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DISTRICT II-ARTESIA O.C.D.

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.
NMNM138607

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.
MONEY GRAHAM FED COM
214H 326031

2. Name of Operator
TAP ROCK OPERATING LLC

9. API Well No.
30-015-46219

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 LOT 4 / 250 FSL / 954 FEL / LAT 32.0007994 / LONG -104.001275

At proposed prod. zone NENE / 200 FNL / 1254 FEL / LAT 32.0204597 / LONG -104.0019632

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 32 / T26S / R29E / NMP

14. Distance in miles and direction from nearest town or post office*
16 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)
250 feet

16. No of acres in lease
874.57

17. Spacing Unit dedicated to this well
445.6

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

19. Proposed Depth
9940 feet / 17040 feet

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

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
2866 feet

22. Approximate date work will start*
04/01/2019

23. Estimated duration
60 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: (505)466-8120	01/24/2019

Title
President

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	08/09/2019

Title	Office
Assistant Field Manager Lands & Minerals	CARLSBAD

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

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

APPROVED WITH CONDITIONS

Approval Date: 08/09/2019

(Continued on page 2)

*(Instructions on page 2)

RWP 8-13-19

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.

(Continued on page 3)

Additional Operator Remarks

Location of Well

1. SHL: LOT 4 / 250 FSL / 954 FEL / TWSP: 26S / RANGE: 29E / SECTION: 32 / LAT: 32.0007994 / LONG: -104.001275 (TVD: 0 feet, MD: 0 feet)
   PPP: LOT 3 / 235 FSL / 1348 FEL / TWSP: 26S / RANGE: 29E / SECTION: 32 / LAT: 32.0007583 / LONG: -104.0025459 (TVD: 9752 feet, MD: 9828 feet)
   BHL: NENE / 200 FNL / 1254 FEL / TWSP: 26S / RANGE: 29E / SECTION: 29 / LAT: 32.0204597 / LONG: -104.0019632 (TVD: 9940 feet, MD: 17040 feet)

BLM Point of Contact

Name: Priscilla Perez
Title: Legal Instruments Examiner
Phone: 5752345934
Email: pperez@blm.gov

Review and Appeal Rights

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

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**TAP ROCK OPERATING LLC**
LEASE NO.:	**NMNM38636**
WELL NAME & NO.:	**214H – MONEY GRAHAM FED COM**
SURFACE HOLE FOOTAGE:	**250'/S & 954'/E**
BOTTOM HOLE FOOTAGE	**200'/N & 1254'/E**
LOCATION:	**SECTION 32, T26S, R29E, NMPM**
COUNTY:	**EDDY**

COA

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	○ Low	◉ Medium	○ High
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 **580** 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 **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to

include the lead cement)

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9-5/8** inch 1st 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.

Variance is approved for annular spacing between 9 5/8" x 7 5/8".

3. The minimum required fill of cement behind the **7-5/8** inch 2nd intermediate casing is:
   - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

Variance is approved for annular spacing between 7 5/8" x 5 1/2". Operator shall set 5 ½" casing at 8900 ft.

4. The minimum required fill of cement behind the **5-1/2 x 5** inch production liner is:
   - Cement should tie-back **200 feet** into the previous casing. 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)

Communitization Agreement

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

GENERAL REQUIREMENTS

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

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

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

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

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

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

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

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

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

A. CASING

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

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

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

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

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

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

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

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

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

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

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

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

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

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

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

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

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

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

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

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

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

ZS 062119

AFMSS

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

Operator Certification Data Report

08/12/2019

Operator Certification

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

NAME: Brian Wood **Signed on:** 01/24/2019

Title: President

Street Address: 37 Verano Loop

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:

Email address:

AFMSS

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

Application Data Report
08/12/2019

APD ID: 10400037882 **Submission Date:** 01/24/2019

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

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

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - General

APD ID: 10400037882 **Tie to previous NOS?** N **Submission Date:** 01/24/2019

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: NMNM138607 **Lease Acres:** 874.57

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

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

Agreement number:

Agreement name:

Keep application confidential? NO

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: MONEY GRAHAM FED COM **Well Number:** 214H **Well API Number:**

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

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

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

Describe other minerals:

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

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

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: 16 Miles **Distance to nearest well:** 25 FT **Distance to lease line:** 250 FT

Reservoir well spacing assigned acres Measurement: 445.6 Acres

Well plat: Money_214H_C102_etal_010919_20190227135941.pdf

Well work start Date: 04/01/2019 **Duration:** 60 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

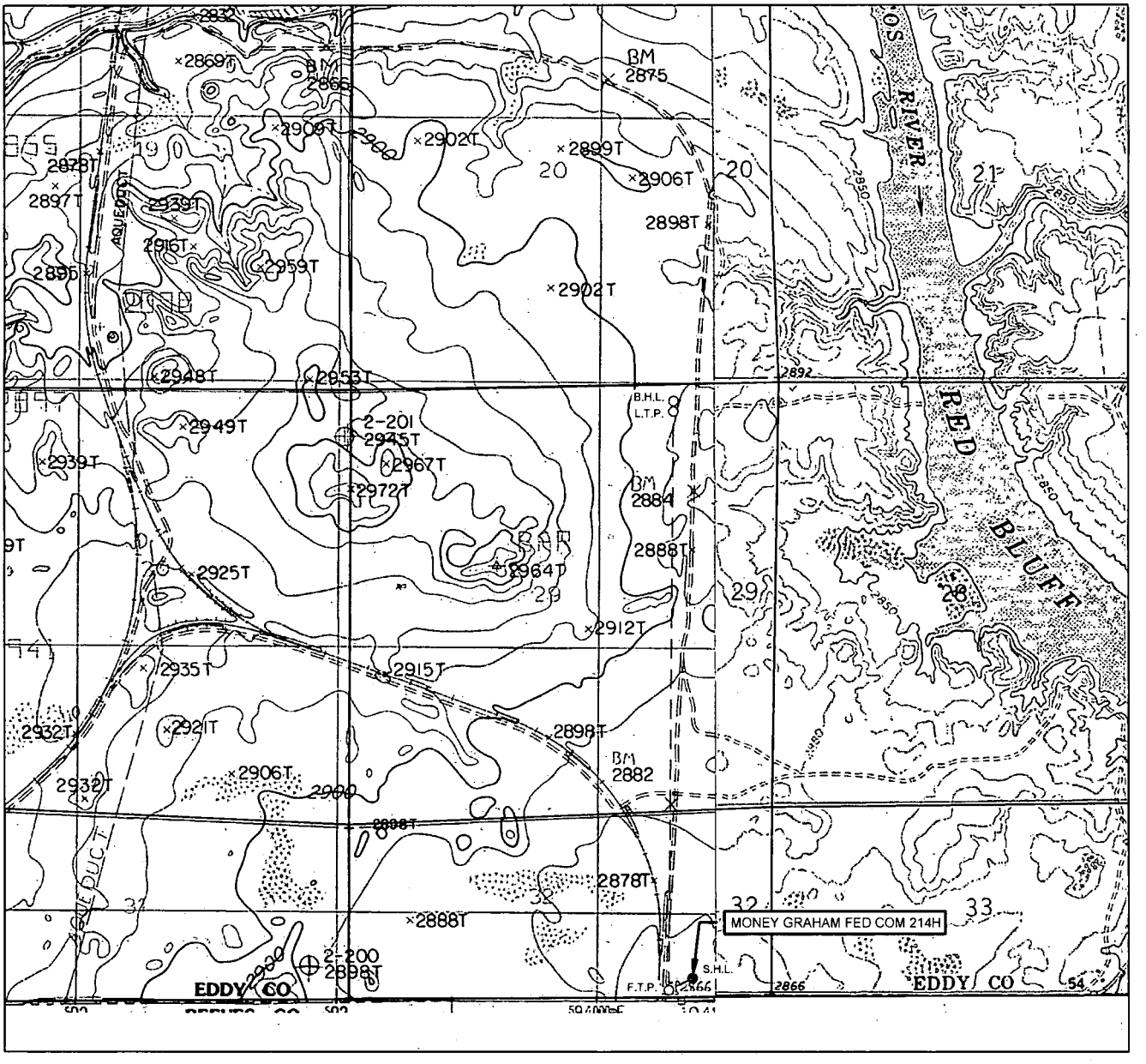
Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: 18329 **Reference Datum:**

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	250	FSL	954	FEL	26S	29E	32	Lot 4	32.0007994	-104.001275	EDDY	NEW MEXICO	NEW MEXICO	F	FEE	2866	0	0
KOP Leg #1	49	FSL	954	FEL	26S	29E	32	Lot 3	32.0002491	-104.0026459	EDDY	NEW MEXICO	NEW MEXICO	F	FEE	-6461	9350	9327
PPP Leg #1	235	FSL	1348	FEL	26S	29E	32	Lot 3	32.0007583	-104.0025459	EDDY	NEW MEXICO	NEW MEXICO	F	FEE	-6886	9828	9752

LOCATION & ELEVATION VERIFICATION MAP



TAP ROCK

LEASE NAME & WELL NO.: MONEY GRAHAM FED COM 214H

SECTION 32 TWP 26-S RGE 29-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM ELEVATION 2866'
DESCRIPTION 250' FSL & 954' FEL

LATITUDE N 32.0007994 LONGITUDE W 104.0012750

-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
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
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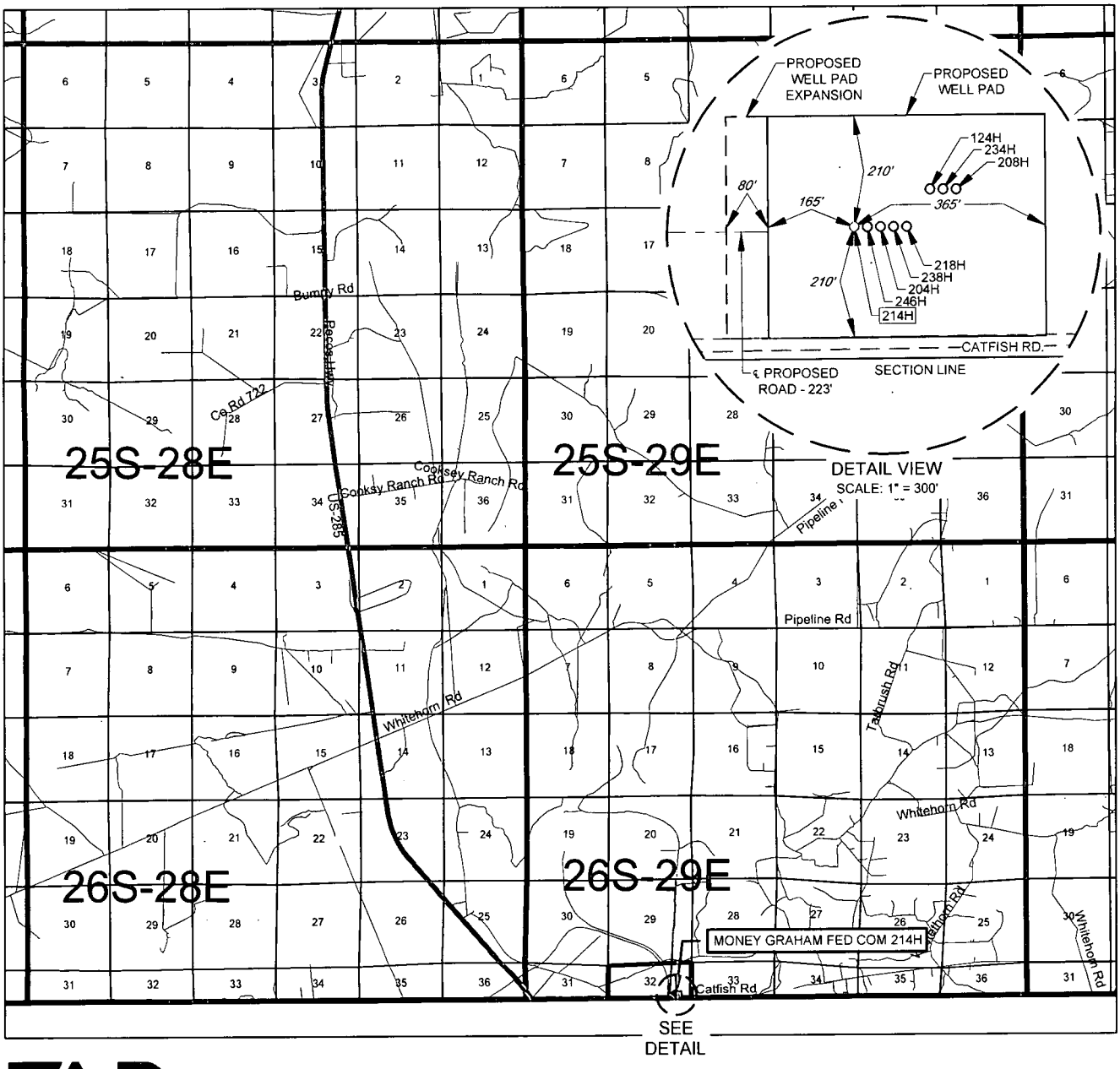
EXHIBIT 2

VICINITY MAP



TAP ROCK

LEASE NAME & WELL NO.: MONEY GRAHAM FED COM 214H

SECTION 32 TWP 26-S RGE 29-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM
DESCRIPTION 250' FSL & 954' FEL

DISTANCE & DIRECTION
FROM INT. OF US-285 & BLACK RIVER VILLAGE RD., GO SOUTH ON US-285 ±16.4 MILES, THENCE EAST (LEFT) ON CATFISH RD. ±1.7 MILES, THENCE NORTH (LEFT) ON LEASE RD. ±210 FEET, THENCE EAST (RIGHT) ON PROPOSED RD. ±223 FEET TO A POINT ±165 FEET NORTHWEST OF THE LOCATION.

-N-

SCALE: 1" = 10000'
0' 5000' 10000'

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.

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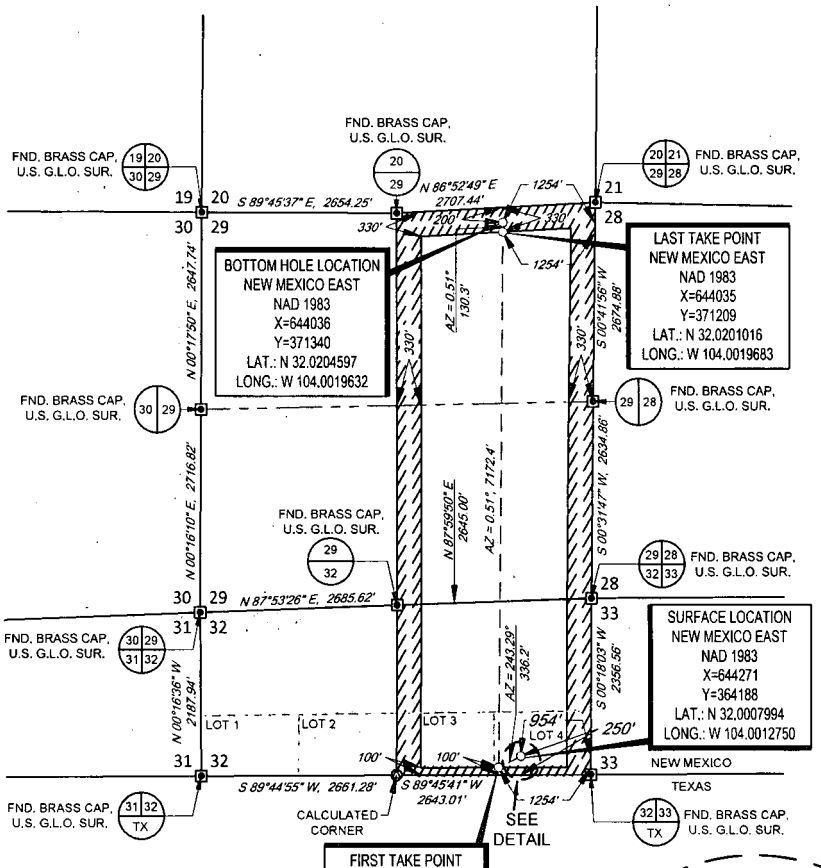
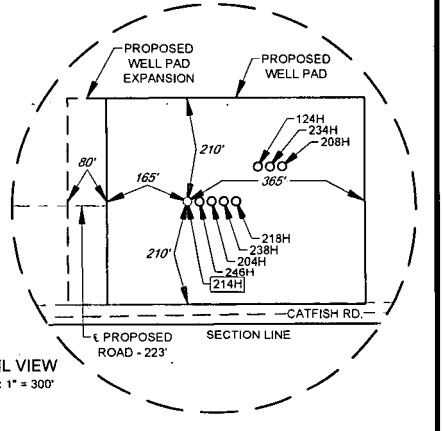
TAP ROCK

EXHIBIT 2A

SECTION 32, TOWNSHIP 26-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO





DETAIL VIEW
SCALE: 1" = 300'

-N-

SCALE: 1" = 2000'
0' 1000' 2000'

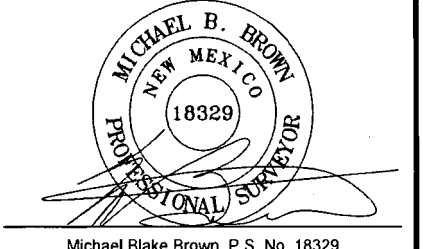
LEASE NAME & WELL NO.: MONEY GRAHAM FED COM 214H

SECTION 32 TWP 26-S RGE 29-E SURVEY N.M.P.M.
COUNTY EDDY STATE NM
DESCRIPTION 250' FSL & 954' FEL

DISTANCE & DIRECTION
FROM INT. OF US-285 & BLACK RIVER VILLAGE RD., GO SOUTH ON US-285 ±16.4 MILES, THENCE EAST (LEFT) ON CATFISH RD. ±1.7 MILES, THENCE NORTH (LEFT) ON LEASE RD. ±210 FEET, THENCE EAST (RIGHT) ON PROPOSED RD. ±223 FEET TO A POINT ±165 FEET NORTHWEST OF THE LOCATION.

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 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.



Michael Blake Brown, P.S. No. 18329
DECEMBER 12, 2018

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 146 - FT. WORTH, TEXAS 76140
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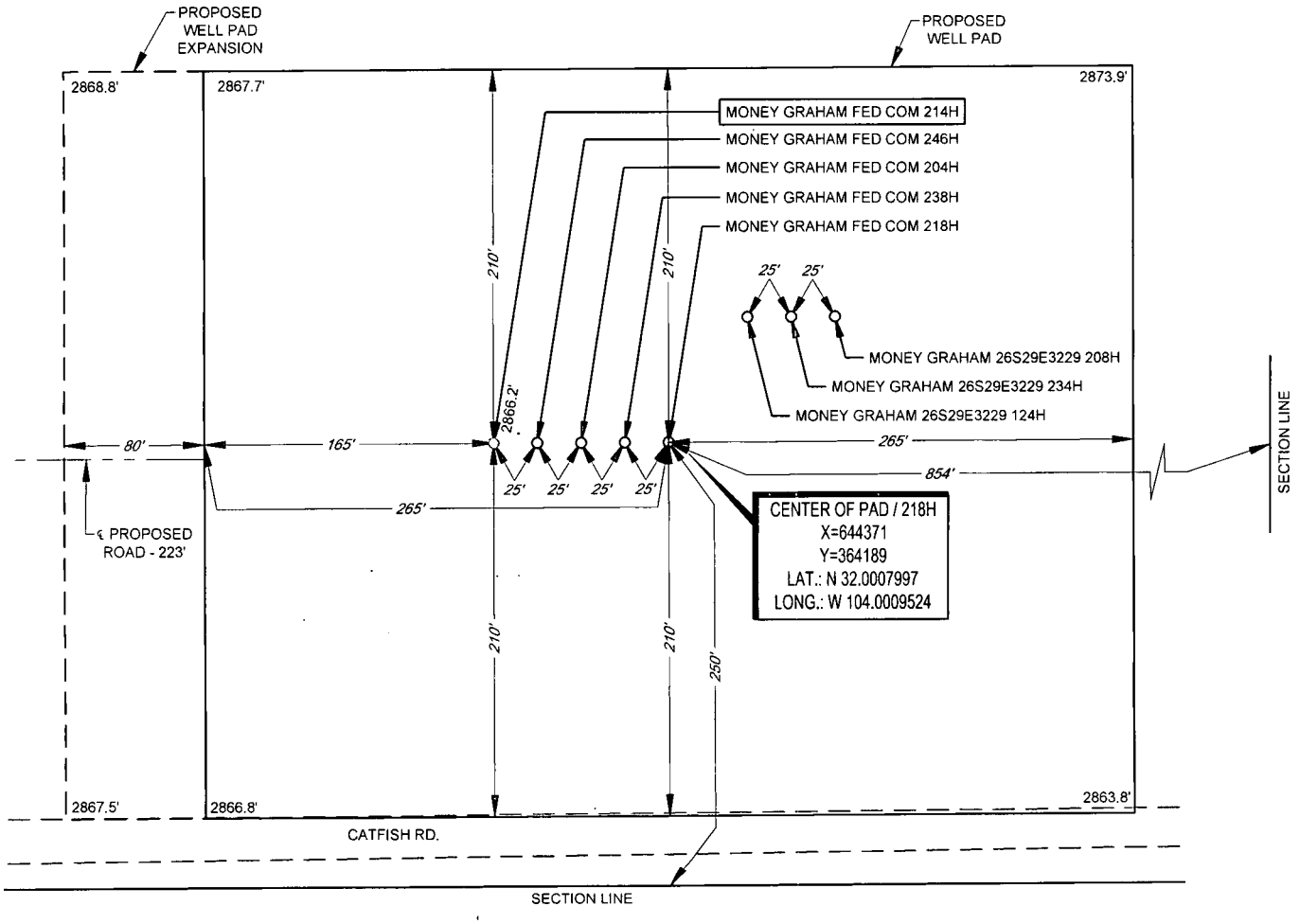
EXHIBIT 2B

SECTION 32, TOWNSHIP 26-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

DETAIL VIEW
SCALE: 1" = 100'



LEASE NAME & WELL NO.: MONEY GRAHAM FED COM 214H

214H LATITUDE N 32.0007994 214H LONGITUDE W 104.0012750

CENTER OF PAD IS 250' FSL & 854' FEL

-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.

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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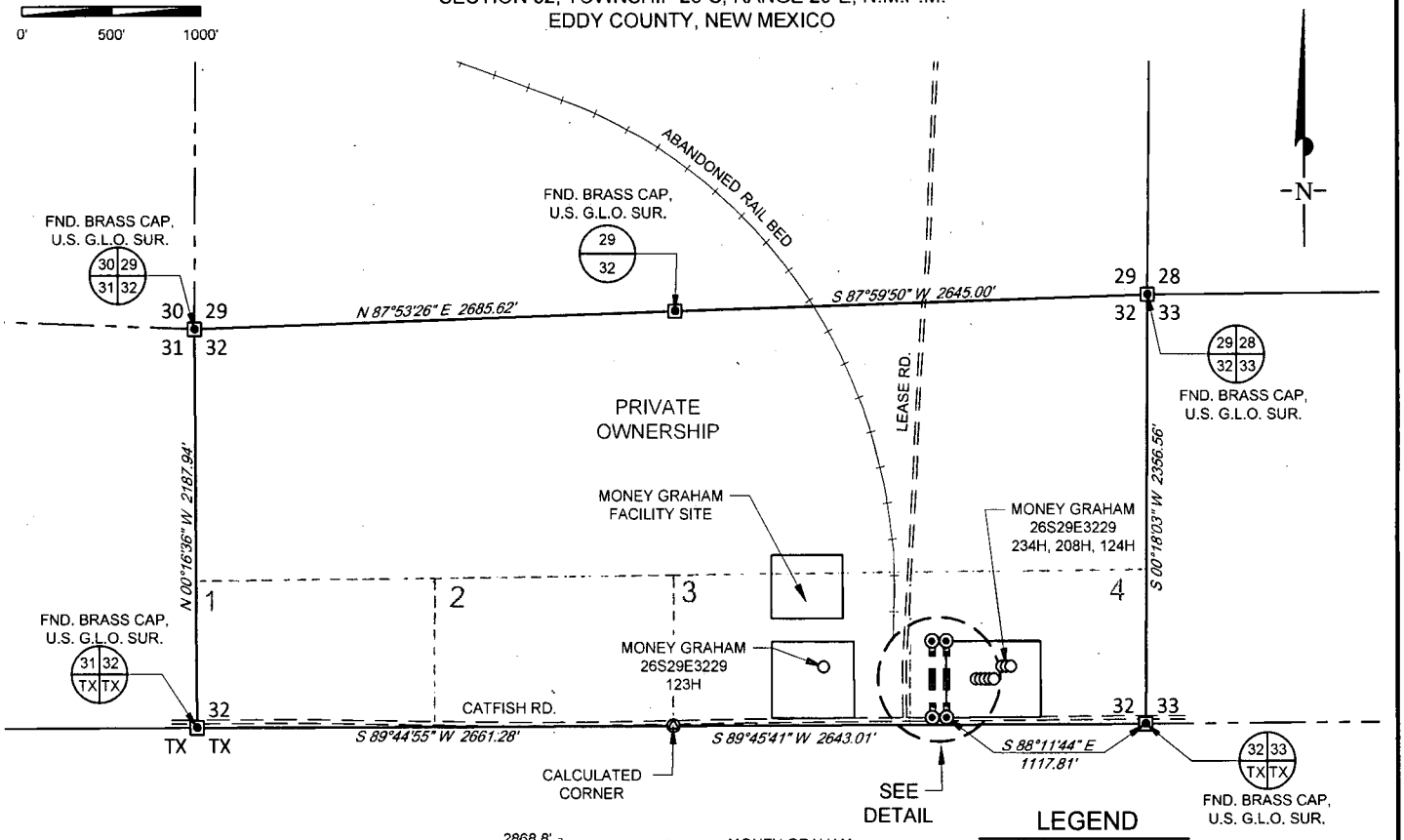
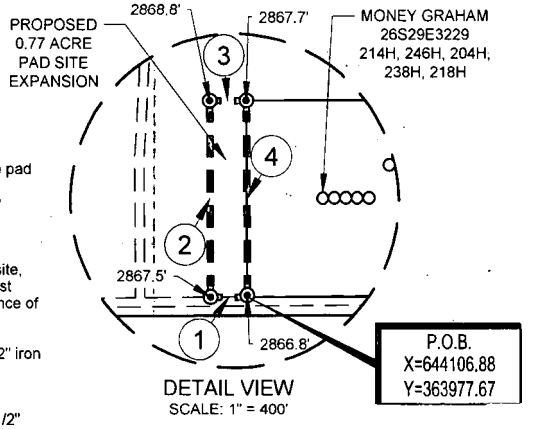
ORIGINAL DOCUMENT SIZE: 8.5" X 11"

SCALE: 1" = 1000'

0' 500' 1000'

SECTION 32, TOWNSHIP 26-S; RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO





DETAIL VIEW
SCALE: 1" = 400'

LEGEND

- SURVEY/SECTION LINE
- PROPOSED SITE
- TRACT BORDER
- ROAD WAY
- RAILROAD
- MONUMENT
- CALCULATED CORNER
- IRON ROD SET

LINE TABLE

LINE	BEARING	DISTANCE
1	S 89°45'18" W	80.00'
2	N 00°14'42" W	420.00'
3	N 89°45'18" E	80.00'
4	S 00°14'42" E	420.00'

MONEY GRAHAM FED COM PAD SITE EXPANSION

Metes and Bounds Description of a proposed 0.77 acre pad site expansion located within Section 32, Township 26 South, Range 29 East, N.M.P.M., in Eddy County, New Mexico.

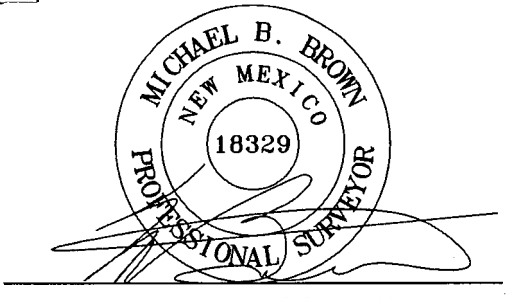
BEGINNING at a 1/2" iron rod with cap marked "TOPOGRAPHIC" set for the Southeast corner of this site, whence a U.S. G.L.O. brass cap found for the Southeast corner of said Section 32, bears S 88°11'44" E, a distance of 1,117.81 feet;

Thence S 89°45'18" W, a distance of 80.00 feet to a 1/2" iron rod with cap marked "TOPOGRAPHIC" set for the Southwest corner of this site;

Thence N 00°14'42" W, a distance of 420.00 feet to a 1/2" iron rod with cap marked "TOPOGRAPHIC" set for the Northwest corner of this site;

Thence N 89°45'18" E, a distance of 80.00 feet to a 1/2" iron rod with cap marked "TOPOGRAPHIC" set for the Northeast corner of this site;

Thence S 00°14'42" E, a distance of 420.00 feet to the POINT OF BEGINNING.



Michael Blake Brown, P.S. No. 18329
DECEMBER 12, 2018

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY

1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
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TAP ROCK

MONEY GRAHAM FED COM PAD SITE EXPANSION	REVISION: INT	DATE
DATE: 12/07/18		
FILE: 30_MONEY_GRAHAM_FED COM_PAD_SITE_EXPANSION		
DRAWN BY: MML		
SHEET: 1 OF 1		

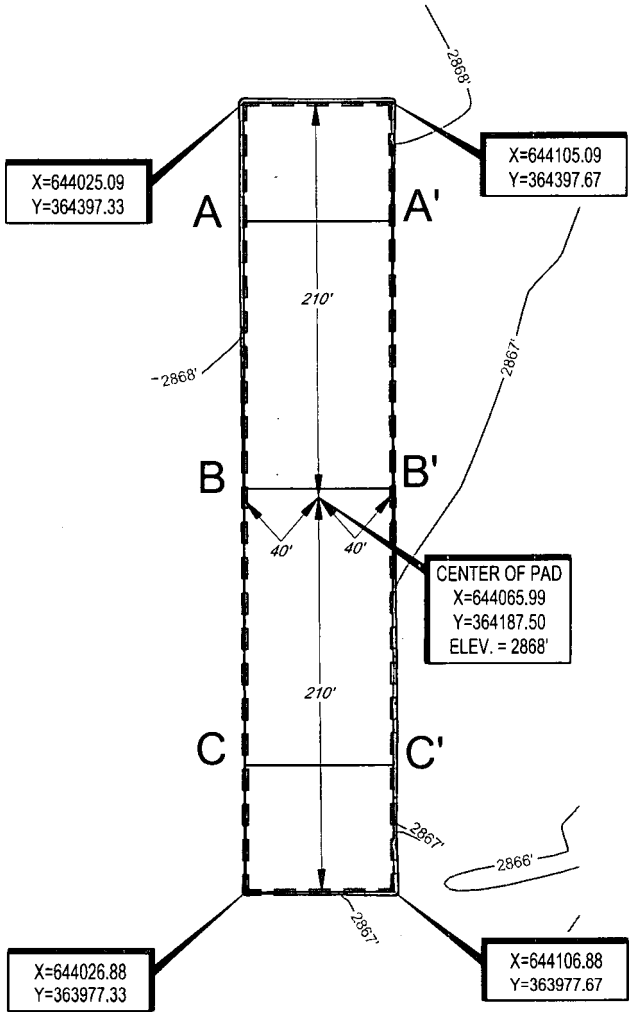
NOTES:
1. ORIGINAL DOCUMENT SIZE: 8.5" X 11"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET.
3. CERTIFICATION IS MADE ONLY TO THE LOCATION OF THIS EASEMENT, IN RELATION TO THE EVIDENCE FOUND DURING A FIELD SURVEY, MADE ON THE GROUND, UNDER MY SUPERVISION, AND USING DOCUMENTATION PROVIDED BY TAP ROCK OPERATING, LLC. ONLY UTILITIES/EASEMENTS THAT WERE VISIBLE ON THE DATE OF THIS SURVEY, WITHIN/ADJOINING THIS EASEMENT, HAVE BEEN LOCATED AS SHOWN HEREON OF WHICH I HAVE KNOWLEDGE. THIS CERTIFICATION IS LIMITED TO THOSE PERSONS OR ENTITIES SHOWN ON THE FACE OF THIS PLAT AND IS NON-TRANSFERABLE, AND MADE FOR THIS TRANSACTION ONLY.
4. P.O.B. = POINT OF BEGINNING

S:\SURVEY\TAPROCK\MONEY_GRAHAM_UNIT\FINAL_PRODUCTS\BO_MONEY_GRAHAM_FED COM_PAD_SITE_EXPANSION.DWG 12/12/2018 7:46:15 AM kmatheny

PRELIMINARY

SECTION 32, TOWNSHIP 26-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

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



TOP OF PAD ELEVATION: 2867.5
CUT SLOPE: 33.33% 3.000:1 18.43°
FILL SLOPE: 33.33% 3.000:1 18.43°
BALANCE TOLERANCE (C.Y.): 0.00
CUT SWELL FACTOR: 1.00
FILL SHRINK FACTOR: 1.00

PAD EARTHWORK VOLUMES
CUT : 5,574.1 C.F., 206.45 C.Y.
FILL: 5,574.1 C.F., 206.45 C.Y.
AREA: 34759.6 SQ.FT., 0.798 ACRES

NOTE: 1' CONTOUR INTERVALS

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
1400 EVERMAN PARKWAY, Ste. 146 • FT. WORTH, TEXAS 76140
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TAP ROCK

MONEY GRAHAM 26S29E3229 EXPANSION PAD SITE	REVISION: INT	DATE
DATE: 12/10/18		
FILE: CO_MONEY_GRAHAM_26S29E3229_PAD_SITE_EXPANSION		
DRAWN BY: EAH		
SHEET : 1 OF 3		

NOTES:
1. ORIGINAL DOCUMENT SIZE: 8.5" X 11"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET.

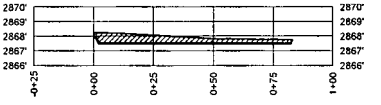
PRELIMINARY

SECTION 32, TOWNSHIP 26-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

Horizontal Scale = 1:60
Vertical Scale = 1:10

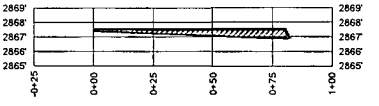
TAP

A-A'



B-B'

C-C'



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MONEY GRAHAM 26S29E3229 EXPANSION PAD SITE	REVISION: INT	DATE
DATE: 12/10/18		
FILE: C:\MONEY GRAHAM 26S29E3229 PAD SITE EXPANSION		
DRAWN BY: EAH		
SHEET: 2 OF 3		

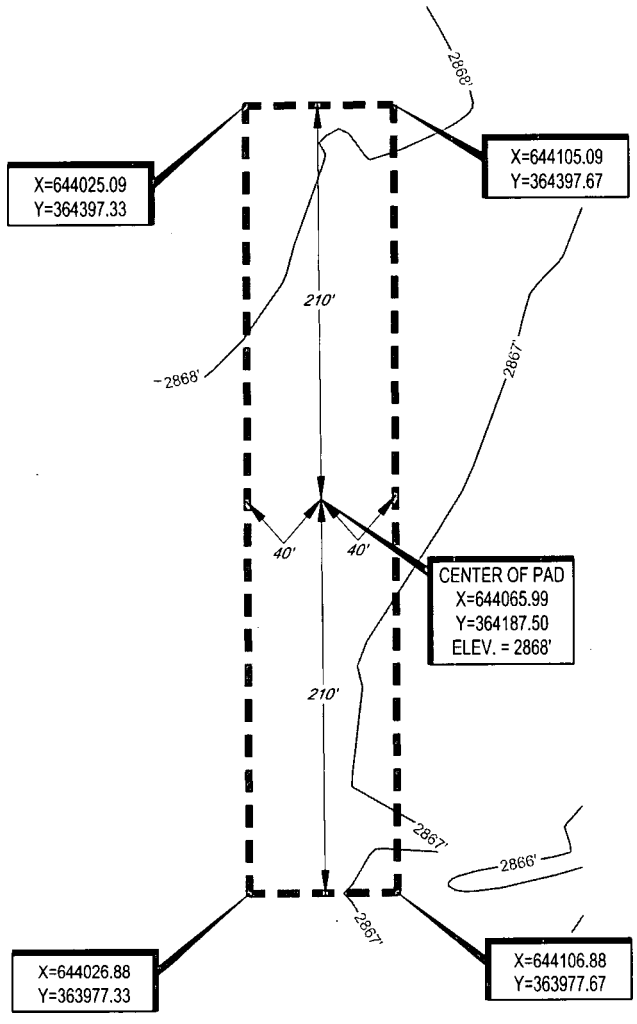
NOTES:
1. ORIGINAL DOCUMENT SIZE: 8.5" X 11"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983. EAST ZONE, U.S. SURVEY FEET.

S:\SURVEY\TAPROCK\MONEY_GRAHAM_UNIT\FINAL_PRODUCTS\CD_MONEY_GRAHAM_26S29E3229_PAD_SITE_EXPANSION.DWG 12/11/2018 1:42:21 PM kmahney

PRELIMINARY

SECTION 32, TOWNSHIP 26-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

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



TOP OF PAD ELEVATION: 2867.5
CUT SLOPE: 33.33% 3.000:1 18.43°
FILL SLOPE: 33.33% 3.000:1 18.43°
BALANCE TOLERANCE (C.Y.): 0.00
CUT SWELL FACTOR: 1.00
FILL SHRINK FACTOR: 1.00

PAD EARTHWORK VOLUMES
CUT : 5,574.1 C.F., 206.45 C.Y.
FILL: 5,574.1 C.F., 206.45 C.Y.
AREA: 34759.6 SQ.FT., 0.798 ACRES

NOTE: 1' CONTOUR INTERVALS

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LOYALTY INNOVATION LEGACY
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TAP ROCK

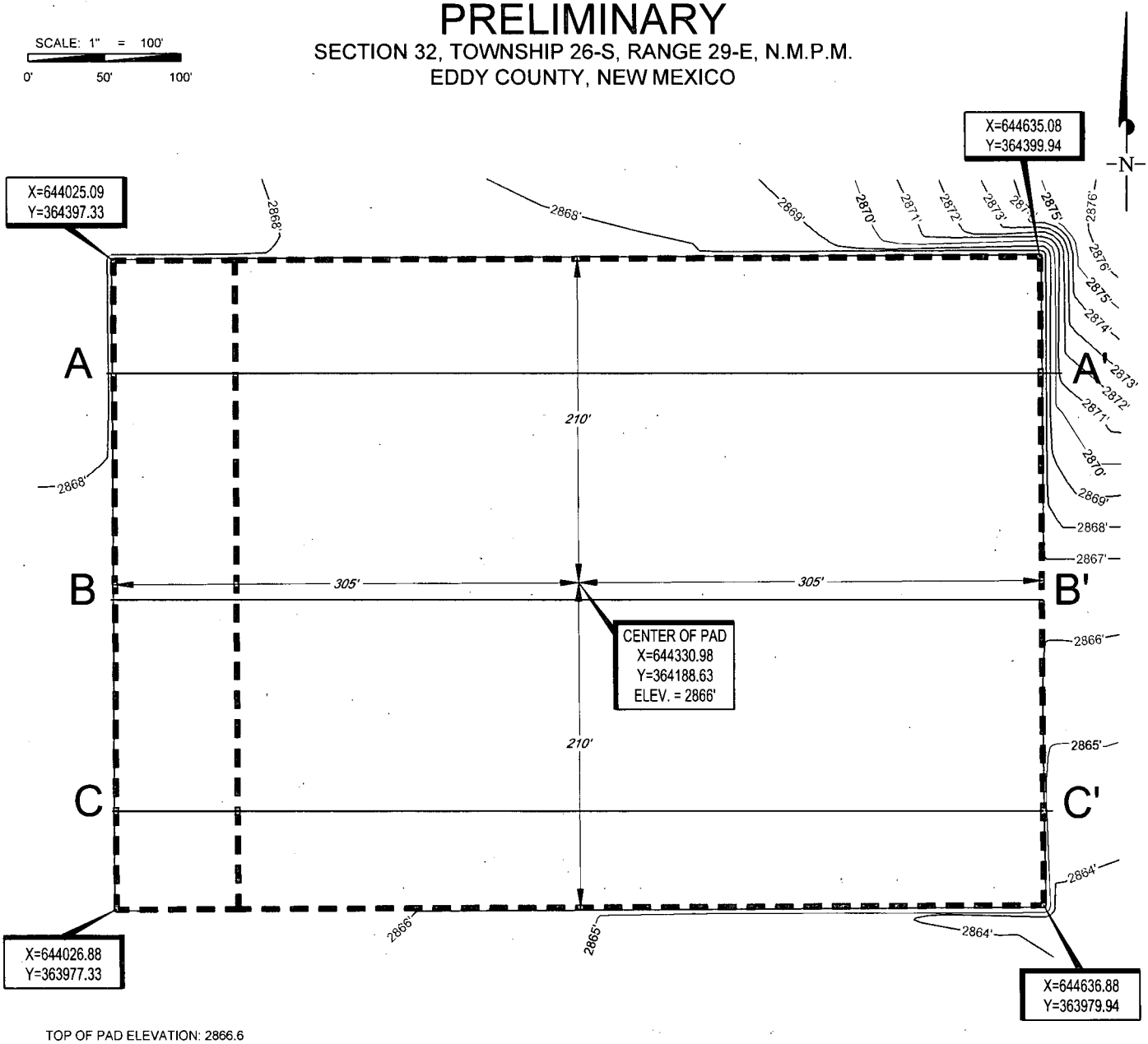
MONEY GRAHAM 26S29E3229 EXPANSION PAD SITE	REVISION:	
	INT	DATE
DATE: 12/10/18		
FILE: CD_MONEY_GRAHAM_26S29E3229_PAD_SITE_EXPANSION		
DRAWN BY: EAH		
SHEET : 3 OF 3		

NOTES:
1. ORIGINAL DOCUMENT SIZE: 8.5" X 11"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET.

PRELIMINARY

SECTION 32, TOWNSHIP 26-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

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



TOP OF PAD ELEVATION: 2866.6
CUT SLOPE: 33.33% 3.000:1 18.43°
FILL SLOPE: 33.33% 3.000:1 18.43°
BALANCE TOLERANCE (C.Y.): 0.00
CUT SWELL FACTOR: 1.00
FILL SHRINK FACTOR: 1.00

PAD EARTHWORK VOLUMES
CUT : 136,378.3 C.F., 5,051.05 C.Y.
FILL: 136,376.7 C.F., 5,050.99 C.Y.
BALANCE EXPORT: 1.6 C.F., 0.06 C.Y.
AREA: 267759.1 SQ.FT., 6.147 ACRES

NOTE: 1' CONTOUR INTERVALS

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
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TAP ROCK

MONEY GRAHAM FED COM EXPANSION PAD SITE	REVISION:	
	MML	12/12/18
DATE: 12/10/18		
FILE: CD_MONEY_GRAHAM_FED COM_SITE_EXPANSION_REV1		
DRAWN BY: EAH		
SHEET : 1 OF 3		

NOTES:
1. ORIGINAL DOCUMENT SIZE: 8.5" X 11"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET.

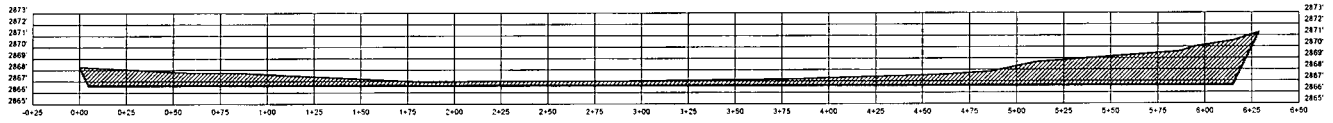
PRELIMINARY

SECTION 32, TOWNSHIP 26-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

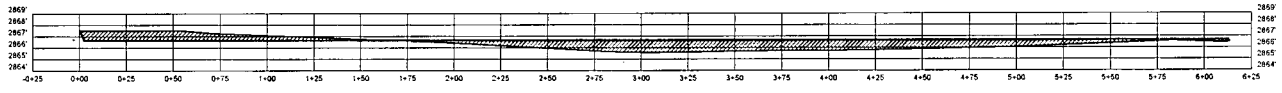
Horizontal Scale = 1:60
Vertical Scale = 1:10

TAP ROCK

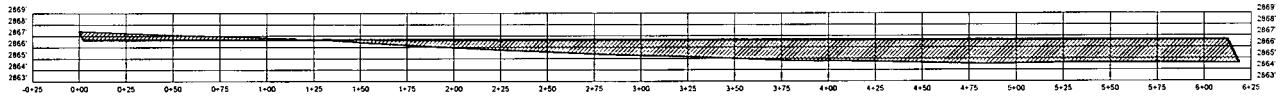
A-A'



B-B'



C-C'



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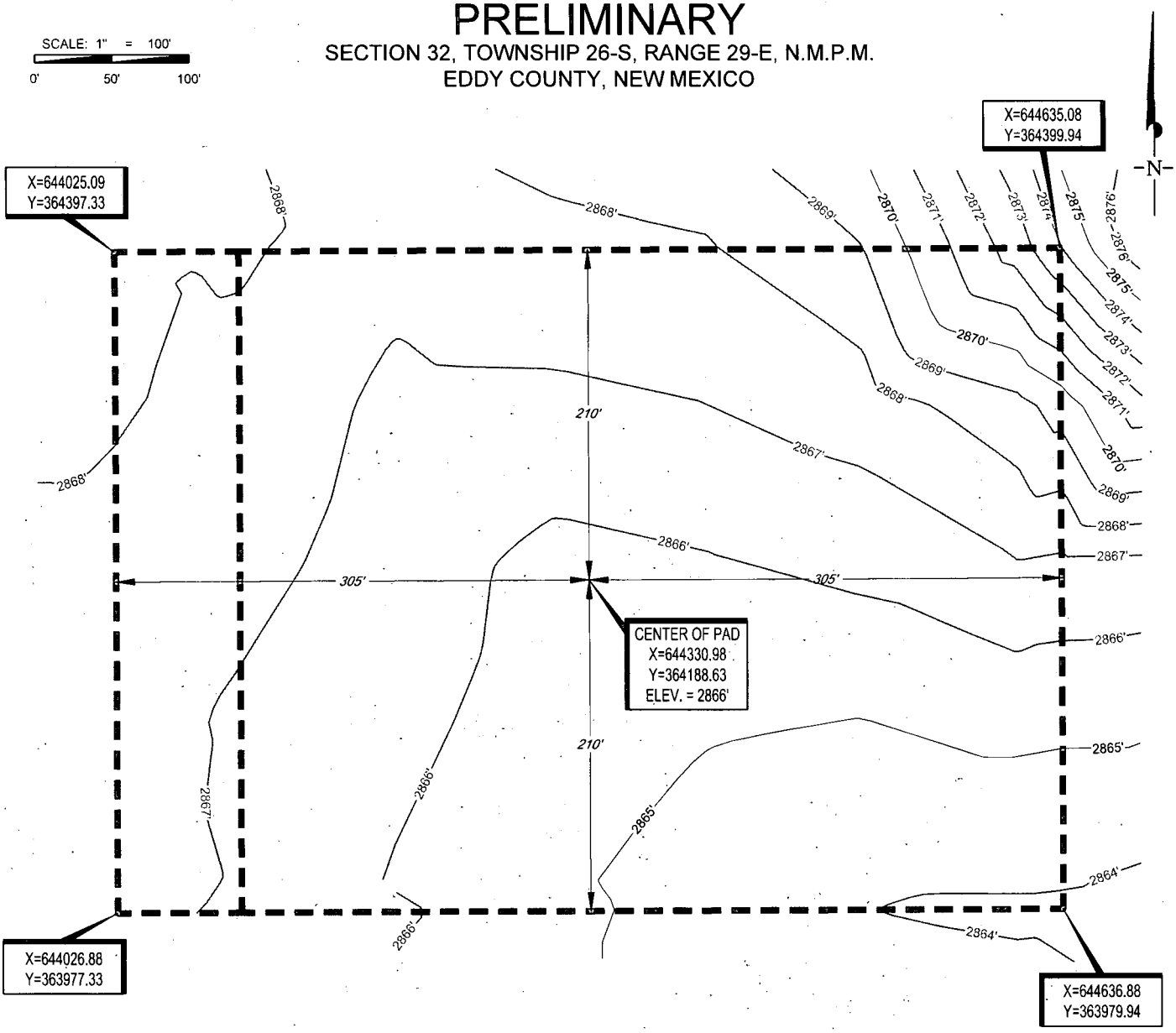
MONEY GRAHAM FED COM EXPANSION PAD SITE	REVISION: MML	12/12/18
DATE: 12/10/18		
FILE: CD MONEY GRAHAM FED COM SITE EXPANSION REVI		
DRAWN BY: EAH		
SHEET: 2 OF 3		

NOTES:
1. ORIGINAL DOCUMENT SIZE: 8.5" X 14"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET.

PRELIMINARY

SECTION 32, TOWNSHIP 26-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

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



TOP OF PAD ELEVATION: 2866.6'
CUT SLOPE: 33.33% 3.000:1 18.43°
FILL SLOPE: 33.33% 3.000:1 18.43°
BALANCE TOLERANCE (C.Y.): 0.00
CUT SWELL FACTOR: 1.00
FILL SHRINK FACTOR: 1.00

PAD EARTHWORK VOLUMES
CUT : 136,378.3 C.F., 5,051.05 C.Y.
FILL: 136,376.7 C.F., 5,050.99 C.Y.
BALANCE EXPORT: 1.6 C.F., 0.06 C.Y.
AREA: 267759.1 SQ.FT., 6.147 ACRES

NOTE: 1' CONTOUR INTERVALS

TOPOGRAPHIC
LOYALTY INNOVATION LEGACY
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TELEPHONE: (817) 744-7512 • FAX (817) 744-7554
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WWW.TOPOGRAPHIC.COM

TAP ROCK

MONEY GRAHAM FED COM EXPANSION PAD SITE	REVISION:	
	MML	12/12/18
DATE: 12/10/18		
FILE: CD_MONEY_GRAHAM_FED COM_SITE_EXPANSION_REV1		
DRAWN BY: EAH		
SHEET : 3 OF 3		

NOTES:
1. ORIGINAL DOCUMENT SIZE: 8.5" X 11"
2. ALL BEARINGS, DISTANCES, AND COORDINATE VALUES CONTAINED HEREIN ARE GRID BASED UPON THE NEW MEXICO COORDINATE SYSTEM OF 1983, EAST ZONE, U.S. SURVEY FEET.

S:\SURVEY\TAPROCK\MONEY_GRAHAM_UNIT\FINAL_PRODUCTS\CD_MONEY_GRAHAM_FED COM_SITE_EXPANSION_REV1.DWG 12/12/2018 8:11:18 AM kmatheny

Tap Rock Operating LLC

Proposed Money Graham Fed Com East Well Pad
Well Vicinity & Lease Map

Section 32, Township 26S, Range 29E
Eddy County, New Mexico

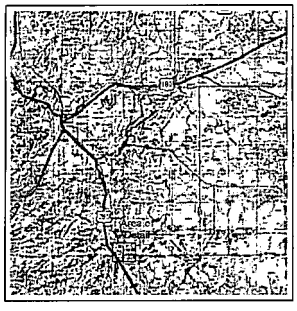
- Oil - Active
- Oil - New
- Oil - TA
- Oil - P&A
- Gas - Active
- Gas - New
- Gas - P&A
- SWD - Active
- Proposed SHL
- Proposed BHL
- Proposed Wellbore
- BLM
- STATE
- PRIVATE

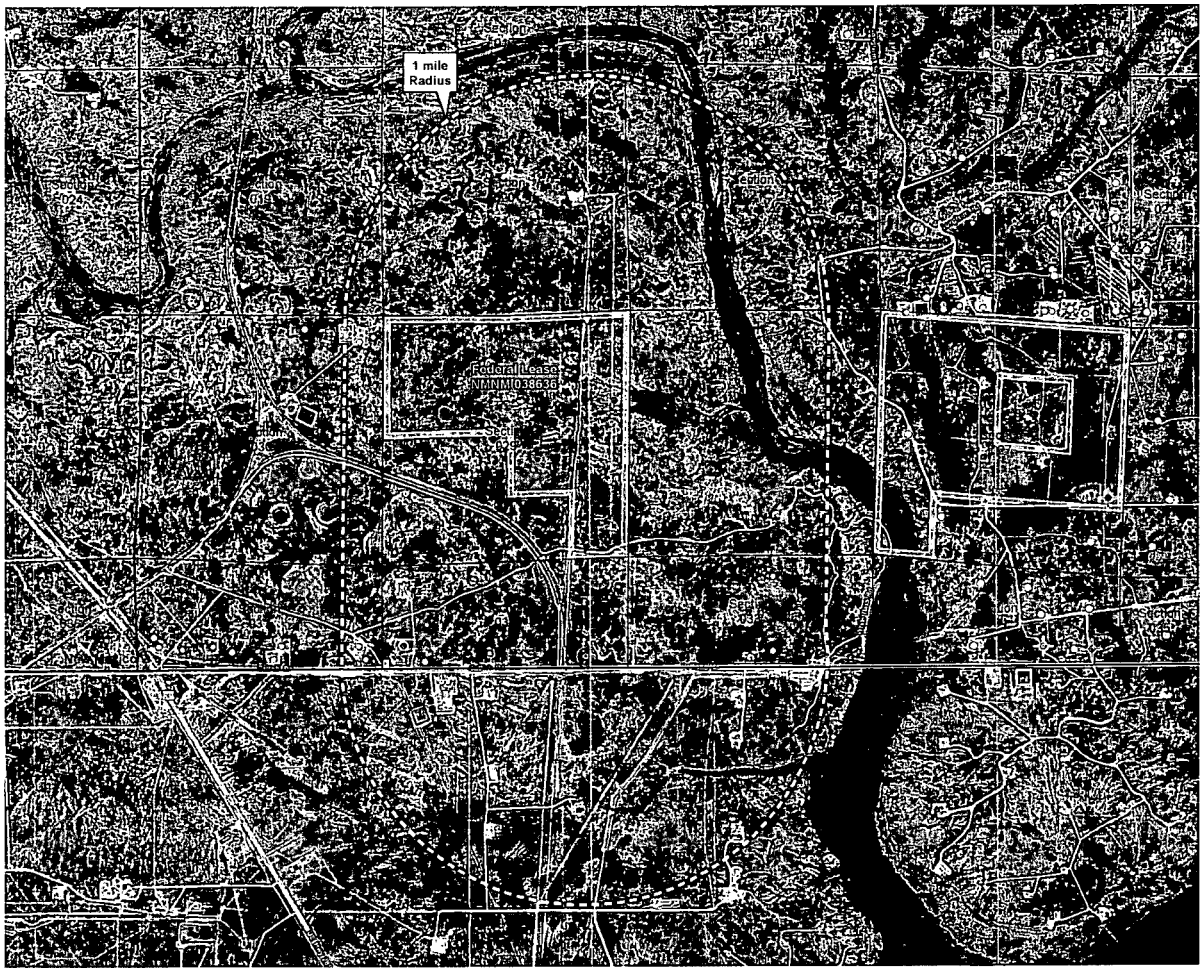
1:24,000
0 625 1,250 2,500
Feet

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, Inc.

Prepared by Permits West, Inc., January 9, 2019
for Tap Rock Operating





APD ID: 10400037882 **Submission Date:** 01/24/2019

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

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
1	QUATERNARY	2866	0	0	OTHER : Caliche	USEABLE WATER,OTHER : Salt	N
2	RUSTLER ANHYDRITE	2359	507	507		OTHER : Salt	N
3	TOP SALT	2184	682	682		OTHER : Salt	N
4	BASE OF SALT	474	2392	2396		OTHER : Salt	N
5	BELL CANYON	19	2847	2853		NATURAL GAS,OIL	N
6	BRUSHY CANYON	-1970	4836	4852		NATURAL GAS,OIL	N
7	BONE SPRING LIME	-3560	6426	6448		NATURAL GAS,OIL	N
8	BONE SPRING 1ST	-4485	7351	7373	SANDSTONE	NATURAL GAS,OIL	N
9	BONE SPRING 2ND	-5065	7931	7953	SANDSTONE	NATURAL GAS,OIL	N
10	BONE SPRING 3RD	-6307	9173	9195	SANDSTONE	NATURAL GAS,OIL	N
11	BONE SPRING 3RD	-6565	9431	9454	OTHER,SANDSTONE : W	NATURAL GAS,OIL	N
12	WOLFCAMP	-6655	9521	9547	OTHER : A	NATURAL GAS,OIL	N
13	WOLFCAMP	-6765	9631	9670	OTHER,SANDSTONE : A Y	NATURAL GAS,OIL	N
14	WOLFCAMP	-6886	9752	9828	OTHER : A Fat	NATURAL GAS,OIL	Y

Section 2 - Blowout Prevention

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

Pressure Rating (PSI): 5M **Rating Depth:** 13000

Equipment: A 13,000' 10,000-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. The BOP will be utilized below surface casing to TD. 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 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.

Testing Procedure: 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 3,500 psi. The BOP will be tested in this manner after any breaks, nipple ups, or passage of allotted time. Casing Test procedure: Casing will be tested to .22 psi per foot of casing length or 1500 psi, whichever is greater, but not to exceed 70% of minimum internal yield.

Choke Diagram Attachment:

Money_214H_10M_Choke_032918_20190111142302.pdf

BOP Diagram Attachment:

Money_204H_BOP_5M_Annular_REVISED_20190430141256.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	580	0	580	2866		580	J-55	54.5	BUTT	1.13	1.15	DRY	1.51	DRY	1.51
2	INTERMEDIATE	8.75	7.625	NEW	API	N	0	2700	0	2694	2866		2700	P-110	29.7	BUTT	1.13	1.15	DRY	1.51	DRY	1.51
3	INTERMEDIATE	12.25	9.625	NEW	API	N	0	2900	0	2893	2866		2900	J-55	40	BUTT	1.13	1.15	DRY	1.51	DRY	1.51
4	PRODUCTION	6.75	5.5	NEW	API	Y	0	9000	0	8977	2866		9000	P-110	20	BUTT	1.13	1.15	DRY	1.51	DRY	1.51
5	INTERMEDIATE	8.75	7.625	NEW	API	N	2700	9200	2694	9178			6500	P-110	29.7	OTHER - Flush	1.13	1.15	DRY	1.51	DRY	1.51
6	PRODUCTION	6.75	5.0	NEW	API	Y	9000	17040	8977	9940			8040	P-110	18	OTHER - Flush	1.13	1.15	DRY	1.51	DRY	1.51

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Money_214H_Casing_Design_Assumptions_20190111142548.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Money_214H_Casing_Design_Assumptions_20190111142910.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Money_214H_Casing_Design_Assumptions_20190111142750.pdf

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

Money_214H_5.5in_Casing_Spec_20190111143923.PDF

Casing Design Assumptions and Worksheet(s):

Money_214H_Casing_Design_Assumptions_20190111143240.pdf

Casing ID: 5 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Money_214H_Casing_Design_Assumptions_20190111143044.pdf

Casing ID: 6 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Money_214H_5in_Casing_Spec_20190111143503.pdf

Casing Design Assumptions and Worksheet(s):

Money_214H_Casing_Design_Assumptions_20190111143405.pdf

Section 4 - Cement

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Lead		0	0	0	0	0	0	0	None	None
INTERMEDIATE	Tail		0	0	0	0	0	0	0	None	None
PRODUCTION	Lead		0	0	0	0	0	0	0	None	None
PRODUCTION	Tail		7960	17040	950	1.17	15.8	1112	10	Class H	fluid loss + dispersant + retarder + LCM
SURFACE	Lead		0	580	0	0	0	0	0	None	None
SURFACE	Tail		0	580	584	1.38	14.8	765	100	Class C	5% NaCl + LCM
INTERMEDIATE	Lead		0	2900	803	1.81	13.5	1453	100	Class C	Bentonite + 1% CaCl2 + 8% NaCl + LCM
INTERMEDIATE	Tail		0	2900	263	1.38	14.8	363	100	Class C	5% NaCl + LCM
PRODUCTION	Lead		0	9200	0	0	0	0	0	None	None
PRODUCTION	Tail		0	0	0	0	0	0	0	None	None
INTERMEDIATE	Lead		1900	9200	315	2.35	11.5	740	35	TXI	Fluid loss + dispersant + retarder + LCM
INTERMEDIATE	Tail		1900	9200	180	1.39	13.2	250	35	TXI	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: 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.

Describe the mud monitoring system utilized: Electronic Pason mud monitor system complying with Onshore Order 1 will be used.

Circulating Medium Table

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

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
9200	17040	OIL-BASED MUD	12.5	12.5							
0	580	OTHER : Fresh water spud mud	8.3	8.3							
580	2900	OTHER : Brine water	10	10							
2900	9200	OTHER : Fresh water & cut brine	9	9							

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 intermediate casing 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:

CBL,GR

Coring operation description for the well:

No DSTs or cores are planned at this time.

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 6000 **Anticipated Surface Pressure:** 3813.2

Anticipated Bottom Hole Temperature(F): 140

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:

Money_East_Pad_H2S_Plan_20190111145103.pdf

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Money_214H_Horiztonal_Plan_011019_20190111145117.pdf

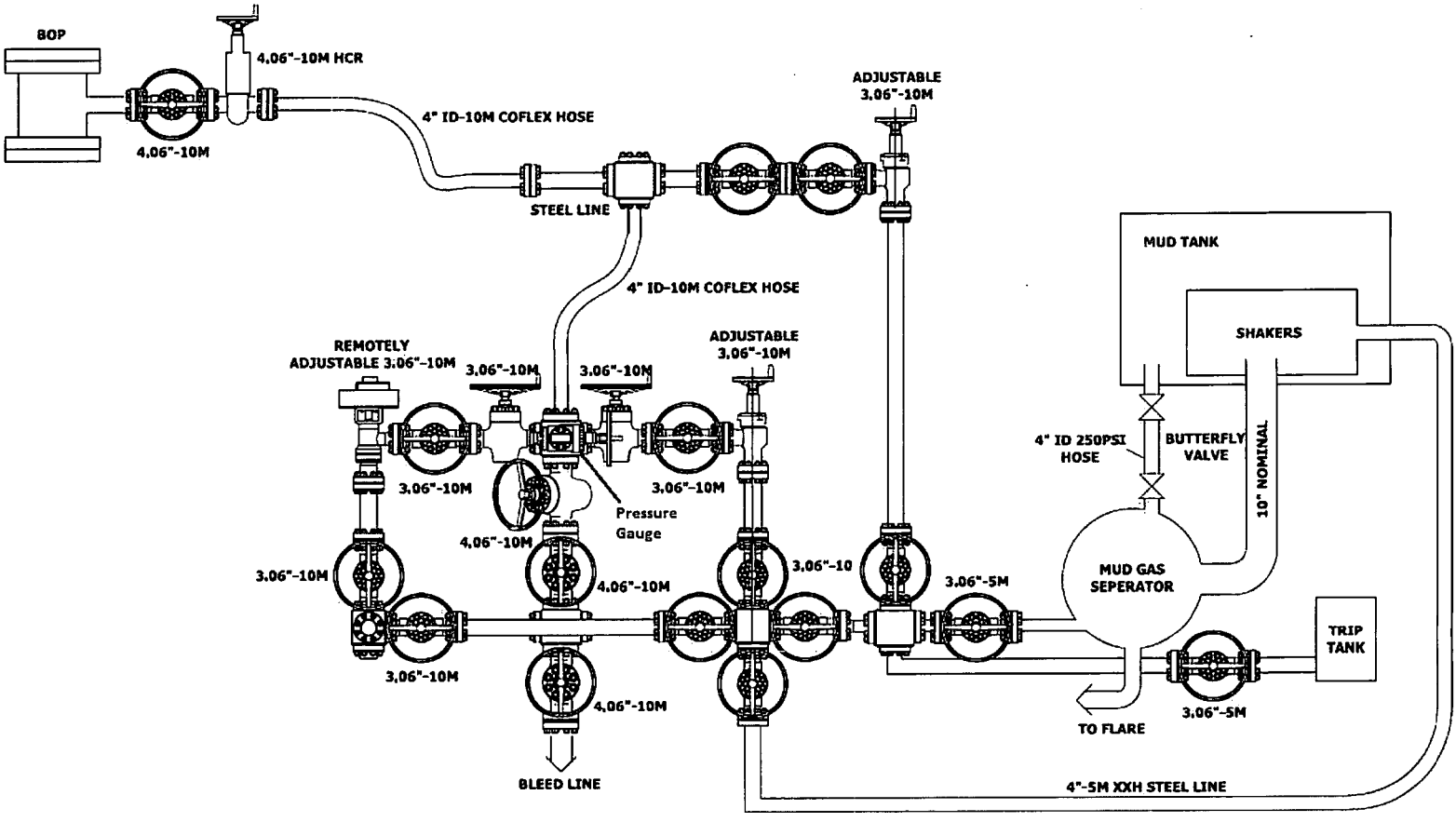
Other proposed operations facets description:

Other proposed operations facets attachment:

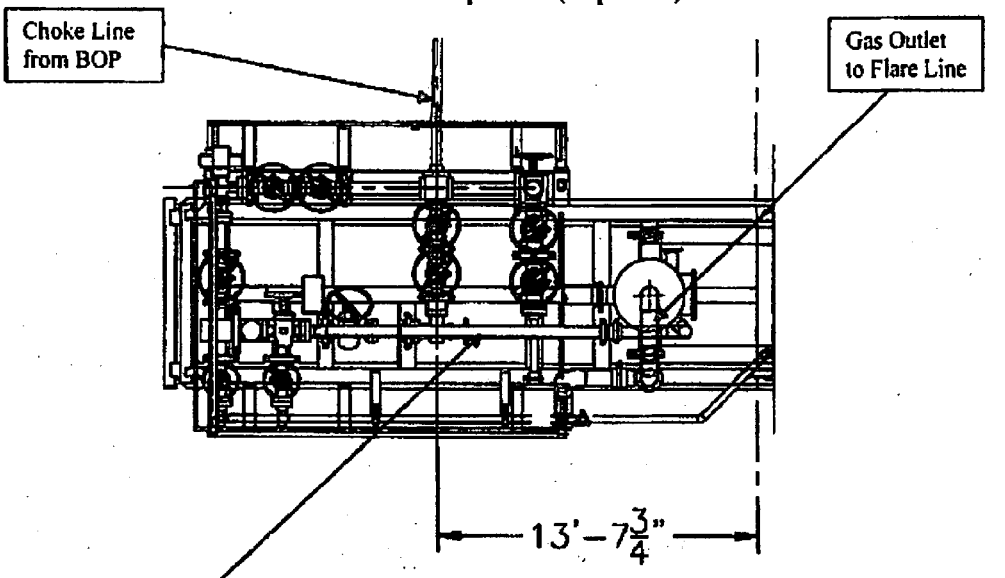
Money_214H_Speedhead_Specs_033018_20190111145142.pdf
Money_214H_7.625_W513_Casing_Spec_20190617150323.pdf
Money_214H_Drill_Plan_v3_061219_REVISED_20190617150337.pdf

Other Variance attachment:

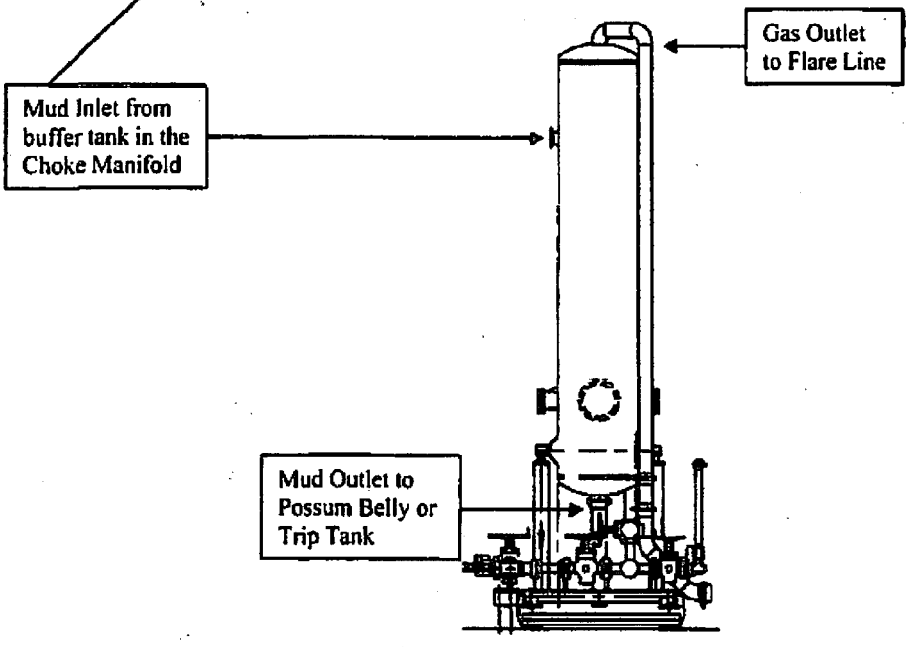
Money_214H_Casing_Variance_Request_20190111145151.pdf


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

Choke Manifold – Gas Separator (Top View)



Choke Manifold – Gas Separator (Side View)

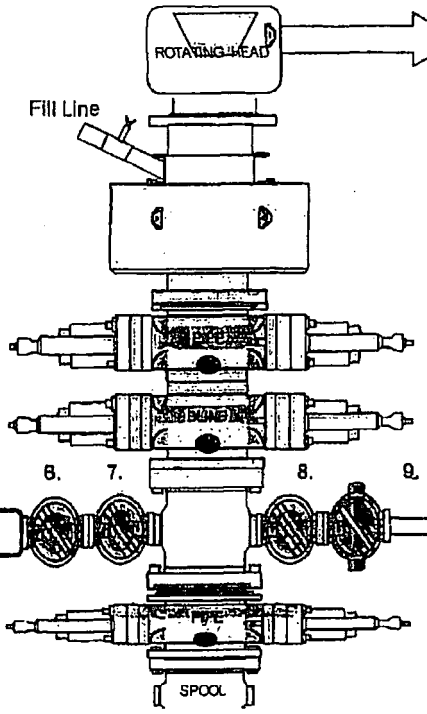


10,000 psi BOP Stack

Mud Cross Valves:

5. 10M Check Valve
6. Outside 10M Kill Line Valve
7. Inside 10M Kill Line
8. Outside10M Kill Line Valve
9. 10M HCR Valve

*Minimum ID = 2-1/16" on Kill Line side and 3" minimum ID on choke line side



1. 5,000 psi Annular (13-5/8" ID)
2. 10,000 psi Upper Pipe Ram (13-5/8" ID)
3. 10,000 psi Blind Ram (13-5/8" ID)

To Kill Line

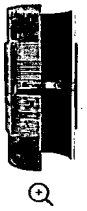
To Co-Flex and Choke Manifold

4. 10,000 psi Lower Pipe Ram (13-5/8" ID)

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.	Min. Wall Thickness	87.5%
Wall Thickness	0.361 in.	Drift	API Standard
Grade	P110	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

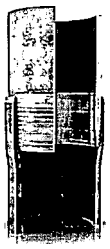
Minimum	11270 ft-lbs	Optimum	12520 ft-lbs	Maximum	13770 ft-lbs

OPERATION LIMIT TORQUES

Operating Torque	21500 ft-lbs	Yield Torque	23900 ft-lbs		

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: - 3rd Band: -	1st Band: White 2nd Band: Pale Green 3rd Band: - 4th Band: -
		Type	Casing		

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

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

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TAP ROCK

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	

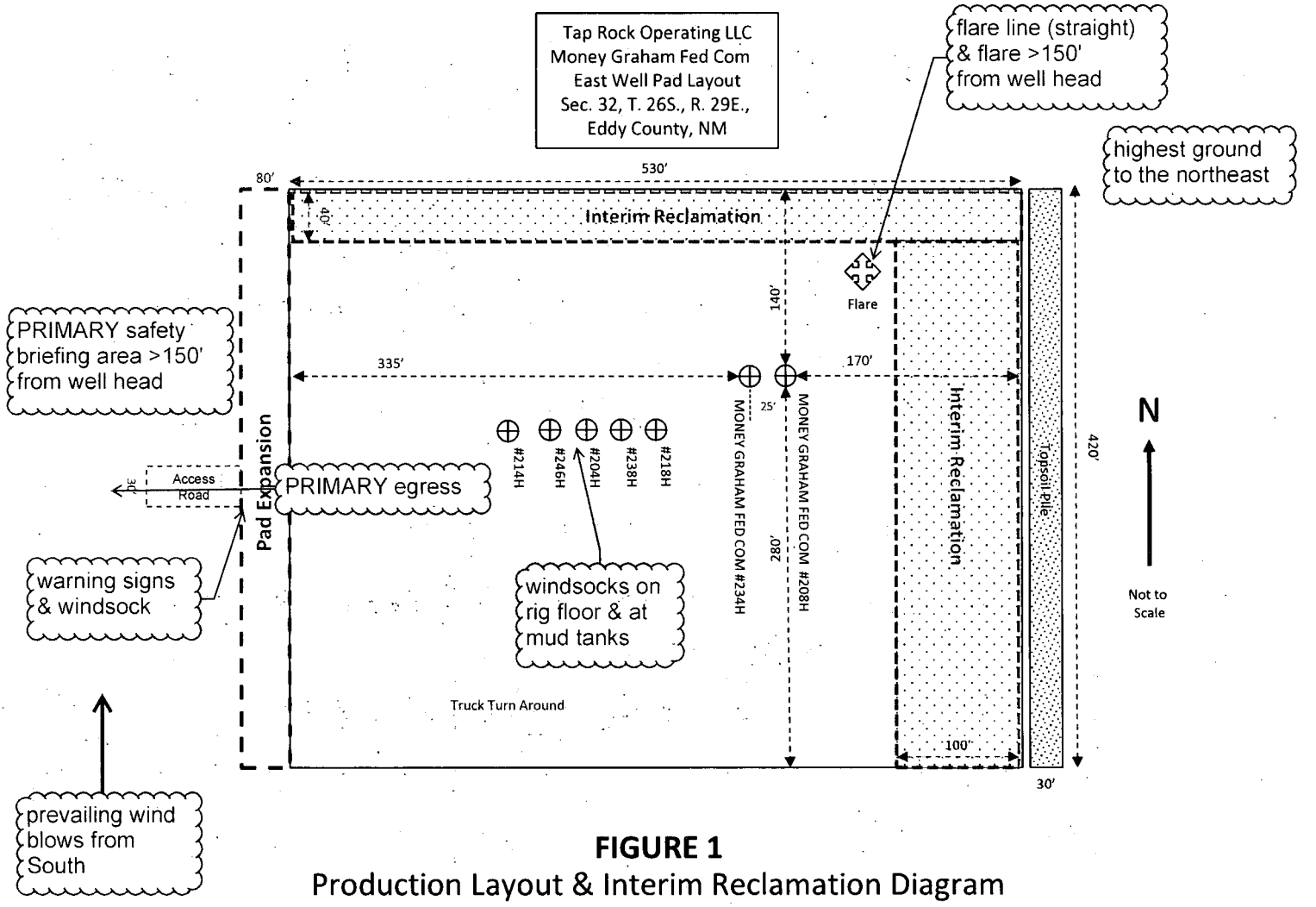


FIGURE 1

Production Layout & Interim Reclamation Diagram

Tap Rock Operating, LLC

Money Grahm East Pad
H2S Contingency Plan:
Radius Map

Section 32, Township 26S, Range 29E
Eddy County, New Mexico

Surface Hole Location

1:27,000

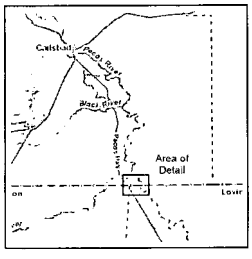
0 0.25 0.5 1

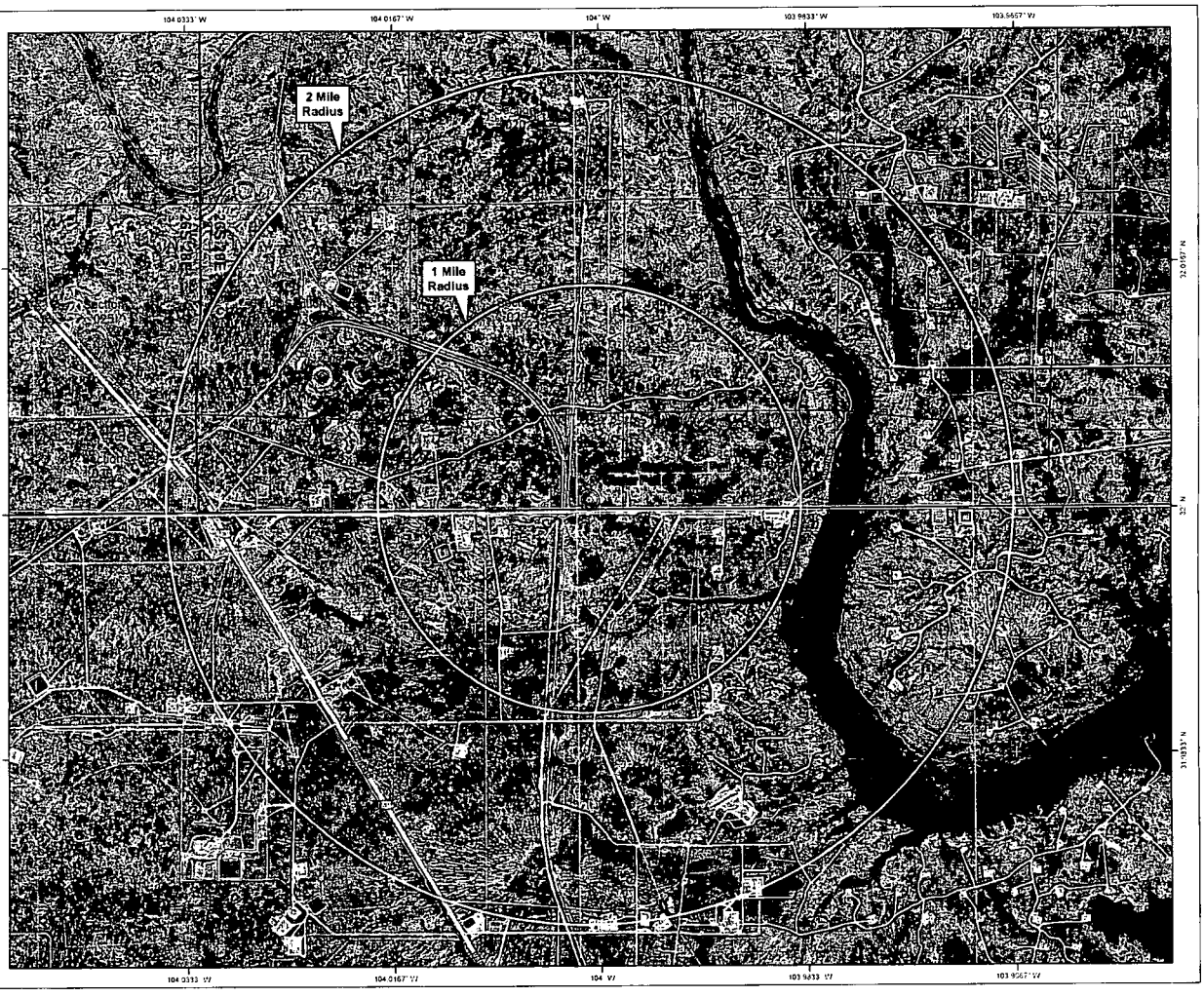
Miles

NAD 1983 New Mexico State Plane East
FIPS 3001 Feet

PERMITS WEST, Inc.

Prepared by Permits West, Inc., July 26, 2018
for Tap Rock Operating, LLC





Well: Money Graham Fed Com Well No. 214 H
Site: Section 32-T26S-R29E
Project: Eddy County, New Mexico NAD83 NM east
Design: rev0
Rig:

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	KOP Begin 1.5°/100' build
3	1571.14	5.57	244.69	1570.55	-7.70	-16.29	1.50	-7.85	Begin 5.57° tangent
4	6051.16	5.57	244.69	6029.45	-193.54	-409.16	0.00	-197.17	Begin 1.5°/100
5	6422.30	0.00	0.00	6400.00	-201.24	-425.45	1.50	-205.02	Begin vertical hold
6	9349.35	0.00	0.00	9327.05	-201.24	-425.45	0.00	-205.02	Begin 10°/100' build
7	9399.35	5.00	9.55	9376.99	-199.09	-425.09	10.00	-202.87	
8	10245.95	89.66	9.55	9900.00	360.42	-330.96	10.00	357.46	Begin 2°/100' turn
9	10697.98	89.66	0.51	9902.67	810.24	-291.37	2.00	807.61	Begin 89.66° lateral
10	17040.11	89.66	0.51	9940.00	7152.01	-235.00	0.00	7149.64	PBHL/TD 17040.11 MD/9940.00 TVD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
Money Graham 214H VT 100 FSL 1254 FEL	6400.00	-151.00	-300.00	364037.00	643971.00
Money Graham 214H VT 50 FSL 1379 FEL	6400.00	-201.24	-425.45	363986.76	643845.55
Money Graham 214H PBHL 200 FNL 1254 FEL	9940.00	7152.01	-235.00	371340.00	644036.00

T G M

Azimuths to Grid North
True North: -0.18°
Magnetic North: 6.79°

Magnetic Field
Strength: 47607.6snT
Dip Angle: 59.77°
Date: 12/26/2018
Model: IGRF2015

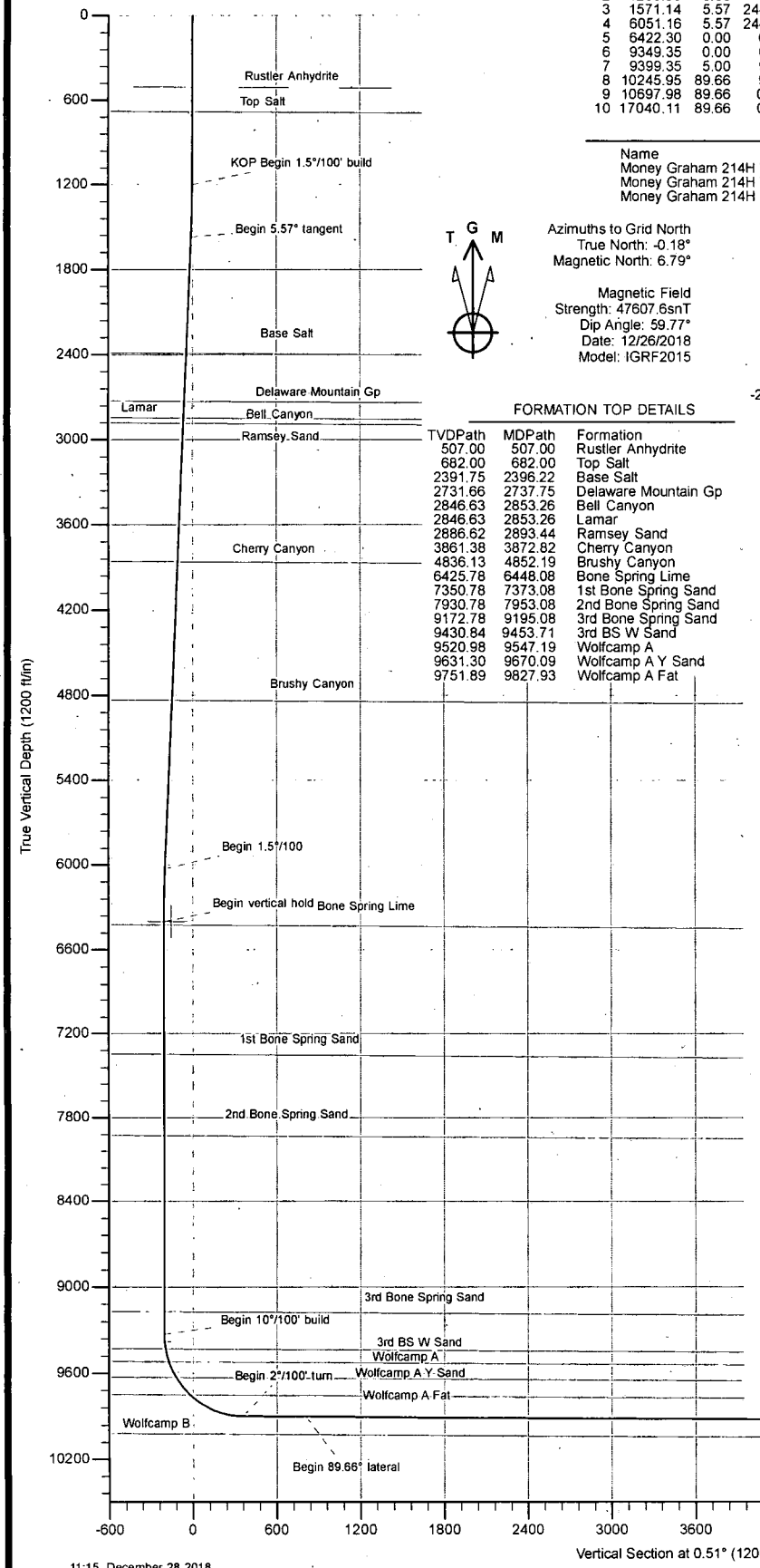
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

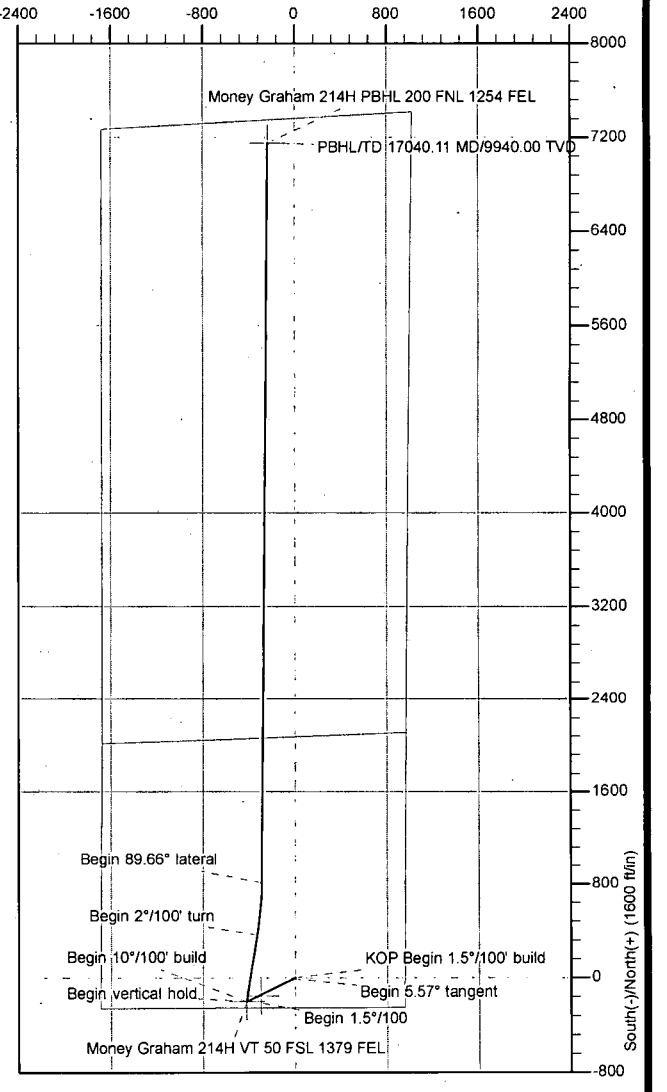
System Datum: Mean Sea Level
Depth Reference: RKB=2866+26 @ 2892.00ft
Surface location:

Northing	Easting	Latittude	Longitude
364188.00	644271.00	32.00079832	-104.00127495

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
507.00	507.00	Rustler Anhydrite
682.00	682.00	Top Salt
2391.75	2396.22	Base Salt
2731.66	2737.75	Delaware Mountain Gp
2846.63	2853.26	Bell Canyon
2846.63	2853.26	Lamar
2886.62	2893.44	Ramsey Sand
3861.38	3872.82	Cherry Canyon
4836.13	4852.19	Brushy Canyon
6425.78	6448.08	Bone Spring Lime
7350.78	7373.08	1st Bone Spring Sand
7930.78	7953.08	2nd Bone Spring Sand
9172.78	9195.08	3rd Bone Spring Sand
9430.84	9453.71	3rd BS W Sand
9520.98	9547.19	Wolfcamp A
9631.30	9670.09	Wolfcamp A Y Sand
9751.89	9827.93	Wolfcamp A Fat





11:15, December 28 2018

Database:	DB_Jul2216dt_v14	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Company:	Tap Rock Operating LLC	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Project	Eddy County, New Mexico NAD83 NM east		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Section 32-T26S-R29E				
Site Position:		**Northing:**	364,189.00 usft	**Latitude:**	32.00080022
From:	Map	**Easting:**	644,371.00 usft	**Longitude:**	-104.00095235
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.18 °

Well	Money Graham Fed Com Well No. 214 H, Surf loc: 250 FSL 954 FEL Section 32-T26S-R29E				
Well Position	**+N/-S**	-1.00 ft	**Northing:**	364,188.00 usft	**Latitude:**	32.00079832
	+E/-W	-100.00 ft	**Easting:**	644,271.00 usft	**Longitude:**	-104.00127495
Position Uncertainty		0.00 ft	**Wellhead Elevation:**		**Ground Level:**	2,866.00 ft

Wellbore	Original Hole			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	12/26/2018	6.97	59.77	47,607.56878099

Design	rev0			
Audit Notes:				
Version:	**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.00	0.51

Plan Survey Tool Program **Date** 12/28/2018

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,040.11	rev0 (Original Hole)	MWD	
				OWSG MWD - Standard	

Database:	DB_Jul2216dt_v14	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
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Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,571.14	5.57	244.69	1,570.55	-7.70	-16.29	1.50	1.50	0.00	244.69	
6,051.16	5.57	244.69	6,029.45	-193.54	-409.16	0.00	0.00	0.00	0.00	
6,422.30	0.00	0.00	6,400.00	-201.24	-425.45	1.50	-1.50	0.00	180.00	Money Graham 214H
9,349.35	0.00	0.00	9,327.05	-201.24	-425.45	0.00	0.00	0.00	0.00	
9,399.35	5.00	9.55	9,376.99	-199.09	-425.09	10.00	10.00	0.00	9.55	
10,245.95	89.66	9.55	9,900.00	360.42	-330.96	10.00	10.00	0.00	0.00	
10,697.98	89.66	0.51	9,902.67	810.24	-291.37	2.00	0.00	-2.00	-90.01	
17,040.11	89.66	0.51	9,940.00	7,152.01	-235.00	0.00	0.00	0.00	0.00	Money Graham 214H

Database:	DB_Jul2216dt_v14	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Company:	Tap Rock Operating LLC	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
507.00	0.00	0.00	507.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler Anhydrite									
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
682.00	0.00	0.00	682.00	0.00	0.00	0.00	0.00	0.00	0.00
Top Salt									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP Begin 1.5°/100' build									
1,300.00	1.50	244.69	1,299.99	-0.56	-1.18	-0.57	1.50	1.50	0.00
1,400.00	3.00	244.69	1,399.91	-2.24	-4.73	-2.28	1.50	1.50	0.00
1,500.00	4.50	244.69	1,499.69	-5.03	-10.64	-5.13	1.50	1.50	0.00
1,571.14	5.57	244.69	1,570.55	-7.70	-16.29	-7.85	1.50	1.50	0.00
Begin 5.57° tangent									
1,600.00	5.57	244.69	1,599.28	-8.90	-18.82	-9.07	0.00	0.00	0.00
1,700.00	5.57	244.69	1,698.81	-13.05	-27.59	-13.29	0.00	0.00	0.00
1,800.00	5.57	244.69	1,798.34	-17.20	-36.36	-17.52	0.00	0.00	0.00
1,900.00	5.57	244.69	1,897.87	-21.34	-45.13	-21.75	0.00	0.00	0.00
2,000.00	5.57	244.69	1,997.39	-25.49	-53.90	-25.97	0.00	0.00	0.00
2,100.00	5.57	244.69	2,096.92	-29.64	-62.67	-30.20	0.00	0.00	0.00
2,200.00	5.57	244.69	2,196.45	-33.79	-71.43	-34.42	0.00	0.00	0.00
2,300.00	5.57	244.69	2,295.98	-37.94	-80.20	-38.65	0.00	0.00	0.00
2,396.22	5.57	244.69	2,391.75	-41.93	-88.64	-42.72	0.00	0.00	0.00
Base Salt									
2,400.00	5.57	244.69	2,395.51	-42.09	-88.97	-42.88	0.00	0.00	0.00
2,500.00	5.57	244.69	2,495.04	-46.23	-97.74	-47.10	0.00	0.00	0.00
2,600.00	5.57	244.69	2,594.56	-50.38	-106.51	-51.33	0.00	0.00	0.00
2,700.00	5.57	244.69	2,694.09	-54.53	-115.28	-55.55	0.00	0.00	0.00
2,737.75	5.57	244.69	2,731.66	-56.10	-118.59	-57.15	0.00	0.00	0.00
Delaware Mountain Gp									
2,800.00	5.57	244.69	2,793.62	-58.68	-124.05	-59.78	0.00	0.00	0.00
2,853.26	5.57	244.69	2,846.63	-60.89	-128.72	-62.03	0.00	0.00	0.00
Bell Canyon - Lamar									
2,893.44	5.57	244.69	2,886.62	-62.55	-132.25	-63.73	0.00	0.00	0.00
Ramsey Sand									
2,900.00	5.57	244.69	2,893.15	-62.83	-132.82	-64.01	0.00	0.00	0.00
3,000.00	5.57	244.69	2,992.68	-66.97	-141.59	-68.23	0.00	0.00	0.00
3,100.00	5.57	244.69	3,092.21	-71.12	-150.36	-72.46	0.00	0.00	0.00
3,200.00	5.57	244.69	3,191.73	-75.27	-159.13	-76.68	0.00	0.00	0.00
3,300.00	5.57	244.69	3,291.26	-79.42	-167.90	-80.91	0.00	0.00	0.00
3,400.00	5.57	244.69	3,390.79	-83.57	-176.67	-85.13	0.00	0.00	0.00
3,500.00	5.57	244.69	3,490.32	-87.71	-185.44	-89.36	0.00	0.00	0.00
3,600.00	5.57	244.69	3,589.85	-91.86	-194.21	-93.59	0.00	0.00	0.00
3,700.00	5.57	244.69	3,689.38	-96.01	-202.98	-97.81	0.00	0.00	0.00

Database:	DB_Jul2216dt_v14	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
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Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3,800.00	5.57	244.69	3,788.90	-100.16	-211.75	-102.04	0.00	0.00	0.00
3,872.82	5.57	244.69	3,861.38	-103.18	-218.13	-105.12	0.00	0.00	0.00
Cherry Canyon									
3,900.00	5.57	244.69	3,888.43	-104.31	-220.52	-106.26	0.00	0.00	0.00
4,000.00	5.57	244.69	3,987.96	-108.45	-229.29	-110.49	0.00	0.00	0.00
4,100.00	5.57	244.69	4,087.49	-112.60	-238.06	-114.72	0.00	0.00	0.00
4,200.00	5.57	244.69	4,187.02	-116.75	-246.83	-118.94	0.00	0.00	0.00
4,300.00	5.57	244.69	4,286.55	-120.90	-255.60	-123.17	0.00	0.00	0.00
4,400.00	5.57	244.69	4,386.07	-125.05	-264.37	-127.39	0.00	0.00	0.00
4,500.00	5.57	244.69	4,485.60	-129.19	-273.13	-131.62	0.00	0.00	0.00
4,600.00	5.57	244.69	4,585.13	-133.34	-281.90	-135.85	0.00	0.00	0.00
4,700.00	5.57	244.69	4,684.66	-137.49	-290.67	-140.07	0.00	0.00	0.00
4,800.00	5.57	244.69	4,784.19	-141.64	-299.44	-144.30	0.00	0.00	0.00
4,852.19	5.57	244.69	4,836.13	-143.80	-304.02	-146.50	0.00	0.00	0.00
Brushy Canyon									
4,900.00	5.57	244.69	4,883.72	-145.79	-308.21	-148.52	0.00	0.00	0.00
5,000.00	5.57	244.69	4,983.24	-149.93	-316.98	-152.75	0.00	0.00	0.00
5,100.00	5.57	244.69	5,082.77	-154.08	-325.75	-156.98	0.00	0.00	0.00
5,200.00	5.57	244.69	5,182.30	-158.23	-334.52	-161.20	0.00	0.00	0.00
5,300.00	5.57	244.69	5,281.83	-162.38	-343.29	-165.43	0.00	0.00	0.00
5,400.00	5.57	244.69	5,381.36	-166.53	-352.06	-169.65	0.00	0.00	0.00
5,500.00	5.57	244.69	5,480.89	-170.67	-360.83	-173.88	0.00	0.00	0.00
5,600.00	5.57	244.69	5,580.41	-174.82	-369.60	-178.11	0.00	0.00	0.00
5,700.00	5.57	244.69	5,679.94	-178.97	-378.37	-182.33	0.00	0.00	0.00
5,800.00	5.57	244.69	5,779.47	-183.12	-387.14	-186.56	0.00	0.00	0.00
5,900.00	5.57	244.69	5,879.00	-187.27	-395.91	-190.78	0.00	0.00	0.00
6,000.00	5.57	244.69	5,978.53	-191.41	-404.68	-195.01	0.00	0.00	0.00
6,051.16	5.57	244.69	6,029.45	-193.54	-409.16	-197.17	0.00	0.00	0.00
Begin 1.5°/100									
6,100.00	4.83	244.69	6,078.08	-195.43	-413.17	-199.10	1.50	-1.50	0.00
6,200.00	3.33	244.69	6,177.83	-198.48	-419.61	-202.20	1.50	-1.50	0.00
6,300.00	1.83	244.69	6,277.72	-200.40	-423.68	-204.17	1.50	-1.50	0.00
6,400.00	0.33	244.69	6,377.70	-201.21	-425.39	-204.99	1.50	-1.50	0.00
6,422.30	0.00	0.00	6,400.00	-201.24	-425.45	-205.02	1.50	-1.50	0.00
Begin vertical hold									
6,448.08	0.00	0.00	6,425.78	-201.24	-425.45	-205.02	0.00	0.00	0.00
Bone Spring Lime									
6,500.00	0.00	0.00	6,477.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
6,600.00	0.00	0.00	6,577.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
6,700.00	0.00	0.00	6,677.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
6,800.00	0.00	0.00	6,777.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
6,900.00	0.00	0.00	6,877.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
7,000.00	0.00	0.00	6,977.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
7,100.00	0.00	0.00	7,077.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
7,200.00	0.00	0.00	7,177.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
7,300.00	0.00	0.00	7,277.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
7,373.08	0.00	0.00	7,350.78	-201.24	-425.45	-205.02	0.00	0.00	0.00
1st Bone Spring Sand									
7,400.00	0.00	0.00	7,377.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
7,500.00	0.00	0.00	7,477.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
7,600.00	0.00	0.00	7,577.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
7,700.00	0.00	0.00	7,677.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
7,800.00	0.00	0.00	7,777.70	-201.24	-425.45	-205.02	0.00	0.00	0.00

Database:	DB_Jul2216dt_v14	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Company:	Tap Rock Operating LLC	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,900.00	0.00	0.00	7,877.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
7,953.08	0.00	0.00	7,930.78	-201.24	-425.45	-205.02	0.00	0.00	0.00
2nd Bone Spring Sand									
8,000.00	0.00	0.00	7,977.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
8,100.00	0.00	0.00	8,077.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
8,200.00	0.00	0.00	8,177.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
8,300.00	0.00	0.00	8,277.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
8,400.00	0.00	0.00	8,377.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
8,500.00	0.00	0.00	8,477.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
8,600.00	0.00	0.00	8,577.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
8,700.00	0.00	0.00	8,677.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
8,800.00	0.00	0.00	8,777.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
8,900.00	0.00	0.00	8,877.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
9,000.00	0.00	0.00	8,977.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
9,100.00	0.00	0.00	9,077.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
9,195.08	0.00	0.00	9,172.78	-201.24	-425.45	-205.02	0.00	0.00	0.00
3rd Bone Spring Sand									
9,200.00	0.00	0.00	9,177.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
9,300.00	0.00	0.00	9,277.70	-201.24	-425.45	-205.02	0.00	0.00	0.00
9,349.35	0.00	0.00	9,327.05	-201.24	-425.45	-205.02	0.00	0.00	0.00
Begin 10°/100' build									
9,399.35	5.00	9.55	9,376.99	-199.09	-425.09	-202.87	10.00	10.00	0.00
9,400.00	5.07	9.55	9,377.64	-199.03	-425.08	-202.81	10.00	10.00	0.00
9,453.71	10.44	9.55	9,430.84	-191.89	-423.88	-195.66	10.00	10.00	0.00
3rd BS W Sand									
9,500.00	15.07	9.55	9,475.97	-181.82	-422.18	-185.57	10.00	10.00	0.00
9,547.19	19.78	9.55	9,520.98	-167.89	-419.84	-171.62	10.00	10.00	0.00
Wolfcamp A									
9,600.00	25.07	9.55	9,569.78	-148.03	-416.50	-151.73	10.00	10.00	0.00
9,670.09	32.07	9.55	9,631.30	-115.00	-410.94	-118.65	10.00	10.00	0.00
Wolfcamp A Y Sand									
9,700.00	35.07	9.55	9,656.22	-98.69	-408.20	-102.32	10.00	10.00	0.00
9,800.00	45.07	9.55	9,732.65	-35.30	-397.53	-38.83	10.00	10.00	0.00
9,827.93	47.86	9.55	9,751.89	-15.33	-394.17	-18.84	10.00	10.00	0.00
Wolfcamp A Fat									
9,900.00	55.07	9.55	9,796.76	40.22	-384.83	36.80	10.00	10.00	0.00
10,000.00	65.07	9.55	9,846.60	125.57	-370.47	122.27	10.00	10.00	0.00
10,100.00	75.07	9.55	9,880.65	218.16	-354.89	214.99	10.00	10.00	0.00
10,200.00	85.07	9.55	9,897.88	315.17	-338.57	312.15	10.00	10.00	0.00
10,245.95	89.66	9.55	9,900.00	360.42	-330.96	357.46	10.00	10.00	0.00
Begin 2°/100' turn									
10,300.00	89.66	8.47	9,900.32	413.81	-322.49	410.92	2.00	0.00	-2.00
10,400.00	89.66	6.47	9,900.91	512.95	-309.49	510.18	2.00	0.00	-2.00
10,500.00	89.66	4.47	9,901.51	612.49	-299.96	609.80	2.00	0.00	-2.00
10,600.00	89.66	2.47	9,902.10	712.30	-293.91	709.66	2.00	0.00	-2.00
10,697.98	89.66	0.51	9,902.67	810.24	-291.37	807.61	2.00	0.00	-2.00
Begin 89.66° lateral									
10,700.00	89.66	0.51	9,902.69	812.26	-291.35	809.63	0.00	0.00	0.00
10,800.00	89.66	0.51	9,903.28	912.25	-290.46	909.63	0.00	0.00	0.00
10,900.00	89.66	0.51	9,903.86	1,012.25	-289.57	1,009.63	0.00	0.00	0.00
11,000.00	89.66	0.51	9,904.45	1,112.24	-288.68	1,109.63	0.00	0.00	0.00
11,100.00	89.66	0.51	9,905.04	1,212.24	-287.80	1,209.63	0.00	0.00	0.00
11,200.00	89.66	0.51	9,905.63	1,312.23	-286.91	1,309.63	0.00	0.00	0.00

Database:	DB_Jul2216dt_v14	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Company:	Tap Rock Operating LLC	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,300.00	89.66	0.51	9,906.22	1,412.23	-286.02	1,409.62	0.00	0.00	0.00
11,400.00	89.66	0.51	9,906.81	1,512.22	-285.13	1,509.62	0.00	0.00	0.00
11,500.00	89.66	0.51	9,907.39	1,612.21	-284.24	1,609.62	0.00	0.00	0.00
11,600.00	89.66	0.51	9,907.98	1,712.21	-283.35	1,709.62	0.00	0.00	0.00
11,700.00	89.66	0.51	9,908.57	1,812.20	-282.46	1,809.62	0.00	0.00	0.00
11,800.00	89.66	0.51	9,909.16	1,912.20	-281.57	1,909.62	0.00	0.00	0.00
11,900.00	89.66	0.51	9,909.75	2,012.19	-280.69	2,009.61	0.00	0.00	0.00
12,000.00	89.66	0.51	9,910.34	2,112.19	-279.80	2,109.61	0.00	0.00	0.00
12,100.00	89.66	0.51	9,910.93	2,212.18	-278.91	2,209.61	0.00	0.00	0.00
12,200.00	89.66	0.51	9,911.51	2,312.17	-278.02	2,309.61	0.00	0.00	0.00
12,300.00	89.66	0.51	9,912.10	2,412.17	-277.13	2,409.61	0.00	0.00	0.00
12,400.00	89.66	0.51	9,912.69	2,512.16	-276.24	2,509.61	0.00	0.00	0.00
12,500.00	89.66	0.51	9,913.28	2,612.16	-275.35	2,609.60	0.00	0.00	0.00
12,600.00	89.66	0.51	9,913.87	2,712.15	-274.46	2,709.60	0.00	0.00	0.00
12,700.00	89.66	0.51	9,914.46	2,812.15	-273.57	2,809.60	0.00	0.00	0.00
12,800.00	89.66	0.51	9,915.05	2,912.14	-272.69	2,909.60	0.00	0.00	0.00
12,900.00	89.66	0.51	9,915.63	3,012.14	-271.80	3,009.60	0.00	0.00	0.00
13,000.00	89.66	0.51	9,916.22	3,112.13	-270.91	3,109.59	0.00	0.00	0.00
13,100.00	89.66	0.51	9,916.81	3,212.12	-270.02	3,209.59	0.00	0.00	0.00
13,200.00	89.66	0.51	9,917.40	3,312.12	-269.13	3,309.59	0.00	0.00	0.00
13,300.00	89.66	0.51	9,917.99	3,412.11	-268.24	3,409.59	0.00	0.00	0.00
13,400.00	89.66	0.51	9,918.58	3,512.11	-267.35	3,509.59	0.00	0.00	0.00
13,500.00	89.66	0.51	9,919.17	3,612.10	-266.46	3,609.59	0.00	0.00	0.00
13,600.00	89.66	0.51	9,919.75	3,712.10	-265.58	3,709.58	0.00	0.00	0.00
13,700.00	89.66	0.51	9,920.34	3,812.09	-264.69	3,809.58	0.00	0.00	0.00
13,800.00	89.66	0.51	9,920.93	3,912.08	-263.80	3,909.58	0.00	0.00	0.00
13,900.00	89.66	0.51	9,921.52	4,012.08	-262.91	4,009.58	0.00	0.00	0.00
14,000.00	89.66	0.51	9,922.11	4,112.07	-262.02	4,109.58	0.00	0.00	0.00
14,100.00	89.66	0.51	9,922.70	4,212.07	-261.13	4,209.58	0.00	0.00	0.00
14,200.00	89.66	0.51	9,923.29	4,312.06	-260.24	4,309.57	0.00	0.00	0.00
14,300.00	89.66	0.51	9,923.87	4,412.06	-259.35	4,409.57	0.00	0.00	0.00
14,400.00	89.66	0.51	9,924.46	4,512.05	-258.47	4,509.57	0.00	0.00	0.00
14,500.00	89.66	0.51	9,925.05	4,612.04	-257.58	4,609.57	0.00	0.00	0.00
14,600.00	89.66	0.51	9,925.64	4,712.04	-256.69	4,709.57	0.00	0.00	0.00
14,700.00	89.66	0.51	9,926.23	4,812.03	-255.80	4,809.57	0.00	0.00	0.00
14,800.00	89.66	0.51	9,926.82	4,912.03	-254.91	4,909.56	0.00	0.00	0.00
14,900.00	89.66	0.51	9,927.41	5,012.02	-254.02	5,009.56	0.00	0.00	0.00
15,000.00	89.66	0.51	9,927.99	5,112.02	-253.13	5,109.56	0.00	0.00	0.00
15,100.00	89.66	0.51	9,928.58	5,212.01	-252.24	5,209.56	0.00	0.00	0.00
15,200.00	89.66	0.51	9,929.17	5,312.00	-251.36	5,309.56	0.00	0.00	0.00
15,300.00	89.66	0.51	9,929.76	5,412.00	-250.47	5,409.56	0.00	0.00	0.00
15,400.00	89.66	0.51	9,930.35	5,511.99	-249.58	5,509.55	0.00	0.00	0.00
15,500.00	89.66	0.51	9,930.94	5,611.99	-248.69	5,609.55	0.00	0.00	0.00
15,600.00	89.66	0.51	9,931.52	5,711.98	-247.80	5,709.55	0.00	0.00	0.00
15,700.00	89.66	0.51	9,932.11	5,811.98	-246.91	5,809.55	0.00	0.00	0.00
15,800.00	89.66	0.51	9,932.70	5,911.97	-246.02	5,909.55	0.00	0.00	0.00
15,900.00	89.66	0.51	9,933.29	6,011.96	-245.13	6,009.54	0.00	0.00	0.00
16,000.00	89.66	0.51	9,933.88	6,111.96	-244.24	6,109.54	0.00	0.00	0.00
16,100.00	89.66	0.51	9,934.47	6,211.95	-243.36	6,209.54	0.00	0.00	0.00
16,200.00	89.66	0.51	9,935.06	6,311.95	-242.47	6,309.54	0.00	0.00	0.00
16,300.00	89.66	0.51	9,935.64	6,411.94	-241.58	6,409.54	0.00	0.00	0.00
16,400.00	89.66	0.51	9,936.23	6,511.94	-240.69	6,509.54	0.00	0.00	0.00
16,500.00	89.66	0.51	9,936.82	6,611.93	-239.80	6,609.53	0.00	0.00	0.00
16,600.00	89.66	0.51	9,937.41	6,711.93	-238.91	6,709.53	0.00	0.00	0.00

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Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
16,700.00	89.66	0.51	9,938.00	6,811.92	-238.02	6,809.53	0.00	0.00	0.00
16,800.00	89.66	0.51	9,938.59	6,911.91	-237.13	6,909.53	0.00	0.00	0.00
16,900.00	89.66	0.51	9,939.18	7,011.91	-236.25	7,009.53	0.00	0.00	0.00
17,000.00	89.66	0.51	9,939.76	7,111.90	-235.36	7,109.53	0.00	0.00	0.00
17,040.11	89.66	0.51	9,940.00	7,152.01	-235.00	7,149.64	0.00	0.00	0.00
PBHL/TD 17040.11 MD/9940.00 TVD									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Money Graham 214H VT - plan hits target center - Point	0.00	0.00	6,400.00	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
Money Graham 214H VT - plan misses target center by 135.14ft at 6421.90ft MD (6399.61 TVD, -201.24 N, -425.45 E) - Point	0.00	0.00	6,400.00	-151.00	-300.00	364,037.00	643,971.00	32.00038576	-104.00224421
Money Graham 214H PE - plan hits target center - Point	0.00	0.00	9,940.00	7,152.01	-235.00	371,340.00	644,036.00	32.02046082	-104.00196230

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
507.00	507.00	Rustler Anhydrite		0.34	0.51
682.00	682.00	Top Salt		0.34	0.51
2,396.22	2,391.75	Base Salt		0.34	0.51
2,737.75	2,731.66	Delaware Mountain Gp		0.34	0.51
2,853.26	2,846.63	Bell Canyon		0.34	0.51
2,853.26	2,846.63	Lamar		0.34	0.51
2,893.44	2,886.62	Ramsey Sand		0.34	0.51
3,872.82	3,861.38	Cherry Canyon		0.34	0.51
4,852.19	4,836.13	Brushy Canyon		0.34	0.51
6,448.08	6,425.78	Bone Spring Lime		0.34	0.51
7,373.08	7,350.78	1st Bone Spring Sand		0.34	0.51
7,953.08	7,930.78	2nd Bone Spring Sand		0.34	0.51
9,195.08	9,172.78	3rd Bone Spring Sand		0.34	0.51
9,453.71	9,430.84	3rd BS W Sand		0.34	0.51
9,547.19	9,520.98	Wolfcamp A		0.34	0.51
9,670.09	9,631.30	Wolfcamp A Y Sand		0.34	0.51
9,827.93	9,751.89	Wolfcamp A Fat		0.34	0.51

Database:	DB_Jul2216dt_v14	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Company:	Tap Rock Operating LLC	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,200.00	1,200.00	0.00	0.00	KOP Begin 1.5°/100' build
1,571.14	1,570.55	-7.70	-16.29	Begin 5.57° tangent
6,051.16	6,029.45	-193.54	-409.16	Begin 1.5°/100
6,422.30	6,400.00	-201.24	-425.45	Begin vertical hold
9,349.35	9,327.05	-201.24	-425.45	Begin 10°/100' build
9,399.35	9,376.99	-199.09	-425.09	
10,245.95	9,900.00	360.42	-330.96	Begin 2°/100' turn
10,697.98	9,902.67	810.24	-291.37	Begin 89.66° lateral
17,040.11	9,940.00	7,152.01	-235.00	PBHL/TD 17040.11 MD/9940.00 TVD

TAP ROCK

Planning Report - Geographic

Database:	DB_Jul2216dt_v14	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Company:	Tap Rock Operating LLC	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Project Eddy County, New Mexico NAD83 NM east

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

Site Section 32-T26S-R29E

Site Position:		**Northing:**	364,189.00 usft	**Latitude:**	32.00080022
From:	Map	**Easting:**	644,371.00 usft	**Longitude:**	-104.00095235
Position Uncertainty:	0.00 ft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.18 °

Well Money Graham Fed Com Well No. 214 H, Surf loc: 250 FSL 954 FEL Section 32-T26S-R29E

Well Position	**+N/-S**	0.00 ft	**Northing:**	364,188.00 usft	**Latitude:**	32.00079832
	+E/-W	0.00 ft	**Easting:**	644,271.00 usft	**Longitude:**	-104.00127495
Position Uncertainty		0.00 ft	**Wellhead Elevation:**		**Ground Level:**	2,866.00 ft

Wellbore Original Hole

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/26/2018	6.97	59.77	47,607.56878099

Design rev0

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	0.51

Plan Survey Tool Program **Date** 12/28/2018

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,040.11	rev0 (Original Hole)	MWD	
				OWSG MWD - Standard	

Database:	DB_Jul2216dt_v14	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Company:	Tap Rock Operating LLC	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,571.14	5.57	244.69	1,570.55	-7.70	-16.29	1.50	1.50	0.00	244.69	
6,051.16	5.57	244.69	6,029.45	-193.54	-409.16	0.00	0.00	0.00	0.00	
6,422.30	0.00	0.00	6,400.00	-201.24	-425.45	1.50	-1.50	0.00	180.00	Money Graham 214H
9,349.35	0.00	0.00	9,327.05	-201.24	-425.45	0.00	0.00	0.00	0.00	
9,399.35	5.00	9.55	9,376.99	-199.09	-425.09	10.00	10.00	0.00	9.55	
10,245.95	89.66	9.55	9,900.00	360.42	-330.96	10.00	10.00	0.00	0.00	
10,697.98	89.66	0.51	9,902.67	810.24	-291.37	2.00	0.00	-2.00	-90.01	
17,040.11	89.66	0.51	9,940.00	7,152.01	-235.00	0.00	0.00	0.00	0.00	Money Graham 214H

Database:	DB_Jul2216dt_v14	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Company:	Tap Rock Operating LLC	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
100.00	0.00	0.00	100.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
200.00	0.00	0.00	200.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
300.00	0.00	0.00	300.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
400.00	0.00	0.00	400.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
500.00	0.00	0.00	500.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
507.00	0.00	0.00	507.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
Rustler Anhydrite									
600.00	0.00	0.00	600.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
682.00	0.00	0.00	682.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
Top Salt									
700.00	0.00	0.00	700.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
800.00	0.00	0.00	800.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
900.00	0.00	0.00	900.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
1,000.00	0.00	0.00	1,000.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
1,100.00	0.00	0.00	1,100.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
1,200.00	0.00	0.00	1,200.00	0.00	0.00	364,188.00	644,271.00	32.00079832	-104.00127495
KOP Begin 1.5°/100' build									
1,300.00	1.50	244.69	1,299.99	-0.56	-1.18	364,187.44	644,269.82	32.00079679	-104.00127877
1,400.00	3.00	244.69	1,399.91	-2.24	-4.73	364,185.76	644,266.27	32.00079221	-104.00129024
1,500.00	4.50	244.69	1,499.69	-5.03	-10.64	364,182.96	644,260.36	32.00078457	-104.00130934
1,571.14	5.57	244.69	1,570.55	-7.70	-16.29	364,180.29	644,254.72	32.00077728	-104.00132756
Begin 5.57° tangent									
1,600.00	5.57	244.69	1,599.28	-8.90	-18.82	364,179.10	644,252.19	32.00077401	-104.00133574
1,700.00	5.57	244.69	1,698.81	-13.05	-27.59	364,174.95	644,243.42	32.00076268	-104.00136407
1,800.00	5.57	244.69	1,798.34	-17.20	-36.36	364,170.80	644,234.65	32.00075135	-104.00139240
1,900.00	5.57	244.69	1,897.87	-21.34	-45.13	364,166.65	644,225.88	32.00074002	-104.00142073
2,000.00	5.57	244.69	1,997.39	-25.49	-53.90	364,162.51	644,217.11	32.00072870	-104.00144906
2,100.00	5.57	244.69	2,096.92	-29.64	-62.67	364,158.36	644,208.34	32.00071737	-104.00147739
2,200.00	5.57	244.69	2,196.45	-33.79	-71.43	364,154.21	644,199.57	32.00070604	-104.00150572
2,300.00	5.57	244.69	2,295.98	-37.94	-80.20	364,150.06	644,190.80	32.00069471	-104.00153405
2,396.22	5.57	244.69	2,391.75	-41.93	-88.64	364,146.07	644,182.36	32.00068381	-104.00156132
Base Salt									
2,400.00	5.57	244.69	2,395.51	-42.09	-88.97	364,145.91	644,182.03	32.00068338	-104.00156239
2,500.00	5.57	244.69	2,495.04	-46.23	-97.74	364,141.77	644,173.26	32.00067205	-104.00159072
2,600.00	5.57	244.69	2,594.56	-50.38	-106.51	364,137.62	644,164.49	32.00066072	-104.00161905
2,700.00	5.57	244.69	2,694.09	-54.53	-115.28	364,133.47	644,155.72	32.00064939	-104.00164738
2,737.75	5.57	244.69	2,731.66	-56.10	-118.59	364,131.90	644,152.41	32.00064512	-104.00165807
Delaware Mountain Gp									
2,800.00	5.57	244.69	2,793.62	-58.68	-124.05	364,129.32	644,146.95	32.00063807	-104.00167571
2,853.26	5.57	244.69	2,846.63	-60.89	-128.72	364,127.11	644,142.28	32.00063203	-104.00169080
Bell Canyon - Lamar									
2,893.44	5.57	244.69	2,886.62	-62.55	-132.25	364,125.44	644,138.76	32.00062748	-104.00170218
Ramsey Sand									
2,900.00	5.57	244.69	2,893.15	-62.83	-132.82	364,125.17	644,138.18	32.00062674	-104.00170404
3,000.00	5.57	244.69	2,992.68	-66.97	-141.59	364,121.02	644,129.41	32.00061541	-104.00173237
3,100.00	5.57	244.69	3,092.21	-71.12	-150.36	364,116.88	644,120.64	32.00060408	-104.00176070
3,200.00	5.57	244.69	3,191.73	-75.27	-159.13	364,112.73	644,111.87	32.00059275	-104.00178903
3,300.00	5.57	244.69	3,291.26	-79.42	-167.90	364,108.58	644,103.10	32.00058142	-104.00181736
3,400.00	5.57	244.69	3,390.79	-83.57	-176.67	364,104.43	644,094.34	32.00057009	-104.00184569
3,500.00	5.57	244.69	3,490.32	-87.71	-185.44	364,100.28	644,085.57	32.00055876	-104.00187402
3,600.00	5.57	244.69	3,589.85	-91.86	-194.21	364,096.14	644,076.80	32.00054743	-104.00190235
3,700.00	5.57	244.69	3,689.38	-96.01	-202.98	364,091.99	644,068.03	32.00053611	-104.00193068

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Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
3,800.00	5.57	244.69	3,788.90	-100.16	-211.75	364,087.84	644,059.26	32.00052478	-104.00195901
3,872.82	5.57	244.69	3,861.38	-103.18	-218.13	364,084.82	644,052.87	32.00051653	-104.00197964
Cherry Canyon									
3,900.00	5.57	244.69	3,888.43	-104.31	-220.52	364,083.69	644,050.49	32.00051345	-104.00198735
4,000.00	5.57	244.69	3,987.96	-108.45	-229.29	364,079.54	644,041.72	32.00050212	-104.00201568
4,100.00	5.57	244.69	4,087.49	-112.60	-238.06	364,075.40	644,032.95	32.00049079	-104.00204401
4,200.00	5.57	244.69	4,187.02	-116.75	-246.83	364,071.25	644,024.18	32.00047946	-104.00207234
4,300.00	5.57	244.69	4,286.55	-120.90	-255.60	364,067.10	644,015.41	32.00046813	-104.00210067
4,400.00	5.57	244.69	4,386.07	-125.05	-264.37	364,062.95	644,006.64	32.00045680	-104.00212900
4,500.00	5.57	244.69	4,485.60	-129.19	-273.13	364,058.80	643,997.87	32.00044547	-104.00215733
4,600.00	5.57	244.69	4,585.13	-133.34	-281.90	364,054.66	643,989.10	32.00043415	-104.00218566
4,700.00	5.57	244.69	4,684.66	-137.49	-290.67	364,050.51	643,980.33	32.00042282	-104.00221399
4,800.00	5.57	244.69	4,784.19	-141.64	-299.44	364,046.36	643,971.56	32.00041149	-104.00224232
4,852.19	5.57	244.69	4,836.13	-143.80	-304.02	364,044.20	643,966.98	32.00040558	-104.00225711
Brushy Canyon									
4,900.00	5.57	244.69	4,883.72	-145.79	-308.21	364,042.21	643,962.79	32.00040016	-104.00227065
5,000.00	5.57	244.69	4,983.24	-149.93	-316.98	364,038.06	643,954.02	32.00038883	-104.00229898
5,100.00	5.57	244.69	5,082.77	-154.08	-325.75	364,033.92	643,945.25	32.00037750	-104.00232731
5,200.00	5.57	244.69	5,182.30	-158.23	-334.52	364,029.77	643,936.48	32.00036617	-104.00235564
5,300.00	5.57	244.69	5,281.83	-162.38	-343.29	364,025.62	643,927.71	32.00035484	-104.00238397
5,400.00	5.57	244.69	5,381.36	-166.53	-352.06	364,021.47	643,918.94	32.00034351	-104.00241230
5,500.00	5.57	244.69	5,480.89	-170.67	-360.83	364,017.32	643,910.17	32.00033218	-104.00244063
5,600.00	5.57	244.69	5,580.41	-174.82	-369.60	364,013.18	643,901.41	32.00032086	-104.00246897
5,700.00	5.57	244.69	5,679.94	-178.97	-378.37	364,009.03	643,892.64	32.00030953	-104.00249730
5,800.00	5.57	244.69	5,779.47	-183.12	-387.14	364,004.88	643,883.87	32.00029820	-104.00252563
5,900.00	5.57	244.69	5,879.00	-187.27	-395.91	364,000.73	643,875.10	32.00028687	-104.00255396
6,000.00	5.57	244.69	5,978.53	-191.41	-404.68	363,996.58	643,866.33	32.00027554	-104.00258229
6,051.16	5.57	244.69	6,029.45	-193.54	-409.16	363,994.46	643,861.84	32.00026974	-104.00259678
Begin 1.5°/100									
6,100.00	4.83	244.69	6,078.08	-195.43	-413.17	363,992.57	643,857.84	32.00026457	-104.00260971
6,200.00	3.33	244.69	6,177.83	-198.48	-419.61	363,989.52	643,851.40	32.00025626	-104.00263051
6,300.00	1.83	244.69	6,277.72	-200.40	-423.68	363,987.60	643,847.32	32.00025099	-104.00264368
6,400.00	0.33	244.69	6,377.70	-201.21	-425.39	363,986.79	643,845.61	32.00024878	-104.00264920
6,422.30	0.00	0.00	6,400.00	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
Begin vertical hold									
6,448.08	0.00	0.00	6,425.78	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
Bone Spring Lime									
6,500.00	0.00	0.00	6,477.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
6,600.00	0.00	0.00	6,577.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
6,700.00	0.00	0.00	6,677.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
6,800.00	0.00	0.00	6,777.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
6,900.00	0.00	0.00	6,877.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
7,000.00	0.00	0.00	6,977.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
7,100.00	0.00	0.00	7,077.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
7,200.00	0.00	0.00	7,177.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
7,300.00	0.00	0.00	7,277.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
7,373.08	0.00	0.00	7,350.78	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
1st Bone Spring Sand									
7,400.00	0.00	0.00	7,377.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
7,500.00	0.00	0.00	7,477.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
7,600.00	0.00	0.00	7,577.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
7,700.00	0.00	0.00	7,677.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
7,800.00	0.00	0.00	7,777.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939

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Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
7,900.00	0.00	0.00	7,877.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
7,953.08	0.00	0.00	7,930.78	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
2nd Bone Spring Sand									
8,000.00	0.00	0.00	7,977.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
8,100.00	0.00	0.00	8,077.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
8,200.00	0.00	0.00	8,177.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
8,300.00	0.00	0.00	8,277.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
8,400.00	0.00	0.00	8,377.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
8,500.00	0.00	0.00	8,477.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
8,600.00	0.00	0.00	8,577.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
8,700.00	0.00	0.00	8,677.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
8,800.00	0.00	0.00	8,777.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
8,900.00	0.00	0.00	8,877.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
9,000.00	0.00	0.00	8,977.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
9,100.00	0.00	0.00	9,077.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
9,195.08	0.00	0.00	9,172.78	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
3rd Bone Spring Sand									
9,200.00	0.00	0.00	9,177.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
9,300.00	0.00	0.00	9,277.70	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
9,349.35	0.00	0.00	9,327.05	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
Begin 10°/100' build									
9,399.35	5.00	9.55	9,376.99	-199.09	-425.09	363,988.91	643,845.92	32.00025461	-104.00264821
9,400.00	5.07	9.55	9,377.64	-199.03	-425.08	363,988.96	643,845.93	32.00025477	-104.00264818
9,453.71	10.44	9.55	9,430.84	-191.89	-423.88	363,996.11	643,847.13	32.00027439	-104.00264423
3rd BS W Sand									
9,500.00	15.07	9.55	9,475.97	-181.82	-422.18	364,006.18	643,848.82	32.00030206	-104.00263866
9,547.19	19.78	9.55	9,520.98	-167.89	-419.84	364,020.11	643,851.17	32.00034033	-104.00263097
Wolfcamp A									
9,600.00	25.07	9.55	9,569.78	-148.03	-416.50	364,039.97	643,854.51	32.00039490	-104.00261999
9,670.09	32.07	9.55	9,631.30	-115.00	-410.94	364,073.00	643,860.06	32.00048565	-104.00260174
Wolfcamp A Y Sand									
9,700.00	35.07	9.55	9,656.22	-98.69	-408.20	364,089.31	643,862.81	32.00053047	-104.00259273
9,800.00	45.07	9.55	9,732.65	-35.30	-397.53	364,152.70	643,873.47	32.00070464	-104.00255770
9,827.93	47.86	9.55	9,751.89	-15.33	-394.17	364,172.66	643,876.83	32.00075949	-104.00254666
Wolfcamp A Fat									
9,900.00	55.07	9.55	9,796.76	40.22	-384.83	364,228.22	643,886.18	32.00091213	-104.00251596
10,000.00	65.07	9.55	9,846.60	125.57	-370.47	364,313.57	643,900.54	32.00114664	-104.00246880
10,100.00	75.07	9.55	9,880.65	218.16	-354.89	364,406.16	643,916.11	32.00140102	-104.00241764
10,200.00	85.07	9.55	9,897.88	315.17	-338.57	364,503.17	643,932.44	32.00166757	-104.00236403
10,245.95	89.66	9.55	9,900.00	360.42	-330.96	364,548.42	643,940.05	32.00179190	-104.00233902
Begin 2°/100' turn									
10,300.00	89.66	8.47	9,900.32	413.81	-322.49	364,601.80	643,948.51	32.00193857	-104.00231119
10,400.00	89.66	6.47	9,900.91	512.95	-309.49	364,700.95	643,961.51	32.00221101	-104.00226828
10,500.00	89.66	4.47	9,901.51	612.49	-299.96	364,800.49	643,971.04	32.00248455	-104.00223655
10,600.00	89.66	2.47	9,902.10	712.30	-293.91	364,900.30	643,977.09	32.00275888	-104.00221605
10,697.98	89.66	0.51	9,902.67	810.24	-291.37	364,998.23	643,979.64	32.00302808	-104.00220687
Begin 89.66° lateral									
10,700.00	89.66	0.51	9,902.69	812.26	-291.35	365,000.26	643,979.65	32.00303364	-104.00220679
10,800.00	89.66	0.51	9,903.28	912.25	-290.46	365,100.25	643,980.54	32.00330851	-104.00220293
10,900.00	89.66	0.51	9,903.86	1,012.25	-289.57	365,200.24	643,981.43	32.00358338	-104.00219908
11,000.00	89.66	0.51	9,904.45	1,112.24	-288.68	365,300.24	643,982.32	32.00385826	-104.00219522
11,100.00	89.66	0.51	9,905.04	1,212.24	-287.80	365,400.23	643,983.21	32.00413313	-104.00219137

Database:	DB_Jul2216dt_v14	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Company:	Tap Rock Operating LLC	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,200.00	89.66	0.51	9,905.63	1,312.23	-286.91	365,500.23	643,984.10	32.00440800	-104.00218751
11,300.00	89.66	0.51	9,906.22	1,412.23	-286.02	365,600.22	643,984.99	32.00468287	-104.00218366
11,400.00	89.66	0.51	9,906.81	1,512.22	-285.13	365,700.22	643,985.88	32.00495774	-104.00217980
11,500.00	89.66	0.51	9,907.39	1,612.21	-284.24	365,800.21	643,986.76	32.00523262	-104.00217595
11,600.00	89.66	0.51	9,907.98	1,712.21	-283.35	365,900.20	643,987.65	32.00550749	-104.00217209
11,700.00	89.66	0.51	9,908.57	1,812.20	-282.46	366,000.20	643,988.54	32.00578236	-104.00216824
11,800.00	89.66	0.51	9,909.16	1,912.20	-281.57	366,100.19	643,989.43	32.00605723	-104.00216438
11,900.00	89.66	0.51	9,909.75	2,012.19	-280.69	366,200.19	643,990.32	32.00633210	-104.00216053
12,000.00	89.66	0.51	9,910.34	2,112.19	-279.80	366,300.18	643,991.21	32.00660698	-104.00215667
12,100.00	89.66	0.51	9,910.93	2,212.18	-278.91	366,400.17	643,992.10	32.00688185	-104.00215281
12,200.00	89.66	0.51	9,911.51	2,312.17	-278.02	366,500.17	643,992.99	32.00715672	-104.00214896
12,300.00	89.66	0.51	9,912.10	2,412.17	-277.13	366,600.16	643,993.87	32.00743159	-104.00214510
12,400.00	89.66	0.51	9,912.69	2,512.16	-276.24	366,700.16	643,994.76	32.00770646	-104.00214125
12,500.00	89.66	0.51	9,913.28	2,612.16	-275.35	366,800.15	643,995.65	32.00798134	-104.00213739
12,600.00	89.66	0.51	9,913.87	2,712.15	-274.46	366,900.14	643,996.54	32.00825621	-104.00213354
12,700.00	89.66	0.51	9,914.46	2,812.15	-273.57	367,000.14	643,997.43	32.00853108	-104.00212968
12,800.00	89.66	0.51	9,915.05	2,912.14	-272.69	367,100.13	643,998.32	32.00880595	-104.00212582
12,900.00	89.66	0.51	9,915.63	3,012.14	-271.80	367,200.13	643,999.21	32.00908082	-104.00212197
13,000.00	89.66	0.51	9,916.22	3,112.13	-270.91	367,300.12	644,000.10	32.00935569	-104.00211811
13,100.00	89.66	0.51	9,916.81	3,212.12	-270.02	367,400.12	644,000.99	32.00963057	-104.00211426
13,200.00	89.66	0.51	9,917.40	3,312.12	-269.13	367,500.11	644,001.87	32.00990544	-104.00211040
13,300.00	89.66	0.51	9,917.99	3,412.11	-268.24	367,600.10	644,002.76	32.01018031	-104.00210654
13,400.00	89.66	0.51	9,918.58	3,512.11	-267.35	367,700.10	644,003.65	32.01045518	-104.00210269
13,500.00	89.66	0.51	9,919.17	3,612.10	-266.46	367,800.09	644,004.54	32.01073005	-104.00209883
13,600.00	89.66	0.51	9,919.75	3,712.10	-265.58	367,900.09	644,005.43	32.01100492	-104.00209498
13,700.00	89.66	0.51	9,920.34	3,812.09	-264.69	368,000.08	644,006.32	32.01127980	-104.00209112
13,800.00	89.66	0.51	9,920.93	3,912.08	-263.80	368,100.07	644,007.21	32.01155467	-104.00208726
13,900.00	89.66	0.51	9,921.52	4,012.08	-262.91	368,200.07	644,008.10	32.01182954	-104.00208341
14,000.00	89.66	0.51	9,922.11	4,112.07	-262.02	368,300.06	644,008.98	32.01210441	-104.00207955
14,100.00	89.66	0.51	9,922.70	4,212.07	-261.13	368,400.06	644,009.87	32.01237928	-104.00207570
14,200.00	89.66	0.51	9,923.29	4,312.06	-260.24	368,500.05	644,010.76	32.01265415	-104.00207184
14,300.00	89.66	0.51	9,923.87	4,412.06	-259.35	368,600.05	644,011.65	32.01292903	-104.00206798
14,400.00	89.66	0.51	9,924.46	4,512.05	-258.47	368,700.04	644,012.54	32.01320390	-104.00206413
14,500.00	89.66	0.51	9,925.05	4,612.04	-257.58	368,800.03	644,013.43	32.01347877	-104.00206027
14,600.00	89.66	0.51	9,925.64	4,712.04	-256.69	368,900.03	644,014.32	32.01375364	-104.00205641
14,700.00	89.66	0.51	9,926.23	4,812.03	-255.80	369,000.02	644,015.21	32.01402851	-104.00205256
14,800.00	89.66	0.51	9,926.82	4,912.03	-254.91	369,100.02	644,016.09	32.01430338	-104.00204870
14,900.00	89.66	0.51	9,927.41	5,012.02	-254.02	369,200.01	644,016.98	32.01457826	-104.00204484
15,000.00	89.66	0.51	9,927.99	5,112.02	-253.13	369,300.00	644,017.87	32.01485313	-104.00204099
15,100.00	89.66	0.51	9,928.58	5,212.01	-252.24	369,400.00	644,018.76	32.01512800	-104.00203713
15,200.00	89.66	0.51	9,929.17	5,312.00	-251.36	369,499.99	644,019.65	32.01540287	-104.00203327
15,300.00	89.66	0.51	9,929.76	5,412.00	-250.47	369,599.99	644,020.54	32.01567774	-104.00202942
15,400.00	89.66	0.51	9,930.35	5,511.99	-249.58	369,699.98	644,021.43	32.01595261	-104.00202556
15,500.00	89.66	0.51	9,930.94	5,611.99	-248.69	369,799.97	644,022.32	32.01622748	-104.00202170
15,600.00	89.66	0.51	9,931.52	5,711.98	-247.80	369,899.97	644,023.20	32.01650236	-104.00201785
15,700.00	89.66	0.51	9,932.11	5,811.98	-246.91	369,999.96	644,024.09	32.01677723	-104.00201399
15,800.00	89.66	0.51	9,932.70	5,911.97	-246.02	370,099.96	644,024.98	32.01705210	-104.00201013
15,900.00	89.66	0.51	9,933.29	6,011.96	-245.13	370,199.95	644,025.87	32.01732697	-104.00200628
16,000.00	89.66	0.51	9,933.88	6,111.96	-244.24	370,299.95	644,026.76	32.01760184	-104.00200242
16,100.00	89.66	0.51	9,934.47	6,211.95	-243.36	370,399.94	644,027.65	32.01787671	-104.00199856
16,200.00	89.66	0.51	9,935.06	6,311.95	-242.47	370,499.93	644,028.54	32.01815158	-104.00199471
16,300.00	89.66	0.51	9,935.64	6,411.94	-241.58	370,599.93	644,029.43	32.01842646	-104.00199085
16,400.00	89.66	0.51	9,936.23	6,511.94	-240.69	370,699.92	644,030.32	32.01870133	-104.00198699
16,500.00	89.66	0.51	9,936.82	6,611.93	-239.80	370,799.92	644,031.20	32.01897620	-104.00198314

Database:	DB_Jul2216dt_v14	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Company:	Tap Rock Operating LLC	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
16,600.00	89.66	0.51	9,937.41	6,711.93	-238.91	370,899.91	644,032.09	32.01925107	-104.00197928
16,700.00	89.66	0.51	9,938.00	6,811.92	-238.02	370,999.90	644,032.98	32.01952594	-104.00197542
16,800.00	89.66	0.51	9,938.59	6,911.91	-237.13	371,099.90	644,033.87	32.01980081	-104.00197157
16,900.00	89.66	0.51	9,939.18	7,011.91	-236.25	371,199.89	644,034.76	32.02007568	-104.00196771
17,000.00	89.66	0.51	9,939.76	7,111.90	-235.36	371,299.89	644,035.65	32.02035056	-104.00196385
17,040.11	89.66	0.51	9,940.00	7,152.01	-235.00	371,340.00	644,036.00	32.02046082	-104.00196230
PBHL/TD 17040.11 MD/9940.00 TVD									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Money Graham 214H V1 - plan hits target center - Point	0.00	0.00	6,400.00	-201.24	-425.45	363,986.76	643,845.55	32.00024870	-104.00264939
Money Graham 214H V1 - plan misses target center by 135.14ft at 6421.90ft MD (6399.61 TVD, -201.24 N, -425.45 E) - Point	0.00	0.00	6,400.00	-151.00	-300.00	364,037.00	643,971.00	32.00038576	-104.00224421
Money Graham 214H PI - plan hits target center - Point	0.00	0.00	9,940.00	7,152.01	-235.00	371,340.00	644,036.00	32.02046082	-104.00196230

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
507.00	507.00	Rustler Anhydrite		0.34	0.51
682.00	682.00	Top Salt		0.34	0.51
2,396.22	2,391.75	Base Salt		0.34	0.51
2,737.75	2,731.66	Delaware Mountain Gp		0.34	0.51
2,853.26	2,846.63	Bell Canyon		0.34	0.51
2,853.26	2,846.63	Lamar		0.34	0.51
2,893.44	2,886.62	Ramsey Sand		0.34	0.51
3,872.82	3,861.38	Cherry Canyon		0.34	0.51
4,852.19	4,836.13	Brushy Canyon		0.34	0.51
6,448.08	6,425.78	Bone Spring Lime		0.34	0.51
7,373.08	7,350.78	1st Bone Spring Sand		0.34	0.51
7,953.08	7,930.78	2nd Bone Spring Sand		0.34	0.51
9,195.08	9,172.78	3rd Bone Spring Sand		0.34	0.51
9,453.71	9,430.84	3rd BS W Sand		0.34	0.51
9,547.19	9,520.98	Wolfcamp A		0.34	0.51
9,670.09	9,631.30	Wolfcamp A Y Sand		0.34	0.51
9,827.93	9,751.89	Wolfcamp A Fat		0.34	0.51

Database:	DB_Jul2216dt_v14	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Company:	Tap Rock Operating LLC	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Project:	Eddy County, New Mexico NAD83 NM east	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site:	Section 32-T26S-R29E	**North Reference:**	Grid
Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
1,200.00	1,200.00	0.00	0.00	KOP Begin 1.5°/100' build
1,571.14	1,570.55	-7.70	-16.29	Begin 5.57° tangent
6,051.16	6,029.45	-193.54	-409.16	Begin 1.5°/100
6,422.30	6,400.00	-201.24	-425.45	Begin vertical hold
9,349.35	9,327.05	-201.24	-425.45	Begin 10°/100' build
9,399.35	9,376.99	-199.09	-425.09	
10,245.95	9,900.00	360.42	-330.96	Begin 2°/100' turn
10,697.98	9,902.67	810.24	-291.37	Begin 89.66° lateral
17,040.11	9,940.00	7,152.01	-235.00	PBHL/TD 17040.11 MD/9940.00 TVD

TAP ROCK

Anticollision Report

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Reference rev0

Filter type:	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference		
Interpolation Method:	MD Interval 100.00ft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,904.01 ft	**Error Surface:**	Ellipsoid Separation
Warning Levels Evaluated at:	3.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 12/28/2018

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	17,040.11	rev0 (Original Hole)	MWD	OWSG MWD - Standard

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Section 32-T26S-R29E						
Money Graham Fed Com Well No. 204 H - Original Hole	1,200.00	1,200.00	50.01	37.78	4.090	CC, ES
Money Graham Fed Com Well No. 204 H - Original Hole	17,040.11	16,769.50	391.20	124.29	1.466	Level 2<1.50, SF
Money Graham Fed Com Well No. 218 H - Original Hole	1,200.00	1,200.00	100.01	87.78	8.179	CC, ES
Money Graham Fed Com Well No. 218 H - Original Hole	17,040.11	17,027.69	616.75	246.78	1.667	Level 3<2.00, SF
Money Graham Fed Com Well No. 238 H - Original Hole	1,200.00	1,200.00	75.01	62.78	6.134	CC, ES
Money Graham Fed Com Well No. 238 H - Original Hole	17,040.11	17,674.43	840.29	594.59	3.420	SF
Money Graham Fed Com Well No. 246 H - Original Hole	1,200.00	1,200.00	25.00	12.77	2.045	CC, ES
Money Graham Fed Com Well No. 246 H - Original Hole	1,300.00	1,300.01	26.19	12.91	1.972	Level 3<2.00, SF
Sidewinder #1H - Original Hole - Surveys Original Hole	6,882.31	10,035.48	294.09	129.33	1.785	Level 3<2.00, CC, ES, SF

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 204 H - Original Hole - rev0

Offset Site Error: 0.00 ft

Survey Program: 0-MWD

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	88.85	1.00	50.00	50.01				
100.00	100.00	100.00	100.00	0.20	0.20	88.85	1.00	50.00	50.01	49.61	0.40	125.684	
200.00	200.00	200.00	200.00	0.74	0.74	88.85	1.00	50.00	50.01	48.54	1.47	33.944	
300.00	300.00	300.00	300.00	1.27	1.27	88.85	1.00	50.00	50.01	47.46	2.55	19.622	
400.00	400.00	400.00	400.00	1.81	1.81	88.85	1.00	50.00	50.01	46.39	3.62	13.799	
500.00	500.00	500.00	500.00	2.35	2.35	88.85	1.00	50.00	50.01	45.31	4.70	10.641	
600.00	600.00	600.00	600.00	2.89	2.89	88.85	1.00	50.00	50.01	44.24	5.77	8.660	
700.00	700.00	700.00	700.00	3.43	3.43	88.85	1.00	50.00	50.01	43.16	6.85	7.300	
800.00	800.00	800.00	800.00	3.96	3.96	88.85	1.00	50.00	50.01	42.08	7.93	6.310	
900.00	900.00	900.00	900.00	4.50	4.50	88.85	1.00	50.00	50.01	41.01	9.00	5.556	
1,000.00	1,000.00	1,000.00	1,000.00	5.04	5.04	88.85	1.00	50.00	50.01	39.93	10.08	4.963	
1,100.00	1,100.00	1,100.00	1,100.00	5.58	5.58	88.85	1.00	50.00	50.01	38.86	11.15	4.484	
1,200.00	1,200.00	1,200.00	1,200.00	6.11	6.11	88.85	1.00	50.00	50.01	37.78	12.23	4.090	CC, ES
1,300.00	1,299.99	1,300.01	1,299.99	6.63	6.65	-156.42	1.00	50.00	51.21	37.92	13.28	3.855	
1,400.00	1,399.91	1,400.09	1,399.91	7.14	7.19	-158.04	1.00	50.00	54.83	40.50	14.33	3.827	
1,500.00	1,499.69	1,500.31	1,499.69	7.65	7.73	-160.31	1.00	50.00	60.94	45.57	15.37	3.964	
1,600.00	1,599.28	1,600.72	1,599.28	8.17	8.27	-162.80	1.00	50.00	69.53	53.10	16.43	4.232	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 204 H - Original Hole - rev0

Offset Site Error: 0.00 ft

Survey Program: 0-MWD

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,700.00	1,698.81	1,701.19	1,698.81	8.71	8.81	-164.88	1.00	50.00	78.85	61.36	17.48	4.510	
1,800.00	1,798.34	1,801.66	1,798.34	9.24	9.35	-166.52	1.00	50.00	88.25	69.71	18.54	4.760	
1,900.00	1,897.87	1,902.13	1,897.87	9.79	9.89	-167.85	1.00	50.00	97.72	78.11	19.60	4.985	
2,000.00	1,997.39	1,997.39	1,997.39	10.34	10.40	-168.94	1.00	50.00	107.22	86.58	20.64	5.195	
2,100.00	2,096.92	2,098.27	2,098.26	10.89	10.92	-169.31	-0.24	49.74	116.19	94.51	21.68	5.359	
2,200.00	2,196.45	2,200.83	2,199.08	11.45	11.42	-168.53	-4.05	48.93	124.01	101.30	22.71	5.460	
2,300.00	2,295.98	2,301.14	2,298.66	12.01	11.91	-167.47	-8.79	47.93	131.43	107.69	23.74	5.537	
2,400.00	2,395.51	2,401.44	2,398.23	12.57	12.41	-166.52	-13.53	46.92	138.89	114.12	24.77	5.608	
2,500.00	2,495.04	2,501.75	2,497.81	13.13	12.91	-165.66	-18.26	45.92	146.39	120.58	25.81	5.672	
2,600.00	2,594.56	2,602.05	2,597.39	13.70	13.42	-164.89	-23.00	44.92	153.91	127.06	26.85	5.732	
2,700.00	2,694.09	2,702.35	2,696.97	14.27	13.93	-164.20	-27.74	43.91	161.46	133.56	27.90	5.787	
2,800.00	2,793.62	2,802.66	2,796.55	14.84	14.44	-163.56	-32.47	42.91	169.03	140.08	28.95	5.838	
2,900.00	2,893.15	2,902.96	2,896.13	15.41	14.96	-162.98	-37.21	41.91	176.62	146.61	30.01	5.885	
3,000.00	2,992.68	3,003.26	2,995.71	15.98	15.48	-162.45	-41.94	40.91	184.23	153.16	31.07	5.929	
3,100.00	3,092.21	3,103.57	3,095.28	16.55	16.00	-161.95	-46.68	39.90	191.85	159.71	32.14	5.970	
3,200.00	3,191.73	3,203.87	3,194.86	17.13	16.52	-161.50	-51.42	38.90	199.49	166.28	33.20	6.008	
3,300.00	3,291.26	3,304.18	3,294.44	17.70	17.05	-161.08	-56.15	37.90	207.13	172.86	34.28	6.043	
3,400.00	3,390.79	3,404.48	3,394.02	18.28	17.57	-160.69	-60.89	36.89	214.79	179.44	35.35	6.076	
3,500.00	3,490.32	3,504.78	3,493.60	18.85	18.10	-160.33	-65.62	35.89	222.45	186.03	36.42	6.108	
3,600.00	3,589.85	3,605.09	3,593.18	19.43	18.63	-159.99	-70.36	34.89	230.13	192.63	37.50	6.137	
3,700.00	3,689.38	3,705.39	3,692.76	20.01	19.16	-159.67	-75.10	33.88	237.81	199.23	38.58	6.164	
3,800.00	3,788.90	3,805.70	3,792.33	20.59	19.70	-159.37	-79.83	32.88	245.50	205.84	39.66	6.190	
3,900.00	3,888.43	3,906.00	3,891.91	21.16	20.23	-159.09	-84.57	31.88	253.19	212.45	40.74	6.215	
4,000.00	3,987.96	4,006.30	3,991.49	21.74	20.77	-158.83	-89.30	30.88	260.89	219.06	41.82	6.238	
4,100.00	4,087.49	4,106.61	4,091.07	22.32	21.30	-158.58	-94.04	29.87	268.59	225.68	42.91	6.259	
4,200.00	4,187.02	4,206.91	4,190.65	22.90	21.84	-158.35	-98.78	28.87	276.30	232.31	44.00	6.280	
4,300.00	4,286.55	4,307.21	4,290.23	23.48	22.38	-158.13	-103.51	27.87	284.02	238.93	45.08	6.300	
4,400.00	4,386.07	4,407.52	4,389.81	24.06	22.91	-157.92	-108.25	26.86	291.74	245.56	46.17	6.318	
4,500.00	4,485.60	4,507.82	4,489.38	24.65	23.45	-157.72	-112.98	25.86	299.46	252.19	47.26	6.336	
4,600.00	4,585.13	4,608.13	4,588.96	25.23	23.99	-157.53	-117.72	24.86	307.18	258.83	48.35	6.353	
4,700.00	4,684.66	4,708.43	4,688.54	25.81	24.53	-157.35	-122.46	23.85	314.91	265.47	49.45	6.369	
4,800.00	4,784.19	4,808.73	4,788.12	26.39	25.08	-157.18	-127.19	22.85	322.64	272.10	50.54	6.384	
4,900.00	4,883.72	4,909.04	4,887.70	26.97	25.62	-157.02	-131.93	21.85	330.38	278.74	51.63	6.399	
5,000.00	4,983.24	5,009.34	4,987.28	27.56	26.16	-156.86	-136.66	20.85	338.11	285.39	52.73	6.413	
5,100.00	5,082.77	5,109.64	5,086.86	28.14	26.70	-156.72	-141.40	19.84	345.85	292.03	53.82	6.426	
5,200.00	5,182.30	5,209.95	5,186.43	28.72	27.24	-156.57	-146.14	18.84	353.59	298.68	54.92	6.439	
5,300.00	5,281.83	5,289.75	5,286.01	29.30	27.68	-156.44	-150.87	17.84	361.33	305.43	55.90	6.464	
5,400.00	5,381.36	5,389.44	5,385.59	29.89	28.22	-156.31	-155.61	16.83	369.08	312.09	56.99	6.476	
5,500.00	5,480.89	5,489.14	5,485.17	30.47	28.76	-156.18	-160.34	15.83	376.83	318.74	58.09	6.487	
5,600.00	5,580.41	5,588.84	5,584.75	31.05	29.30	-156.06	-165.08	14.83	384.57	325.39	59.18	6.498	
5,700.00	5,679.94	5,688.53	5,684.33	31.64	29.84	-155.95	-169.82	13.82	392.32	332.05	60.28	6.509	
5,800.00	5,779.47	5,788.23	5,783.91	32.22	30.38	-155.84	-174.55	12.82	400.08	338.70	61.37	6.519	
5,900.00	5,879.00	5,887.93	5,883.48	32.81	30.92	-155.73	-179.29	11.82	407.83	345.36	62.47	6.528	
6,000.00	5,978.53	5,987.62	5,983.06	33.39	31.47	-155.63	-184.02	10.81	415.58	352.02	63.57	6.538	
6,100.00	6,078.08	6,087.34	6,082.66	33.97	32.01	-155.53	-188.76	9.81	423.06	358.39	64.66	6.543	
6,200.00	6,177.83	6,187.17	6,182.38	34.54	32.55	-155.33	-193.50	8.81	428.47	362.71	65.76	6.516	
6,300.00	6,277.72	6,285.49	6,280.60	35.08	33.09	-155.05	-197.61	7.94	431.64	364.81	66.83	6.459	
6,400.00	6,377.70	6,383.13	6,378.22	35.60	33.60	-154.93	-199.38	7.56	432.96	365.10	67.86	6.380	
6,500.00	6,477.70	6,482.61	6,477.70	36.09	34.10	89.76	-199.44	7.55	433.00	364.14	68.87	6.288	
6,600.00	6,577.70	6,582.61	6,577.70	36.58	34.61	89.76	-199.44	7.55	433.00	363.13	69.87	6.197	
6,700.00	6,677.70	6,682.61	6,677.70	37.06	35.12	89.76	-199.44	7.55	433.00	362.12	70.88	6.109	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 204 H - Original Hole - rev0 — Offset Site Error: 0.00 ft

Survey Program: 0-MWD — Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,800.00	6,777.70	6,782.61	6,777.70	37.55	35.62	89.76	-199.44	7.55	433.00	361.11	71.89	6.023	
6,900.00	6,877.70	6,882.61	6,877.70	38.04	36.13	89.76	-199.44	7.55	433.00	360.10	72.90	5.940	
7,000.00	6,977.70	6,982.61	6,977.70	38.53	36.64	89.76	-199.44	7.55	433.00	359.09	73.92	5.858	
7,100.00	7,077.70	7,082.61	7,077.70	39.03	37.15	89.76	-199.44	7.55	433.00	358.07	74.93	5.779	
7,200.00	7,177.70	7,182.61	7,177.70	39.52	37.66	89.76	-199.44	7.55	433.00	357.06	75.95	5.701	
7,300.00	7,277.70	7,282.61	7,277.70	40.01	38.17	89.76	-199.44	7.55	433.00	356.04	76.97	5.626	
7,400.00	7,377.70	7,382.61	7,377.70	40.51	38.68	89.76	-199.44	7.55	433.00	355.02	77.99	5.552	
7,500.00	7,477.70	7,482.61	7,477.70	41.01	39.20	89.76	-199.44	7.55	433.00	354.00	79.01	5.481	
7,600.00	7,577.70	7,582.61	7,577.70	41.50	39.71	89.76	-199.44	7.55	433.00	352.98	80.03	5.411	
7,700.00	7,677.70	7,682.61	7,677.70	42.00	40.22	89.76	-199.44	7.55	433.00	351.95	81.05	5.342	
7,800.00	7,777.70	7,782.61	7,777.70	42.50	40.74	89.76	-199.44	7.55	433.00	350.93	82.08	5.275	
7,900.00	7,877.70	7,882.61	7,877.70	43.00	41.26	89.76	-199.44	7.55	433.00	349.90	83.11	5.210	
8,000.00	7,977.70	7,982.61	7,977.70	43.51	41.77	89.76	-199.44	7.55	433.00	348.87	84.13	5.147	
8,100.00	8,077.70	8,082.61	8,077.70	44.01	42.29	89.76	-199.44	7.55	433.00	347.84	85.16	5.084	
8,200.00	8,177.70	8,182.61	8,177.70	44.51	42.80	89.76	-199.44	7.55	433.00	346.81	86.19	5.024	
8,300.00	8,277.70	8,282.61	8,277.70	45.02	43.32	89.76	-199.44	7.55	433.00	345.78	87.22	4.964	
8,400.00	8,377.70	8,382.61	8,377.70	45.52	43.84	89.76	-199.44	7.55	433.00	344.75	88.26	4.906	
8,500.00	8,477.70	8,482.61	8,477.70	46.03	44.36	89.76	-199.44	7.55	433.00	343.71	89.29	4.849	
8,600.00	8,577.70	8,582.61	8,577.70	46.53	44.88	89.76	-199.44	7.55	433.00	342.68	90.32	4.794	
8,700.00	8,677.70	8,682.61	8,677.70	47.04	45.40	89.76	-199.44	7.55	433.00	341.64	91.36	4.740	
8,800.00	8,777.70	8,782.61	8,777.70	47.55	45.92	89.76	-199.44	7.55	433.00	340.61	92.40	4.686	
8,900.00	8,877.70	8,882.61	8,877.70	48.06	46.44	89.76	-199.44	7.55	433.00	339.57	93.43	4.634	
9,000.00	8,977.70	8,982.61	8,977.70	48.57	46.96	89.76	-199.44	7.55	433.00	338.53	94.47	4.583	
9,100.00	9,077.70	9,082.61	9,077.70	49.08	47.48	89.76	-199.44	7.55	433.00	337.49	95.51	4.534	
9,101.97	9,079.67	9,084.58	9,079.67	49.09	47.49	89.76	-199.44	7.55	433.00	337.47	95.53	4.533	
9,200.00	9,177.70	9,180.99	9,175.73	49.59	47.98	88.85	-192.54	7.61	433.16	336.66	96.50	4.489	
9,300.00	9,277.70	9,274.31	9,266.34	50.10	48.41	85.96	-170.67	7.81	434.49	337.17	97.32	4.464	
9,400.00	9,377.64	9,359.48	9,344.96	50.60	48.78	72.15	-138.11	8.10	438.66	340.85	97.81	4.485	
9,500.00	9,475.97	9,440.13	9,414.19	51.06	49.11	67.99	-96.87	8.48	443.28	345.47	97.82	4.532	
9,600.00	9,569.78	9,517.73	9,474.71	51.46	49.41	64.38	-48.39	8.91	447.15	349.90	97.25	4.598	
9,700.00	9,656.22	9,592.92	9,526.58	51.78	49.70	61.33	5.96	9.40	449.61	353.50	96.11	4.678	
9,800.00	9,732.65	9,666.21	9,569.88	52.03	49.99	58.85	65.03	9.94	450.10	355.60	94.50	4.763	
9,900.00	9,796.76	9,738.06	9,604.67	52.19	50.28	56.92	127.83	10.50	448.18	355.54	92.63	4.838	
10,000.00	9,846.60	9,808.84	9,630.99	52.29	50.59	55.55	193.49	11.09	443.50	352.76	90.74	4.888	
10,100.00	9,880.65	9,878.91	9,648.89	52.39	50.91	54.74	261.19	11.70	435.84	346.74	89.10	4.892	
10,200.00	9,897.88	9,950.00	9,658.47	52.78	51.25	54.50	331.58	12.34	425.12	337.13	87.99	4.831	
10,300.00	9,900.32	10,030.66	9,660.25	53.24	51.68	54.11	412.19	13.07	412.60	325.06	87.54	4.713	
10,400.00	9,900.91	10,129.92	9,660.83	53.81	52.28	53.23	511.45	13.96	402.82	315.30	87.52	4.602	
10,500.00	9,901.51	10,229.54	9,661.42	54.47	53.00	52.58	611.06	14.86	395.93	308.05	87.88	4.506	
10,600.00	9,902.10	10,329.40	9,662.00	55.24	53.82	52.19	710.92	15.76	391.85	303.21	88.64	4.421	
10,699.61	9,902.68	10,428.99	9,662.59	56.10	54.74	52.06	810.51	16.66	390.51	300.68	89.83	4.347	
10,700.00	9,902.69	10,429.38	9,662.59	56.10	54.74	52.06	810.89	16.66	390.54	300.70	89.84	4.347	
10,800.00	9,903.28	10,529.38	9,663.18	57.06	55.75	52.06	910.89	17.56	390.55	299.23	91.32	4.277	
10,900.00	9,903.86	10,629.38	9,663.77	58.11	56.86	52.07	1,010.88	18.47	390.56	297.61	92.95	4.202	
11,000.00	9,904.45	10,729.38	9,664.36	59.24	58.05	52.07	1,110.88	19.37	390.57	295.87	94.70	4.124	
11,100.00	9,905.04	10,829.38	9,664.95	60.45	59.32	52.07	1,210.87	20.27	390.58	294.00	96.58	4.044	
11,200.00	9,905.63	10,929.38	9,665.53	61.73	60.66	52.07	1,310.87	21.17	390.59	292.02	98.57	3.963	
11,300.00	9,906.22	11,029.38	9,666.12	63.09	62.07	52.07	1,410.86	22.07	390.60	289.94	100.66	3.880	
11,400.00	9,906.81	11,129.38	9,666.71	64.51	63.55	52.07	1,510.85	22.98	390.61	287.76	102.85	3.798	
11,500.00	9,907.39	11,229.38	9,667.30	65.99	65.08	52.07	1,610.85	23.88	390.62	285.49	105.13	3.716	
11,600.00	9,907.98	11,329.38	9,667.89	67.53	66.68	52.07	1,710.84	24.78	390.63	283.14	107.49	3.634	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 204 H - Original Hole - rev0 — Offset Site Error: 0.00 ft

Survey Program: 0-MWD — Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
11,700.00	9,908.57	11,429.38	9,668.48	69.12	68.32	52.07	1,810.84	25.68	390.64	280.72	109.93	3.554	
11,800.00	9,909.16	11,529.38	9,669.06	70.77	70.02	52.08	1,910.83	26.58	390.65	278.22	112.43	3.475	
11,900.00	9,909.75	11,629.38	9,669.65	72.46	71.76	52.08	2,010.83	27.49	390.66	275.66	115.00	3.397	
12,000.00	9,910.34	11,729.38	9,670.24	74.19	73.54	52.08	2,110.82	28.39	390.67	273.05	117.63	3.321	
12,100.00	9,910.93	11,829.38	9,670.83	75.97	75.36	52.08	2,210.81	29.29	390.68	270.38	120.30	3.247	
12,200.00	9,911.51	11,929.38	9,671.42	77.78	77.22	52.08	2,310.81	30.19	390.69	267.66	123.03	3.176	
12,300.00	9,912.10	12,029.38	9,672.01	79.63	79.11	52.08	2,410.80	31.09	390.70	264.91	125.80	3.106	
12,400.00	9,912.69	12,129.38	9,672.59	81.51	81.03	52.08	2,510.80	31.99	390.71	262.11	128.60	3.038	
12,500.00	9,913.28	12,229.38	9,673.18	83.42	82.98	52.08	2,610.79	32.90	390.72	259.28	131.44	2.973	
12,600.00	9,913.87	12,329.38	9,673.77	85.36	84.96	52.09	2,710.78	33.80	390.74	256.42	134.31	2.909	
12,700.00	9,914.46	12,429.38	9,674.36	87.33	86.96	52.09	2,810.78	34.70	390.75	253.53	137.21	2.848	
12,800.00	9,915.05	12,529.38	9,674.95	89.32	88.99	52.09	2,910.77	35.60	390.76	250.62	140.14	2.788	
12,900.00	9,915.63	12,629.38	9,675.54	91.33	91.03	52.09	3,010.77	36.50	390.77	247.68	143.08	2.731	
13,000.00	9,916.22	12,729.38	9,676.13	93.37	93.10	52.09	3,110.76	37.41	390.78	244.73	146.05	2.676	
13,100.00	9,916.81	12,829.38	9,676.71	95.43	95.19	52.09	3,210.76	38.31	390.79	241.76	149.03	2.622	
13,200.00	9,917.40	12,929.38	9,677.30	97.51	97.30	52.09	3,310.75	39.21	390.80	238.77	152.02	2.571	
13,300.00	9,917.99	13,029.38	9,677.89	99.60	99.42	52.09	3,410.74	40.11	390.81	235.78	155.03	2.521	
13,400.00	9,918.58	13,129.38	9,678.48	101.71	101.56	52.09	3,510.74	41.01	390.82	232.77	158.05	2.473	
13,500.00	9,919.17	13,229.38	9,679.07	103.84	103.71	52.10	3,610.73	41.92	390.83	229.75	161.08	2.426	
13,600.00	9,919.75	13,329.38	9,679.66	105.98	105.88	52.10	3,710.73	42.82	390.84	226.73	164.11	2.382	
13,700.00	9,920.34	13,429.38	9,680.24	108.14	108.06	52.10	3,810.72	43.72	390.85	223.70	167.15	2.338	
13,800.00	9,920.93	13,529.38	9,680.83	110.31	110.26	52.10	3,910.72	44.62	390.86	220.67	170.19	2.297	
13,900.00	9,921.52	13,629.38	9,681.42	112.49	112.46	52.10	4,010.71	45.52	390.87	217.63	173.24	2.256	
14,000.00	9,922.11	13,729.38	9,682.01	114.69	114.68	52.10	4,110.70	46.42	390.88	214.59	176.29	2.217	
14,100.00	9,922.70	13,829.38	9,682.60	116.89	116.90	52.10	4,210.70	47.33	390.89	211.55	179.34	2.180	
14,200.00	9,923.29	13,929.38	9,683.19	119.11	119.14	52.10	4,310.69	48.23	390.90	208.51	182.39	2.143	
14,300.00	9,923.87	14,029.38	9,683.77	121.33	121.38	52.11	4,410.69	49.13	390.91	205.47	185.44	2.108	
14,400.00	9,924.46	14,129.38	9,684.36	123.57	123.63	52.11	4,510.68	50.03	390.92	202.43	188.49	2.074	
14,500.00	9,925.05	14,229.38	9,684.95	125.81	125.90	52.11	4,610.67	50.93	390.93	199.40	191.53	2.041	
14,600.00	9,925.64	14,329.38	9,685.54	128.06	128.17	52.11	4,710.67	51.84	390.94	196.37	194.58	2.009	
14,700.00	9,926.23	14,429.38	9,686.13	130.32	130.44	52.11	4,810.66	52.74	390.95	193.34	197.61	1.978	Level 3<2.00
14,800.00	9,926.82	14,529.38	9,686.72	132.59	132.73	52.11	4,910.66	53.64	390.96	190.32	200.65	1.949	Level 3<2.00
14,900.00	9,927.41	14,629.38	9,687.31	134.87	135.02	52.11	5,010.65	54.54	390.97	187.30	203.68	1.920	Level 3<2.00
15,000.00	9,927.99	14,729.38	9,687.89	137.15	137.31	52.11	5,110.65	55.44	390.99	184.28	206.70	1.892	Level 3<2.00
15,100.00	9,928.58	14,829.38	9,688.48	139.44	139.62	52.11	5,210.64	56.35	391.00	181.27	209.72	1.864	Level 3<2.00
15,200.00	9,929.17	14,929.38	9,689.07	141.73	141.92	52.12	5,310.63	57.25	391.01	178.27	212.74	1.838	Level 3<2.00
15,300.00	9,929.76	15,029.38	9,689.66	144.03	144.24	52.12	5,410.63	58.15	391.02	175.27	215.74	1.812	Level 3<2.00
15,400.00	9,930.35	15,129.38	9,690.25	146.34	146.56	52.12	5,510.62	59.05	391.03	172.28	218.74	1.788	Level 3<2.00
15,500.00	9,930.94	15,229.38	9,690.84	148.65	148.88	52.12	5,610.62	59.95	391.04	169.30	221.74	1.764	Level 3<2.00
15,600.00	9,931.52	15,329.38	9,691.42	150.96	151.21	52.12	5,710.61	60.86	391.05	166.32	224.72	1.740	Level 3<2.00
15,700.00	9,932.11	15,429.38	9,692.01	153.28	153.54	52.12	5,810.61	61.76	391.06	163.35	227.70	1.717	Level 3<2.00
15,800.00	9,932.70	15,529.38	9,692.60	155.61	155.88	52.12	5,910.60	62.66	391.07	160.39	230.68	1.695	Level 3<2.00
15,900.00	9,933.29	15,629.38	9,693.19	157.94	158.22	52.12	6,010.59	63.56	391.08	157.44	233.64	1.674	Level 3<2.00
16,000.00	9,933.88	15,729.38	9,693.78	160.27	160.56	52.13	6,110.59	64.46	391.09	154.49	236.60	1.653	Level 3<2.00
16,100.00	9,934.47	15,829.38	9,694.37	162.61	162.91	52.13	6,210.58	65.36	391.10	151.55	239.55	1.633	Level 3<2.00
16,200.00	9,935.06	15,929.38	9,694.95	164.96	165.27	52.13	6,310.58	66.27	391.11	148.62	242.49	1.613	Level 3<2.00
16,300.00	9,935.64	16,029.38	9,695.54	167.30	167.62	52.13	6,410.57	67.17	391.12	145.69	245.43	1.594	Level 3<2.00
16,400.00	9,936.23	16,129.38	9,696.13	169.65	169.98	52.13	6,510.56	68.07	391.13	142.77	248.36	1.575	Level 3<2.00
16,500.00	9,936.82	16,229.38	9,696.72	172.00	172.34	52.13	6,610.56	68.97	391.14	139.87	251.28	1.557	Level 3<2.00
16,600.00	9,937.41	16,329.38	9,697.31	174.36	174.71	52.13	6,710.55	69.87	391.15	136.96	254.19	1.539	Level 3<2.00
16,700.00	9,938.00	16,429.38	9,697.90	176.72	177.08	52.13	6,810.55	70.78	391.16	134.07	257.09	1.521	Level 3<2.00

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 204 H - Original Hole - rev0

Offset Site Error: 0.00 ft

Survey Program: 0-MWD

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
16,800.00	9,938.59	16,529.38	9,698.49	179.08	179.45	52.13	6,910.54	71.68	391.17	131.18	259.99	1.505	Level 3<2.00
16,900.00	9,939.18	16,629.38	9,699.07	181.45	181.82	52.14	7,010.54	72.58	391.18	128.31	262.88	1.488	Level 2<1.50
17,000.00	9,939.76	16,729.38	9,699.66	183.82	184.20	52.14	7,110.53	73.48	391.19	125.44	265.76	1.472	Level 2<1.50
17,040.11	9,940.00	16,769.50	9,699.90	184.77	185.15	52.14	7,150.64	73.84	391.20	124.29	266.91	1.466	Level 2<1.50, SF

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 218 H - Original Hole - rev0 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	89.43	1.00	100.00	100.01				
100.00	100.00	100.00	100.00	0.20	0.20	89.43	1.00	100.00	100.01	99.61	0.40	251.330	
200.00	200.00	200.00	200.00	0.74	0.74	89.43	1.00	100.00	100.01	98.53	1.47	67.878	
300.00	300.00	300.00	300.00	1.27	1.27	89.43	1.00	100.00	100.01	97.46	2.55	39.237	
400.00	400.00	400.00	400.00	1.81	1.81	89.43	1.00	100.00	100.01	96.38	3.62	27.594	
500.00	500.00	500.00	500.00	2.35	2.35	89.43	1.00	100.00	100.01	95.31	4.70	21.280	
600.00	600.00	600.00	600.00	2.89	2.89	89.43	1.00	100.00	100.01	94.23	5.77	17.317	
700.00	700.00	700.00	700.00	3.43	3.43	89.43	1.00	100.00	100.01	93.15	6.85	14.598	
800.00	800.00	800.00	800.00	3.96	3.96	89.43	1.00	100.00	100.01	92.08	7.93	12.618	
900.00	900.00	900.00	900.00	4.50	4.50	89.43	1.00	100.00	100.01	91.00	9.00	11.110	
1,000.00	1,000.00	1,000.00	1,000.00	5.04	5.04	89.43	1.00	100.00	100.01	89.93	10.08	9.924	
1,100.00	1,100.00	1,100.00	1,100.00	5.58	5.58	89.43	1.00	100.00	100.01	88.85	11.15	8.967	
1,200.00	1,200.00	1,200.00	1,200.00	6.11	6.11	89.43	1.00	100.00	100.01	87.78	12.23	8.179	CC, ES
1,300.00	1,299.99	1,297.80	1,297.79	6.63	6.62	-155.16	0.33	101.06	102.27	89.02	13.25	7.719	
1,400.00	1,399.91	1,395.29	1,395.21	7.14	7.11	-154.90	-1.66	104.22	109.06	94.82	14.24	7.660	
1,500.00	1,499.69	1,492.26	1,491.98	7.65	7.61	-154.53	-4.96	109.46	120.35	105.12	15.22	7.905	
1,600.00	1,599.28	1,608.80	1,590.63	8.17	8.21	-154.41	-8.95	115.80	134.89	118.56	16.34	8.257	
1,700.00	1,698.81	1,709.96	1,689.19	8.71	8.74	-154.47	-12.94	122.13	150.03	132.65	17.37	8.636	
1,800.00	1,798.34	1,788.89	1,787.76	9.24	9.16	-154.52	-16.93	128.46	165.16	146.86	18.30	9.025	
1,900.00	1,897.87	1,887.74	1,886.32	9.79	9.69	-154.56	-20.92	134.80	180.29	160.96	19.34	9.323	
2,000.00	1,997.39	1,986.59	1,984.88	10.34	10.22	-154.60	-24.91	141.13	195.43	175.05	20.38	9.588	
2,100.00	2,096.92	2,085.44	2,083.45	10.89	10.76	-154.63	-28.89	147.47	210.56	189.13	21.43	9.824	
2,200.00	2,196.45	2,184.28	2,182.01	11.45	11.29	-154.66	-32.88	153.80	225.70	203.21	22.49	10.036	
2,300.00	2,295.98	2,283.13	2,280.58	12.01	11.83	-154.68	-36.87	160.14	240.83	217.29	23.55	10.228	
2,400.00	2,395.51	2,381.98	2,379.14	12.57	12.37	-154.70	-40.86	166.47	255.97	231.36	24.61	10.402	
2,500.00	2,495.04	2,480.83	2,477.70	13.13	12.92	-154.72	-44.85	172.80	271.10	245.43	25.67	10.560	
2,600.00	2,594.56	2,579.68	2,576.27	13.70	13.46	-154.74	-48.84	179.14	286.24	259.50	26.74	10.704	
2,700.00	2,694.09	2,678.52	2,674.83	14.27	14.01	-154.75	-52.83	185.47	301.38	273.57	27.81	10.837	
2,800.00	2,793.62	2,777.37	2,773.40	14.84	14.56	-154.77	-56.82	191.81	316.51	287.63	28.88	10.959	
2,900.00	2,893.15	2,876.22	2,871.96	15.41	15.10	-154.78	-60.81	198.14	331.65	301.69	29.96	11.071	
3,000.00	2,992.68	2,975.07	2,970.53	15.98	15.65	-154.79	-64.80	204.47	346.78	315.75	31.03	11.176	
3,100.00	3,092.21	3,073.92	3,069.09	16.55	16.20	-154.80	-68.79	210.81	361.92	329.81	32.11	11.272	
3,200.00	3,191.73	3,172.76	3,167.65	17.13	16.76	-154.81	-72.78	217.14	377.05	343.87	33.19	11.362	
3,300.00	3,291.26	3,271.61	3,266.22	17.70	17.31	-154.82	-76.77	223.48	392.19	357.92	34.26	11.446	
3,400.00	3,390.79	3,370.46	3,364.78	18.28	17.86	-154.83	-80.76	229.81	407.32	371.98	35.34	11.524	
3,500.00	3,490.32	3,469.31	3,463.35	18.85	18.41	-154.83	-84.74	236.15	422.46	386.03	36.43	11.598	
3,600.00	3,589.85	3,568.16	3,561.91	19.43	18.97	-154.84	-88.73	242.48	437.59	400.08	37.51	11.667	
3,700.00	3,689.38	3,667.00	3,660.47	20.01	19.52	-154.85	-92.72	248.81	452.73	414.14	38.59	11.731	
3,800.00	3,788.90	3,765.85	3,759.04	20.59	20.07	-154.85	-96.71	255.15	467.86	428.19	39.68	11.792	
3,900.00	3,888.43	3,864.70	3,857.60	21.16	20.63	-154.86	-100.70	261.48	483.00	442.24	40.76	11.850	
4,000.00	3,987.96	3,963.55	3,956.17	21.74	21.19	-154.86	-104.69	267.82	498.13	456.29	41.85	11.904	
4,100.00	4,087.49	4,062.40	4,054.73	22.32	21.74	-154.87	-108.68	274.15	513.27	470.34	42.93	11.956	
4,200.00	4,187.02	4,161.24	4,153.29	22.90	22.30	-154.87	-112.67	280.48	528.40	484.39	44.02	12.004	
4,300.00	4,286.55	4,260.09	4,251.86	23.48	22.85	-154.88	-116.66	286.82	543.54	498.43	45.11	12.051	
4,400.00	4,386.07	4,358.94	4,350.42	24.06	23.41	-154.88	-120.65	293.15	558.67	512.48	46.19	12.094	
4,500.00	4,485.60	4,457.79	4,448.99	24.65	23.97	-154.89	-124.64	299.49	573.81	526.53	47.28	12.136	
4,600.00	4,585.13	4,556.64	4,547.55	25.23	24.52	-154.89	-128.63	305.82	588.94	540.58	48.37	12.176	
4,700.00	4,684.66	4,655.48	4,646.12	25.81	25.08	-154.89	-132.62	312.16	604.08	554.62	49.46	12.214	
4,800.00	4,784.19	4,754.33	4,744.68	26.39	25.64	-154.90	-136.61	318.49	619.22	568.67	50.55	12.250	
4,900.00	4,883.72	4,853.18	4,843.24	26.97	26.20	-154.90	-140.59	324.82	634.35	582.71	51.64	12.285	
5,000.00	4,983.24	4,952.03	4,941.81	27.56	26.75	-154.90	-144.58	331.16	649.49	596.76	52.73	12.318	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 218 H - Original Hole - rev0 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.00	5,082.77	5,050.88	5,040.37	28.14	27.31	-154.91	-148.57	337.49	664.62	610.80	53.82	12.349	
5,200.00	5,182.30	5,149.72	5,138.94	28.72	27.87	-154.91	-152.56	343.83	679.76	624.85	54.91	12.380	
5,300.00	5,281.83	5,248.57	5,237.50	29.30	28.43	-154.91	-156.55	350.16	694.89	638.89	56.00	12.409	
5,400.00	5,381.36	5,347.42	5,336.06	29.89	28.99	-154.91	-160.54	356.50	710.03	652.94	57.09	12.437	
5,500.00	5,480.89	5,446.27	5,434.63	30.47	29.55	-154.92	-164.53	362.83	725.16	666.98	58.18	12.464	
5,600.00	5,580.41	5,545.12	5,533.19	31.05	30.10	-154.92	-168.52	369.16	740.30	681.02	59.27	12.489	
5,700.00	5,679.94	5,643.96	5,631.76	31.64	30.66	-154.92	-172.51	375.50	755.43	695.07	60.37	12.514	
5,800.00	5,779.47	5,742.81	5,730.32	32.22	31.22	-154.92	-176.50	381.83	770.57	709.11	61.46	12.538	
5,900.00	5,879.00	5,841.66	5,828.88	32.81	31.78	-154.93	-180.49	388.17	785.70	723.15	62.55	12.561	
6,000.00	5,978.53	5,940.51	5,927.45	33.39	32.34	-154.93	-184.48	394.50	800.84	737.20	63.64	12.583	
6,100.00	6,078.08	6,039.40	6,026.05	33.97	32.90	-154.97	-188.47	400.84	815.69	750.96	64.74	12.600	
6,200.00	6,177.83	6,141.75	6,128.12	34.54	33.48	-154.97	-192.58	407.36	828.48	762.62	65.86	12.580	
6,300.00	6,277.72	6,263.81	6,249.98	35.08	34.15	-154.94	-196.17	413.07	837.22	770.07	67.15	12.468	
6,400.00	6,377.70	6,386.48	6,372.61	35.60	34.81	-154.92	-197.69	415.48	840.89	772.51	68.38	12.297	
6,500.00	6,477.70	6,508.43	6,477.70	36.09	35.41	89.76	-197.74	415.56	841.02	771.52	69.50	12.101	
6,600.00	6,577.70	6,608.43	6,577.70	36.58	35.91	89.76	-197.74	415.56	841.02	770.52	70.50	11.929	
6,700.00	6,677.70	6,708.43	6,677.70	37.06	36.40	89.76	-197.74	415.56	841.02	769.51	71.51	11.762	
6,800.00	6,777.70	6,808.43	6,777.70	37.55	36.90	89.76	-197.74	415.56	841.02	768.51	72.51	11.599	
6,900.00	6,877.70	6,908.43	6,877.70	38.04	37.40	89.76	-197.74	415.56	841.02	767.50	73.52	11.440	
7,000.00	6,977.70	7,008.43	6,977.70	38.53	37.89	89.76	-197.74	415.56	841.02	766.49	74.53	11.285	
7,100.00	7,077.70	7,108.43	7,077.70	39.03	38.39	89.76	-197.74	415.56	841.02	765.48	75.54	11.134	
7,200.00	7,177.70	7,208.43	7,177.70	39.52	38.89	89.76	-197.74	415.56	841.02	764.47	76.55	10.987	
7,300.00	7,277.70	7,308.43	7,277.70	40.01	39.40	89.76	-197.74	415.56	841.02	763.46	77.56	10.843	
7,400.00	7,377.70	7,408.43	7,377.70	40.51	39.90	89.76	-197.74	415.56	841.02	762.44	78.58	10.703	
7,500.00	7,477.70	7,508.43	7,477.70	41.01	40.40	89.76	-197.74	415.56	841.02	761.42	79.60	10.566	
7,600.00	7,577.70	7,608.43	7,577.70	41.50	40.91	89.76	-197.74	415.56	841.02	760.40	80.62	10.432	
7,700.00	7,677.70	7,708.43	7,677.70	42.00	41.41	89.76	-197.74	415.56	841.02	759.38	81.64	10.302	
7,800.00	7,777.70	7,808.43	7,777.70	42.50	41.92	89.76	-197.74	415.56	841.02	758.36	82.66	10.175	
7,900.00	7,877.70	7,908.43	7,877.70	43.00	42.42	89.76	-197.74	415.56	841.02	757.34	83.68	10.050	
8,000.00	7,977.70	8,008.43	7,977.70	43.51	42.93	89.76	-197.74	415.56	841.02	756.31	84.71	9.929	
8,100.00	8,077.70	8,108.43	8,077.70	44.01	43.44	89.76	-197.74	415.56	841.02	755.29	85.73	9.810	
8,200.00	8,177.70	8,208.43	8,177.70	44.51	43.95	89.76	-197.74	415.56	841.02	754.26	86.76	9.694	
8,300.00	8,277.70	8,308.43	8,277.70	45.02	44.46	89.76	-197.74	415.56	841.02	753.23	87.79	9.580	
8,400.00	8,377.70	8,408.43	8,377.70	45.52	44.97	89.76	-197.74	415.56	841.02	752.20	88.81	9.469	
8,500.00	8,477.70	8,508.43	8,477.70	46.03	45.48	89.76	-197.74	415.56	841.02	751.17	89.85	9.361	
8,600.00	8,577.70	8,608.43	8,577.70	46.53	45.99	89.76	-197.74	415.56	841.02	750.14	90.88	9.255	
8,700.00	8,677.70	8,708.43	8,677.70	47.04	46.50	89.76	-197.74	415.56	841.02	749.11	91.91	9.151	
8,800.00	8,777.70	8,808.43	8,777.70	47.55	47.01	89.76	-197.74	415.56	841.02	748.08	92.94	9.049	
8,900.00	8,877.70	8,908.43	8,877.70	48.06	47.53	89.76	-197.74	415.56	841.02	747.04	93.98	8.949	
9,000.00	8,977.70	9,008.43	8,977.70	48.57	48.04	89.76	-197.74	415.56	841.02	746.01	95.01	8.852	
9,100.00	9,077.70	9,108.43	9,077.70	49.08	48.56	89.76	-197.74	415.56	841.02	744.97	96.05	8.756	
9,200.00	9,177.70	9,208.43	9,177.70	49.59	49.07	89.76	-197.74	415.56	841.02	743.94	97.08	8.663	
9,300.00	9,277.70	9,291.57	9,277.70	50.10	49.50	89.76	-197.74	415.56	841.02	742.99	98.03	8.579	
9,400.00	9,377.64	9,400.23	9,386.31	50.60	50.05	80.31	-195.64	415.30	840.43	741.32	99.11	8.480	
9,500.00	9,475.97	9,521.19	9,504.83	51.06	50.62	80.68	-172.82	412.46	835.19	735.06	100.12	8.342	
9,600.00	9,569.78	9,640.38	9,614.36	51.46	51.09	81.29	-126.71	406.71	824.69	723.70	101.00	8.166	
9,700.00	9,656.22	9,756.56	9,709.65	51.78	51.45	82.12	-61.10	398.54	809.38	707.59	101.79	7.952	
9,800.00	9,732.65	9,868.96	9,787.34	52.03	51.72	83.20	19.25	388.53	789.85	687.30	102.55	7.702	
9,900.00	9,796.76	9,977.31	9,845.91	52.19	51.96	84.50	109.52	377.29	766.84	663.49	103.35	7.420	
10,000.00	9,846.60	10,081.75	9,885.22	52.29	52.32	86.01	205.39	365.35	741.14	636.95	104.19	7.113	
10,100.00	9,880.65	10,182.71	9,905.95	52.39	52.77	87.70	303.30	353.15	713.59	608.52	105.07	6.791	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

TAP ROCK

Anticollision Report

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 218 H - Original Hole - rev0 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,200.00	9,897.88	10,273.79	9,910.15	52.78	53.21	89.64	393.54	342.03	685.21	579.25	105.96	6.467	
10,300.00	9,900.32	10,351.97	9,910.62	53.24	53.66	90.84	471.32	334.14	659.23	552.35	106.88	6.168	
10,400.00	9,900.91	10,431.81	9,911.09	53.81	54.18	90.87	550.94	328.28	638.99	531.03	107.96	5.919	
10,500.00	9,901.51	10,512.93	9,911.57	54.47	54.77	90.89	631.97	324.60	624.95	515.74	109.21	5.722	
10,600.00	9,902.10	10,594.87	9,912.05	55.24	55.43	90.91	713.89	323.21	617.20	506.58	110.62	5.579	
10,699.33	9,902.68	10,686.91	9,912.59	56.10	56.24	90.92	805.93	323.85	615.27	502.99	112.28	5.480	
10,700.00	9,902.69	10,687.58	9,912.60	56.10	56.25	90.92	806.59	323.85	615.31	503.01	112.30	5.479	
10,800.00	9,903.28	10,787.58	9,913.18	57.06	57.23	90.92	906.59	324.76	615.33	501.11	114.22	5.387	
10,900.00	9,903.86	10,887.58	9,913.77	58.11	58.29	90.92	1,006.58	325.68	615.35	499.03	116.32	5.290	
11,000.00	9,904.45	10,987.58	9,914.35	59.24	59.44	90.92	1,106.58	326.59	615.38	496.78	118.59	5.189	
11,100.00	9,905.04	11,087.58	9,914.94	60.45	60.67	90.92	1,206.57	327.50	615.40	494.38	121.02	5.085	
11,200.00	9,905.63	11,187.58	9,915.53	61.73	61.97	90.92	1,306.56	328.41	615.42	491.82	123.60	4.979	
11,300.00	9,906.22	11,287.58	9,916.11	63.09	63.35	90.92	1,406.56	329.32	615.45	489.12	126.32	4.872	
11,400.00	9,906.81	11,387.58	9,916.70	64.51	64.78	90.92	1,506.55	330.23	615.47	486.29	129.18	4.765	
11,500.00	9,907.39	11,487.58	9,917.29	65.99	66.28	90.92	1,606.55	331.15	615.49	483.34	132.15	4.657	
11,600.00	9,907.98	11,587.58	9,917.87	67.53	67.83	90.92	1,706.54	332.06	615.51	480.27	135.24	4.551	
11,700.00	9,908.57	11,687.58	9,918.46	69.12	69.44	90.92	1,806.53	332.97	615.54	477.09	138.44	4.446	
11,800.00	9,909.16	11,787.58	9,919.05	70.77	71.10	90.92	1,906.53	333.88	615.56	473.82	141.74	4.343	
11,900.00	9,909.75	11,887.58	9,919.63	72.46	72.80	90.92	2,006.52	334.79	615.58	470.45	145.13	4.242	
12,000.00	9,910.34	11,987.58	9,920.22	74.19	74.55	90.92	2,106.52	335.70	615.60	466.99	148.61	4.142	
12,100.00	9,910.93	12,087.58	9,920.80	75.97	76.33	90.92	2,206.51	336.61	615.63	463.46	152.17	4.046	
12,200.00	9,911.51	12,187.58	9,921.39	77.78	78.16	90.92	2,306.51	337.53	615.65	459.84	155.81	3.951	
12,300.00	9,912.10	12,287.58	9,921.98	79.63	80.02	90.92	2,406.50	338.44	615.67	456.16	159.51	3.860	
12,400.00	9,912.69	12,387.58	9,922.56	81.51	81.91	90.92	2,506.49	339.35	615.70	452.41	163.29	3.771	
12,500.00	9,913.28	12,487.58	9,923.15	83.42	83.83	90.92	2,606.49	340.26	615.72	448.60	167.12	3.684	
12,600.00	9,913.87	12,587.58	9,923.74	85.36	85.78	90.92	2,706.48	341.17	615.74	444.73	171.01	3.601	
12,700.00	9,914.46	12,687.58	9,924.32	87.33	87.75	90.92	2,806.48	342.08	615.76	440.81	174.95	3.520	
12,800.00	9,915.05	12,787.58	9,924.91	89.32	89.75	90.92	2,906.47	343.00	615.79	436.84	178.94	3.441	
12,900.00	9,915.63	12,887.58	9,925.50	91.33	91.77	90.92	3,006.46	343.91	615.81	432.83	182.98	3.365	
13,000.00	9,916.22	12,987.58	9,926.08	93.37	93.82	90.92	3,106.46	344.82	615.83	428.77	187.06	3.292	
13,100.00	9,916.81	13,087.58	9,926.67	95.43	95.88	90.92	3,206.45	345.73	615.86	424.67	191.19	3.221	
13,200.00	9,917.40	13,187.58	9,927.26	97.51	97.97	90.92	3,306.45	346.64	615.88	420.53	195.35	3.153	
13,300.00	9,917.99	13,287.58	9,927.84	99.60	100.07	90.92	3,406.44	347.55	615.90	416.36	199.54	3.087	
13,400.00	9,918.58	13,387.58	9,928.43	101.71	102.18	90.92	3,506.43	348.47	615.92	412.15	203.77	3.023	
13,500.00	9,919.17	13,487.58	9,929.01	103.84	104.32	90.92	3,606.43	349.38	615.95	407.91	208.04	2.961	
13,600.00	9,919.75	13,587.58	9,929.60	105.98	106.47	90.92	3,706.42	350.29	615.97	403.64	212.33	2.901	
13,700.00	9,920.34	13,687.58	9,930.19	108.14	108.63	90.92	3,806.42	351.20	615.99	399.35	216.65	2.843	
13,800.00	9,920.93	13,787.58	9,930.77	110.31	110.80	90.92	3,906.41	352.11	616.01	395.02	220.99	2.788	
13,900.00	9,921.52	13,887.58	9,931.36	112.49	112.99	90.92	4,006.41	353.02	616.04	390.68	225.36	2.734	
14,000.00	9,922.11	13,987.58	9,931.95	114.69	115.19	90.92	4,106.40	353.93	616.06	386.31	229.75	2.681	
14,100.00	9,922.70	14,087.58	9,932.53	116.89	117.39	90.91	4,206.39	354.85	616.08	381.92	234.17	2.631	
14,200.00	9,923.29	14,187.58	9,933.12	119.11	119.61	90.91	4,306.39	355.76	616.11	377.50	238.60	2.582	
14,300.00	9,923.87	14,287.58	9,933.71	121.33	121.84	90.91	4,406.38	356.67	616.13	373.07	243.06	2.535	
14,400.00	9,924.46	14,387.58	9,934.29	123.57	124.08	90.91	4,506.38	357.58	616.15	368.62	247.53	2.489	
14,500.00	9,925.05	14,487.58	9,934.88	125.81	126.33	90.91	4,606.37	358.49	616.17	364.15	252.02	2.445	
14,600.00	9,925.64	14,587.58	9,935.46	128.06	128.58	90.91	4,706.36	359.40	616.20	359.67	256.53	2.402	
14,700.00	9,926.23	14,687.58	9,936.05	130.32	130.85	90.91	4,806.36	360.32	616.22	355.17	261.05	2.361	
14,800.00	9,926.82	14,787.58	9,936.64	132.59	133.12	90.91	4,906.35	361.23	616.24	350.65	265.59	2.320	
14,900.00	9,927.41	14,887.58	9,937.22	134.87	135.39	90.91	5,006.35	362.14	616.27	346.12	270.14	2.281	
15,000.00	9,927.99	14,987.58	9,937.81	137.15	137.68	90.91	5,106.34	363.05	616.29	341.58	274.71	2.243	
15,100.00	9,928.58	15,087.58	9,938.40	139.44	139.97	90.91	5,206.34	363.96	616.31	337.02	279.29	2.207	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 218 H - Original Hole - rev0 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
15,200.00	9,929.17	15,187.58	9,938.98	141.73	142.27	90.91	5,306.33	364.87	616.33	332.46	283.88	2.171	
15,300.00	9,929.76	15,287.58	9,939.57	144.03	144.57	90.91	5,406.32	365.79	616.36	327.88	288.48	2.137	
15,400.00	9,930.35	15,387.58	9,940.16	146.34	146.88	90.91	5,506.32	366.70	616.38	323.29	293.09	2.103	
15,500.00	9,930.94	15,487.58	9,940.74	148.65	149.19	90.91	5,606.31	367.61	616.40	318.68	297.72	2.070	
15,600.00	9,931.52	15,587.58	9,941.33	150.96	151.51	90.91	5,706.31	368.52	616.42	314.07	302.35	2.039	
15,700.00	9,932.11	15,687.58	9,941.91	153.28	153.83	90.91	5,806.30	369.43	616.45	309.45	307.00	2.008	
15,800.00	9,932.70	15,787.58	9,942.50	155.61	156.16	90.91	5,906.29	370.34	616.47	304.82	311.65	1.978	Level 3<2.00
15,900.00	9,933.29	15,887.58	9,943.09	157.94	158.49	90.91	6,006.29	371.26	616.49	300.18	316.31	1.949	Level 3<2.00
16,000.00	9,933.88	15,987.58	9,943.67	160.27	160.82	90.91	6,106.28	372.17	616.52	295.54	320.98	1.921	Level 3<2.00
16,100.00	9,934.47	16,087.58	9,944.26	162.61	163.16	90.91	6,206.28	373.08	616.54	290.88	325.66	1.893	Level 3<2.00
16,200.00	9,935.06	16,187.58	9,944.85	164.96	165.51	90.91	6,306.27	373.99	616.56	286.22	330.34	1.866	Level 3<2.00
16,300.00	9,935.64	16,287.58	9,945.43	167.30	167.86	90.91	6,406.26	374.90	616.58	281.55	335.04	1.840	Level 3<2.00
16,400.00	9,936.23	16,387.58	9,946.02	169.65	170.21	90.91	6,506.26	375.81	616.61	276.87	339.74	1.815	Level 3<2.00
16,500.00	9,936.82	16,487.58	9,946.61	172.00	172.56	90.91	6,606.25	376.72	616.63	272.19	344.44	1.790	Level 3<2.00
16,600.00	9,937.41	16,587.58	9,947.19	174.36	174.92	90.91	6,706.25	377.64	616.65	267.50	349.16	1.766	Level 3<2.00
16,700.00	9,938.00	16,687.58	9,947.78	176.72	177.28	90.91	6,806.24	378.55	616.67	262.80	353.88	1.743	Level 3<2.00
16,800.00	9,938.59	16,787.58	9,948.37	179.08	179.64	90.91	6,906.24	379.46	616.70	258.10	358.60	1.720	Level 3<2.00
16,900.00	9,939.18	16,887.58	9,948.95	181.45	182.01	90.91	7,006.23	380.37	616.72	253.39	363.33	1.697	Level 3<2.00
17,000.00	9,939.76	16,987.58	9,949.54	183.82	184.38	90.91	7,106.22	381.28	616.74	248.67	368.07	1.676	Level 3<2.00
17,040.11	9,940.00	17,027.69	9,949.77	184.77	185.33	90.91	7,146.34	381.65	616.75	246.78	369.97	1.667	Level 3<2.00, SF

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 238 H - Original Hole - rev0 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	89.24	1.00	75.00	75.01				
100.00	100.00	100.00	100.00	0.20	0.20	89.24	1.00	75.00	75.01	74.61	0.40	188.505	
200.00	200.00	200.00	200.00	0.74	0.74	89.24	1.00	75.00	75.01	73.53	1.47	50.910	
300.00	300.00	300.00	300.00	1.27	1.27	89.24	1.00	75.00	75.01	72.46	2.55	29.429	
400.00	400.00	400.00	400.00	1.81	1.81	89.24	1.00	75.00	75.01	71.38	3.62	20.696	
500.00	500.00	500.00	500.00	2.35	2.35	89.24	1.00	75.00	75.01	70.31	4.70	15.960	
600.00	600.00	600.00	600.00	2.89	2.89	89.24	1.00	75.00	75.01	69.23	5.77	12.988	
700.00	700.00	700.00	700.00	3.43	3.43	89.24	1.00	75.00	75.01	68.16	6.85	10.949	
800.00	800.00	800.00	800.00	3.96	3.96	89.24	1.00	75.00	75.01	67.08	7.93	9.464	
900.00	900.00	900.00	900.00	4.50	4.50	89.24	1.00	75.00	75.01	66.01	9.00	8.333	
1,000.00	1,000.00	1,000.00	1,000.00	5.04	5.04	89.24	1.00	75.00	75.01	64.93	10.08	7.444	
1,100.00	1,100.00	1,100.00	1,100.00	5.58	5.58	89.24	1.00	75.00	75.01	63.85	11.15	6.726	
1,200.00	1,200.00	1,200.00	1,200.00	6.11	6.11	89.24	1.00	75.00	75.01	62.78	12.23	6.134	CC, ES
1,300.00	1,299.99	1,300.01	1,299.99	6.63	6.65	-155.85	1.00	75.00	76.20	62.92	13.28	5.736	
1,400.00	1,399.91	1,399.91	1,399.91	7.14	7.19	-156.98	1.00	75.00	79.80	65.47	14.33	5.570	
1,500.00	1,499.69	1,498.60	1,498.59	7.65	7.70	-157.89	-0.07	75.69	86.48	71.14	15.34	5.638	
1,600.00	1,599.28	1,602.98	1,596.93	8.17	8.21	-157.88	-3.26	77.75	96.76	80.39	16.37	5.912	
1,700.00	1,698.81	1,703.63	1,696.16	8.71	8.71	-157.54	-7.38	80.40	108.16	90.78	17.38	6.222	
1,800.00	1,798.34	1,795.71	1,795.38	9.24	9.18	-157.27	-11.50	83.05	119.58	101.21	18.37	6.510	
1,900.00	1,897.87	1,904.94	1,894.61	9.79	9.74	-157.04	-15.61	85.70	130.99	111.54	19.45	6.736	
2,000.00	1,997.39	2,005.60	1,993.83	10.34	10.26	-156.85	-19.73	88.35	142.41	121.92	20.49	6.950	
2,100.00	2,096.92	2,106.25	2,093.06	10.89	10.78	-156.69	-23.85	91.00	153.82	132.28	21.54	7.142	
2,200.00	2,196.45	2,206.91	2,192.28	11.45	11.30	-156.55	-27.96	93.65	165.24	142.65	22.59	7.314	
2,300.00	2,295.98	2,307.56	2,291.51	12.01	11.83	-156.43	-32.08	96.30	176.66	153.01	23.65	7.469	
2,400.00	2,395.51	2,408.22	2,390.73	12.57	12.36	-156.32	-36.20	98.95	188.08	163.36	24.72	7.610	
2,500.00	2,495.04	2,508.87	2,489.95	13.13	12.90	-156.23	-40.31	101.60	199.50	173.72	25.78	7.738	
2,600.00	2,594.56	2,609.53	2,589.18	13.70	13.43	-156.15	-44.43	104.25	210.92	184.07	26.85	7.855	
2,700.00	2,694.09	2,689.82	2,688.40	14.27	13.86	-156.07	-48.54	106.91	222.34	194.52	27.82	7.993	
2,800.00	2,793.62	2,789.16	2,787.63	14.84	14.39	-156.00	-52.66	109.56	233.76	204.88	28.89	8.093	
2,900.00	2,893.15	2,888.51	2,886.85	15.41	14.92	-155.94	-56.78	112.21	245.18	215.23	29.96	8.185	
3,000.00	2,992.68	2,987.85	2,986.08	15.98	15.45	-155.88	-60.89	114.86	256.61	225.58	31.03	8.270	
3,100.00	3,092.21	3,087.20	3,085.30	16.55	15.99	-155.83	-65.01	117.51	268.03	235.93	32.10	8.349	
3,200.00	3,191.73	3,186.55	3,184.53	17.13	16.52	-155.79	-69.13	120.16	279.45	246.27	33.18	8.422	
3,300.00	3,291.26	3,285.89	3,283.75	17.70	17.06	-155.74	-73.24	122.81	290.87	256.62	34.26	8.491	
3,400.00	3,390.79	3,385.24	3,382.98	18.28	17.60	-155.70	-77.36	125.46	302.30	266.96	35.34	8.555	
3,500.00	3,490.32	3,484.58	3,482.20	18.85	18.13	-155.66	-81.48	128.11	313.72	277.30	36.42	8.615	
3,600.00	3,589.85	3,583.93	3,581.42	19.43	18.67	-155.63	-85.59	130.76	325.14	287.65	37.50	8.671	
3,700.00	3,689.38	3,683.27	3,680.65	20.01	19.21	-155.60	-89.71	133.41	336.57	297.99	38.58	8.724	
3,800.00	3,788.90	3,782.62	3,779.87	20.59	19.75	-155.57	-93.83	136.07	347.99	308.33	39.66	8.774	
3,900.00	3,888.43	3,881.96	3,879.10	21.16	20.29	-155.54	-97.94	138.72	359.41	318.67	40.75	8.821	
4,000.00	3,987.96	3,981.31	3,978.32	21.74	20.83	-155.51	-102.06	141.37	370.84	329.00	41.83	8.865	
4,100.00	4,087.49	4,080.65	4,077.55	22.32	21.37	-155.49	-106.18	144.02	382.26	339.34	42.92	8.907	
4,200.00	4,187.02	4,180.00	4,176.77	22.90	21.91	-155.46	-110.29	146.67	393.68	349.68	44.00	8.947	
4,300.00	4,286.55	4,279.34	4,276.00	23.48	22.45	-155.44	-114.41	149.32	405.11	360.02	45.09	8.985	
4,400.00	4,386.07	4,378.69	4,375.22	24.06	22.99	-155.42	-118.53	151.97	416.53	370.35	46.18	9.020	
4,500.00	4,485.60	4,478.03	4,474.45	24.65	23.53	-155.40	-122.64	154.62	427.95	380.69	47.26	9.055	
4,600.00	4,585.13	4,577.38	4,573.67	25.23	24.08	-155.38	-126.76	157.27	439.38	391.02	48.35	9.087	
4,700.00	4,684.66	4,676.72	4,672.89	25.81	24.62	-155.36	-130.88	159.92	450.80	401.36	49.44	9.118	
4,800.00	4,784.19	4,776.07	4,772.12	26.39	25.16	-155.35	-134.99	162.58	462.22	411.69	50.53	9.147	
4,900.00	4,883.72	4,875.41	4,871.34	26.97	25.70	-155.33	-139.11	165.23	473.65	422.03	51.62	9.175	
5,000.00	4,983.24	4,974.76	4,970.57	27.56	26.25	-155.32	-143.22	167.88	485.07	432.36	52.71	9.202	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 238 H - Original Hole - rev0

Offset Site Error: 0.00 ft

Survey Program: 0-MWD

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.00	5,082.77	5,074.11	5,069.79	28.14	26.79	-155.30	-147.34	170.53	496.50	442.69	53.80	9.228	
5,200.00	5,182.30	5,173.45	5,169.02	28.72	27.33	-155.29	-151.46	173.18	507.92	453.03	54.89	9.253	
5,300.00	5,281.83	5,272.80	5,268.24	29.30	27.88	-155.27	-155.57	175.83	519.34	463.36	55.98	9.277	
5,400.00	5,381.36	5,372.14	5,367.47	29.89	28.42	-155.26	-159.69	178.48	530.77	473.69	57.08	9.299	
5,500.00	5,480.89	5,471.49	5,466.69	30.47	28.97	-155.25	-163.81	181.13	542.19	484.02	58.17	9.321	
5,600.00	5,580.41	5,570.83	5,565.92	31.05	29.51	-155.24	-167.92	183.78	553.62	494.35	59.26	9.342	
5,700.00	5,679.94	5,670.18	5,665.14	31.64	30.05	-155.22	-172.04	186.43	565.04	504.69	60.35	9.362	
5,800.00	5,779.47	5,769.52	5,764.36	32.22	30.60	-155.21	-176.16	189.08	576.46	515.02	61.45	9.382	
5,900.00	5,879.00	5,868.87	5,863.59	32.81	31.14	-155.20	-180.27	191.74	587.89	525.35	62.54	9.400	
6,000.00	5,978.53	5,968.21	5,962.81	33.39	31.69	-155.19	-184.39	194.39	599.31	535.68	63.63	9.418	
6,100.00	6,078.08	6,067.59	6,062.07	33.97	32.23	-155.20	-188.51	197.04	610.45	545.73	64.73	9.431	
6,200.00	6,177.83	6,167.16	6,161.52	34.54	32.78	-155.15	-192.63	199.70	619.54	553.73	65.82	9.413	
6,300.00	6,277.72	6,271.68	6,265.93	35.08	33.35	-155.00	-196.64	202.28	626.08	559.13	66.95	9.352	
6,400.00	6,377.70	6,381.31	6,375.54	35.60	33.93	-154.93	-198.55	203.51	628.91	560.82	68.09	9.237	
6,500.00	6,477.70	6,483.48	6,477.70	36.09	34.44	89.76	-198.62	203.55	629.01	559.90	69.11	9.102	
6,600.00	6,577.70	6,583.48	6,577.70	36.58	34.94	89.76	-198.62	203.55	629.01	558.90	70.11	8.972	
6,700.00	6,677.70	6,683.48	6,677.70	37.06	35.44	89.76	-198.62	203.55	629.01	557.89	71.11	8.845	
6,800.00	6,777.70	6,783.48	6,777.70	37.55	35.94	89.76	-198.62	203.55	629.01	556.89	72.12	8.722	
6,900.00	6,877.70	6,883.48	6,877.70	38.04	36.45	89.76	-198.62	203.55	629.01	555.88	73.12	8.602	
7,000.00	6,977.70	6,983.48	6,977.70	38.53	36.95	89.76	-198.62	203.55	629.01	554.88	74.13	8.485	
7,100.00	7,077.70	7,083.48	7,077.70	39.03	37.45	89.76	-198.62	203.55	629.01	553.87	75.14	8.371	
7,200.00	7,177.70	7,183.48	7,177.70	39.52	37.96	89.76	-198.62	203.55	629.01	552.85	76.15	8.260	
7,300.00	7,277.70	7,283.48	7,277.70	40.01	38.47	89.76	-198.62	203.55	629.01	551.84	77.17	8.151	
7,400.00	7,377.70	7,383.48	7,377.70	40.51	38.97	89.76	-198.62	203.55	629.01	550.82	78.18	8.045	
7,500.00	7,477.70	7,483.48	7,477.70	41.01	39.48	89.76	-198.62	203.55	629.01	549.81	79.20	7.942	
7,600.00	7,577.70	7,583.48	7,577.70	41.50	39.99	89.76	-198.62	203.55	629.01	548.79	80.22	7.841	
7,700.00	7,677.70	7,683.48	7,677.70	42.00	40.50	89.76	-198.62	203.55	629.01	547.77	81.24	7.743	
7,800.00	7,777.70	7,783.48	7,777.70	42.50	41.01	89.76	-198.62	203.55	629.01	546.75	82.26	7.647	
7,900.00	7,877.70	7,883.48	7,877.70	43.00	41.52	89.76	-198.62	203.55	629.01	545.72	83.28	7.553	
8,000.00	7,977.70	7,983.48	7,977.70	43.51	42.03	89.76	-198.62	203.55	629.01	544.70	84.31	7.461	
8,100.00	8,077.70	8,083.48	8,077.70	44.01	42.54	89.76	-198.62	203.55	629.01	543.67	85.33	7.371	
8,200.00	8,177.70	8,183.48	8,177.70	44.51	43.06	89.76	-198.62	203.55	629.01	542.65	86.36	7.284	
8,300.00	8,277.70	8,283.48	8,277.70	45.02	43.57	89.76	-198.62	203.55	629.01	541.62	87.39	7.198	
8,400.00	8,377.70	8,383.48	8,377.70	45.52	44.08	89.76	-198.62	203.55	629.01	540.59	88.42	7.114	
8,500.00	8,477.70	8,483.48	8,477.70	46.03	44.60	89.76	-198.62	203.55	629.01	539.56	89.45	7.032	
8,600.00	8,577.70	8,583.48	8,577.70	46.53	45.11	89.76	-198.62	203.55	629.01	538.53	90.48	6.952	
8,700.00	8,677.70	8,683.48	8,677.70	47.04	45.63	89.76	-198.62	203.55	629.01	537.50	91.51	6.874	
8,800.00	8,777.70	8,783.48	8,777.70	47.55	46.15	89.76	-198.62	203.55	629.01	536.46	92.54	6.797	
8,900.00	8,877.70	8,883.48	8,877.70	48.06	46.66	89.76	-198.62	203.55	629.01	535.43	93.58	6.722	
9,000.00	8,977.70	8,983.48	8,977.70	48.57	47.18	89.76	-198.62	203.55	629.01	534.40	94.61	6.648	
9,100.00	9,077.70	9,083.48	9,077.70	49.08	47.70	89.76	-198.62	203.55	629.01	533.36	95.65	6.576	
9,200.00	9,177.70	9,183.48	9,177.70	49.59	48.21	89.76	-198.62	203.55	629.01	532.32	96.68	6.506	
9,300.00	9,277.70	9,283.48	9,277.70	50.10	48.73	89.76	-198.62	203.55	629.01	531.29	97.72	6.437	
9,400.00	9,377.64	9,383.41	9,377.64	50.60	49.25	80.45	-198.62	203.55	628.63	529.87	98.76	6.366	
9,500.00	9,475.97	9,481.75	9,475.97	51.06	49.76	82.26	-198.62	203.55	625.96	526.20	99.76	6.275	
9,600.00	9,569.78	9,575.56	9,569.78	51.46	50.25	85.57	-198.62	203.55	622.11	521.40	100.71	6.178	
9,700.00	9,656.22	9,662.00	9,656.22	51.78	50.70	89.78	-198.62	203.55	619.86	518.27	101.58	6.102	
9,705.10	9,660.38	9,666.16	9,660.38	51.80	50.72	90.00	-198.62	203.55	619.85	518.23	101.62	6.099	
9,800.00	9,732.65	9,738.43	9,732.65	52.03	51.10	94.00	-198.62	203.55	622.88	520.51	102.37	6.084	
9,900.00	9,796.76	9,802.54	9,796.76	52.19	51.43	97.26	-198.62	203.55	635.01	531.95	103.05	6.162	
10,000.00	9,846.60	9,852.38	9,846.60	52.29	51.69	98.68	-198.62	203.55	659.24	555.64	103.60	6.363	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 238 H - Original Hole - rev0

Offset Site Error: 0.00 ft

Survey Program: 0-MWD

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.00	9,880.65	9,886.43	9,880.65	52.39	51.87	97.54	-198.62	203.55	696.82	592.84	103.99	6.701	
10,200.00	9,897.88	9,903.66	9,897.88	52.78	51.96	93.31	-198.62	203.55	746.91	642.72	104.19	7.169	
10,300.00	9,900.32	9,906.10	9,900.32	53.24	51.97	90.29	-198.62	203.55	807.33	703.09	104.24	7.745	
10,400.00	9,900.91	11,034.85	10,572.78	53.81	56.93	142.41	504.33	209.88	849.26	766.81	82.45	10.301	
10,500.00	9,901.51	11,134.47	10,573.37	54.47	57.57	142.80	603.94	210.78	844.00	761.05	82.95	10.175	
10,600.00	9,902.10	11,234.33	10,573.95	55.24	58.31	143.04	703.80	211.68	840.89	757.16	83.73	10.043	
10,699.69	9,902.68	11,334.00	10,574.54	56.10	59.15	143.13	803.47	212.58	839.86	755.07	84.79	9.905	
10,700.00	9,902.69	11,334.31	10,574.54	56.10	59.15	143.13	803.77	212.58	839.88	755.09	84.80	9.905	
10,800.00	9,903.28	11,434.31	10,575.13	57.06	60.08	143.12	903.77	213.48	839.89	753.83	86.06	9.759	
10,900.00	9,903.86	11,534.31	10,575.72	58.11	61.09	143.12	1,003.76	214.38	839.90	752.46	87.44	9.605	
11,000.00	9,904.45	11,634.31	10,576.30	59.24	62.18	143.12	1,103.76	215.28	839.90	750.98	88.92	9.445	
11,100.00	9,905.04	11,734.31	10,576.89	60.45	63.35	143.12	1,203.75	216.18	839.91	749.41	90.50	9.281	
11,200.00	9,905.63	11,834.31	10,577.48	61.73	64.60	143.12	1,303.74	217.08	839.92	747.74	92.18	9.112	
11,300.00	9,906.22	11,934.31	10,578.07	63.09	65.91	143.12	1,403.74	217.98	839.92	745.98	93.94	8.941	
11,400.00	9,906.81	12,034.31	10,578.65	64.51	67.29	143.12	1,503.73	218.88	839.93	744.14	95.78	8.769	
11,500.00	9,907.39	12,134.31	10,579.24	65.99	68.73	143.12	1,603.73	219.78	839.93	742.23	97.71	8.597	
11,600.00	9,907.98	12,234.31	10,579.83	67.53	70.23	143.12	1,703.72	220.68	839.94	740.24	99.70	8.425	
11,700.00	9,908.57	12,334.31	10,580.42	69.12	71.78	143.12	1,803.72	221.59	839.95	738.19	101.76	8.254	
11,800.00	9,909.16	12,434.31	10,581.00	70.77	73.38	143.12	1,903.71	222.49	839.95	736.07	103.88	8.085	
11,900.00	9,909.75	12,534.31	10,581.59	72.46	75.03	143.12	2,003.70	223.39	839.96	733.89	106.07	7.919	
12,000.00	9,910.34	12,634.31	10,582.18	74.19	76.73	143.12	2,103.70	224.29	839.97	731.66	108.30	7.756	
12,100.00	9,910.93	12,734.31	10,582.77	75.97	78.46	143.12	2,203.69	225.19	839.97	729.39	110.59	7.596	
12,200.00	9,911.51	12,834.31	10,583.35	77.78	80.23	143.12	2,303.69	226.09	839.98	727.06	112.92	7.439	
12,300.00	9,912.10	12,934.31	10,583.94	79.63	82.04	143.11	2,403.68	226.99	839.99	724.69	115.30	7.285	
12,400.00	9,912.69	13,034.31	10,584.53	81.51	83.89	143.11	2,503.68	227.89	839.99	722.28	117.71	7.136	
12,500.00	9,913.28	13,134.31	10,585.12	83.42	85.76	143.11	2,603.67	228.79	840.00	719.84	120.16	6.991	
12,600.00	9,913.87	13,234.31	10,585.70	85.36	87.67	143.11	2,703.66	229.69	840.00	717.35	122.65	6.849	
12,700.00	9,914.46	13,334.31	10,586.29	87.33	89.60	143.11	2,803.66	230.59	840.01	714.84	125.17	6.711	
12,800.00	9,915.05	13,434.31	10,586.88	89.32	91.56	143.11	2,903.65	231.49	840.02	712.30	127.71	6.577	
12,900.00	9,915.63	13,534.31	10,587.47	91.33	93.54	143.11	3,003.65	232.39	840.02	709.73	130.29	6.447	
13,000.00	9,916.22	13,634.31	10,588.05	93.37	95.54	143.11	3,103.64	233.29	840.03	707.14	132.89	6.321	
13,100.00	9,916.81	13,734.31	10,588.64	95.43	97.57	143.11	3,203.63	234.19	840.04	704.53	135.51	6.199	
13,200.00	9,917.40	13,834.31	10,589.23	97.51	99.62	143.11	3,303.63	235.10	840.04	701.89	138.15	6.081	
13,300.00	9,917.99	13,934.31	10,589.82	99.60	101.68	143.11	3,403.62	236.00	840.05	699.24	140.81	5.966	
13,400.00	9,918.58	14,034.31	10,590.40	101.71	103.77	143.11	3,503.62	236.90	840.05	696.56	143.49	5.854	
13,500.00	9,919.17	14,134.31	10,590.99	103.84	105.87	143.11	3,603.61	237.80	840.06	693.87	146.19	5.746	
13,600.00	9,919.75	14,234.31	10,591.58	105.98	107.98	143.11	3,703.61	238.70	840.07	691.17	148.90	5.642	
13,700.00	9,920.34	14,334.31	10,592.17	108.14	110.11	143.10	3,803.60	239.60	840.07	688.45	151.62	5.540	
13,800.00	9,920.93	14,434.31	10,592.75	110.31	112.26	143.10	3,903.59	240.50	840.08	685.72	154.36	5.442	
13,900.00	9,921.52	14,534.31	10,593.34	112.49	114.41	143.10	4,003.59	241.40	840.09	682.98	157.11	5.347	
14,000.00	9,922.11	14,634.31	10,593.93	114.69	116.59	143.10	4,103.58	242.30	840.09	680.22	159.87	5.255	
14,100.00	9,922.70	14,734.31	10,594.52	116.89	118.77	143.10	4,203.58	243.20	840.10	677.46	162.64	5.165	
14,200.00	9,923.29	14,834.31	10,595.11	119.11	120.96	143.10	4,303.57	244.10	840.11	674.69	165.42	5.079	
14,300.00	9,923.87	14,934.31	10,595.69	121.33	123.16	143.10	4,403.57	245.00	840.11	671.91	168.20	4.995	
14,400.00	9,924.46	15,034.31	10,596.28	123.57	125.38	143.10	4,503.56	245.90	840.12	669.12	171.00	4.913	
14,500.00	9,925.05	15,134.31	10,596.87	125.81	127.60	143.10	4,603.55	246.80	840.12	666.33	173.80	4.834	
14,600.00	9,925.64	15,234.31	10,597.46	128.06	129.83	143.10	4,703.55	247.70	840.13	663.53	176.60	4.757	
14,700.00	9,926.23	15,334.31	10,598.04	130.32	132.07	143.10	4,803.54	248.60	840.14	660.72	179.41	4.683	
14,800.00	9,926.82	15,434.31	10,598.63	132.59	134.32	143.10	4,903.54	249.51	840.14	657.91	182.23	4.610	
14,900.00	9,927.41	15,534.31	10,599.22	134.87	136.58	143.10	5,003.53	250.41	840.15	655.10	185.05	4.540	
15,000.00	9,927.99	15,634.31	10,599.81	137.15	138.84	143.10	5,103.53	251.31	840.16	652.29	187.87	4.472	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 238 H - Original Hole - rev0

Offset Site Error: 0.00 ft

Survey Program: 0-MWD

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
15,100.00	9,928.58	15,734.31	10,600.39	139.44	141.11	143.10	5,203.52	252.21	840.16	649.47	190.70	4.406	
15,200.00	9,929.17	15,834.31	10,600.98	141.73	143.39	143.09	5,303.51	253.11	840.17	646.64	193.53	4.341	
15,300.00	9,929.76	15,934.31	10,601.57	144.03	145.68	143.09	5,403.51	254.01	840.18	643.82	196.36	4.279	
15,400.00	9,930.35	16,034.31	10,602.16	146.34	147.97	143.09	5,503.50	254.91	840.18	640.99	199.19	4.218	
15,500.00	9,930.94	16,134.31	10,602.74	148.65	150.26	143.09	5,603.50	255.81	840.19	638.16	202.03	4.159	
15,600.00	9,931.52	16,234.31	10,603.33	150.96	152.56	143.09	5,703.49	256.71	840.19	635.33	204.86	4.101	
15,700.00	9,932.11	16,334.31	10,603.92	153.28	154.87	143.09	5,803.48	257.61	840.20	632.50	207.70	4.045	
15,800.00	9,932.70	16,434.31	10,604.51	155.61	157.18	143.09	5,903.48	258.51	840.21	629.67	210.54	3.991	
15,900.00	9,933.29	16,534.31	10,605.09	157.94	159.50	143.09	6,003.47	259.41	840.21	626.84	213.37	3.938	
16,000.00	9,933.88	16,634.31	10,605.68	160.27	161.82	143.09	6,103.47	260.31	840.22	624.01	216.21	3.886	
16,100.00	9,934.47	16,734.31	10,606.27	162.61	164.14	143.09	6,203.46	261.21	840.23	621.18	219.05	3.836	
16,200.00	9,935.06	16,834.31	10,606.86	164.96	166.47	143.09	6,303.46	262.11	840.23	618.34	221.89	3.787	
16,300.00	9,935.64	16,934.31	10,607.44	167.30	168.81	143.09	6,403.45	263.02	840.24	615.51	224.73	3.739	
16,400.00	9,936.23	17,034.31	10,608.03	169.65	171.14	143.09	6,503.44	263.92	840.24	612.68	227.56	3.692	
16,500.00	9,936.82	17,134.31	10,608.62	172.00	173.48	143.09	6,603.44	264.82	840.25	609.85	230.40	3.647	
16,600.00	9,937.41	17,234.31	10,609.21	174.36	175.83	143.08	6,703.43	265.72	840.26	607.02	233.23	3.603	
16,700.00	9,938.00	17,334.31	10,609.79	176.72	178.18	143.08	6,803.43	266.62	840.26	604.20	236.07	3.559	
16,800.00	9,938.59	17,434.31	10,610.38	179.08	180.53	143.08	6,903.42	267.52	840.27	601.37	238.90	3.517	
16,900.00	9,939.18	17,534.31	10,610.97	181.45	182.88	143.08	7,003.42	268.42	840.28	598.55	241.73	3.476	
17,000.00	9,939.76	17,634.31	10,611.56	183.82	185.24	143.08	7,103.41	269.32	840.28	595.72	244.56	3.436	
17,040.11	9,940.00	17,674.43	10,611.79	184.77	186.19	143.08	7,143.52	269.68	840.29	594.59	245.69	3.420	SF

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 246 H - Original Hole - rev0 — **Offset Site Error:** 0.00 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	25.00	25.00				
100.00	100.00	100.00	100.00	0.20	0.20	90.00	0.00	25.00	25.00	24.60	0.40	62.829	
200.00	200.00	200.00	200.00	0.74	0.74	90.00	0.00	25.00	25.00	23.53	1.47	16.969	
300.00	300.00	300.00	300.00	1.27	1.27	90.00	0.00	25.00	25.00	22.45	2.55	9.809	
400.00	400.00	400.00	400.00	1.81	1.81	90.00	0.00	25.00	25.00	21.38	3.62	6.898	
500.00	500.00	500.00	500.00	2.35	2.35	90.00	0.00	25.00	25.00	20.30	4.70	5.320	
600.00	600.00	600.00	600.00	2.89	2.89	90.00	0.00	25.00	25.00	19.23	5.77	4.329	
700.00	700.00	700.00	700.00	3.43	3.43	90.00	0.00	25.00	25.00	18.15	6.85	3.649	
800.00	800.00	800.00	800.00	3.96	3.96	90.00	0.00	25.00	25.00	17.07	7.93	3.154	
900.00	900.00	900.00	900.00	4.50	4.50	90.00	0.00	25.00	25.00	16.00	9.00	2.777	
1,000.00	1,000.00	1,000.00	1,000.00	5.04	5.04	90.00	0.00	25.00	25.00	14.92	10.08	2.481	
1,100.00	1,100.00	1,100.00	1,100.00	5.58	5.58	90.00	0.00	25.00	25.00	13.85	11.15	2.242	
1,200.00	1,200.00	1,200.00	1,200.00	6.11	6.11	90.00	0.00	25.00	25.00	12.77	12.23	2.045	CC, ES
1,300.00	1,299.99	1,300.01	1,299.99	6.63	6.65	-155.90	0.00	25.00	26.19	12.91	13.28	1.972	Level 3<2.00, SF
1,400.00	1,399.91	1,399.91	1,399.91	7.14	7.19	-158.96	0.00	25.00	29.82	15.49	14.33	2.081	
1,500.00	1,499.69	1,500.47	1,500.46	7.65	7.71	-161.56	-0.84	23.98	34.89	19.54	15.35	2.273	
1,600.00	1,599.28	1,601.17	1,601.08	8.17	8.21	-162.59	-3.38	20.92	40.16	23.82	16.35	2.457	
1,700.00	1,698.81	1,701.56	1,701.27	8.71	8.72	-162.08	-7.39	16.09	44.11	26.75	17.36	2.541	
1,800.00	1,798.34	1,801.49	1,800.98	9.24	9.23	-161.44	-11.60	11.02	47.78	29.39	18.39	2.598	
1,900.00	1,897.87	1,901.42	1,900.70	9.79	9.75	-160.89	-15.81	5.95	51.45	32.02	19.43	2.648	
2,000.00	1,997.39	2,001.35	2,000.41	10.34	10.27	-160.41	-20.02	0.88	55.13	34.65	20.47	2.693	
2,100.00	2,096.92	2,101.28	2,100.12	10.89	10.80	-159.99	-24.23	-4.19	58.81	37.28	21.53	2.732	
2,200.00	2,196.45	2,201.22	2,199.84	11.45	11.33	-159.63	-28.43	-9.26	62.49	39.91	22.58	2.767	
2,300.00	2,295.98	2,301.15	2,299.55	12.01	11.86	-159.30	-32.64	-14.33	66.18	42.54	23.64	2.799	
2,400.00	2,395.51	2,401.08	2,399.27	12.57	12.39	-159.01	-36.85	-19.41	69.87	45.16	24.71	2.828	
2,500.00	2,495.04	2,501.01	2,498.98	13.13	12.93	-158.74	-41.06	-24.48	73.56	47.78	25.78	2.854	
2,600.00	2,594.56	2,600.94	2,598.69	13.70	13.47	-158.50	-45.27	-29.55	77.25	50.40	26.85	2.877	
2,700.00	2,694.09	2,700.87	2,698.41	14.27	14.01	-158.29	-49.48	-34.62	80.94	53.02	27.92	2.899	
2,800.00	2,793.62	2,800.80	2,798.12	14.84	14.55	-158.09	-53.68	-39.69	84.63	55.63	29.00	2.918	
2,900.00	2,893.15	2,900.74	2,897.84	15.41	15.10	-157.91	-57.89	-44.76	88.32	58.25	30.08	2.937	
3,000.00	2,992.68	3,000.67	2,997.55	15.98	15.64	-157.74	-62.10	-49.83	92.02	60.86	31.16	2.953	
3,100.00	3,092.21	3,100.60	3,097.26	16.55	16.19	-157.59	-66.31	-54.90	95.71	63.47	32.24	2.969	
3,200.00	3,191.73	3,200.53	3,196.98	17.13	16.74	-157.45	-70.52	-59.97	99.41	66.08	33.33	2.983	
3,300.00	3,291.26	3,300.46	3,296.69	17.70	17.29	-157.32	-74.72	-65.04	103.11	68.69	34.41	2.996	
3,400.00	3,390.79	3,400.39	3,396.40	18.28	17.83	-157.19	-78.93	-70.11	106.80	71.30	35.50	3.009	
3,500.00	3,490.32	3,500.32	3,496.12	18.85	18.38	-157.08	-83.14	-75.19	110.50	73.91	36.59	3.020	
3,600.00	3,589.85	3,600.26	3,595.83	19.43	18.94	-156.97	-87.35	-80.26	114.20	76.52	37.68	3.031	
3,700.00	3,689.38	3,700.19	3,695.55	20.01	19.49	-156.87	-91.56	-85.33	117.90	79.13	38.77	3.041	
3,800.00	3,788.90	3,800.12	3,795.26	20.59	20.04	-156.78	-95.76	-90.40	121.59	81.74	39.86	3.051	
3,900.00	3,888.43	3,900.05	3,894.97	21.16	20.59	-156.69	-99.97	-95.47	125.29	84.34	40.95	3.060	
4,000.00	3,987.96	4,000.02	3,994.69	21.74	21.14	-156.60	-104.18	-100.54	128.99	86.95	42.04	3.068	
4,100.00	4,087.49	4,100.09	4,094.40	22.32	21.70	-156.52	-108.39	-105.61	132.69	89.55	43.14	3.076	
4,200.00	4,187.02	4,200.16	4,194.12	22.90	22.25	-156.45	-112.60	-110.68	136.39	92.16	44.23	3.083	
4,300.00	4,286.55	4,300.23	4,293.83	23.48	22.81	-156.38	-116.81	-115.75	140.09	94.76	45.33	3.090	
4,400.00	4,386.07	4,400.29	4,393.54	24.06	23.36	-156.31	-121.01	-120.82	143.79	97.37	46.43	3.097	
4,500.00	4,485.60	4,500.36	4,493.26	24.65	23.92	-156.25	-125.22	-125.90	147.49	99.97	47.52	3.104	
4,600.00	4,585.13	4,600.43	4,592.97	25.23	24.48	-156.19	-129.43	-130.97	151.19	102.57	48.62	3.110	
4,700.00	4,684.66	4,700.50	4,692.69	25.81	25.03	-156.13	-133.64	-136.04	154.89	105.17	49.72	3.115	
4,800.00	4,784.19	4,800.57	4,792.40	26.39	25.59	-156.07	-137.85	-141.11	158.59	107.78	50.82	3.121	
4,900.00	4,883.72	4,900.64	4,892.11	26.97	26.15	-156.02	-142.05	-146.18	162.29	110.38	51.92	3.126	
5,000.00	4,983.24	5,000.71	4,991.83	27.56	26.70	-155.97	-146.26	-151.25	166.00	112.98	53.02	3.131	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 246 H - Original Hole - rev0

Offset Site Error: 0.00 ft

Survey Program: 0-MWD

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.00	5,082.77	5,100.77	5,091.54	28.14	27.26	-155.92	-150.47	-156.32	169.70	115.58	54.12	3.136	
5,200.00	5,182.30	5,200.84	5,191.25	28.72	27.82	-155.88	-154.68	-161.39	173.40	118.18	55.22	3.140	
5,300.00	5,281.83	5,300.91	5,290.97	29.30	28.38	-155.83	-158.89	-166.46	177.10	120.78	56.32	3.145	
5,400.00	5,381.36	5,400.98	5,390.68	29.89	28.93	-155.79	-163.10	-171.53	180.80	123.38	57.42	3.149	
5,500.00	5,480.89	5,501.05	5,490.40	30.47	29.49	-155.75	-167.30	-176.60	184.50	125.98	58.52	3.153	
5,600.00	5,580.41	5,601.12	5,590.11	31.05	30.05	-155.71	-171.51	-181.68	188.20	128.58	59.62	3.157	
5,700.00	5,679.94	5,701.19	5,689.82	31.64	30.61	-155.67	-175.72	-186.75	191.91	131.18	60.72	3.160	
5,800.00	5,779.47	5,801.25	5,789.54	32.22	31.17	-155.64	-179.93	-191.82	195.61	133.78	61.82	3.164	
5,900.00	5,879.00	5,901.32	5,889.25	32.81	31.73	-155.60	-184.14	-196.89	199.31	136.38	62.92	3.167	
6,000.00	5,978.53	5,998.61	5,988.97	33.39	32.27	-155.57	-188.34	-201.96	203.01	139.00	64.01	3.171	
6,100.00	6,078.08	6,101.45	6,088.69	33.97	32.84	-155.51	-192.55	-207.03	206.43	141.30	65.13	3.169	
6,200.00	6,177.83	6,196.89	6,186.83	34.54	33.38	-155.24	-196.57	-211.87	207.94	141.73	66.20	3.141	
6,300.00	6,277.72	6,292.83	6,282.68	35.08	33.90	-155.02	-199.22	-215.06	208.68	141.44	67.24	3.103	
6,400.00	6,377.70	6,388.78	6,378.61	35.60	34.41	-154.93	-200.33	-216.40	208.99	140.76	68.23	3.063	
6,500.00	6,477.70	6,487.88	6,477.70	36.09	34.91	89.76	-200.37	-216.45	209.00	139.79	69.22	3.020	
6,600.00	6,577.70	6,587.88	6,577.70	36.58	35.40	89.76	-200.37	-216.45	209.00	138.78	70.22	2.976	
6,700.00	6,677.70	6,687.88	6,677.70	37.06	35.90	89.76	-200.37	-216.45	209.00	137.78	71.22	2.934	
6,800.00	6,777.70	6,787.88	6,777.70	37.55	36.40	89.76	-200.37	-216.45	209.00	136.77	72.23	2.894	
6,900.00	6,877.70	6,887.88	6,877.70	38.04	36.90	89.76	-200.37	-216.45	209.00	135.76	73.24	2.854	
7,000.00	6,977.70	6,987.88	6,977.70	38.53	37.40	89.76	-200.37	-216.45	209.00	134.75	74.25	2.815	
7,100.00	7,077.70	7,087.88	7,077.70	39.03	37.91	89.76	-200.37	-216.45	209.00	133.74	75.26	2.777	
7,200.00	7,177.70	7,187.88	7,177.70	39.52	38.41	89.76	-200.37	-216.45	209.00	132.73	76.27	2.740	
7,300.00	7,277.70	7,287.88	7,277.70	40.01	38.91	89.76	-200.37	-216.45	209.00	131.71	77.29	2.704	
7,400.00	7,377.70	7,387.88	7,377.70	40.51	39.42	89.76	-200.37	-216.45	209.00	130.70	78.30	2.669	
7,500.00	7,477.70	7,487.88	7,477.70	41.01	39.93	89.76	-200.37	-216.45	209.00	129.68	79.32	2.635	
7,600.00	7,577.70	7,587.88	7,577.70	41.50	40.43	89.76	-200.37	-216.45	209.00	128.66	80.34	2.601	
7,700.00	7,677.70	7,687.88	7,677.70	42.00	40.94	89.76	-200.37	-216.45	209.00	127.64	81.36	2.569	
7,800.00	7,777.70	7,787.88	7,777.70	42.50	41.45	89.76	-200.37	-216.45	209.00	126.61	82.39	2.537	
7,900.00	7,877.70	7,887.88	7,877.70	43.00	41.96	89.76	-200.37	-216.45	209.00	125.59	83.41	2.506	
8,000.00	7,977.70	7,987.88	7,977.70	43.51	42.47	89.76	-200.37	-216.45	209.00	124.57	84.44	2.475	
8,100.00	8,077.70	8,087.88	8,077.70	44.01	42.98	89.76	-200.37	-216.45	209.00	123.54	85.46	2.446	
8,200.00	8,177.70	8,187.88	8,177.70	44.51	43.49	89.76	-200.37	-216.45	209.00	122.51	86.49	2.416	
8,300.00	8,277.70	8,287.88	8,277.70	45.02	44.00	89.76	-200.37	-216.45	209.00	121.48	87.52	2.388	
8,400.00	8,377.70	8,387.88	8,377.70	45.52	44.52	89.76	-200.37	-216.45	209.00	120.45	88.55	2.360	
8,500.00	8,477.70	8,487.88	8,477.70	46.03	45.03	89.76	-200.37	-216.45	209.00	119.42	89.58	2.333	
8,600.00	8,577.70	8,587.88	8,577.70	46.53	45.54	89.76	-200.37	-216.45	209.00	118.39	90.61	2.307	
8,700.00	8,677.70	8,687.88	8,677.70	47.04	46.06	89.76	-200.37	-216.45	209.00	117.36	91.65	2.281	
8,800.00	8,777.70	8,787.88	8,777.70	47.55	46.57	89.76	-200.37	-216.45	209.00	116.32	92.68	2.255	
8,900.00	8,877.70	8,887.88	8,877.70	48.06	47.09	89.76	-200.37	-216.45	209.00	115.29	93.72	2.230	
9,000.00	8,977.70	8,987.88	8,977.70	48.57	47.60	89.76	-200.37	-216.45	209.00	114.25	94.75	2.206	
9,100.00	9,077.70	9,087.88	9,077.70	49.08	48.12	89.76	-200.37	-216.45	209.00	113.21	95.79	2.182	
9,200.00	9,177.70	9,187.88	9,177.70	49.59	48.64	89.76	-200.37	-216.45	209.00	112.18	96.83	2.159	
9,300.00	9,277.70	9,287.88	9,277.70	50.10	49.15	89.76	-200.37	-216.45	209.00	111.14	97.86	2.136	
9,400.00	9,377.64	9,387.81	9,377.64	50.60	49.67	80.85	-200.37	-216.45	208.63	109.72	98.91	2.109	
9,500.00	9,475.97	9,486.15	9,475.97	51.06	50.18	85.75	-200.37	-216.45	206.57	106.54	100.03	2.065	
9,552.19	9,525.68	9,535.86	9,525.68	51.27	50.44	90.00	-200.37	-216.45	205.96	105.33	100.63	2.047	
9,600.00	9,569.78	9,579.96	9,569.78	51.46	50.67	94.63	-200.37	-216.45	206.78	105.58	101.20	2.043	
9,700.00	9,656.22	9,666.39	9,656.22	51.78	51.12	105.22	-200.37	-216.45	217.04	114.67	102.37	2.120	
9,800.00	9,732.65	9,742.83	9,732.65	52.03	51.51	114.48	-200.37	-216.45	245.03	141.69	103.34	2.371	
9,900.00	9,796.76	9,806.94	9,796.76	52.19	51.85	120.20	-200.37	-216.45	293.66	189.67	103.99	2.824	
10,000.00	9,846.60	9,856.77	9,846.60	52.29	52.10	121.20	-200.37	-216.45	360.50	256.13	104.37	3.454	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 246 H - Original Hole - rev0

Offset Site Error: 0.00 ft

Survey Program: 0-MWD

Offset Well Error: 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
10,100.00	9,880.65	9,909.17	9,880.65	52.39	52.38	116.00	-200.37	-216.45	440.83	336.20	104.63	4.213	
10,200.00	9,897.88	9,908.06	9,897.88	52.78	52.37	101.52	-200.37	-216.45	529.81	425.25	104.56	5.067	
10,300.00	9,900.32	9,910.49	9,900.32	53.24	52.38	91.03	-200.37	-216.45	623.26	518.76	104.50	5.964	
10,400.00	9,900.91	9,911.09	9,900.91	53.81	52.39	91.37	-200.37	-216.45	719.36	614.91	104.45	6.887	
10,500.00	9,901.51	9,911.68	9,901.51	54.47	52.39	91.86	-200.37	-216.45	817.14	712.71	104.43	7.825	
10,600.00	9,902.10	11,441.09	10,771.99	55.24	59.44	174.37	706.41	-208.38	874.10	810.13	63.97	13.664	
10,699.72	9,902.69	11,540.79	10,772.57	56.10	60.26	174.49	806.11	-207.50	873.94	809.21	64.72	13.502	
10,700.00	9,902.69	11,541.07	10,772.57	56.10	60.26	174.49	806.39	-207.49	873.94	809.21	64.73	13.502	
10,800.00	9,903.28	11,641.07	10,773.16	57.06	61.17	174.49	906.38	-206.60	873.94	808.35	65.60	13.323	
10,900.00	9,903.86	11,741.07	10,773.75	58.11	62.16	174.49	1,006.38	-205.71	873.94	807.41	66.54	13.135	
11,000.00	9,904.45	11,841.07	10,774.34	59.24	63.23	174.49	1,106.37	-204.82	873.94	806.39	67.55	12.938	
11,100.00	9,905.04	11,941.07	10,774.93	60.45	64.38	174.49	1,206.36	-203.93	873.94	805.32	68.63	12.735	
11,200.00	9,905.63	12,041.07	10,775.52	61.73	65.60	174.49	1,306.36	-203.04	873.95	804.18	69.77	12.526	
11,300.00	9,906.22	12,141.07	10,776.11	63.09	66.89	174.49	1,406.35	-202.16	873.95	802.97	70.97	12.314	
11,400.00	9,906.81	12,241.07	10,776.70	64.51	68.24	174.49	1,506.35	-201.27	873.95	801.71	72.24	12.098	
11,500.00	9,907.39	12,341.07	10,777.29	65.99	69.66	174.49	1,606.34	-200.38	873.95	800.40	73.55	11.882	
11,600.00	9,907.98	12,441.07	10,777.88	67.53	71.13	174.49	1,706.34	-199.49	873.95	799.03	74.92	11.665	
11,700.00	9,908.57	12,541.07	10,778.47	69.12	72.66	174.49	1,806.33	-198.60	873.95	797.61	76.34	11.448	
11,800.00	9,909.16	12,641.07	10,779.06	70.77	74.24	174.49	1,906.32	-197.71	873.95	796.15	77.80	11.233	
11,900.00	9,909.75	12,741.07	10,779.65	72.46	75.87	174.49	2,006.32	-196.82	873.95	794.64	79.31	11.019	
12,000.00	9,910.34	12,841.07	10,780.24	74.19	77.54	174.49	2,106.31	-195.93	873.95	793.09	80.86	10.808	
12,100.00	9,910.93	12,941.07	10,780.83	75.97	79.25	174.49	2,206.31	-195.04	873.95	791.50	82.45	10.600	
12,200.00	9,911.51	13,041.07	10,781.42	77.78	81.00	174.49	2,306.30	-194.15	873.95	789.88	84.07	10.395	
12,300.00	9,912.10	13,141.07	10,782.00	79.63	82.79	174.49	2,406.30	-193.26	873.96	788.22	85.73	10.194	
12,400.00	9,912.69	13,241.07	10,782.59	81.51	84.61	174.49	2,506.29	-192.37	873.96	786.53	87.43	9.997	
12,500.00	9,913.28	13,341.07	10,783.18	83.42	86.47	174.49	2,606.28	-191.48	873.96	784.81	89.15	9.803	
12,600.00	9,913.87	13,441.07	10,783.77	85.36	88.35	174.49	2,706.28	-190.59	873.96	783.06	90.90	9.614	
12,700.00	9,914.46	13,541.07	10,784.36	87.33	90.26	174.49	2,806.27	-189.70	873.96	781.28	92.68	9.430	
12,800.00	9,915.05	13,641.07	10,784.95	89.32	92.20	174.49	2,906.27	-188.81	873.96	779.47	94.49	9.250	
12,900.00	9,915.63	13,741.07	10,785.54	91.33	94.17	174.49	3,006.26	-187.92	873.96	777.64	96.32	9.074	
13,000.00	9,916.22	13,841.07	10,786.13	93.37	96.16	174.49	3,106.26	-187.03	873.96	775.79	98.17	8.903	
13,100.00	9,916.81	13,941.07	10,786.72	95.43	98.17	174.49	3,206.25	-186.14	873.96	773.92	100.04	8.736	
13,200.00	9,917.40	14,041.07	10,787.31	97.51	100.20	174.49	3,306.24	-185.25	873.96	772.02	101.94	8.573	
13,300.00	9,917.99	14,141.07	10,787.90	99.60	102.25	174.49	3,406.24	-184.36	873.96	770.11	103.85	8.415	
13,400.00	9,918.58	14,241.07	10,788.49	101.71	104.32	174.49	3,506.23	-183.47	873.97	768.18	105.79	8.262	
13,500.00	9,919.17	14,341.07	10,789.08	103.84	106.40	174.49	3,606.23	-182.58	873.97	766.23	107.74	8.112	
13,600.00	9,919.75	14,441.07	10,789.67	105.98	108.50	174.49	3,706.22	-181.69	873.97	764.26	109.70	7.967	
13,700.00	9,920.34	14,541.07	10,790.26	108.14	110.62	174.49	3,806.22	-180.80	873.97	762.28	111.69	7.825	
13,800.00	9,920.93	14,641.07	10,790.85	110.31	112.75	174.49	3,906.21	-179.91	873.97	760.29	113.68	7.688	
13,900.00	9,921.52	14,741.07	10,791.43	112.49	114.90	174.49	4,006.20	-179.02	873.97	758.28	115.69	7.554	
14,000.00	9,922.11	14,841.07	10,792.02	114.69	117.06	174.49	4,106.20	-178.13	873.97	756.25	117.72	7.424	
14,100.00	9,922.70	14,941.07	10,792.61	116.89	119.23	174.49	4,206.19	-177.25	873.97	754.22	119.75	7.298	
14,200.00	9,923.29	15,041.07	10,793.20	119.11	121.41	174.49	4,306.19	-176.36	873.97	752.17	121.80	7.175	
14,300.00	9,923.87	15,141.07	10,793.79	121.33	123.60	174.49	4,406.18	-175.47	873.97	750.11	123.86	7.056	
14,400.00	9,924.46	15,241.07	10,794.38	123.57	125.80	174.49	4,506.18	-174.58	873.97	748.04	125.93	6.940	
14,500.00	9,925.05	15,341.07	10,794.97	125.81	128.02	174.49	4,606.17	-173.69	873.98	745.96	128.01	6.827	
14,600.00	9,925.64	15,441.07	10,795.56	128.06	130.24	174.49	4,706.16	-172.80	873.98	743.87	130.10	6.718	
14,700.00	9,926.23	15,541.07	10,796.15	130.32	132.47	174.49	4,806.16	-171.91	873.98	741.78	132.20	6.611	
14,800.00	9,926.82	15,641.07	10,796.74	132.59	134.71	174.49	4,906.15	-171.02	873.98	739.67	134.31	6.507	
14,900.00	9,927.41	15,741.07	10,797.33	134.87	136.96	174.49	5,006.15	-170.13	873.98	737.55	136.43	6.406	
15,000.00	9,927.99	15,841.07	10,797.92	137.15	139.21	174.49	5,106.14	-169.24	873.98	735.43	138.55	6.308	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Money Graham Fed Com Well No. 246 H - Original Hole - rev0

Offset Site Error: 0.00 ft

Survey Program: 0-MWD **Offset Well Error:** 0.00 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
15,100.00	9,928.58	15,941.07	10,798.51	139.44	141.47	174.49	5,206.14	-168.35	873.98	733.30	140.68	6.212	
15,200.00	9,929.17	16,041.07	10,799.10	141.73	143.74	174.49	5,306.13	-167.46	873.98	731.16	142.82	6.119	
15,300.00	9,929.76	16,141.07	10,799.69	144.03	146.02	174.49	5,406.13	-166.57	873.98	729.01	144.97	6.029	
15,400.00	9,930.35	16,241.07	10,800.28	146.34	148.30	174.49	5,506.12	-165.68	873.98	726.86	147.12	5.941	
15,500.00	9,930.94	16,341.07	10,800.86	148.65	150.59	174.49	5,606.11	-164.79	873.98	724.70	149.28	5.855	
15,600.00	9,931.52	16,441.07	10,801.45	150.96	152.88	174.49	5,706.11	-163.90	873.99	722.54	151.45	5.771	
15,700.00	9,932.11	16,541.07	10,802.04	153.28	155.18	174.49	5,806.10	-163.01	873.99	720.37	153.62	5.689	
15,800.00	9,932.70	16,641.07	10,802.63	155.61	157.49	174.49	5,906.10	-162.12	873.99	718.19	155.80	5.610	
15,900.00	9,933.29	16,741.07	10,803.22	157.94	159.79	174.49	6,006.09	-161.23	873.99	716.01	157.98	5.532	
16,000.00	9,933.88	16,841.07	10,803.81	160.27	162.11	174.49	6,106.09	-160.34	873.99	713.82	160.17	5.457	
16,100.00	9,934.47	16,941.07	10,804.40	162.61	164.43	174.49	6,206.08	-159.45	873.99	711.63	162.36	5.383	
16,200.00	9,935.06	17,041.07	10,804.99	164.96	166.75	174.49	6,306.07	-158.56	873.99	709.43	164.56	5.311	
16,300.00	9,935.64	17,141.07	10,805.58	167.30	169.08	174.49	6,406.07	-157.67	873.99	707.23	166.76	5.241	
16,400.00	9,936.23	17,241.07	10,806.17	169.65	171.41	174.49	6,506.06	-156.78	873.99	705.03	168.96	5.173	
16,500.00	9,936.82	17,341.07	10,806.76	172.00	173.74	174.49	6,606.06	-155.89	873.99	702.82	171.17	5.106	
16,600.00	9,937.41	17,441.07	10,807.35	174.36	176.08	174.49	6,706.05	-155.00	874.00	700.61	173.39	5.041	
16,700.00	9,938.00	17,541.07	10,807.94	176.72	178.43	174.49	6,806.05	-154.11	874.00	698.39	175.61	4.977	
16,800.00	9,938.59	17,641.07	10,808.53	179.08	180.77	174.49	6,906.04	-153.22	874.00	696.17	177.83	4.915	
16,900.00	9,939.18	17,741.07	10,809.12	181.45	183.12	174.49	7,006.03	-152.33	874.00	693.94	180.05	4.854	
17,000.00	9,939.76	17,841.07	10,809.71	183.82	185.47	174.49	7,106.03	-151.45	874.00	691.72	182.28	4.795	
17,040.11	9,940.00	17,881.18	10,809.94	184.77	186.42	174.49	7,146.14	-151.09	874.00	690.82	183.18	4.771	

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Offset Design Section 32-T26S-R29E - Sidewinder #1H - Original Hole - Surveys Original Hole — **Offset Site Error:** 0.00 ft

Survey Program: 673-GYRO-NS, 6162-MWD — **Offset Well Error:** 0.00 ft

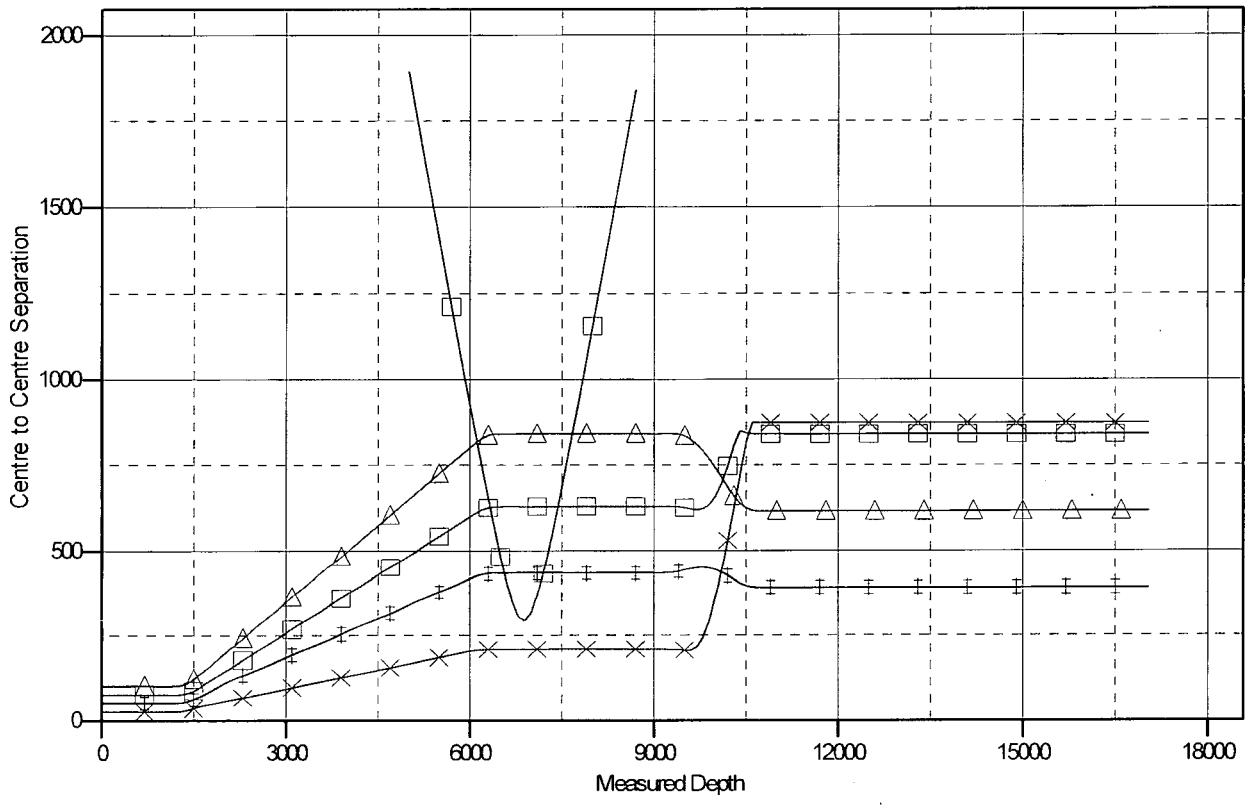
Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.00	4,983.24	10,084.43	6,876.17	27.56	128.89	134.17	92.32	-372.14	1,894.29	1,837.89	56.40	33.585	
5,100.00	5,082.77	10,080.69	6,876.06	28.14	128.76	133.57	92.35	-375.88	1,795.98	1,738.97	57.01	31.503	
5,200.00	5,182.30	10,076.81	6,875.95	28.72	128.62	132.94	92.37	-379.76	1,697.86	1,640.18	57.68	29.435	
5,300.00	5,281.83	10,072.79	6,875.84	29.30	128.48	132.28	92.41	-383.78	1,599.95	1,541.51	58.44	27.378	
5,400.00	5,381.36	10,068.62	6,875.73	29.89	128.33	131.60	92.44	-387.95	1,502.30	1,442.99	59.31	25.332	
5,500.00	5,480.89	10,064.28	6,875.62	30.47	128.18	130.88	92.48	-392.28	1,404.96	1,344.66	60.30	23.300	
5,600.00	5,580.41	10,059.78	6,875.51	31.05	128.02	130.13	92.52	-396.77	1,308.00	1,246.54	61.46	21.282	
5,700.00	5,679.94	10,055.11	6,875.41	31.64	127.85	129.34	92.57	-401.45	1,211.52	1,148.68	62.83	19.281	
5,800.00	5,779.47	10,051.78	6,875.33	32.22	127.73	128.78	92.61	-404.78	1,115.61	1,051.11	64.51	17.294	
5,900.00	5,879.00	10,045.22	6,875.20	32.81	127.50	127.67	92.69	-411.34	1,020.48	953.98	66.50	15.345	
6,000.00	5,978.53	10,038.71	6,875.08	33.39	127.27	126.55	92.77	-417.84	926.32	857.32	69.00	13.426	
6,100.00	6,078.08	10,032.54	6,874.96	33.97	127.05	124.01	92.86	-424.01	833.40	761.24	72.17	11.549	
6,200.00	6,177.83	10,028.35	6,874.88	34.54	126.90	120.34	92.93	-428.20	741.74	665.53	76.21	9.733	
6,300.00	6,277.72	10,026.40	6,874.84	35.08	126.83	117.28	92.96	-430.15	651.89	570.42	81.48	8.001	
6,400.00	6,377.70	10,026.68	6,874.84	35.60	126.84	114.94	92.96	-429.87	564.82	476.29	88.52	6.380	
6,500.00	6,477.70	10,028.49	6,874.88	36.09	126.91	-0.51	92.93	-428.07	482.29	384.00	98.29	4.907	
6,600.00	6,577.70	10,030.33	6,874.91	36.58	126.97	-0.15	92.90	-426.22	407.63	295.32	112.31	3.629	
6,700.00	6,677.70	10,032.17	6,874.95	37.06	127.04	0.21	92.87	-424.38	346.00	213.95	132.05	2.620	
6,800.00	6,777.70	10,033.99	6,874.99	37.55	127.10	0.56	92.84	-422.56	305.39	150.30	155.08	1.969	Level 3<2.00
6,882.31	6,860.01	10,035.48	6,875.02	37.95	127.16	0.85	92.82	-421.07	294.09	129.33	164.76	1.785	Level 3<2.00, CC, ES, SF
6,900.00	6,877.70	10,035.80	6,875.02	38.04	127.17	0.92	92.81	-420.75	294.62	130.35	164.27	1.794	Level 3<2.00
7,000.00	6,977.70	10,037.60	6,875.06	38.53	127.23	1.27	92.79	-418.95	316.76	169.25	147.51	2.147	
7,100.00	7,077.70	10,039.38	6,875.09	39.03	127.29	1.61	92.76	-417.17	365.87	240.63	125.24	2.921	
7,200.00	7,177.70	10,041.16	6,875.13	39.52	127.36	1.96	92.74	-415.40	432.87	324.58	108.30	3.997	
7,300.00	7,277.70	10,042.92	6,875.16	40.01	127.42	2.30	92.71	-413.64	510.77	414.08	96.69	5.282	
7,400.00	7,377.70	10,044.67	6,875.19	40.51	127.48	2.64	92.69	-411.89	595.31	506.51	88.80	6.704	
7,500.00	7,477.70	10,046.78	6,875.23	41.01	127.56	3.05	92.67	-409.77	684.03	600.69	83.33	8.208	
7,600.00	7,577.70	10,049.12	6,875.28	41.50	127.64	3.51	92.64	-407.44	775.49	696.02	79.47	9.759	
7,700.00	7,677.70	10,051.61	6,875.33	42.00	127.73	3.99	92.61	-404.95	868.83	792.14	76.68	11.330	
7,800.00	7,777.70	10,054.28	6,875.39	42.50	127.82	4.51	92.58	-402.28	963.50	888.84	74.65	12.906	
7,900.00	7,877.70	10,057.14	6,875.45	43.00	127.92	5.06	92.55	-399.42	1,059.14	985.98	73.16	14.477	
8,000.00	7,977.70	10,060.23	6,875.52	43.51	128.03	5.66	92.52	-396.33	1,155.52	1,083.46	72.06	16.035	
8,100.00	8,077.70	10,063.55	6,875.60	44.01	128.15	6.30	92.49	-393.01	1,252.46	1,181.19	71.27	17.575	
8,200.00	8,177.70	10,067.15	6,875.69	44.51	128.28	7.00	92.45	-389.41	1,349.84	1,279.15	70.69	19.094	
8,300.00	8,277.70	10,071.06	6,875.79	45.02	128.42	7.75	92.42	-385.50	1,447.57	1,377.27	70.30	20.591	
8,400.00	8,377.70	10,075.32	6,875.91	45.52	128.57	8.56	92.39	-381.24	1,545.58	1,475.53	70.05	22.064	
8,500.00	8,477.70	10,079.98	6,876.04	46.03	128.73	9.45	92.35	-376.58	1,643.83	1,573.92	69.91	23.512	
8,600.00	8,577.70	10,085.10	6,876.19	46.53	128.91	10.42	92.32	-371.47	1,742.27	1,672.39	69.87	24.935	
8,700.00	8,677.70	10,090.75	6,876.37	47.04	129.11	11.48	92.28	-365.82	1,840.86	1,770.95	69.91	26.331	

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to RKB=2866+26 @ 2892.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -104.33333334

Coordinates are relative to: Money Graham Fed Com Well No. 214 H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.18°

Ladder Plot



LEGEND

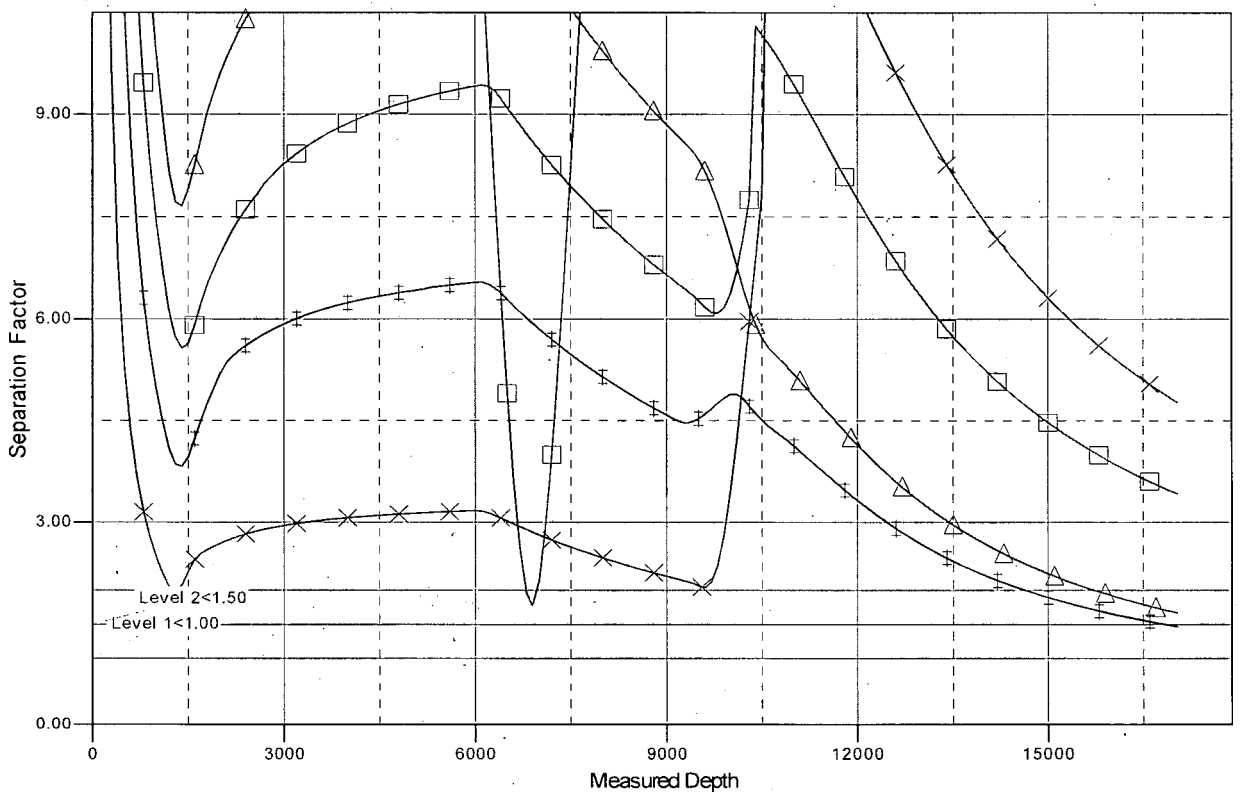
Money Graham Fed Com Well No. 246 H, Original Hole, rev0 V0
Money Graham Fed Com Well No. 204 H, Original Hole, rev0 V0
Money Graham Fed Com Well No. 218 H, Original Hole, rev0 V0
Sidewinder #1H, Original Hole, Survey vs Original Hole V0
Money Graham Fed Com Well No. 238 H, Original Hole, rev0 V0

Company:	Tap Rock Operating LLC	**Local Co-ordinate Reference:**	Well Money Graham Fed Com Well No. 214 H
Project:	Eddy County, New Mexico NAD83 NM east	**TVD Reference:**	RKB=2866+26 @ 2892.00ft
Reference Site:	Section 32-T26S-R29E	**MD Reference:**	RKB=2866+26 @ 2892.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Money Graham Fed Com Well No. 214 H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	3.00 sigma
Reference Wellbore	Original Hole	**Database:**	DB_Jul2216dt_v14
Reference Design:	rev0	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to RKB=2866+26 @ 2892.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -104.33333334

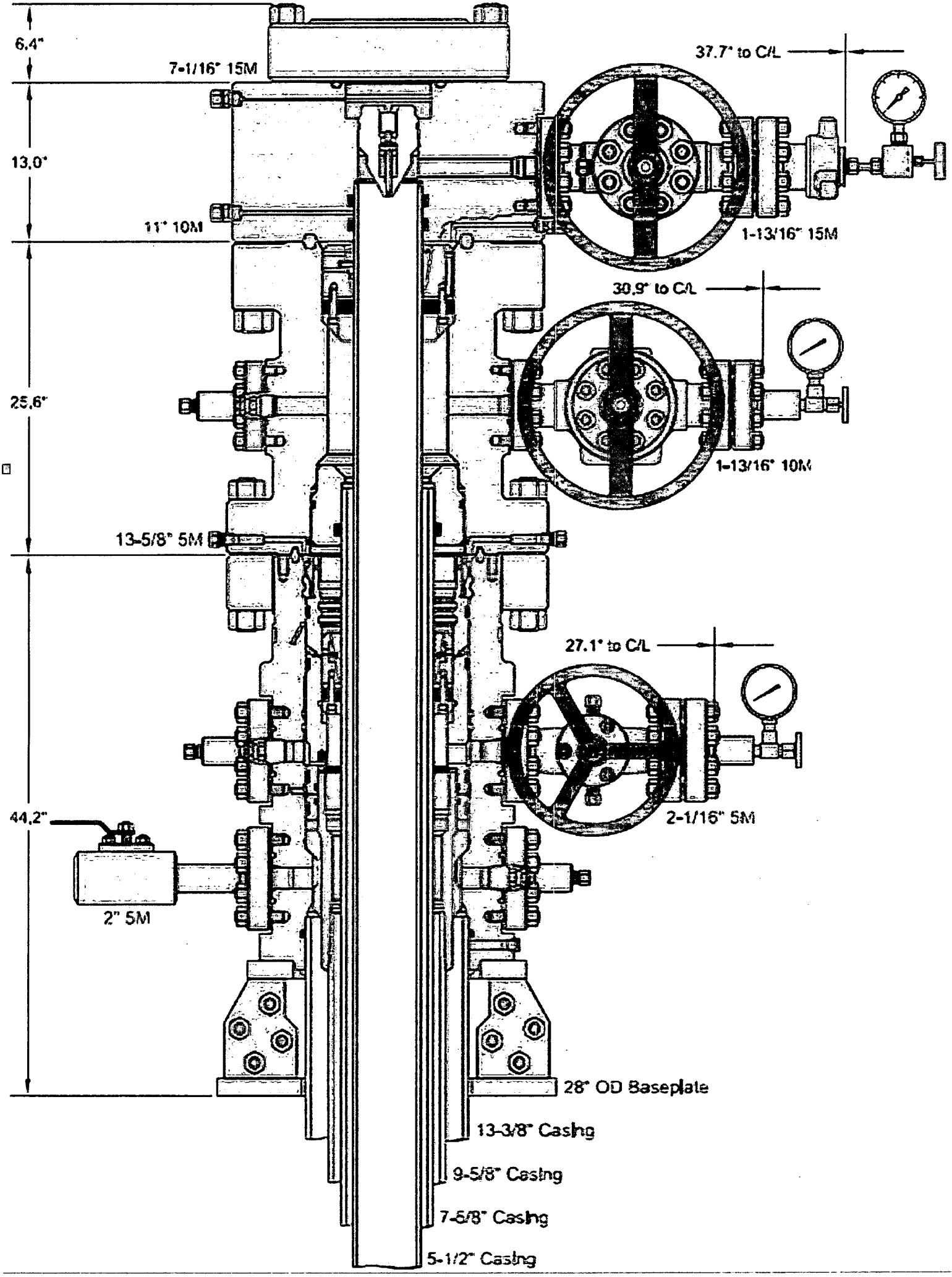
Coordinates are relative to: Money Graham Fed Com Well No. 214 H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.18°

Separation Factor Plot



LEGEND

Money Graham Fed Com Well No. 246 H, Original Hole, rev0 V0
Money Graham Fed Com Well No. 204 H, Original Hole, rev0 V0
Money Graham Fed Com Well No. 216 H, Original Hole, rev0 V0
Sidewinder #1H, Original Hole, Survey 5 Original Hole V0
Money Graham Fed Com Well No. 238 H, Original Hole, rev0 V0


6.4"
7-1/16" 15M
13.0"
11" 10M
25.6"
13-5/8" 5M
44.2"
2" 5M
37.7" to C/L
1-13/16" 15M
30.9" to C/L
1-13/16" 10M
27.1" to C/L
2-1/16" 5M
28" OD Baseplate
13-3/8" Casing
9-5/8" Casing
7-5/8" Casing
5-1/2" Casing

Tenaris

Casing and Tubing Performance Data

Choose pipe size, wall thickness and steel grade to view API connection options and performance data.

Size | Wall | Grade | Connection | Unit

Pipe Body Data

GEOMETRY					
Nominal OD	13.375 in	Wall Thickness	0.380 in	API Drift Diameter	12.459 in
Nominal Weight	54.50 lbs/ft	Nominal ID	12.615 in	Alternate Drift Diameter	n.a.
Plain End Weight	52.79 lbs/ft	Nominal Cross Section	15.513 sq in		
PERFORMANCE					
Steel Grade	J55	Minimum Yield	55,000 psi	Minimum Ultimate	75,000 psi
Body Yield Strength	853,000 lbs	Internal Yield Pressure	2,730 psi	Collapse Pressure	1,130 psi

Connection Data

GEOMETRY					
Regular OD	14.375 in	Threads Per Inch	5	Make-Up Thread Turns	1
PERFORMANCE					
Steel Grade	J55	Minimum Yield	55,000 psi	Minimum Ultimate	75,000 psi
Joint Strength	909,000 lbs	Internal Pressure Resistance	2,730 psi		

TenarisHydril Premium Connections

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Tenaris

Casing and Tubing Performance Data

Choose pipe size, wall thickness and steel grade to view API connection options and performance data.

Size | Wall | Grade | Connection | Unit

Pipe Body Data

GEOMETRY					
Nominal OD	9.625 in	Wall Thickness	0.395 in	API Drift Diameter	8.679 in
Nominal Weight	40.00 lbs/ft	Nominal ID	8.835 in	Alternate Drift Diameter	8.75 in
Plain End Weight	38.97 lbs/ft	Nominal Cross Section	11.454 sq in		
PERFORMANCE					
Steel Grade	J55	Minimum Yield	55,000 psi	Minimum Ultimate	75,000 psi
Body Yield Strength	630,000 lbs	Internal Yield Pressure	3,950 psi	Collapse Pressure	2,570 psi

Connection Data

GEOMETRY					
Regular OD	10.625 in	Threads Per Inch	5	Make-Up Thread Turns	1
PERFORMANCE					
Steel Grade	J55	Minimum Yield	55,000 psi	Minimum Ultimate	75,000 psi
Joint Strength	714,000 lbs	Internal Pressure Resistance	3,950 psi		

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Tenaris

Casing and Tubing Performance Data

PIPE BODY DATA

GEOMETRY

Outside Diameter	7.625 in	Wall Thickness	0.375 in	API Drift Diameter	6.750 in
Nominal Weight	29.70 lbs/ft	Nominal ID	6.875 in	Alternative Drift Diameter	n.a.
Plain End Weight	29.06 lbs/ft	Nominal cross section	8.541 in		

PERFORMANCE

Steel Grade	P110	Minimum Yield	110,000 psi	Minimum Ultimate	125,000 psi
Tension Yield	940,000 in	Internal Pressure Yield	9,470 psi	Collapse Pressure	5,350 psi
Available Seamless	Yes	Available Welded	Yes		

CONNECTION DATA

TYPE: BTC

GEOMETRY

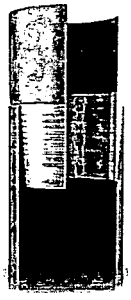
Coupling Reg OD	8.500 in	Threads per in	5	Thread turns make up	1

PERFORMANCE

Steel Grade	P110	Coupling Min Yield	110,000 psi	Coupling Min Ultimate	125,000 psi
Joint Strength	960,000 lbs			Internal Pressure Resistance	9,470 psi

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

Tenaris

Casing and Tubing Performance Data

PIPE BODY DATA

GEOMETRY

Outside Diameter	7.000 in	Wall Thickness	0.408 in	API Drift Diameter	6.059 in
Nominal Weight	29.00 lbs/ft	Nominal ID	6.184 in	Alternative Drift Diameter	6.125 in
Plain End Weight	28.75 lbs/ft	Nominal cross section	8.449 in		

PERFORMANCE

Steel Grade	P110	Minimum Yield	110,000 psi	Minimum Ultimate	125,000 psi
Tension Yield	929,000 in	Internal Pressure Yield	11,220 psi	Collapse Pressure	8,530 psi
Available Seamless	Yes	Available Welded	Yes		

CONNECTION DATA

TYPE: BTC

GEOMETRY

Coupling Reg OD	7.656 in	Threads per in	5	Thread turns make up	1

PERFORMANCE

Steel Grade	P110	Coupling Min Yield	110,000 psi	Coupling Min Ultimate	125,000 psi
Joint Strength	955,000 lbs			Internal Pressure Resistance	11,220 psi

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	Min. Wall Thickness	87.5%		Clear Filters
Wall Thickness	0.361 in	Drift	API Standard		Compare
Grade	P110	Type	Casing		Request Info
		Connection OD Option	REGULAR		

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

Tenaris

Casing and Tubing Performance Data

PIPE BODY DATA

GEOMETRY

Outside Diameter	4.500 in	Wall Thickness	0.290 in	API Drift Diameter	3.795 in
Nominal Weight	13.50 lbs/ft	Nominal ID	3.920 in	Alternative Drift Diameter	n.a.
Plain End Weight	13.05 lbs/ft	Nominal cross section	3.836 in		

PERFORMANCE

Steel Grade	P110	Minimum Yield	110,000 psi	Minimum Ultimate	125,000 psi
Tension Yield	422,000 in	Internal Pressure Yield	12,410 psi	Collapse Pressure	10,690 psi
Available Seamless	Yes	Available Welded	Yes		

CONNECTION DATA

TYPE: BTC

GEOMETRY

Coupling Reg OD	5.000 in	Threads per in	5	Thread turns make up	0.5

PERFORMANCE

Steel Grade	P110	Coupling Min Yield	110,000 psi	Coupling Min Ultimate	125,000 psi
Joint Strength	443,000 lbs			Internal Pressure Resistance	12,410 psi

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

Tap Rock Operating, LLC
MONEY GRAHAM FED COM #214H
SHL 250' FSL & 954' FEL, Sec. 32
BHL 200' FNL & 1254' FEL, Sec. 29
T. 26S., R. 29E., Eddy County, NM

DRILLING PROGRAM

1. ESTIMATED TOPS

Formation Name	MD'	TVD'	Bearing
Quaternary caliche	0	0	water/salt
Rustler anhydrite	507	507	salt
Salado salt (top salt)	682	682	salt
Base salt	2,396	2,392	salt
Bell Canyon	2,853	2,847	hydrocarbons
Brushy Canyon	4,852	4,836	hydrocarbons
Bone Spring Lime	6,448	6,426	hydrocarbons
1st Bone Spring Sand	7,373	7,351	hydrocarbons
2nd Bone Spring Sand	7,953	7,931	hydrocarbons
3rd Bone Spring Sand	9,195	9,173	hydrocarbons
(KOP	**9,350**	**9,327**	**hydrocarbons)**
3rd Bone Spring W Sand	9,454	9,431	hydrocarbons
Wolfcamp A	9,547	9,521	hydrocarbons
Wolfcamp A Y Sand	9,670	9,631	hydrocarbons
Wolfcamp A Fat **(Goal)**	9,828	9,752	hydrocarbons
TD	**17,040**	**9,940**	--

2. NOTABLE ZONES

Wolfcamp A Fat is the goal. Depth to water was not reported but OSE estimated ground water depth is 45'.

3. PRESSURE CONTROL

A 13,000' 10,000-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. The BOP will be utilized 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.

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 3,500 psi. The BOP will be tested in this manner after any breaks, nipple ups, or passage of allotted time.

Casing Test procedure:
Casing will be tested to .22 psi per foot of casing length or 1500 psi, whichever is greater, but not to exceed 70% of minimum internal yield.

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.

4. CASING & CEMENT

All casing will be API and new. See attached casing assumption worksheet.

Hole O. D.	Set MD'	Set TVD'	Casing O. D.	Weight (lb/ft)	Grade	Joint	Collapse	Burst	Tension
17.5"	0 - 580	0 - 580	13.375" surface	54.5	J-55	BTC	1.13	1.15	1.51
12.25"	0 - 2900	0 - 2893	9.625" inter. 1	40.0	J-55	BTC	1.13	1.15	1.51
8.75"	0 - 2700	0 – 2694	7.625" inter. 2 top	29.7	P-110	BTC	1.13	1.15	1.51
8.75"	2700 – 9200	2694 – 9178	7.625" inter. 2 bottom	29.7	P-110	W-513	1.13	1.15	1.51
6.75"	0 – 9000	0 – 8977	5.5" product. top	20.0	P-110	BTC	1.13	1.15	1.51
6.75"	9000 – 17040	8977 – 9940	5" product. bottom	18.0	P-110	W-521	1.13	1.15	1.51

Tap Rock requests a variance to run 7-5/8" BTC inside 9-5/8" BTC, Tap Rock is requesting a variance to be less than the 0.422" standoff regulation per Onshore Order No. 2.

Name	Type	Sacks	Yield	Cu. Ft.	Weight	Blend
Surface	Tail	584	1.38	765	14.8	Class C + 5% NaCl + LCM
TOC = GL		100% Excess			Centralizers per Onshore Order 2 III. B. 1f	
Intermediate 1	Lead	803	1.81	1453	13.5	Class C + bentonite + 1% $CaCl_2$ + 8% NaCl + LCM
	Tail	263	1.38	363	14.8	Class C + 5% NaCl + LCM
TOC = GL		100% Excess			2 on btm jt, 1 on 2nd jt, 1 every 4th jt to GL	
Intermediate 2	Lead	315	2.35	740	11.5	TXI + fluid loss + dispersant + retarder + LCM
	Tail	180	1.39	250	13.2	TXI + fluid loss + dispersant + retarder + LCM
TOC = 1900		35% Excess			2 on btm jt, 1 on 2nd jt, 1 every other jt to top of tail cement (500' above TOC)	
Production	Tail	950	1.17	1112	15.8	Class H + fluid loss + dispersant + retarder + LCM
TOC = 7960'		10% Excess			2 on btm jt, 1 on 2nd jt, 1 every third jt to top of curve	

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.

Casing	Hole Size	Type	Interval (MD)	lb/gal	Viscosity	Fluid Loss
Surface	17.5"	FW spud mud	0-580	8.3	28	NC
Inter. 1	12.25"	Brine water	580 - 2900	10.0	30-32	NC
Inter. 2	8.75"	FW & cut brine	2900 - 9200	9.0	30-32	NC
Production	6.75"	OBM	9200 – 17040	12.50	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 intermediate casing 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 pressures or temperatures are expected. In accordance with Onshore Order 6, Tap Rock Operating does not anticipate that there will be enough H_2S from the surface to the Wolfcamp formations to meet the BLM's minimum requirements for the submission of an "H_2S Drilling Operation Plan" or "Public Protection Plan" for the drilling and completion of this well. Since we have an H_2S safety package on all wells, attached is an "H_2S Drilling Operations Plan". Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used

Estimated BHP: 6,000 psi
Estimated BHT: 140°

8. OTHER INFORMATION

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.

Money Graham 208H Casing Variance Request

Tap Rock requests a variance to run 7-5/8" BTC inside 9-5/8" BTC, Tap Rock is requesting a variance to be less than the 0.422" standoff regulation per Onshore Order No. 2.

APD ID: 10400037882 **Submission Date:** 01/24/2019

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

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:

Money_214H_Fee_Fee_Fed_20190111145211.docx

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? NO

Section 3 - Location of Existing Wells

Existing Wells Map? NO

Attach Well map:

Money_214H_Fee_Fee_Fed_20190111145234.docx

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

Existing Wells description: Fee Fee Fed - SUPO not required

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

Submit or defer a Proposed Production Facilities plan? DEFER

Estimated Production Facilities description: Fee Fee Fed - SUPO not required

Section 5 - Location and Types of Water Supply

Water Source Table

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

Water source type: OTHER

Describe type:

Source longitude:

Source latitude:

Source datum:

Water source permit type: PRIVATE CONTRACT

Source land ownership: OTHER

Describe land ownership: Fee Fee Fed - SUPO not r

Water source transport method: TRUCKING

Source transportation land ownership: OTHER

Describe transportation land ownership: Fee Fee F

Water source volume (barrels): 0

Source volume (acre-feet): 0

Source volume (gal): 0

Water source and transportation map:

Money_214H_Fee_Fee_Fed_20190117155800.docx

Water source comments:

New water well? NO

New Water Well Info

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

Well target aquifer:

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

Aquifer comments:

Aquifer documentation:

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

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

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

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: NO

Construction Materials description: Fee Fee Fed - SUPO not required

Construction Materials source location attachment:

Section 7 - Methods for Handling Waste

Waste type: DRILLING

Waste content description: Fee Fee Fed - SUPO not required

Amount of waste: 1000 barrels

Waste disposal frequency : Daily

Safe containment description: Fee Fee Fed - SUPO not required

Safe containmant attachment:

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

Disposal type description:

Disposal location description: Fee Fee Fed - SUPO not required

Reserve Pit

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit?

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

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

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

Reserve pit liner

Reserve pit liner specifications and installation description

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? YES

Description of cuttings location Fee Fee Fed - SUPO not required

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

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

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

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: NO

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

Money_214H_Well_Site_Layout_20190430142010.pdf

Comments:

Section 10 - Plans for Surface Reclamation

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

Multiple Well Pad Number: 1

Recontouring attachment:

Drainage/Erosion control construction: Fee Fee Fed - SUPO not required

Drainage/Erosion control reclamation: Fee Fee Fed - SUPO not required

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

Wellpad long term disturbance (acres): 0

Wellpad short term disturbance (acres): 0

Access road long term disturbance (acres): 0

Access road short term disturbance (acres): 0

Pipeline long term disturbance (acres): 0

Pipeline short term disturbance (acres): 0

Other long term disturbance (acres): 0

Other short term disturbance (acres): 0

Total long term disturbance: 0

Total short term disturbance: 0

Disturbance Comments:

Reconstruction method: Fee Fee Fed - SUPO not required

Topsoil redistribution: Fee Fee Fed - SUPO not required

Soil treatment: Fee Fee Fed - SUPO not required

Existing Vegetation at the well pad:

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road:

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline:

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances:

Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

Seed Management

Seed Table

Seed type:

Seed source:

Seed name:

Source name:

Source address:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Proposed seeding season:

Seed Summary

Seed Type	Pounds/Acre

Total pounds/Acre:

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name:

Last Name:

Phone:

Email:

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: Fee Fee Fed - SUPO not required

Weed treatment plan attachment:

Monitoring plan description: Fee Fee Fed - SUPO not required

Monitoring plan attachment:

Success standards: Fee Fee Fed - SUPO not required

Pit closure description: Fee Fee Fed - SUPO not required

Pit closure attachment:

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Surface Owner: PRIVATE OWNERSHIP

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

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

Section 12 - Other Information

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

ROW Type(s):

ROW Applications

SUPO Additional Information: Fee Fee Fed - SUPO not required

Use a previously conducted onsite? NO

Previous Onsite information:

Other SUPO Attachment

Tap Rock Operating Money Graham Fed Com 214H

Fee Fee Fed – SUPO not required

Tap Rock Operating Money Graham Fed Com 214H

Fee Fee Fed – SUPO not required

Tap Rock Operating Money Graham Fed Com 214H

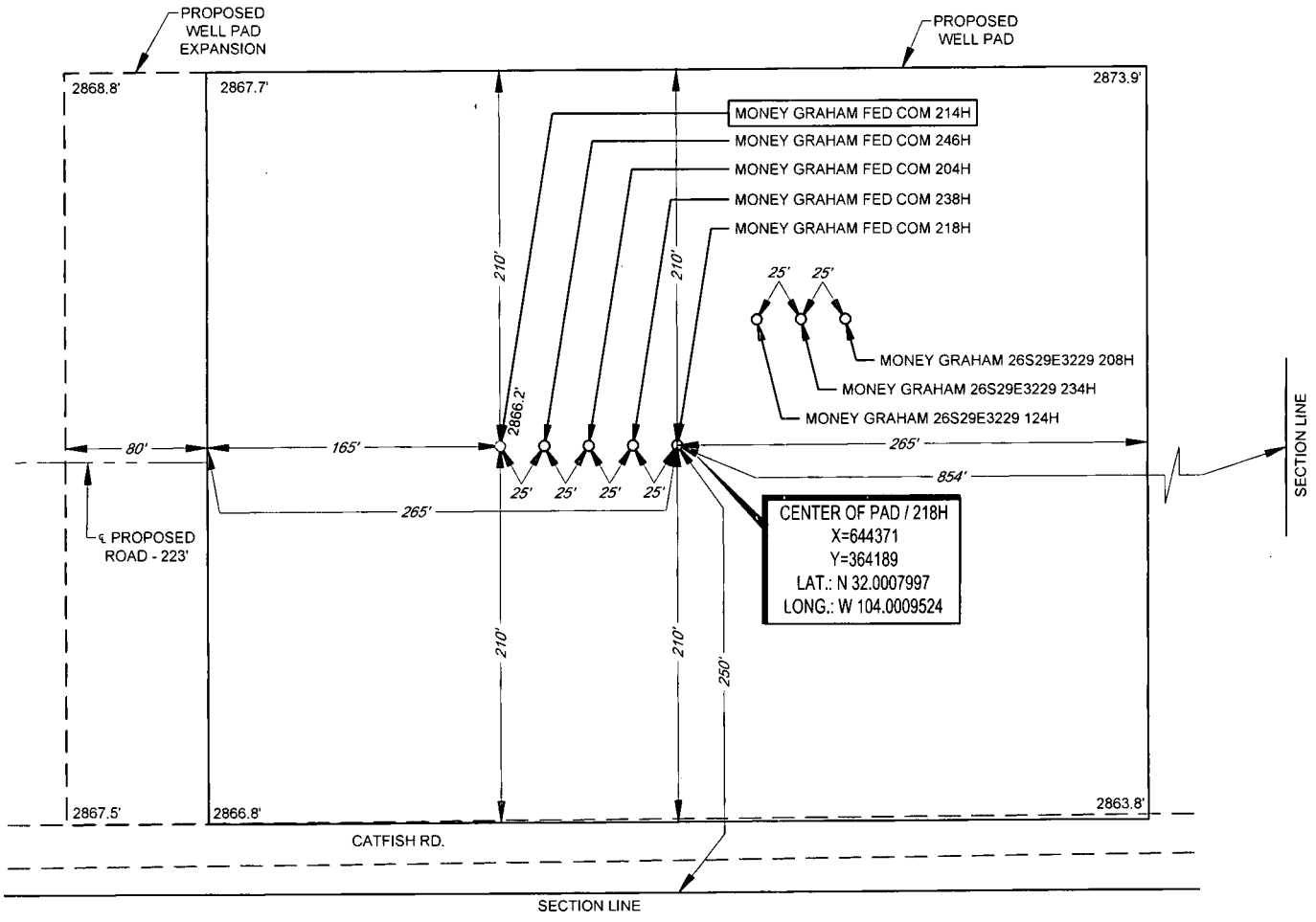
Fee Fee Fed – SUPO not required

EXHIBIT 2B

TAP ROCK

SECTION 32, TOWNSHIP 26-S, RANGE 29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

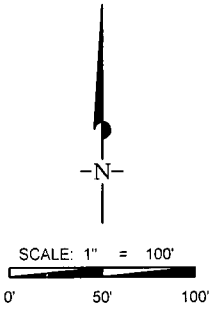
DETAIL VIEW
SCALE: 1" = 100'



LEASE NAME & WELL NO.: MONEY GRAHAM FED COM 214H

214H LATITUDE N 32.0007994 214H LONGITUDE W 104.0012750

CENTER OF PAD IS 250' FSL & 854' FEL



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
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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"

AFMSS

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

PWD Data Report

08/12/2019

APD ID: 10400037882 **Submission Date:** 01/24/2019

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

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

Section 1 - General

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

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

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

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

Lined pit Monitor description:

Lined pit Monitor attachment:

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

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

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

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

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

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

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

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

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

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

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

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

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

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

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location:

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

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location:

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

Other PWD discharge volume (bbl/day):

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM **Well Number:** 214H

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

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

Bond Info Data Report

08/12/2019

APD ID: 10400037882

Submission Date: 01/24/2019

Operator Name: TAP ROCK OPERATING LLC

Well Name: MONEY GRAHAM FED COM

Well Number: 214H

Well Type: CONVENTIONAL GAS WELL

Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB001443

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: