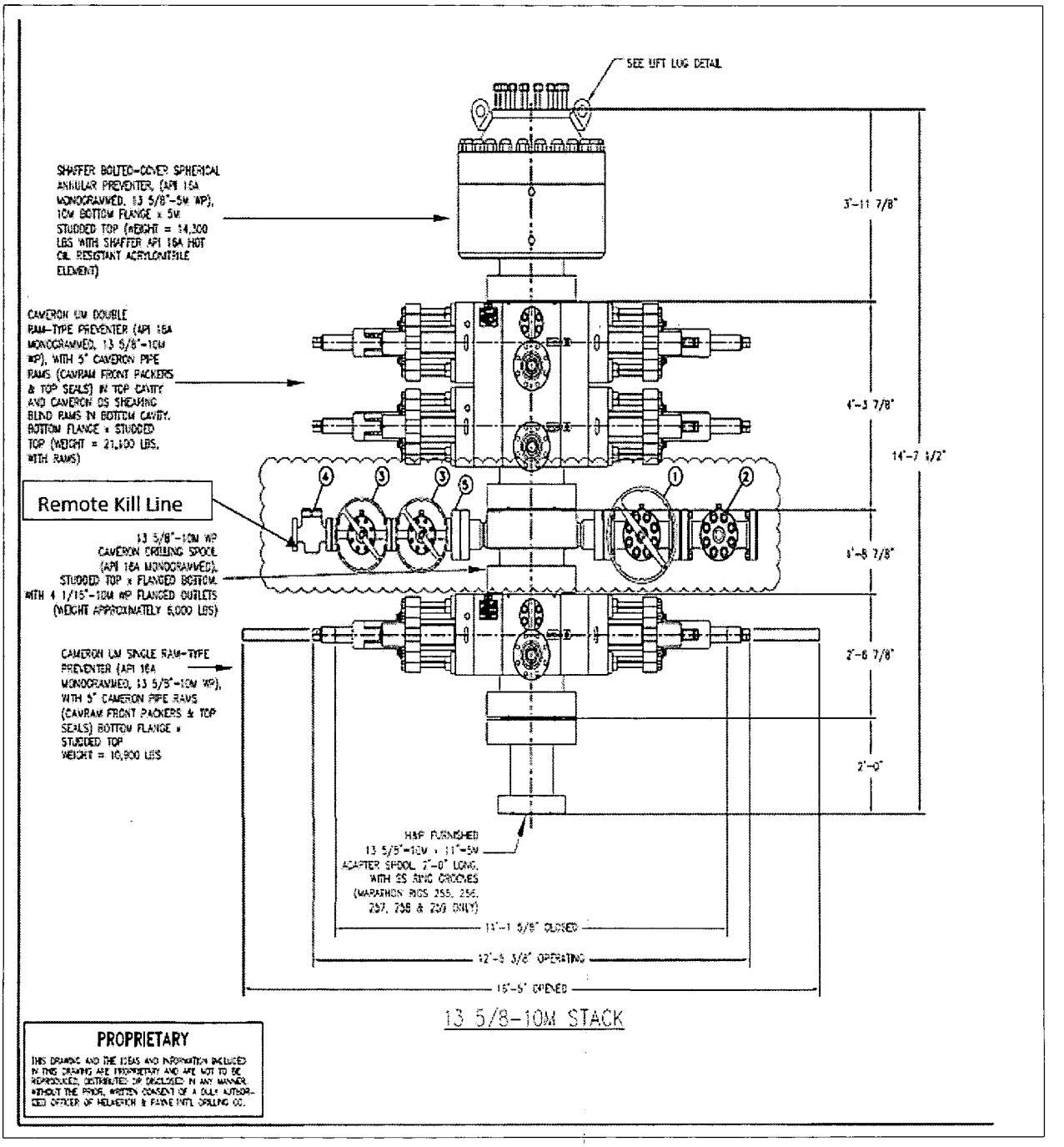
Choke Manifold – Gas Separator (Top View)



Choke Manifold – Gas Separator (Side View)



5,000 psi BOP Stack



Wedge 521®

Printed on: 05/22/2018

Outside Diameter	**5.000** in.	**Min. Wall Thickness**	**87.5%**	**(*) Grade P110-IC**	
Wall Thickness	**0.362** in.	**Connection OD Option**	**REGULAR**	COUPLING	PIPE BODY
Grade	**P110-IC***	**Drift**	**API Standard**	Body: **White** 1st Band: - 2nd Band: -	1st Band: **White** 2nd Band: **Pale Green** 3rd Band: -
		Type	**Casing**	3rd Band: -	4th Band: -

GEOMETRY					
Nominal OD	**5.000** in.	Nominal Weight	**18.00** lbs/ft	Drift	**4.151** in.
Nominal ID	**4.276** in.	Wall Thickness	**0.362** in.	Plain End Weight	**17.95** lbs/ft
OD Tolerance	API				
PERFORMANCE					
Body Yield Strength	**580** x1000 lbs	Internal Yield	**13940** psi	SMYS	**110000** psi
Collapse	**14840** psi				

GEOMETRY					
Connection OD	**5.359** in.	Connection ID	**4.226** in.	Make-up Loss	**3.620** in.
Threads per in	**3.36**	Connection OD Option	**REGULAR**		
PERFORMANCE					
Tension Efficiency	**73.8** %	Joint Yield Strength	**428.040** x1000 lbs	Internal Pressure Capacity	**13940.000** psi
Compression Efficiency	**88.7** %	Compression Strength	**514.460** x1000 lbs	Max. Allowable Bending	**74.5** °/100 ft
External Pressure Capacity	**14840.000** psi				
MAKE-UP TORQUES					
Minimum	**6100** ft-lbs	Optimum	**7300** ft-lbs	Maximum	**10700** ft-lbs
OPERATION LIMIT TORQUES					
Operating Torque	**17300** ft-lbs	Yield Torque	**26000** ft-lbs		

Notes

This connection is fully interchangeable with:

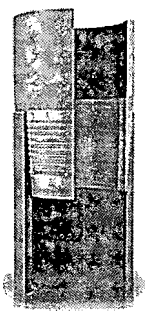
Wedge 521® - 5 in. - 13 / 15 lbs/ft

Connections with Dopeless® Technology are fully compatible with the same connection in its Standard version

For further information on concepts indicated in this datasheet, download the Datasheet Manual from www.tenaris.com

Wedge 513®

Printed on: 01/30/2018



Outside Diameter	**7.625** in.	**Min. Wall Thickness**	**87.5%**	**(*) Grade P110**	
Wall Thickness	**0.375** in.	**Connection OD Option**	**REGULAR**	**COUPLING**	**PIPE BODY**
Grade	**P110***	**Drift**	**API Standard**	Body: **White** 1st Band: - 2nd Band: -	1st Band: **White** 2nd Band: - 3rd Band: -
		Type	**Casing**	3rd Band: -	4th Band: -

GEOMETRY					
Nominal OD	**7.625** in.	Nominal Weight	**29.70** lbs/ft	Drift	**6.75** in.
Nominal ID	**6.875** in.	Wall Thickness	**0.375** in.	Plain End Weight	**29.06** lbs/ft
OD Tolerance	**API**				
PERFORMANCE					
Body Yield Strength	**940** x1000 lbs	Internal Yield	**9470** psi	SMYS	**110000** psi
Collapse	**5350** psi				
GEOMETRY					
Connection OD	**7.625** in.	Connection ID	**6.800** in.	Make-up Loss	**4.420** in.
Threads per in	**3.29**	Connection OD Option	**REGULAR**		
PERFORMANCE					
Tension Efficiency	**60.0** %	Joint Yield Strength	**564.000** x1000 lbs	Internal Pressure Capacity	**9470.000** psi
Compression Efficiency	**75.2** %	Compression Strength	**706.880** x1000 lbs	Max. Allowable Bending	**39.6** °/100 ft
External Pressure Capacity	**5350.000** psi				
MAKE-UP TORQUES					
Minimum	**9000** ft-lbs	Optimum	**10800** ft-lbs	Maximum	**15800** ft-lbs
OPERATION LIMIT TORQUES					
Operating Torque	**47000** ft-lbs	Yield Torque	**70000** ft-lbs		

Notes

This connection is fully interchangeable with:

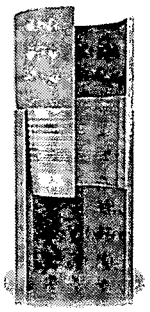
Wedge 523® - 7.625 in. - 29.7 lbs/ft

Connections with Dopeless® Technology are fully compatible with the same connection in its Standard version

For further information on concepts indicated in this datasheet, download the Datasheet Manual from www.tenaris.com

Wedge 513®

Printed on: 01/30/2018



Outside Diameter	**7.625** in.	**Min. Wall Thickness**	**87.5%**	**(*) Grade P110**	
Wall Thickness	**0.375** in.	**Connection OD Option**	**REGULAR**	**COUPLING**	**PIPE BODY**
Grade	**P110***	**Drift**	**API Standard**	Body: **White** 1st Band: - 2nd Band: -	1st Band: **White** 2nd Band: - 3rd Band: -
		Type	**Casing**	3rd Band: -	4th Band: -

GEOMETRY					
Nominal OD	**7.625** in.	Nominal Weight	**29.70** lbs/ft	Drift	**6.75** in.
Nominal ID	**6.875** in.	Wall Thickness	**0.375** in.	Plain End Weight	**29.06** lbs/ft
OD Tolerance	**API**				
PERFORMANCE					
Body Yield Strength	**940** x1000 lbs	Internal Yield	**9470** psi	SMYS	**110000** psi
Collapse	**5350** psi				
GEOMETRY					
Connection OD	**7.625** in.	Connection ID	**6.800** in.	Make-up Loss	**4.420** in.
Threads per in	**3.29**	Connection OD Option	**REGULAR**		
PERFORMANCE					
Tension Efficiency	**60.0** %	Joint Yield Strength	**564.000** x1000 lbs	Internal Pressure Capacity	**9470.000** psi
Compression Efficiency	**75.2** %	Compression Strength	**706.880** x1000 lbs	Max. Allowable Bending	**39.6** °/100 ft
External Pressure Capacity	**5350.000** psi				
MAKE-UP TORQUES					
Minimum	**9000** ft-lbs	Optimum	**10800** ft-lbs	Maximum	**15800** ft-lbs
OPERATION LIMIT TORQUES					
Operating Torque	**47000** ft-lbs	Yield Torque	**70000** ft-lbs		

Notes

This connection is fully interchangeable with:

Wedge 523® - 7.625 in. - 29.7 lbs/ft

Connections with Dopeless® Technology are fully compatible with the same connection in its Standard version

For further information on concepts indicated in this datasheet, download the Datasheet Manual from www.tenaris.com

Casing Design Assumptions

- Gas gravity 0.7
- Pore pressure gradient .468 psi/ft above the Wolfcamp, .676 psi/ft Wolfcamp and below
- .676 psi/ft fracture gradient above the Wolfcamp, .832 psi/ft Wolfcamp and below.
- 60°F average surface temperature and 1.5°/100ft temperature gradient
- Cementing loads based on slurries listed in Cement table, and post cement static loading
- Strings landed at neutral weight
- Gas kicks assumed at each casing shoe
- External pressure calculated with fluid gradients and pore pressure
- Production string load tested with completion fluid density and rate
- Tubing leak tested in production scenario

5.5", 20#, P-110, TXP connection (modified buttress connection that provides a torque rating of nearly 24000ft-lbs)

TXP® BTC

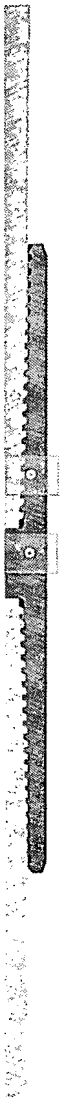
SHARE | EXPORT DATA | PRINT

Outside Diameter 5.500 in.
Wall Thickness 0.361 in.
Grade P110

Min. Wall Thickness: 87.5%
Drift: API Standard
Type: Casing
Connection OD Option: REGULAR

Clear Filters | Compare | Request Info

CONNECTION INFORMATION
- Blanking Dimensions
- Connection's Page
- Brochure
- Datasheet Manual



PIPE BODY DATA					
GEOMETRY					
Nominal OD	5.500 in.	Nominal Weight	20 lbs/ft	Drift	4.653 in.
Nominal ID	4.778 in.	Wall Thickness	0.361 in.	Plain End Weight	19.83 lbs/ft
OD Tolerance	API				
PERFORMANCE					
Body Yield Strength	641 x1000 lbs	Internal Yield	12640 psi	SMYS	110000 psi
Collapse	11100 psi				

CONNECTION DATA					
GEOMETRY					
Connection OD	6.100 in.	Coupling Length	9.450 in.	Connection ID	4.766 in.
Make-up Loss	4.204 in.	Threads per in	5	Connection OD Option	REGULAR
PERFORMANCE					
Tension Efficiency	100.0 %	Joint Yield Strength	641.000 x1000 lbs	Internal Pressure Capacity [1]	12640.000 psi
Compression Efficiency	100 %	Compression Strength	641.000 x1000 lbs	Max. Allowable Bending	92 °/100 ft
External Pressure Capacity	11100.000 psi				
MAKE-UP TORQUES					
Minimum	11270 ft-lbs	Optimum	12520 ft-lbs	Maximum	13770 ft-lbs
OPERATION LIMIT TORQUES					
Operating Torque	21500 ft-lbs	Yield Torque	23900 ft-lbs		

Casing Design Assumptions

- Gas gravity 0.7
- Pore pressure gradient .468 psi/ft above the Wolfcamp, .676 psi/ft Wolfcamp and below
- .676 psi/ft fracture gradient above the Wolfcamp, .832 psi/ft Wolfcamp and below.
- 60°F average surface temperature and 1.5°/100ft temperature gradient
- Cementing loads based on slurries listed in Cement table, and post cement static loading
- Strings landed at neutral weight
- Gas kicks assumed at each casing shoe
- External pressure calculated with fluid gradients and pore pressure
- Production string load tested with completion fluid density and rate
- Tubing leak tested in production scenario

Casing Design Assumptions

- Gas gravity 0.7
- Pore pressure gradient .468 psi/ft above the Wolfcamp, .676 psi/ft Wolfcamp and below
- .676 psi/ft fracture gradient above the Wolfcamp, .832 psi/ft Wolfcamp and below.
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- Pore pressure gradient .468 psi/ft above the Wolfcamp, .676 psi/ft Wolfcamp and below
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Casing Design Assumptions

- Gas gravity 0.7
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- Gas kicks assumed at each casing shoe
- External pressure calculated with fluid gradients and pore pressure
- Production string load tested with completion fluid density and rate
- Tubing leak tested in production scenario

Hydrogen Sulfide Drilling

Operations Plan

Tap Rock Resources

1 H2S safety instructions to the following:

- Characteristics of H2S
- Physical effects and hazards
- Principal and operation of H2S detectors, warning system and briefing areas
- Evacuation procedures, routes and first aid
- Proper use of safety equipment & life support systems
- Essential personnel meeting medical evaluation criteria will receive additional training on the proper use of 30min pressure demand air packs

2 H2S Detection and Alarm Systems:

- H2S sensor/detectors to be located on the drilling rig floor, in the base of the sub structure / cellar area, on the mud pits in the shale shaker area. Additional H2S detectors may be placed as deemed necessary
- An audio alarm system will be installed on the derrick floor and in the doghouse

3 Windsocks and / Wind Streamers:

- Windsocks at mud pit area should be high enough to be visible
- Windsock on the rig floor and / top of doghouse should be high enough to be visible

4 Condition Flags and Signs:

- Warning sign on access road to location
- Flags to be displayed on sign at entrance to location
    - Green Flag – Normal Safe Operation Condition
    - Yellow Flag – Potential Pressure and Danger
    - Red Flag – Danger (H2S present in dangerous concentrations) Only H2S trained personnel admitted on location

5 Well Control Equipment:

- See Drilling Operations Plan Schematics

6 Communication:

- While working under masks chalkboards will be used for communications
- Hand signals will be used where chalk board is inappropriate
- Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.

7 Drilling Stem Testing:

- No DST cores are planned at this time

8 Drilling contractor supervisor will be required to be familiar with the effects H2S has on tubulars good and other mechanical equipment

9 If H2S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H2S scavengers if necessary

11 Emergency Contacts

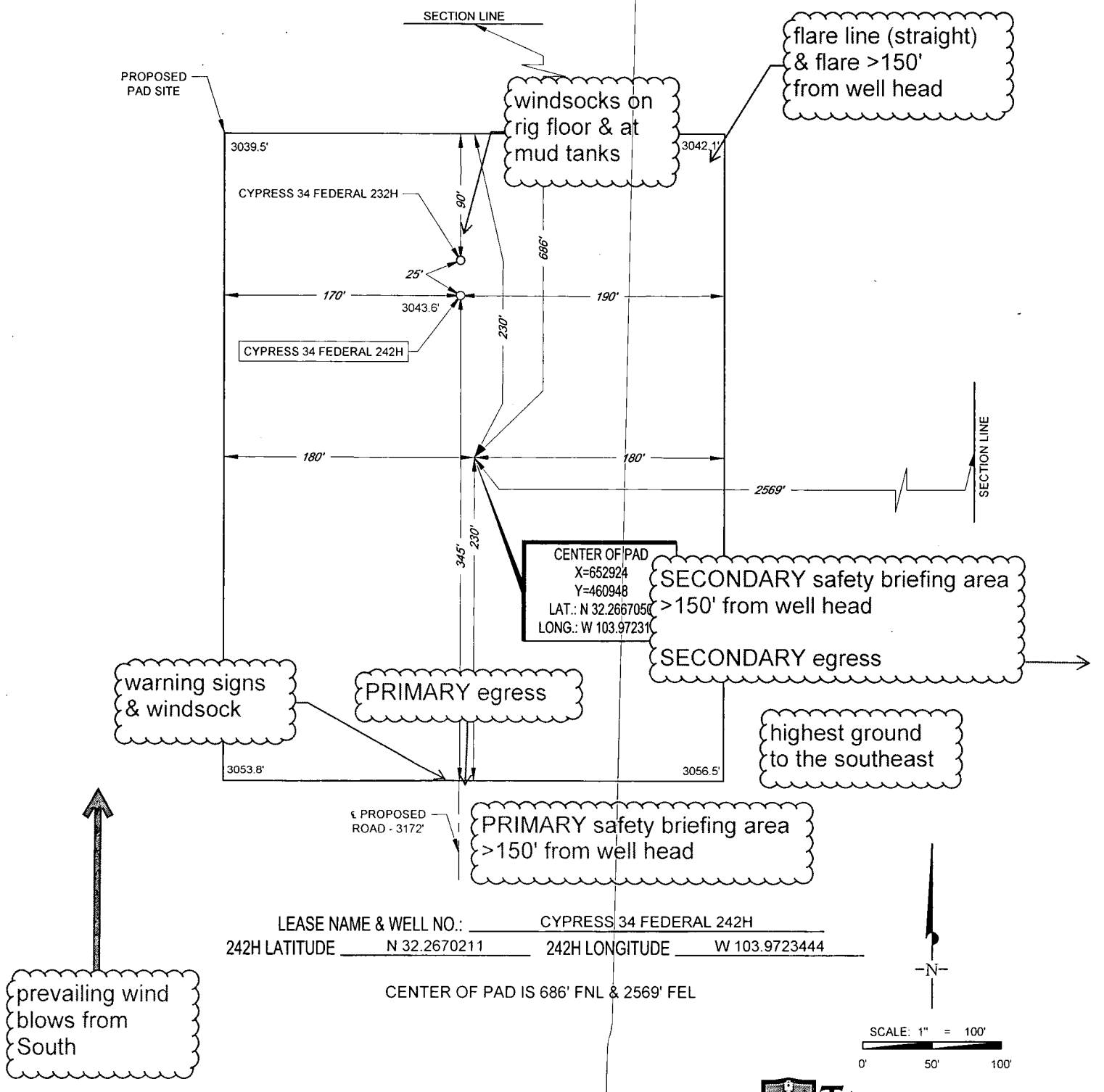
Emergency Contacts		
Carlsbad Police Department	575.887.7551	911
Carlsbad Medical Center	575.887.4100	911
Eddy County Fire Service	575.628.5450	911
Eddy County Sherriff	575.887.7551	911
Lea County Fire Service	575.391.2983	911
Lea County Sherriff	575.396.3611	911
Jal Police Department	575.395.2121	911
Jal Fire Department	575.395.2221	911
Tap Rock - Doug Sproul - Drilling	303-653-3518	

EXHIBIT 2B

TAP ROCK

SECTION 34, TOWNSHIP 23-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

DETAIL VIEW
SCALE: 1" = 100'



LEASE NAME & WELL NO.: CYPRESS 34 FEDERAL 242H

242H LATITUDE N 32.2670211 242H LONGITUDE W 103.9723444

CENTER OF PAD IS 686' FNL & 2569' FEL

SCALE: 1" = 100'

0' 50' 100'

ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREON ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET

THIS PROPOSED PAD SITE LOCATION SHOWN HEREON HAS BEEN SURVEYED ON THE GROUND UNDER MY SUPERVISION AND PREPARED ACCORDING TO THE EVIDENCE FOUND AT THE TIME OF SURVEY, AND DATA PROVIDED BY TAP ROCK OPERATING, LLC. THIS CERTIFICATION IS MADE AND LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE. THIS SURVEY IS CERTIFIED FOR THIS TRANSACTION ONLY.

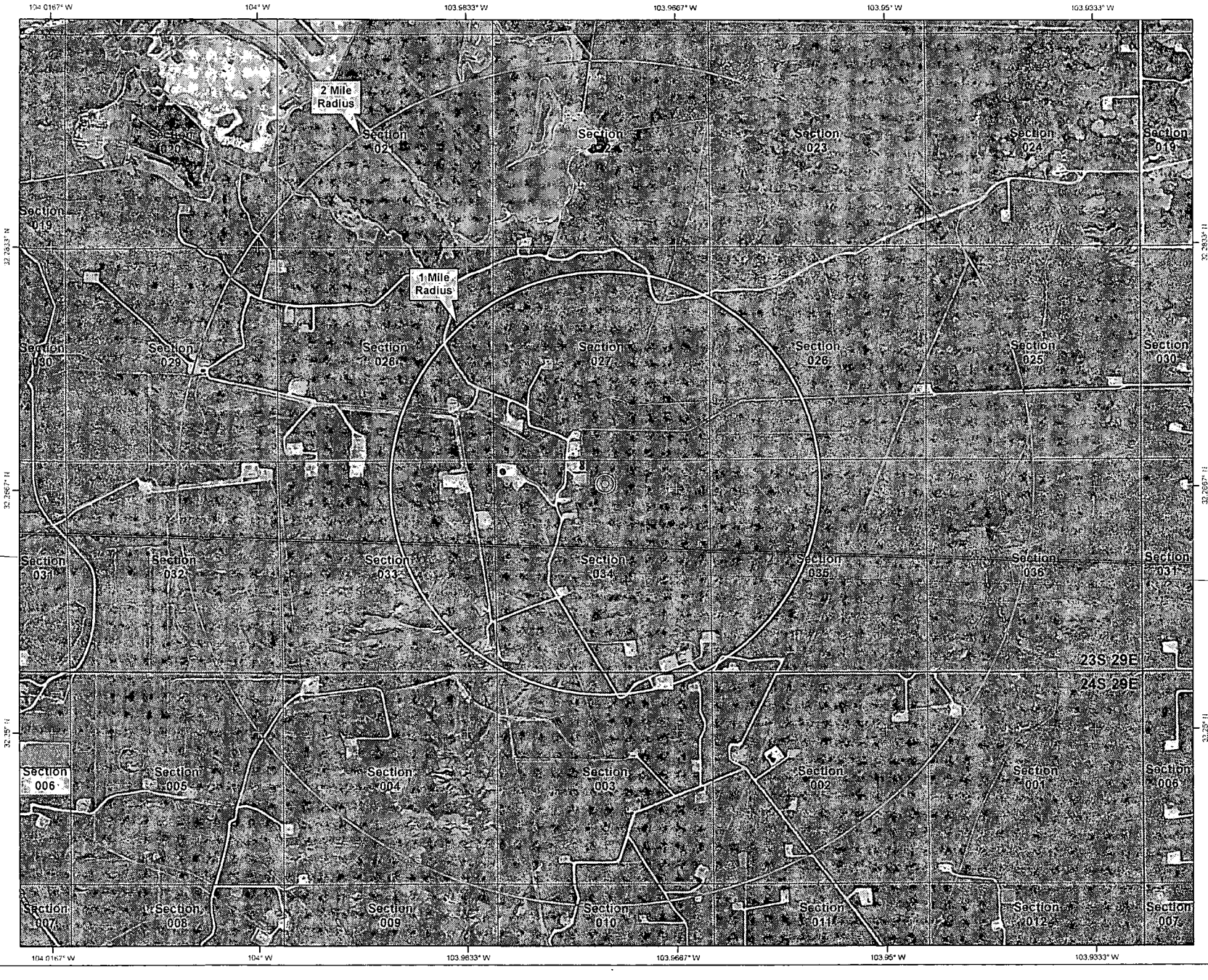
TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7554
2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 OR (800) 767-1653 • FAX (432) 682-1743
WWW.TOPOGRAPHIC.COM

ORIGINAL DOCUMENT SIZE: 8.5" X 11"

Tap Rock Operating LLC

Cypress 34 Federal
232H & 242H
H2S Contingency Plan:
2 Mile Radius Map

Sec. 34, Township 23S, Range 29E
Eddy County, New Mexico



Well Pad Location

1:27,000

0 0.25 0.5 1

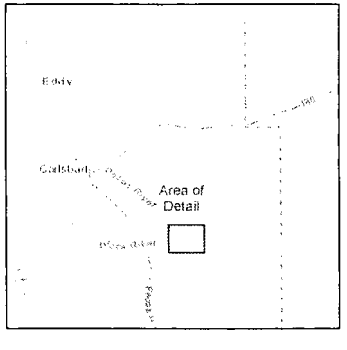
Miles

N

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, Inc.

Prepared by Permits West, Inc., June 26, 2019
for Tap Rock Operating, LLC



TAP ROCK RESOURCES

INTREPID

Azimuths to Grid North
True North: -0.19°
Magnetic North: 6.71°
Magnetic Field
Strength: 47694.0nT
Dip Angle: 60.01°
Date: 2019/09/12
Model: IGRF2015

To convert a Magnetic Direction to a Grid Direction, Add 6.71°

Tap Rock Resources, LLC
Project: Eddy County, NM (NAD 83 NME)
Site: (Cypress) Sec-3_T-24-S_R-29-E
Well: Cypress 34 Federal #207H
Wellbore: OWB
Design: Plan #1
Lat: 32° 16' 0.781 N
Long: 103° 58' 20.437 W
Pad GL: 3046.0
KB: KB @ 3072.0usft

WELL DETAILS: Cypress 34 Federal #207H

	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
3046.0	0.0	0.0	461013.00	652915.00	32° 16' 0.781 N	103° 58' 20.437 W

SECTION DETAILS

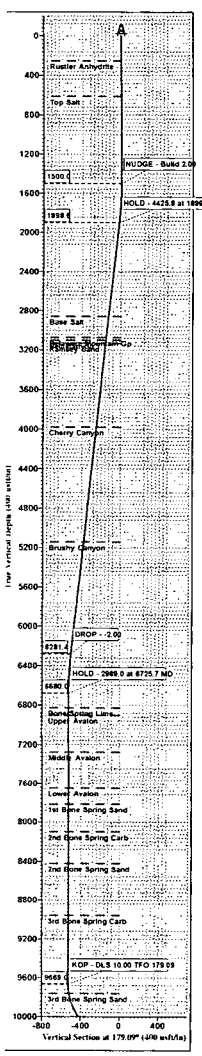
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
1500.0	0.00	0.00	1500.0	0.0	0.0	0.00	0.00	0.0	NUDGE - Build 2.00
1899.9	8.00	320.74	1898.6	21.6	-17.6	2.00	320.74	-21.9	HOLD - 4425.8 at 1899.9 MD
6325.7	8.00	320.74	6281.4	498.4	-407.4	0.00	0.00	-504.8	DROP - -2.00
6725.7	0.00	0.00	6680.0	520.0	-425.0	2.00	180.00	-526.7	HOLD - 2989.0 at 6725.7 MD
9714.7	0.00	0.00	9669.0	520.0	-425.0	0.00	0.00	-526.7	KOP - DLS 10.00 TFO 179.09
10614.6	90.00	179.09	10242.0	-52.9	-415.9	10.00	179.09	46.3	EOC - 4600.7 hold at 10614.6 MD
15215.3	90.00	179.09	10242.0	-4653.0	-343.0	0.00	0.00	4647.0	TD at 15215.3

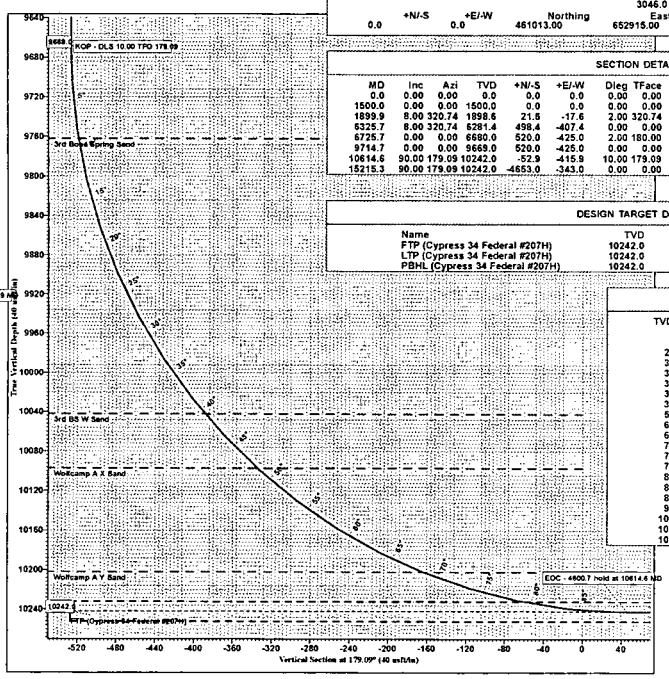
DESIGN TARGET DETAILS

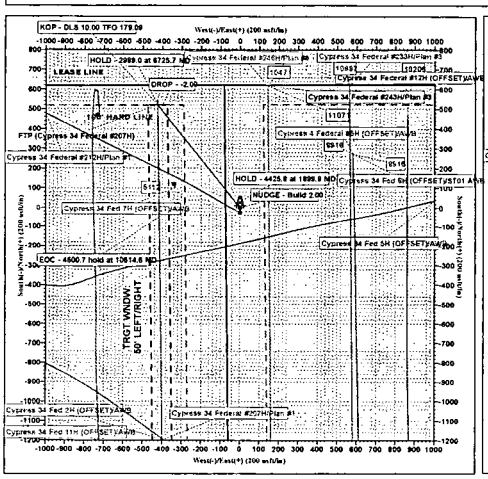
Name	TVD	+N/-S	+E/-W	Northing	Easting
FTP (Cypress 34 Federal #207H)	10242.0	520.0	-425.0	461533.00	652490.00
LTP (Cypress 34 Federal #207H)	10242.0	-4583.0	-344.0	456430.00	652571.00
PBHL (Cypress 34 Federal #207H)	10242.0	-4653.0	-343.0	456360.00	652572.00

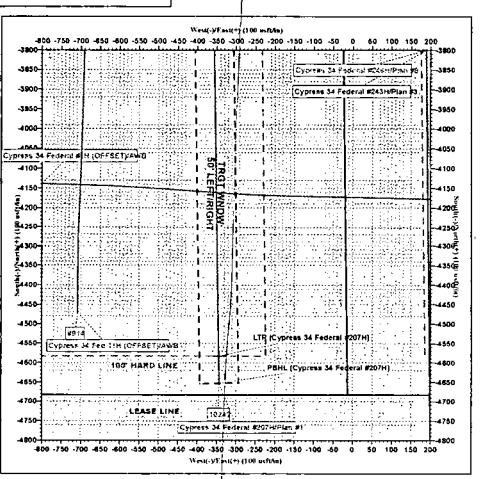
FORMATIONS

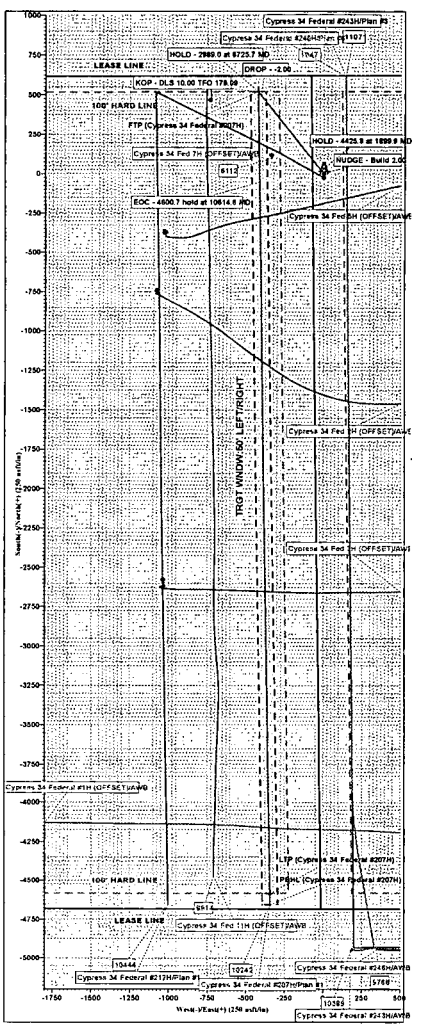
TVDPath	MDPath	Formation
252.0	252.0	Rustler Anhydrite
612.0	612.0	Top Salt
2857.0	2867.7	Base Salt
3072.0	3084.8	Delaware Mountain Gp
3097.0	3110.1	Lamar
3102.0	3115.1	Bell Canyon
3132.0	3145.4	Ramsey Sand
3977.0	3998.7	Cherry Canyon
5142.0	5175.2	Brushy Canyon
6827.0	6872.7	Bone Spring Lime
6902.0	6947.7	Upper Avalon
7275.0	7320.7	Middle Avalon
7652.0	7697.7	Lower Avalon
7812.0	7857.7	1st Bone Spring Sand
8097.0	8142.7	2nd Bone Spring Carb
8422.0	8467.7	2nd Bone Spring Sand
8957.0	9002.7	3rd Bone Spring Carb
9762.0	9808.1	3rd Bone Spring Sand
10042.0	10120.8	3rd BS W Sand
10097.0	10198.0	Wolfcamp A X Sand
10202.0	10399.4	Wolfcamp A Y Sand

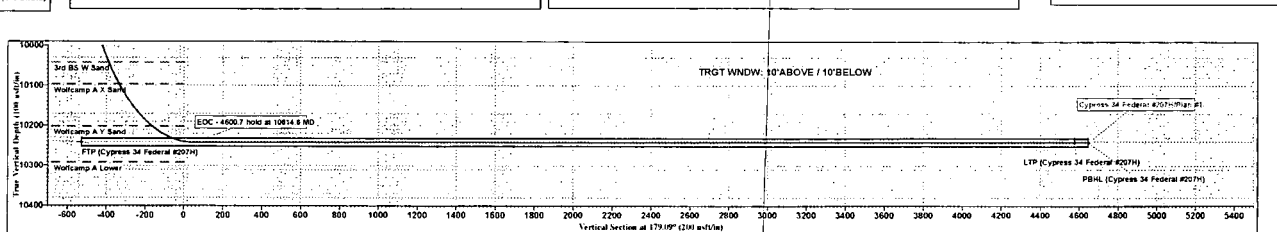












Tap Rock Resources, LLC

Eddy County, NM (NAD 83 NME)
(Cypress) Sec-3_T-24-S_R-29-E
Cypress 34 Federal #207H

OWB

Plan: Plan #1

Standard Planning Report

16 September, 2019

Database:	EDM 5000.15 Single User Db	**Local Co-ordinate Reference:**	Well Cypress 34 Federal #207H
Company:	Tap Rock Resources, LLC	**TVD Reference:**	KB @ 3072.0usft
Project:	Eddy County, NM (NAD 83 NME)	**MD Reference:**	KB @ 3072.0usft
Site:	(Cypress) Sec-3_T-24-S_R-29-E	**North Reference:**	Grid
Well:	Cypress 34 Federal #207H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Project Eddy County, NM (NAD 83 NME)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site (Cypress) Sec-3_T-24-S_R-29-E

Site Position:		**Northing:**	456,089.00 usft	**Latitude:**	32° 15' 12.005 N
From:	Map	**Easting:**	654,400.00 usft	**Longitude:**	103° 58' 3.336 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.20 °

Well Cypress 34 Federal #207H

Well Position	**+N/-S**	4,924.0 usft	**Northing:**	461,013.00 usft	**Latitude:**	32° 16' 0.781 N
	+E/-W	-1,485.0 usft	**Easting:**	652,915.00 usft	**Longitude:**	103° 58' 20.437 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**		**Ground Level:**	3,046.0 usft

Wellbore OWB

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2019/09/12	6.90	60.01	47,693.96112433

Design Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	179.09

Plan Survey Tool Program Date 2019/09/16

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	15,215.2	Plan #1 (OWB)	MWD	
				OWSG MWD - Standard	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,899.9	8.00	320.74	1,898.6	21.6	-17.6	2.00	2.00	0.00	320.74	
6,325.7	8.00	320.74	6,281.4	498.4	-407.4	0.00	0.00	0.00	0.00	
6,725.7	0.00	0.00	6,680.0	520.0	-425.0	2.00	-2.00	0.00	180.00	
9,714.7	0.00	0.00	9,669.0	520.0	-425.0	0.00	0.00	0.00	0.00	
10,614.6	90.00	179.09	10,242.0	-52.9	-415.9	10.00	10.00	19.90	179.09	
15,215.3	90.00	179.09	10,242.0	-4,653.0	-343.0	0.00	0.00	0.00	0.00	PBHL (Cypress 34

Database:	EDM 5000.15 Single User Db	**Local Co-ordinate Reference:**	Well Cypress 34 Federal #207H
Company:	Tap Rock Resources, LLC	**TVD Reference:**	KB @ 3072.0usft
Project:	Eddy County, NM (NAD 83 NME)	**MD Reference:**	KB @ 3072.0usft
Site:	(Cypress) Sec-3_T-24-S_R-29-E	**North Reference:**	Grid
Well:	Cypress 34 Federal #207H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
252.0	0.00	0.00	252.0	0.0	0.0	0.0	0.00	0.00	0.00
Rustler Anhydrite									
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
612.0	0.00	0.00	612.0	0.0	0.0	0.0	0.00	0.00	0.00
Top Salt									
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
NUDGE - Build 2.00									
1,600.0	2.00	320.74	1,600.0	1.4	-1.1	-1.4	2.00	2.00	0.00
1,700.0	4.00	320.74	1,699.8	5.4	-4.4	-5.5	2.00	2.00	0.00
1,800.0	6.00	320.74	1,799.5	12.2	-9.9	-12.3	2.00	2.00	0.00
1,899.9	8.00	320.74	1,898.6	21.6	-17.6	-21.9	2.00	2.00	0.00
HOLD - 4425.8 at 1899.9 MD									
2,000.0	8.00	320.74	1,997.7	32.4	-26.4	-32.8	0.00	0.00	0.00
2,100.0	8.00	320.74	2,096.8	43.1	-35.3	-43.7	0.00	0.00	0.00
2,200.0	8.00	320.74	2,195.8	53.9	-44.1	-54.6	0.00	0.00	0.00
2,300.0	8.00	320.74	2,294.8	64.7	-52.9	-65.5	0.00	0.00	0.00
2,400.0	8.00	320.74	2,393.8	75.5	-61.7	-76.4	0.00	0.00	0.00
2,500.0	8.00	320.74	2,492.9	86.2	-70.5	-87.3	0.00	0.00	0.00
2,600.0	8.00	320.74	2,591.9	97.0	-79.3	-98.3	0.00	0.00	0.00
2,700.0	8.00	320.74	2,690.9	107.8	-88.1	-109.2	0.00	0.00	0.00
2,800.0	8.00	320.74	2,789.9	118.6	-96.9	-120.1	0.00	0.00	0.00
2,867.7	8.00	320.74	2,857.0	125.8	-102.9	-127.5	0.00	0.00	0.00
Base Salt									
2,900.0	8.00	320.74	2,889.0	129.3	-105.7	-131.0	0.00	0.00	0.00
3,000.0	8.00	320.74	2,988.0	140.1	-114.5	-141.9	0.00	0.00	0.00
3,084.8	8.00	320.74	3,072.0	149.2	-122.0	-151.2	0.00	0.00	0.00
Delaware Mountain Gp									
3,100.0	8.00	320.74	3,087.0	150.9	-123.3	-152.8	0.00	0.00	0.00
3,110.1	8.00	320.74	3,097.0	152.0	-124.2	-153.9	0.00	0.00	0.00
Lamar									
3,115.1	8.00	320.74	3,102.0	152.5	-124.6	-154.5	0.00	0.00	0.00
Bell Canyon									
3,145.4	8.00	320.74	3,132.0	155.8	-127.3	-157.8	0.00	0.00	0.00
Ramsey Sand									
3,200.0	8.00	320.74	3,186.1	161.7	-132.1	-163.7	0.00	0.00	0.00
3,300.0	8.00	320.74	3,285.1	172.4	-140.9	-174.6	0.00	0.00	0.00
3,400.0	8.00	320.74	3,384.1	183.2	-149.7	-185.6	0.00	0.00	0.00
3,500.0	8.00	320.74	3,483.1	194.0	-158.5	-196.5	0.00	0.00	0.00
3,600.0	8.00	320.74	3,582.2	204.7	-167.3	-207.4	0.00	0.00	0.00

Database:	EDM 5000.15 Single User Db	**Local Co-ordinate Reference:**	Well Cypress 34 Federal #207H
Company:	Tap Rock Resources, LLC	**TVD Reference:**	KB @ 3072.0usft
Project:	Eddy County, NM (NAD 83 NME)	**MD Reference:**	KB @ 3072.0usft
Site:	(Cypress) Sec-3_T-24-S_R-29-E	**North Reference:**	Grid
Well:	Cypress 34 Federal #207H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,700.0	8.00	320.74	3,681.2	215.5	-176.1	-218.3	0.00	0.00	0.00
3,800.0	8.00	320.74	3,780.2	226.3	-185.0	-229.2	0.00	0.00	0.00
3,900.0	8.00	320.74	3,879.2	237.1	-193.8	-240.1	0.00	0.00	0.00
3,998.7	8.00	320.74	3,977.0	247.7	-202.5	-250.9	0.00	0.00	0.00
Cherry Canyon									
4,000.0	8.00	320.74	3,978.3	247.8	-202.6	-251.0	0.00	0.00	0.00
4,100.0	8.00	320.74	4,077.3	258.6	-211.4	-261.9	0.00	0.00	0.00
4,200.0	8.00	320.74	4,176.3	269.4	-220.2	-272.9	0.00	0.00	0.00
4,300.0	8.00	320.74	4,275.4	280.2	-229.0	-283.8	0.00	0.00	0.00
4,400.0	8.00	320.74	4,374.4	290.9	-237.8	-294.7	0.00	0.00	0.00
4,500.0	8.00	320.74	4,473.4	301.7	-246.6	-305.6	0.00	0.00	0.00
4,600.0	8.00	320.74	4,572.4	312.5	-255.4	-316.5	0.00	0.00	0.00
4,700.0	8.00	320.74	4,671.5	323.3	-264.2	-327.4	0.00	0.00	0.00
4,800.0	8.00	320.74	4,770.5	334.0	-273.0	-338.3	0.00	0.00	0.00
4,900.0	8.00	320.74	4,869.5	344.8	-281.8	-349.2	0.00	0.00	0.00
5,000.0	8.00	320.74	4,968.5	355.6	-290.6	-360.2	0.00	0.00	0.00
5,100.0	8.00	320.74	5,067.6	366.4	-299.4	-371.1	0.00	0.00	0.00
5,175.2	8.00	320.74	5,142.0	374.5	-306.0	-379.3	0.00	0.00	0.00
Brushy Canyon									
5,200.0	8.00	320.74	5,166.6	377.1	-308.2	-382.0	0.00	0.00	0.00
5,300.0	8.00	320.74	5,265.6	387.9	-317.0	-392.9	0.00	0.00	0.00
5,400.0	8.00	320.74	5,364.7	398.7	-325.8	-403.8	0.00	0.00	0.00
5,500.0	8.00	320.74	5,463.7	409.5	-334.7	-414.7	0.00	0.00	0.00
5,600.0	8.00	320.74	5,562.7	420.2	-343.5	-425.6	0.00	0.00	0.00
5,700.0	8.00	320.74	5,661.7	431.0	-352.3	-436.5	0.00	0.00	0.00
5,800.0	8.00	320.74	5,760.8	441.8	-361.1	-447.5	0.00	0.00	0.00
5,900.0	8.00	320.74	5,859.8	452.6	-369.9	-458.4	0.00	0.00	0.00
6,000.0	8.00	320.74	5,958.8	463.3	-378.7	-469.3	0.00	0.00	0.00
6,100.0	8.00	320.74	6,057.8	474.1	-387.5	-480.2	0.00	0.00	0.00
6,200.0	8.00	320.74	6,156.9	484.9	-396.3	-491.1	0.00	0.00	0.00
6,300.0	8.00	320.74	6,255.9	495.6	-405.1	-502.0	0.00	0.00	0.00
6,325.7	8.00	320.74	6,281.4	498.4	-407.4	-504.8	0.00	0.00	0.00
DROP - -2.00									
6,400.0	6.51	320.74	6,355.0	505.7	-413.3	-512.2	2.00	-2.00	0.00
6,500.0	4.51	320.74	6,454.6	513.1	-419.4	-519.7	2.00	-2.00	0.00
6,600.0	2.51	320.74	6,554.4	517.9	-423.3	-524.5	2.00	-2.00	0.00
6,700.0	0.51	320.74	6,654.3	519.9	-424.9	-526.6	2.00	-2.00	0.00
6,725.7	0.00	0.00	6,680.0	520.0	-425.0	-526.7	2.00	-2.00	0.00
HOLD - 2989.0 at 6725.7 MD									
6,800.0	0.00	0.00	6,754.3	520.0	-425.0	-526.7	0.00	0.00	0.00
6,872.7	0.00	0.00	6,827.0	520.0	-425.0	-526.7	0.00	0.00	0.00
Bone Spring Lime									
6,900.0	0.00	0.00	6,854.3	520.0	-425.0	-526.7	0.00	0.00	0.00
6,947.7	0.00	0.00	6,902.0	520.0	-425.0	-526.7	0.00	0.00	0.00
Upper Avalon									
7,000.0	0.00	0.00	6,954.3	520.0	-425.0	-526.7	0.00	0.00	0.00
7,100.0	0.00	0.00	7,054.3	520.0	-425.0	-526.7	0.00	0.00	0.00
7,200.0	0.00	0.00	7,154.3	520.0	-425.0	-526.7	0.00	0.00	0.00
7,300.0	0.00	0.00	7,254.3	520.0	-425.0	-526.7	0.00	0.00	0.00
7,320.7	0.00	0.00	7,275.0	520.0	-425.0	-526.7	0.00	0.00	0.00
Middle Avalon									
7,400.0	0.00	0.00	7,354.3	520.0	-425.0	-526.7	0.00	0.00	0.00
7,500.0	0.00	0.00	7,454.3	520.0	-425.0	-526.7	0.00	0.00	0.00

Database:	EDM 5000.15 Single User Db	**Local Co-ordinate Reference:**	Well Cypress 34 Federal #207H
Company:	Tap Rock Resources, LLC	**TVD Reference:**	KB @ 3072.0usft
Project:	Eddy County, NM (NAD 83 NME)	**MD Reference:**	KB @ 3072.0usft
Site:	(Cypress) Sec-3_T-24-S_R-29-E	**North Reference:**	Grid
Well:	Cypress 34 Federal #207H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,600.0	0.00	0.00	7,554.3	520.0	-425.0	-526.7	0.00	0.00	0.00
7,697.7	0.00	0.00	7,652.0	520.0	-425.0	-526.7	0.00	0.00	0.00
Lower Avalon									
7,700.0	0.00	0.00	7,654.3	520.0	-425.0	-526.7	0.00	0.00	0.00
7,800.0	0.00	0.00	7,754.3	520.0	-425.0	-526.7	0.00	0.00	0.00
7,857.7	0.00	0.00	7,812.0	520.0	-425.0	-526.7	0.00	0.00	0.00
1st Bone Spring Sand									
7,900.0	0.00	0.00	7,854.3	520.0	-425.0	-526.7	0.00	0.00	0.00
8,000.0	0.00	0.00	7,954.3	520.0	-425.0	-526.7	0.00	0.00	0.00
8,100.0	0.00	0.00	8,054.3	520.0	-425.0	-526.7	0.00	0.00	0.00
8,142.7	0.00	0.00	8,097.0	520.0	-425.0	-526.7	0.00	0.00	0.00
2nd Bone Spring Carb									
8,200.0	0.00	0.00	8,154.3	520.0	-425.0	-526.7	0.00	0.00	0.00
8,300.0	0.00	0.00	8,254.3	520.0	-425.0	-526.7	0.00	0.00	0.00
8,400.0	0.00	0.00	8,354.3	520.0	-425.0	-526.7	0.00	0.00	0.00
8,467.7	0.00	0.00	8,422.0	520.0	-425.0	-526.7	0.00	0.00	0.00
2nd Bone Spring Sand									
8,500.0	0.00	0.00	8,454.3	520.0	-425.0	-526.7	0.00	0.00	0.00
8,600.0	0.00	0.00	8,554.3	520.0	-425.0	-526.7	0.00	0.00	0.00
8,700.0	0.00	0.00	8,654.3	520.0	-425.0	-526.7	0.00	0.00	0.00
8,800.0	0.00	0.00	8,754.3	520.0	-425.0	-526.7	0.00	0.00	0.00
8,900.0	0.00	0.00	8,854.3	520.0	-425.0	-526.7	0.00	0.00	0.00
9,000.0	0.00	0.00	8,954.3	520.0	-425.0	-526.7	0.00	0.00	0.00
9,002.7	0.00	0.00	8,957.0	520.0	-425.0	-526.7	0.00	0.00	0.00
3rd Bone Spring Carb									
9,100.0	0.00	0.00	9,054.3	520.0	-425.0	-526.7	0.00	0.00	0.00
9,200.0	0.00	0.00	9,154.3	520.0	-425.0	-526.7	0.00	0.00	0.00
9,300.0	0.00	0.00	9,254.3	520.0	-425.0	-526.7	0.00	0.00	0.00
9,400.0	0.00	0.00	9,354.3	520.0	-425.0	-526.7	0.00	0.00	0.00
9,500.0	0.00	0.00	9,454.3	520.0	-425.0	-526.7	0.00	0.00	0.00
9,600.0	0.00	0.00	9,554.3	520.0	-425.0	-526.7	0.00	0.00	0.00
9,700.0	0.00	0.00	9,654.3	520.0	-425.0	-526.7	0.00	0.00	0.00
9,714.7	0.00	0.00	9,669.0	520.0	-425.0	-526.7	0.00	0.00	0.00
KOP - DLS 10.00 TFO 179.09									
9,750.0	3.53	179.09	9,704.3	518.9	-425.0	-525.6	10.00	10.00	0.00
9,800.0	8.53	179.09	9,754.0	513.7	-424.9	-520.3	10.00	10.00	0.00
9,808.1	9.34	179.09	9,762.0	512.4	-424.9	-519.1	10.00	10.00	0.00
3rd Bone Spring Sand									
9,850.0	13.53	179.09	9,803.1	504.1	-424.7	-510.8	10.00	10.00	0.00
9,900.0	18.53	179.09	9,851.1	490.3	-424.5	-497.0	10.00	10.00	0.00
9,950.0	23.53	179.09	9,897.8	472.3	-424.2	-479.0	10.00	10.00	0.00
10,000.0	28.53	179.09	9,942.7	450.4	-423.9	-457.1	10.00	10.00	0.00
10,050.0	33.53	179.09	9,985.5	424.6	-423.5	-431.3	10.00	10.00	0.00
10,100.0	38.53	179.09	10,025.9	395.2	-423.0	-401.9	10.00	10.00	0.00
10,120.8	40.62	179.09	10,042.0	382.0	-422.8	-388.6	10.00	10.00	0.00
3rd BS W Sand									
10,150.0	43.53	179.09	10,063.7	362.4	-422.5	-369.1	10.00	10.00	0.00
10,198.0	48.33	179.09	10,097.0	328.0	-422.0	-334.6	10.00	10.00	0.00
Wolfcamp A X Sand									
10,200.0	48.53	179.09	10,098.4	326.5	-421.9	-333.1	10.00	10.00	0.00
10,250.0	53.53	179.09	10,129.8	287.6	-421.3	-294.3	10.00	10.00	0.00
10,300.0	58.53	179.09	10,157.7	246.1	-420.7	-252.8	10.00	10.00	0.00
10,350.0	63.53	179.09	10,181.9	202.4	-420.0	-209.1	10.00	10.00	0.00

Database:	EDM 5000.15 Single User Db	**Local Co-ordinate Reference:**	Well Cypress 34 Federal #207H
Company:	Tap Rock Resources, LLC	**TVD Reference:**	KB @ 3072.0usft
Project:	Eddy County, NM (NAD 83 NME)	**MD Reference:**	KB @ 3072.0usft
Site:	(Cypress) Sec-3_T-24-S_R-29-E	**North Reference:**	Grid
Well:	Cypress 34 Federal #207H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,399.4	68.48	179.09	10,202.0	157.3	-419.3	-163.9	10.00	10.00	0.00
Wolfcamp A Y Sand									
10,400.0	68.53	179.09	10,202.2	156.8	-419.2	-163.4	10.00	10.00	0.00
10,450.0	73.53	179.09	10,218.5	109.5	-418.5	-116.1	10.00	10.00	0.00
10,500.0	78.53	179.09	10,230.5	61.0	-417.7	-67.6	10.00	10.00	0.00
10,550.0	83.53	179.09	10,238.3	11.6	-416.9	-18.2	10.00	10.00	0.00
10,600.0	88.53	179.09	10,241.8	-38.2	-416.2	31.6	10.00	10.00	0.00
10,614.6	90.00	179.09	10,242.0	-52.9	-415.9	46.3	10.00	10.00	0.00
EOC - 4600.7 hold at 10614.6 MD									
10,700.0	90.00	179.09	10,242.0	-138.2	-414.6	131.6	0.00	0.00	0.00
10,800.0	90.00	179.09	10,242.0	-238.2	-413.0	231.6	0.00	0.00	0.00
10,900.0	90.00	179.09	10,242.0	-338.2	-411.4	331.6	0.00	0.00	0.00
11,000.0	90.00	179.09	10,242.0	-438.2	-409.8	431.6	0.00	0.00	0.00
11,100.0	90.00	179.09	10,242.0	-538.2	-408.2	531.6	0.00	0.00	0.00
11,200.0	90.00	179.09	10,242.0	-638.2	-406.6	631.6	0.00	0.00	0.00
11,300.0	90.00	179.09	10,242.0	-738.1	-405.1	731.6	0.00	0.00	0.00
11,400.0	90.00	179.09	10,242.0	-838.1	-403.5	831.6	0.00	0.00	0.00
11,500.0	90.00	179.09	10,242.0	-938.1	-401.9	931.6	0.00	0.00	0.00
11,600.0	90.00	179.09	10,242.0	-1,038.1	-400.3	1,031.6	0.00	0.00	0.00
11,700.0	90.00	179.09	10,242.0	-1,138.1	-398.7	1,131.6	0.00	0.00	0.00
11,800.0	90.00	179.09	10,242.0	-1,238.1	-397.1	1,231.6	0.00	0.00	0.00
11,900.0	90.00	179.09	10,242.0	-1,338.1	-395.5	1,331.6	0.00	0.00	0.00
12,000.0	90.00	179.09	10,242.0	-1,438.1	-394.0	1,431.6	0.00	0.00	0.00
12,100.0	90.00	179.09	10,242.0	-1,538.0	-392.4	1,531.6	0.00	0.00	0.00
12,200.0	90.00	179.09	10,242.0	-1,638.0	-390.8	1,631.6	0.00	0.00	0.00
12,300.0	90.00	179.09	10,242.0	-1,738.0	-389.2	1,731.6	0.00	0.00	0.00
12,400.0	90.00	179.09	10,242.0	-1,838.0	-387.6	1,831.6	0.00	0.00	0.00
12,500.0	90.00	179.09	10,242.0	-1,938.0	-386.0	1,931.6	0.00	0.00	0.00
12,600.0	90.00	179.09	10,242.0	-2,038.0	-384.5	2,031.6	0.00	0.00	0.00
12,700.0	90.00	179.09	10,242.0	-2,138.0	-382.9	2,131.6	0.00	0.00	0.00
12,800.0	90.00	179.09	10,242.0	-2,238.0	-381.3	2,231.6	0.00	0.00	0.00
12,900.0	90.00	179.09	10,242.0	-2,337.9	-379.7	2,331.6	0.00	0.00	0.00
13,000.0	90.00	179.09	10,242.0	-2,437.9	-378.1	2,431.6	0.00	0.00	0.00
13,100.0	90.00	179.09	10,242.0	-2,537.9	-376.5	2,531.6	0.00	0.00	0.00
13,200.0	90.00	179.09	10,242.0	-2,637.9	-374.9	2,631.6	0.00	0.00	0.00
13,300.0	90.00	179.09	10,242.0	-2,737.9	-373.4	2,731.6	0.00	0.00	0.00
13,400.0	90.00	179.09	10,242.0	-2,837.9	-371.8	2,831.6	0.00	0.00	0.00
13,500.0	90.00	179.09	10,242.0	-2,937.9	-370.2	2,931.6	0.00	0.00	0.00
13,600.0	90.00	179.09	10,242.0	-3,037.9	-368.6	3,031.6	0.00	0.00	0.00
13,700.0	90.00	179.09	10,242.0	-3,137.8	-367.0	3,131.6	0.00	0.00	0.00
13,800.0	90.00	179.09	10,242.0	-3,237.8	-365.4	3,231.6	0.00	0.00	0.00
13,900.0	90.00	179.09	10,242.0	-3,337.8	-363.8	3,331.6	0.00	0.00	0.00
14,000.0	90.00	179.09	10,242.0	-3,437.8	-362.3	3,431.6	0.00	0.00	0.00
14,100.0	90.00	179.09	10,242.0	-3,537.8	-360.7	3,531.6	0.00	0.00	0.00
14,200.0	90.00	179.09	10,242.0	-3,637.8	-359.1	3,631.6	0.00	0.00	0.00
14,300.0	90.00	179.09	10,242.0	-3,737.8	-357.5	3,731.6	0.00	0.00	0.00
14,400.0	90.00	179.09	10,242.0	-3,837.8	-355.9	3,831.6	0.00	0.00	0.00
14,500.0	90.00	179.09	10,242.0	-3,937.7	-354.3	3,931.6	0.00	0.00	0.00
14,600.0	90.00	179.09	10,242.0	-4,037.7	-352.8	4,031.6	0.00	0.00	0.00
14,700.0	90.00	179.09	10,242.0	-4,137.7	-351.2	4,131.6	0.00	0.00	0.00
14,800.0	90.00	179.09	10,242.0	-4,237.7	-349.6	4,231.6	0.00	0.00	0.00
14,900.0	90.00	179.09	10,242.0	-4,337.7	-348.0	4,331.6	0.00	0.00	0.00
15,000.0	90.00	179.09	10,242.0	-4,437.7	-346.4	4,431.6	0.00	0.00	0.00

Database:	EDM 5000.15 Single User Db	**Local Co-ordinate Reference:**	Well Cypress 34 Federal #207H
Company:	Tap Rock Resources, LLC	**TVD Reference:**	KB @ 3072.0usft
Project:	Eddy County, NM (NAD 83 NME)	**MD Reference:**	KB @ 3072.0usft
Site:	(Cypress) Sec-3_T-24-S_R-29-E	**North Reference:**	Grid
Well:	Cypress 34 Federal #207H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,100.0	90.00	179.09	10,242.0	-4,537.7	-344.8	4,531.6	0.00	0.00	0.00
15,200.0	90.00	179.09	10,242.0	-4,637.7	-343.2	4,631.6	0.00	0.00	0.00
15,215.3	90.00	179.09	10,242.0	-4,653.0	-343.0	4,647.0	0.00	0.00	0.00
TD at 15215.3									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LTP (Cypress 34 Fed - plan misses target center by 0.1usft at 15145.3usft MD (10242.0 TVD, -4583.0 N, -344.1 E) - Point	0.00	0.00	10,242.0	-4,583.0	-344.0	456,430.00	652,571.00	32° 15' 15.440 N	103° 58' 24.622 W
PBHL (Cypress 34 Fe - plan hits target center - Rectangle (sides W100.0 H5,174.0 D20.0)	0.00	179.09	10,242.0	-4,653.0	-343.0	456,360.00	652,572.00	32° 15' 14.748 N	103° 58' 24.613 W
FTP (Cypress 34 Fed - plan misses target center by 237.4usft at 10160.8usft MD (10071.4 TVD, 354.9 N, -422.4 E) - Point	0.00	0.00	10,242.0	520.0	-425.0	461,533.00	652,490.00	32° 16' 5.941 N	103° 58' 25.366 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
252.0	252.0	Rustler Anhydrite			
612.0	612.0	Top Salt			
2,867.7	2,857.0	Base Salt			
3,084.8	3,072.0	Delaware Mountain Gp			
3,110.1	3,097.0	Lamar			
3,115.1	3,102.0	Bell Canyon			
3,145.4	3,132.0	Ramsey Sand			
3,998.7	3,977.0	Cherry Canyon			
5,175.2	5,142.0	Brushy Canyon			
6,872.7	6,827.0	Bone Spring Lime			
6,947.7	6,902.0	Upper Avalon			
7,320.7	7,275.0	Middle Avalon			
7,697.7	7,652.0	Lower Avalon			
7,857.7	7,812.0	1st Bone Spring Sand			
8,142.7	8,097.0	2nd Bone Spring Carb			
8,467.7	8,422.0	2nd Bone Spring Sand			
9,002.7	8,957.0	3rd Bone Spring Carb			
9,808.1	9,762.0	3rd Bone Spring Sand			
10,120.8	10,042.0	3rd BS W Sand			
10,198.0	10,097.0	Wolfcamp A X Sand			
10,399.4	10,202.0	Wolfcamp A Y Sand			

Database:	EDM 5000.15 Single User Db	**Local Co-ordinate Reference:**	Well Cypress 34 Federal #207H
Company:	Tap Rock Resources, LLC	**TVD Reference:**	KB @ 3072.0usft
Project:	Eddy County, NM (NAD 83 NME)	**MD Reference:**	KB @ 3072.0usft
Site:	(Cypress) Sec-3_T-24-S_R-29-E	**North Reference:**	Grid
Well:	Cypress 34 Federal #207H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OWB		
Design:	Plan #1		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,500.0	1,500.0	0.0	0.0	NUDGE - Build 2.00
1,899.9	1,898.6	21.6	-17.6	HOLD - 4425.8 at 1899.9 MD
6,325.7	6,281.4	498.4	-407.4	DROP - -2.00
6,725.7	6,680.0	520.0	-425.0	HOLD - 2989.0 at 6725.7 MD
9,714.7	9,669.0	520.0	-425.0	KOP - DLS 10.00 TFO 179.09
10,614.6	10,242.0	-52.9	-415.9	EOC - 4600.7 hold at 10614.6 MD
15,215.3	10,242.0	-4,653.0	-343.0	TD at 15215.3

Drilling Operations Plan
Cypress 34 Federal 207H
Tap Rock Operating, LLC
SHL 621' FNL & 2579' FEL, Sec. 34
BHL 30' FSL & 2310' FWL, Sec. 34
Sec. 34 T. 23S., R. 29E Eddy County, NM

Elevation above Sea Level: 3046'

DRILLING PROGRAM

1. Estimated Tops

Formation	TVD	MD	Lithologies	Bearing
Quaternary Deposits	0	0	Surface	None
Rustler Anhydrite	252	252		Salt
Salado	612	612	Salt	Salt
Base Salt	2857	2867		Salt
Lamar	3097	3110	Limestone	None
Bell Canyon	3102	3115	Sandstone	Hydrocarbons
Cherry Canyon	3977	3998	Sandstone	Hydrocarbons
Brushy Canyon	5142	5175	Sandstone	Hydrocarbons
Bone Spring	6827	6872	Limestone	Hydrocarbons
1st Bone Spring	7812	7857	Sandstone	Hydrocarbons
2nd Bone Spring	8097	8142	Sandstone	Hydrocarbons
3rd Bone Spring	8957	9002	Sandstone	Hydrocarbons
KOP	9669	9714	Sandstone	Hydrocarbons
Wolfcamp	10097	10198	Shale	Hydrocarbons
TD	10242	15215	Shale	Hydrocarbons

2. Notable Zones

Upper Wolfcamp is the target formation.

3. Pressure Control

Pressure Control Equipment (See Schematics):
A 15,000', 5,000 psi BOP stack consisting of 3 rams with 2 pipe rams, 1 blind ram, and 1 annular preventer will be used below surface casing to TD. See attachments for BOP and choke manifold diagrams. Also present will be an accumulator that meets the requirements of Onshore Order #2 for the pressure rating of the BOP stack. A rotating head will also be installed as needed. BOP will be inspected and operated as recommended in Onshore Order #2. A top drive check valve and sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the rig floor in the open position. The wellhead will be a multi-bowl speed head.

Drilling Operations Plan
Cypress 34 Federal 207H
Tap Rock Operating, LLC
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BHL 30' FSL & 2310' FWL, Sec. 34
Sec. 34 T. 23S., R. 29E Eddy County, NM

BOP Test procedure will be as follows:
After surface casing is set and the BOP is nippled up, the BOP pressure tests will be made with a third party tester to 250 psi low, 5000 psi high, and the annular preventer will be tested to 2,500 psi. The BOP will be tested in this manner after nipple-up if any break of the stack occurs.

Variance Requests:
Tap Rock requests a variance to run a multi-bowl speed head for setting the Intermediate 1, Intermediate 2, and Production Strings. Tap Rock requests a variance to drill this well using a co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used. Tap Rock requests a variance to have the option of batch drilling this well with other wells on the same pad. In the event that this well is batch drilled, after drilling surface, 1st intermediate, and 2nd intermediate hole sections and cementing 2nd intermediate casing, a 10M dry hole cap with bleed off valve will be installed. The rig will then walk to another well on the pad. When the rig returns to this well and BOPs are installed, the operator will perform a full BOP test. Due to the Potash, Tap Rock will cement the 7-5/8" string to surface.

Tap Rock requests approval to possibly utilize a spudder rig to drill and set casing for the surface interval on this well. The spudder rig will be possibly utilized in order to reduce cost and save time. The wellhead will be installed and tested as soon as the surface casing is cut off per the existing COAs. A blind flange with the same pressure rating as the wellhead will be installed on the well. Once the spudder rig is removed, Tap Rock will secure the wellhead area by placing a guard rail around the cellar. Pressure will be monitored and a means for intervention will be maintained while the drilling rig is not over the well. Spudder rig operations are expected to take 2-3 days per well. Three wells on the pad will have surface casing set by the spudder rig as a part of this operation. The BLM will be notified 24 hours prior to commencing spudder rig operations. Within 90 days of the departure of the spudder rig, drilling operations will recommence on these wells. This rig will have a BOP stack equal or greater to the pressure rating required in the COAs. The BLM will be notified 24 hours before the larger rig moves on the pre-set wells. Tap Rock will have supervision on the spudder rig to ensure compliance with all BLM and NMOCD regulations.

Drilling Operations Plan
Cypress 34 Federal 207H
Tap Rock Operating, LLC
SHL 621' FNL & 2579' FEL, Sec. 34
BHL 30' FSL & 2310' FWL, Sec. 34
Sec. 34 T. 23S., R. 29E Eddy County, NM

4. Casing & Cement

All Casing will be new.

Name	Hole Size	Casing Size	Standard	Tapered	Top MD	Bottom MD	Top TVD	BTM TVD	Grade	Weight	Thread	Collapse	Burst	Tension
Surface	17 1/2	13 3/8	API	No	0	350	0	350	J-55	54.5	BUTT	1.13	1.15	1.6
1st Intermediate	12 1/4	9 5/8	API	No	0	3150	0	3137	J-55	40	BUTT	1.13	1.15	1.6
2nd Intermediate	8 3/4	7 5/8	NON API	Yes	0	9600	0	9554	P-110	29.7	W-513	1.13	1.15	1.6
Production	6 3/4	5 1/2	NON API	No	0	9400	0	9354	P-110	20	TXP	1.13	1.15	1.6
Production	6 3/4	5	NON API	Yes	9400	15215	9354	10242	P-110	18	W-521	1.13	1.15	1.6

Name	Type	Top MD	Sacks	Yield	Cu. Ft	Weight	Excess	Cement	Additives
Surface	Tail	0	360	1.35	486	14.8	100%	C	5% NCl + LCM
1st Intermediate	Lead	0	560	2.18	1221	12.7	65%	C	Bentonite + 1% CaCL2 + 8% NaCl + LCM
	Tail	2363	306	1.33	407	14.8	65%	C	5% NaCl + LCM
2nd Intermediate	Lead	0	406	2.87	1166	11.5	35%	TXI	Fluid Loss + Dispersant + Retarder + LCM
	Tail	8600	107	1.27	136	15	35%	H	Fluid Loss + Dispersant + Retarder + LCM
Production	Tail	8900	518	1.71	885	14.2	25%	H	Fluid Loss + Dispersant + Retarder + LCM

5. Mud Program

Electronic Pason mud monitor system complying with Onshore Order 1 will be used. All necessary mud products (e. g., barite, cedar bark) for weight addition and fluid loss control will always be on site. Mud program is subject to change due to hole conditions. A closed loop system will be used.

Name	Top	Bottom	Type	Mud Weight	Visc	Fluid Loss
Surface	0	350	FW Spud Mud	8.30	28	NC
Intermediate	350	3150	Brine Water	10.00	30-32	NC
Intermediate 2	3150	9600	FW/Cut Brine	9.00	30-32	NC
Production	9600	15215	Oil Base Mud	11.50	15-20	<10

6. Cores, Tests, & Logs

- Electric Logging Program: No open-hole logs are planned at this time for the pilot hole.
- GR will be collected while drilling through the MWD tools from 9.625" casing shoe to TD.
- A 2-person mud logging program will be used from 9.625" casing shoe to TD.
- No DSTs or cores are planned at this time.
- CBL w/ CCL from as far as gravity will let it fall to TOC.

7. Down Hole Conditions

No abnormal pressure or temperature is expected. Maximum expected bottom hole pressure is ≈6,125 psi. Expected bottom hole temperature is ≈170° F.

Tap Rock does not anticipate that there will be enough H2S from the surface to the Wolfcamp formations to meet the BLM's Onshore Order 6 requirements for the submission of an "H2S Drilling Operation Plan" or "Public Protection Plan" for drilling and completing this well. Tap Rock has an H2S safety package on all wells and an "H2S Drilling Operations Plan" is attached. Adequate flare lines will be installed off the mud/gas separator where gas may be safely flared. All personnel will be familiar with all aspects of safe operation of equipment being used.

8. Other

Road and location construction will begin after BLM approval of APD. Anticipated spud date as soon as approved. Drilling expected to take 30 days. If production casing is run an additional 60 days will be required to complete and construct surface facilities.

APD ID: 10400050029 **Submission Date:** 11/05/2019

Operator Name: TAP ROCK OPERATING LLC

Well Name: CYPRESS 34 FEDERAL **Well Number:** 207H

Well Type: CONVENTIONAL GAS 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:

Cypress_Existing_Roads_Map_20191024122312.pdf

Existing Road Purpose: ACCESS **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? YES

New Road Map:

Cypress_New_Road_Map_Plat_v2_012920_20200130081545.pdf

New road type: RESOURCE

Length: 1642.26 Feet **Width (ft.):** 30

Max slope (%): 1 **Max grade (%):** 1

Army Corp of Engineers (ACOE) permit required? N

ACOE Permit Number(s):

New road travel width: 24

New road access erosion control: Crowned and ditched

New road access plan or profile prepared? N

New road access plan attachment:

Access road engineering design? N

Access road engineering design attachment:

Turnout? N

Access surfacing type: OTHER

Access topsoil source: ONSITE

Access surfacing type description: Caliche

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: Grader

Access other construction information: 1,069.28 shared common road + 557.98 well pad road + 15.0 CTB road = 1642.26 total; Pipelines that are crossed will be padded.
Access miscellaneous information:

Number of access turnouts: **Access turnout map:**

Drainage Control

New road drainage crossing: OTHER

Drainage Control comments: Roads will be crowned and ditched.

Road Drainage Control Structures (DCS) description: Crowned and ditched

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Cypress_207H_1mi_Well_Map_v1_102219_20191024122433.pdf

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

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: A 400 x 400 central tank battery (CTB) will be built 200 south of the well pad. Topsoil will be piled east of the CTB. Flare and/or CBU will be set on the northeast corner of the CTB. Tank battery and process equipment (e. g., separators, heater-treaters) will be on the east side of the CTB. The CTB and its associated infrastructure (road, SWD lines, and flowlines) are located entirely on the producing lease in Section 34, 23S 29E. Two (2) buried 4 O. D. steel flow lines will be laid from the well pad 201.20 to the CTB in one (1) trench. No power line is planned at this time. Four (4) surface 4 O.D. poly SWD lines will be laid 4,460.29 from the proposed CTB southwest to the existing Mesquite Facility Pad.
Production Facilities map:

Cypress_Production_Facilities_v2_012920_20200130080820.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source type: GW WELL

Water source use type: SURFACE CASING

STIMULATION

INTERMEDIATE/PRODUCTION CASING

Source latitude: **Source longitude:**

Source datum:

Water source permit type: PRIVATE CONTRACT

Water source transport method: TRUCKING

Source land ownership: PRIVATE

Source transportation land ownership: FEDERAL

Water source volume (barrels): 16000 **Source volume (acre-feet):** 2.0622895

Source volume (gal): 672000

Water source and transportation map:

Cypress_Water_Gravel_Map4_v1_062619_20200130080957.pdf

Water source comments: This well will be drilled using a combination of water mud systems. Fresh water will be trucked from a private water well (C 03662) on private land in NWNE 23-24s-33e.

New water well? N

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

Using any construction materials: YES

Construction Materials description: NM One Call (811) will be notified before construction starts. Top 6 inches of soil and brush will be stockpiled north of the well pad. V-door will face east. Caliche will be hauled from existing caliche pits on state land in NW/4 18-23s-30e.

Construction Materials source location attachment:

Cypress_Construction_Methods_20191024122522.pdf

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Drill cuttings, mud, salts, and other chemicals

Amount of waste: 550 barrels

Waste disposal frequency : Daily

Safe containment description: Steel mud tanks

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE

Disposal type description:

Disposal location description: Mud tanks will be hauled to R360s state approved (NM1 -6-0) disposal site at Halfway, NM.

Waste type: SEWAGE

Waste content description: Human waste

Amount of waste: 10 barrels

Waste disposal frequency : Weekly

Safe containment description: Chemical toilets

Safe containmant attachment:

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

Disposal type description: Public

Disposal location description: Chemical toilets will be hauled to Carlsbad wastewater treatment plant.

Waste type: GARBAGE

Waste content description: Trash

Amount of waste: 10 barrels

Waste disposal frequency : Daily

Safe containment description: Portable trashcage

Safe containmant attachment:

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

Disposal type description: County

Disposal location description: Portable trash cage will be hauled to Eddy County Landfill

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit? NO

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? Y

Description of cuttings location Steel tanks on pad

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

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

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

WCuttings area liner

Cuttings area liner specifications and installation description

Operator Name: TAP ROCK OPERATING LLC

Well Name: CYPRESS 34 FEDERAL **Well Number:** 207H

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: N

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Cypress_Well_Site_Layout_102219_20191024122939.pdf

Comments:

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: CYPRESS 34 FEDERAL

Multiple Well Pad Number: Slot 2

Recontouring attachment:

Cypress_Recontour_Plats_20191024122957.pdf

Cypress_Interim_Rec_20191024123006.pdf

Drainage/Erosion control construction: Crowned and ditched

Drainage/Erosion control reclamation: Harrowed on the contour

Well pad proposed disturbance (acres): 4.05

Road proposed disturbance (acres): 1.13

Powerline proposed disturbance (acres): 0

Pipeline proposed disturbance (acres): 3.21

Other proposed disturbance (acres): 3.95

Total proposed disturbance: 12.34

Well pad interim reclamation (acres): 0

Road interim reclamation (acres): 0

Powerline interim reclamation (acres): 0

Pipeline interim reclamation (acres): 0.14

Other interim reclamation (acres): 0

Total interim reclamation: 0.14

Well pad long term disturbance (acres): 4.05

Road long term disturbance (acres): 1.13

Powerline long term disturbance (acres): 0

Pipeline long term disturbance (acres): 3.07

Other long term disturbance (acres): 3.95

Total long term disturbance: 12.2

Disturbance Comments:

Reconstruction method: Unused areas of the pad will not be reclaimed due to its location on a potash drill island.

Topsoil redistribution: Unused areas of the pad will not be reclaimed due to its location on a potash drill island.

Soil treatment: None

Existing Vegetation at the well pad: Mesquite and/or Creosote bush

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: Mesquite and/or Creosote bush

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: Mesquite and/or Creosote bush

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: Mesquite and/or Creosote bush

Existing Vegetation Community at other disturbances attachment:

Non native seed used? N

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? N

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? N

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

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? N

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: To BLM Gold Book standards

Weed treatment plan attachment:

Monitoring plan description: To BLM Gold Book standards

Monitoring plan attachment:

Success standards: To BLM satisfaction

Pit closure description: No pit

Pit closure attachment:

Section 11 - Surface Ownership

Disturbance type: NEW 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:**

Disturbance type: OTHER

Describe: Central Tank Battery

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:**

Disturbance type: PIPELINE

Describe: Flowlines, SWD Lines

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:**

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:**

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? N **Use APD as ROW?**

ROW Type(s):

ROW Applications

SUPO Additional Information:

Use a previously conducted onsite? Y

Previous Onsite information: On-site inspection for the pad, CTB, and associated infrastructure was held with MattWirth (BLM) on February 21st, 2019. Cultural Resources Examination Lone Mountain Archaeological Services, Inc. is performing a block survey covering the entirety of this project and will file the report with BLM upon completion.

Other SUPO Attachment

Cypress_207H_SUPO_v2_012920_20200130081030.pdf